

M20 Junction Assessments

Technical Note summarising the Results

September 2016

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1 Introduction

1.1 Background

Mott MacDonald was commissioned by Maidstone Borough Council (MBC) to consider the capacity at four junctions along the M20, Junctions 5 to 8. The key driver for this study was Highways England's (HE) holding objection expressed in its Regulation 19 representation to the emerging Maidstone Borough Local Plan, due to the lack of information provided in terms of potential impacts on these junctions of proposed Local Plan development. These matters were clarified in a meeting attended by MBC, HE and Kent County Council (KCC) on 12 April 2016. Our Proposal responded directly to the brief received from MBC with the tasks set out below.

1.2 Scope of Work

MBC's brief set out tasks as below which were detailed further in our proposal. The scope of work below refers to both the brief, our proposal as well as the tasks that were carried out within this report.

1. Approach

Our approach set out two potential approaches, a modelling approach and a first principles approach. In the first instance, these approaches had to be considered in more detail as per below with the aim to get HE's approval.

- a) A meeting was held with HE, Kent County Council (KCC), Amey and MBC on 18 May 2016 during which the potential approaches were discussed. HE suggested that a note containing a matrix setting out the benefits / disbenefits of each approach should be produced.
- b) Subsequently, discussions were held with Amey (and KCC) as well as Mott MacDonald's strategic modelling specialist with the aim to agree a joint MBC / KCC view with regards to the model appropriateness and the likelihood of HE accepting any model data.
- c) Following this, Amey compared the model data with the most recent survey data for Junctions 6 and 7, and updated their note which they had previously issued.
- d) The updated note revealed an insufficiently good match between model data and count data.
- e) Amey considered it unlikely that HE would accept the use of the model data for detailed junction assessments. We concurred with this view.
- f) The "first principles approach" was therefore progressed and forms the basis for the assessments undertaken and reported in this document.

2. Flows for First Principles Approach:

The First Principles Approach required the following tasks:

- a) Discussions and agreement with MBC as to how the proposed housing numbers would impact on the four junctions. In addition to MBC's own housing and employment numbers, this also required discussions and agreement on a working assumption with Tonbridge and Malling Borough Council (T&M) to establish their housing and employment numbers. Furthermore, HE requested that external impacts, such as

- development along the A249, would have to be taken into consideration. The Swale Local Plan was therefore interrogated and the likely numbers were added.
- b) The development numbers, both housing and employment (jobs), likely to impact each of the four junctions were calculated. The Local Plan numbers were reviewed and categorised as follows: completed / built, consented / committed / approved (i.e. could go ahead without the Local Plan), non-consented / non-committed. The developments already completed were removed. The other two categories were split into Scenario 1 (consented) and Scenario 2 (consented plus non-consented, i.e. all development).
 - c) The use of TEMPro was discussed with MBC. The following approach was taken: background growth was calculated by removing all future growth in TEMPro. The development numbers in Scenario 1 were added to calculate growth factors for Scenario 1. This was repeated for Scenario 2, taking into consideration the development numbers for Maidstone, Tonbridge and Malling, and Swale in both scenarios.
 - d) Base traffic flow data was obtained based on turning counts. Existing flow diagrams and 2031 base flow diagrams adding TEMPro background growth were produced for each junction.
 - e) 'With development' flows for each junction were calculated for each scenario based on the growth factors as described in c) above. 2031 with development flow diagrams were produced for each junction.
 - f) Modelled flow changes due to the South East Maidstone Strategic Link (SEMSL) were obtained from Amey and the percentage difference with SEMSL was calculated by comparing the 2031 with all development flows to the scenario with the same flows but the Link introduced into the network.

3. Junction Models:

The following scope of work was required to establish the junction models:

- a) All recent assessment work carried out at any of the four junctions was reviewed.
- b) New models for each junction reflecting the existing layout of each junction were established and compared to existing models. Presently all junctions are roundabouts without signal control, therefore all base models were ARCADY models.
- c) We tried to obtain 'as built' drawings to more accurately reflect existing geometries. Contact with KCC was made but no drawings were available.

4. Junction Assessments (Existing Junction Layouts) and Review of Assessment Results:

The following scope of work was required:

- a) Each junction was assessed for its existing layout based on the flows established in item 2 above. The following scenarios were tested for both AM and PM peak hours:
 - a. 2016 Existing Situation
 - b. 2031 Future Situation including TEMPro background growth only
 - c. 2031 With Consented Development (Scenario 1)
 - d. 2031 With Consented and Non-Consented (ALL) Development (Scenario 2)
- b) The results for each junction were reviewed and the impact of the addition of Non-Committed / Non-Consented Development, equating to the Local Plan impact, was considered.
- c) Consideration was given as to whether mitigation would be required.

5. Mitigation

The following scope of work was required:

- a) Any previous mitigation schemes were considered in detail and reviewed whether they could address any capacity restraints identified in point 4 above.
- b) Where no existing mitigation existed, alternative mitigation options were considered.
- c) Preliminary sketch drawings were produced for all junctions.
- d) Based on the sketches, junction models were produced and the following scenarios were assessed:
 - a. 2031 With Committed / Consented and Non-Committed / Non-Consented (ALL) Development (Scenario 2)
 - b. 2031 With ALL Development and With SEMSL
- e) The results for each junctions were reviewed and Scenario 2 with Mitigation was compared against Scenario 1 without Mitigation.

6. Reporting

- a) This technical note was produced summarising all the above steps and outcomes. The note contains modelling outputs for existing layout and mitigation proposals as well as the preliminary sketches and any other supporting information.

1.3 Report Structure

This Technical Note is structured as follows:

- **Chapter 2** contains the traffic flows including 2016 Base Flows, 2031 Future Base Flows, With Development Flows for Scenario 1 and Scenario 2, as well as SEMSL Flows.
- In **Chapter 3**, the existing layout is reviewed, the ARCADY assessment results are presented and capacity issues are identified.
- **Chapter 4** contains the junction layout improvements proposed the impact of the development.
- The junction layout solutions are reviewed in **Chapter 5** including LinSig and ARCADY assessment results for the improvements proposed.
- **Chapter 6** looks at the merge assessment.
- **Chapter 7** summarises the work that has been undertaken.

2 Traffic Flows

2.1 Existing Traffic Flows

The existing traffic flows for each junction are based on the following reports and surveys:

- Junction 5: M20 Maidstone New Growth Point Study, Parsons Brinckerhoff Ltd., July 2007
- Junction 6: Traffic surveys included in this report which were undertaken on Thursday 9th June 2016 from 07:00-19:00 (**Appendix A**)
- Junction 7: K&M Traffic Surveys, May 2016, provided to us by dha transport
- Junction 8: Flows obtained from the 'Waterside Park M20 Junction 8, Maidstone' Transport Assessment, dha transport, September 2013.

The 2006 Base Flows for Junction 5 were uplifted to 2016 Base Flows using TEMPro. Version 6.2 (with planning dataset 62 and NTM dataset AF09) was used to update the flows to 2011 with Version 7.0 (with planning dataset 70 and NTM dataset AF15) used from 2011 to the 2016 base year as per guidance (**Table 1** and **Table 2**). The new TEMPro version 7.0 which was published in July 2016 does not contain data further back than 2011 with the guidance setting out how to deal with previous years. The growth rates for this junction were adjusted using the National Transport Model (NTM) for rural motorway in Tonbridge and Malling in accordance with the junction's geographical location.

The uplifted turning movement data was compared with 2014 link flow data for TRADS and published 2014 turning movement data collected in support of planning application 15/509962/OUT (Land at Fant Farm). The uplifted data compares well with these recent datasets and is therefore considered to be a reasonable reflection of existing traffic conditions at Junction 5.

Table 1: TEMPro Growth Rates for Tonbridge and Malling, 2006-2011

Time Period	Factor
AM Peak	1.046
PM Peak	1.051

Table 2: TEMPro Growth Rates for Tonbridge and Malling, 2011-2016

Time Period	Factor
AM Peak	1.120
PM Peak	1.122

The 2013 Base Flows for Junction 8 were uplifted to 2016 Base Flows using TEMPro (version 7 with planning dataset 70 and NTM dataset AF15), as shown in **Table 3**. The growth rates were adjusted using the National Transport Model (NTM) for rural motorway in Maidstone in accordance with the junction's geographical location.

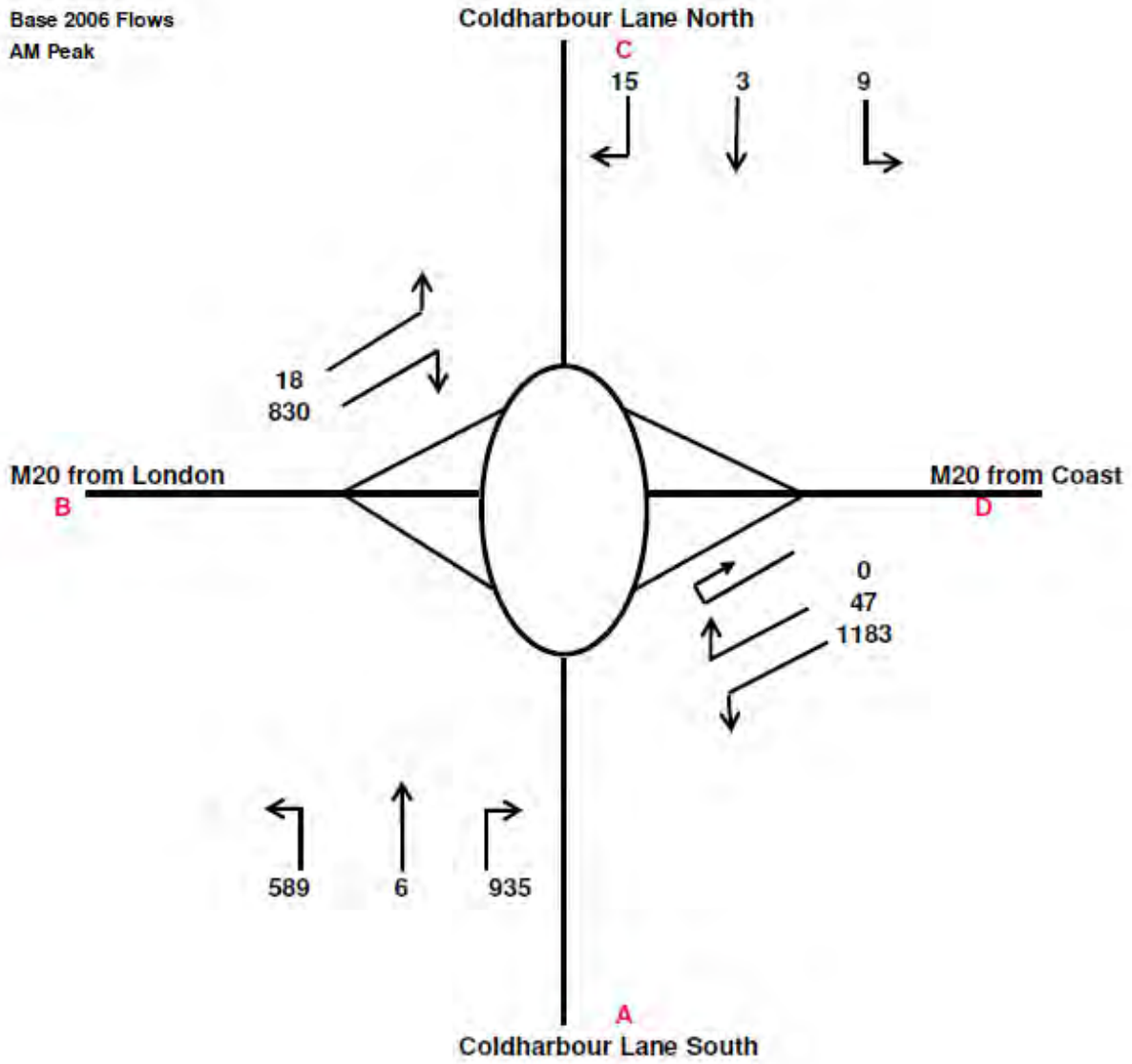
Table 3: TEMPro Growth Rates for Maidstone, 2013-2016

Time Period	Factor
AM Peak	1.062
PM Peak	1.062

Base flow diagrams for Junctions 5-8 are presented below in **Figure 1** to **Figure 12**.

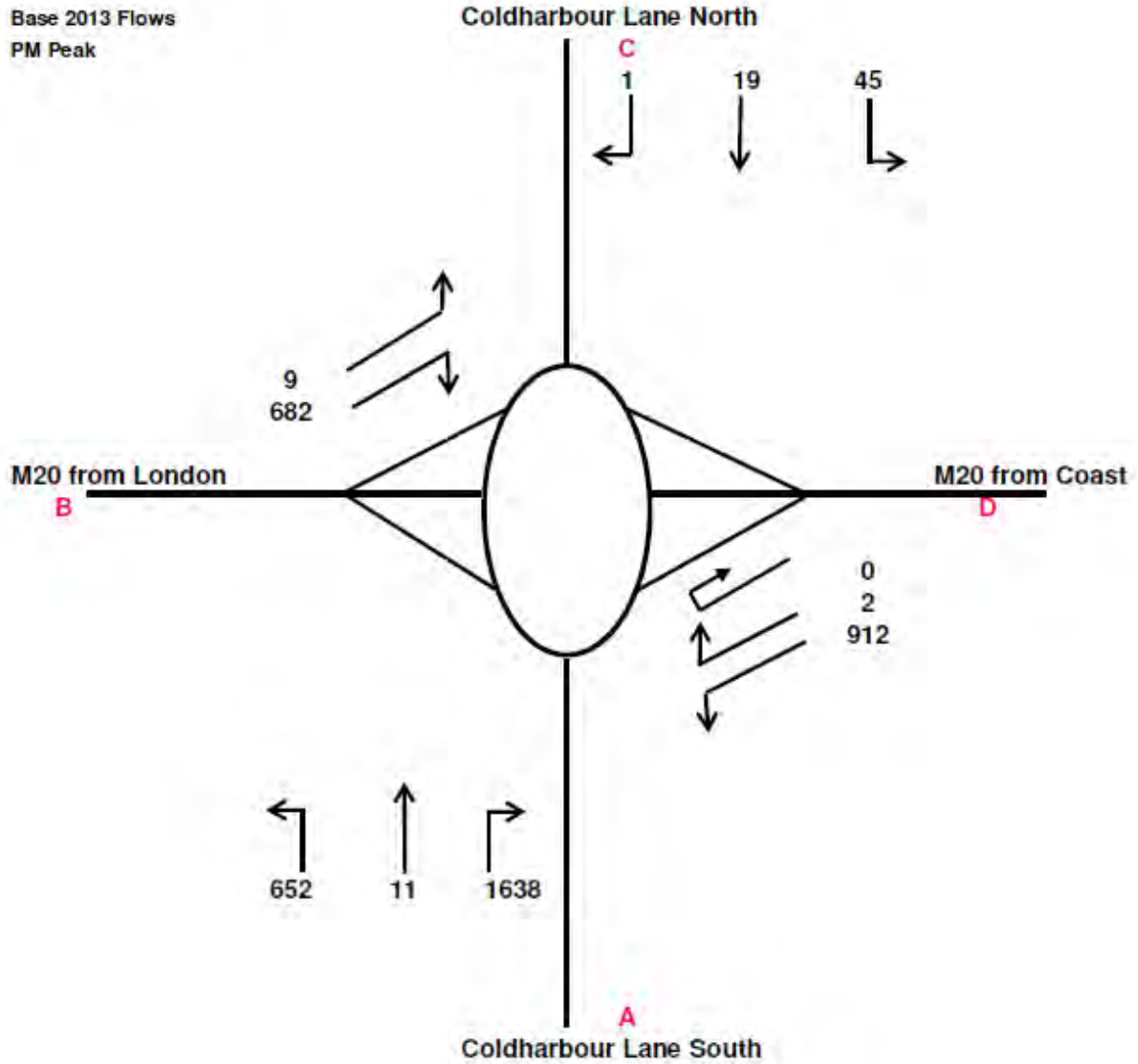
Junction 5

Figure 1: J5 Base 2006 Flows – AM Peak



Source: M20 Maidstone New Growth Point Study, Parsons Brinckerhoff Ltd., July 2007

Figure 2: J5 Base 2006 Flows – PM Peak



Source: M20 Maidstone New Growth Point Study, Parsons Brinckerhoff Ltd., July 2007

Figure 3: J5 Base 2016 Flows– AM Peak

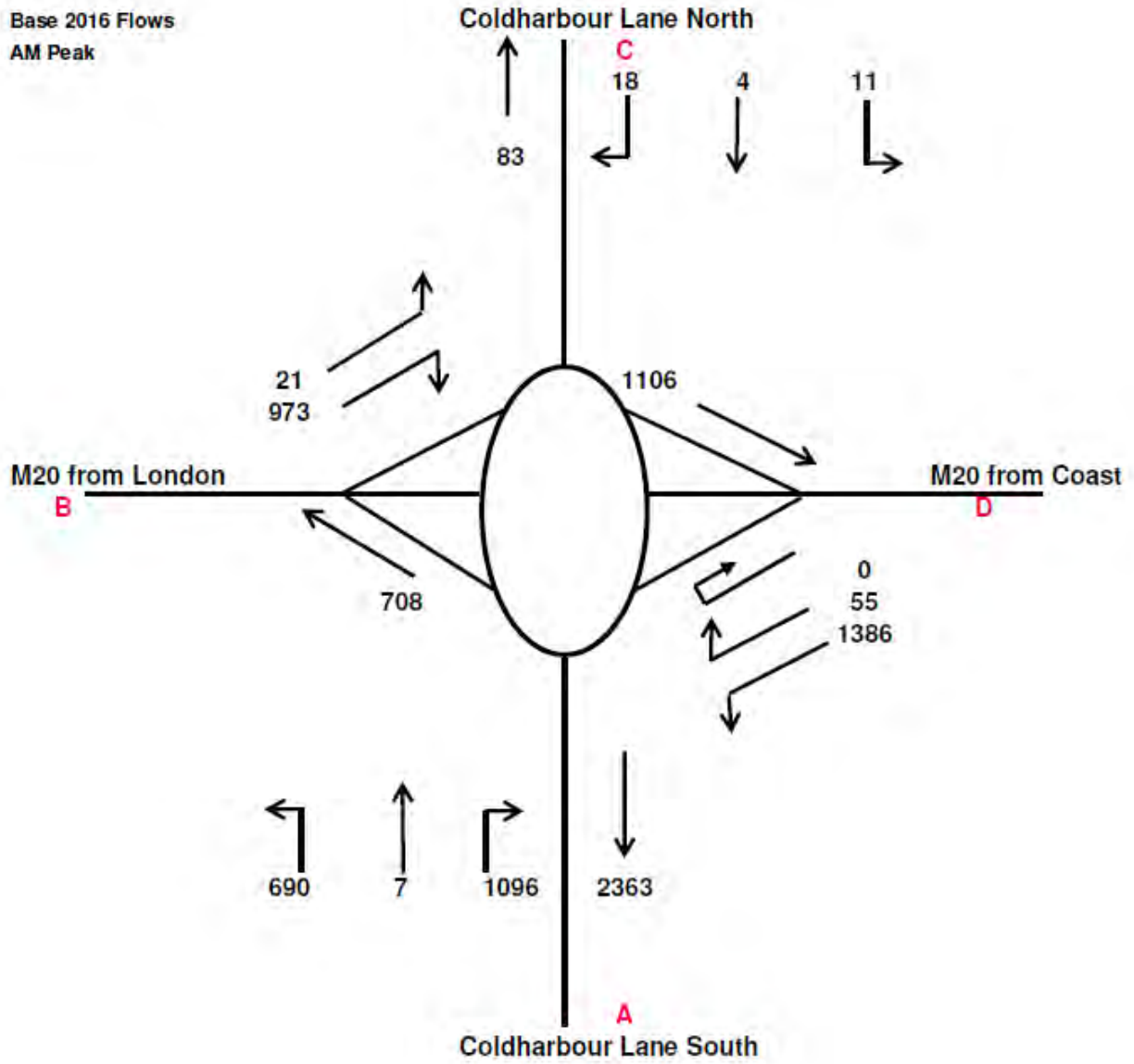
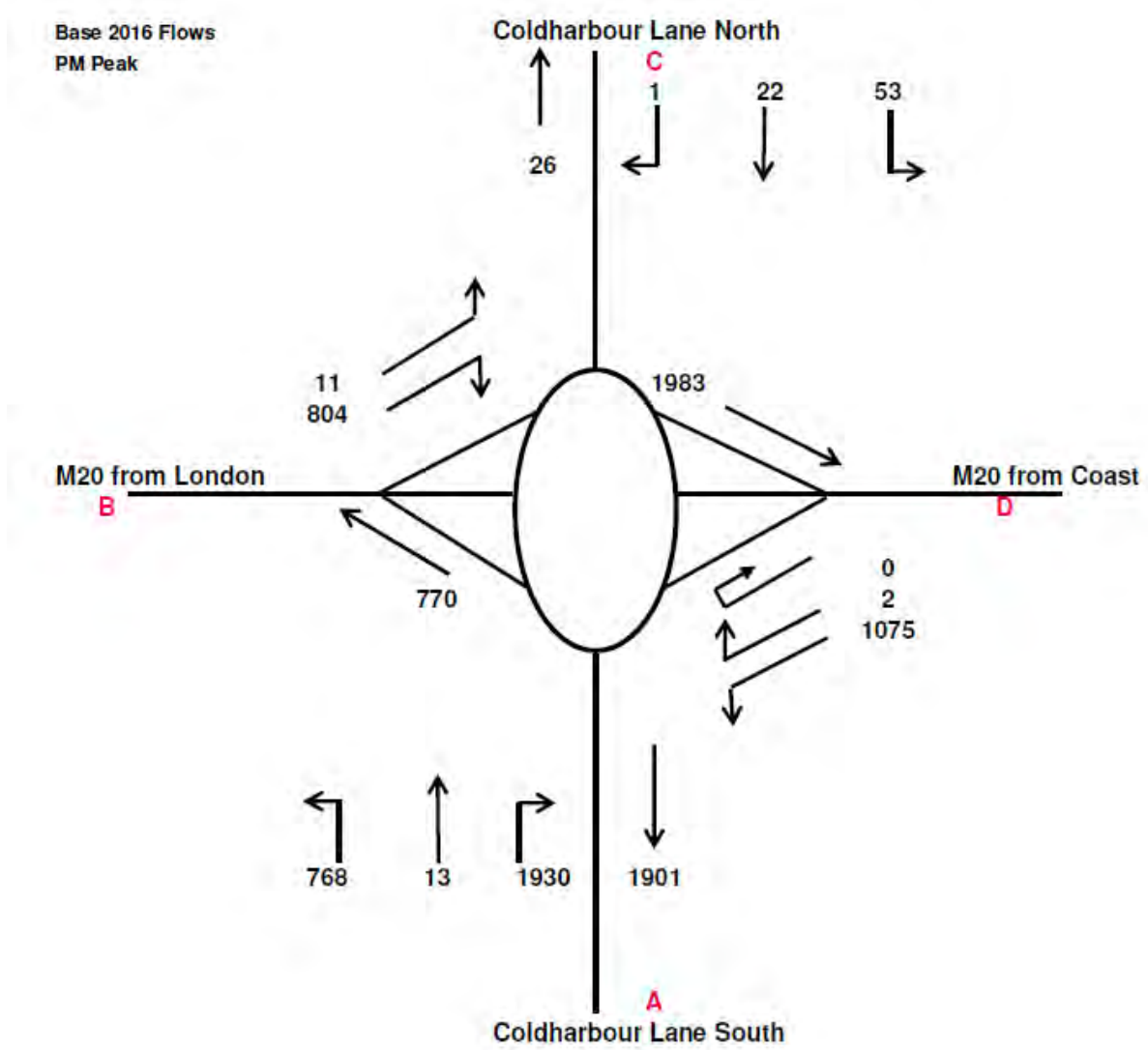


Figure 4: J5 Base 2016 Flows – PM Peak



Junction 6

Figure 5: J6 Base 2016 Flows – AM Peak

Base 2016 Flows
AM Peak

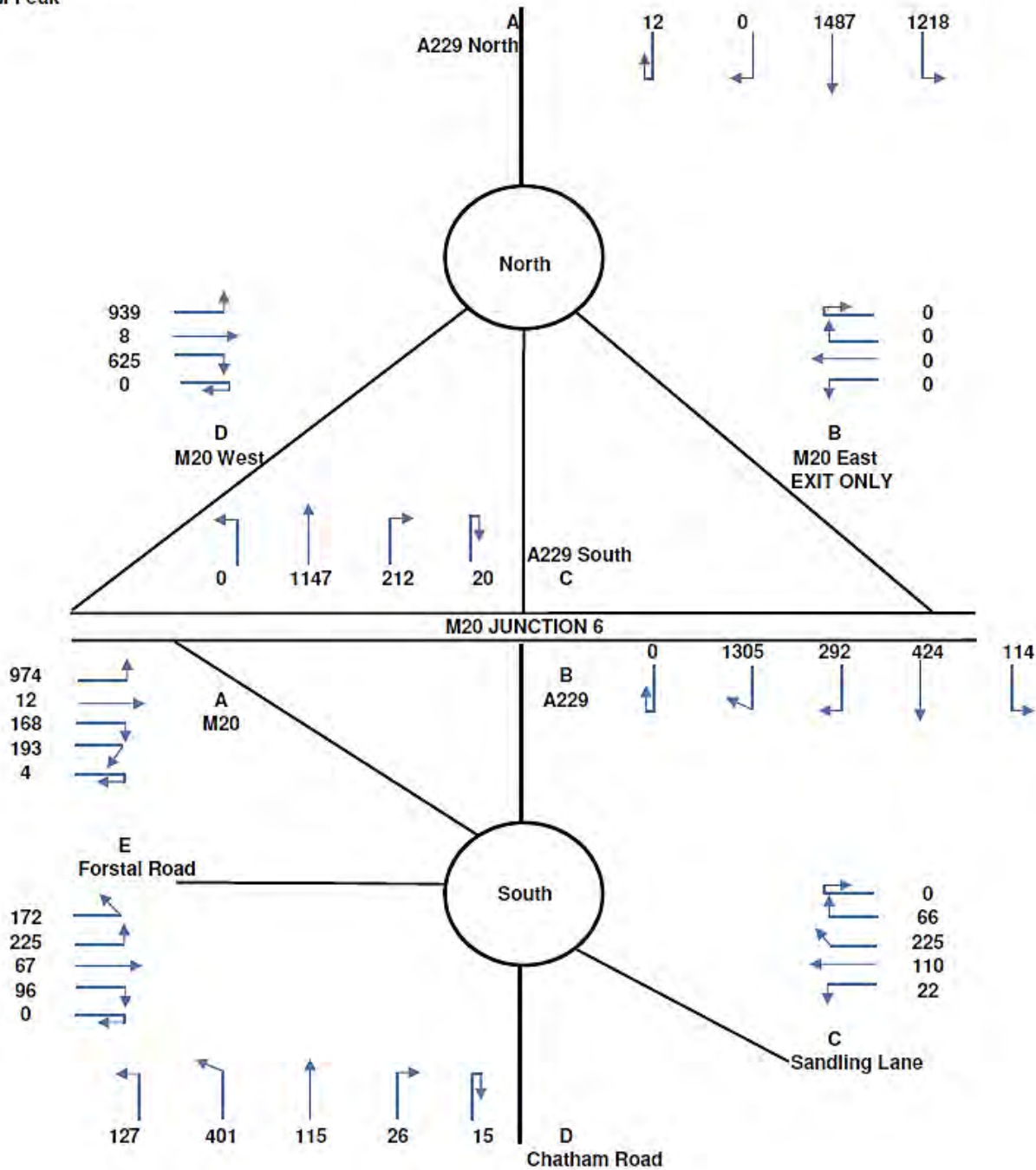
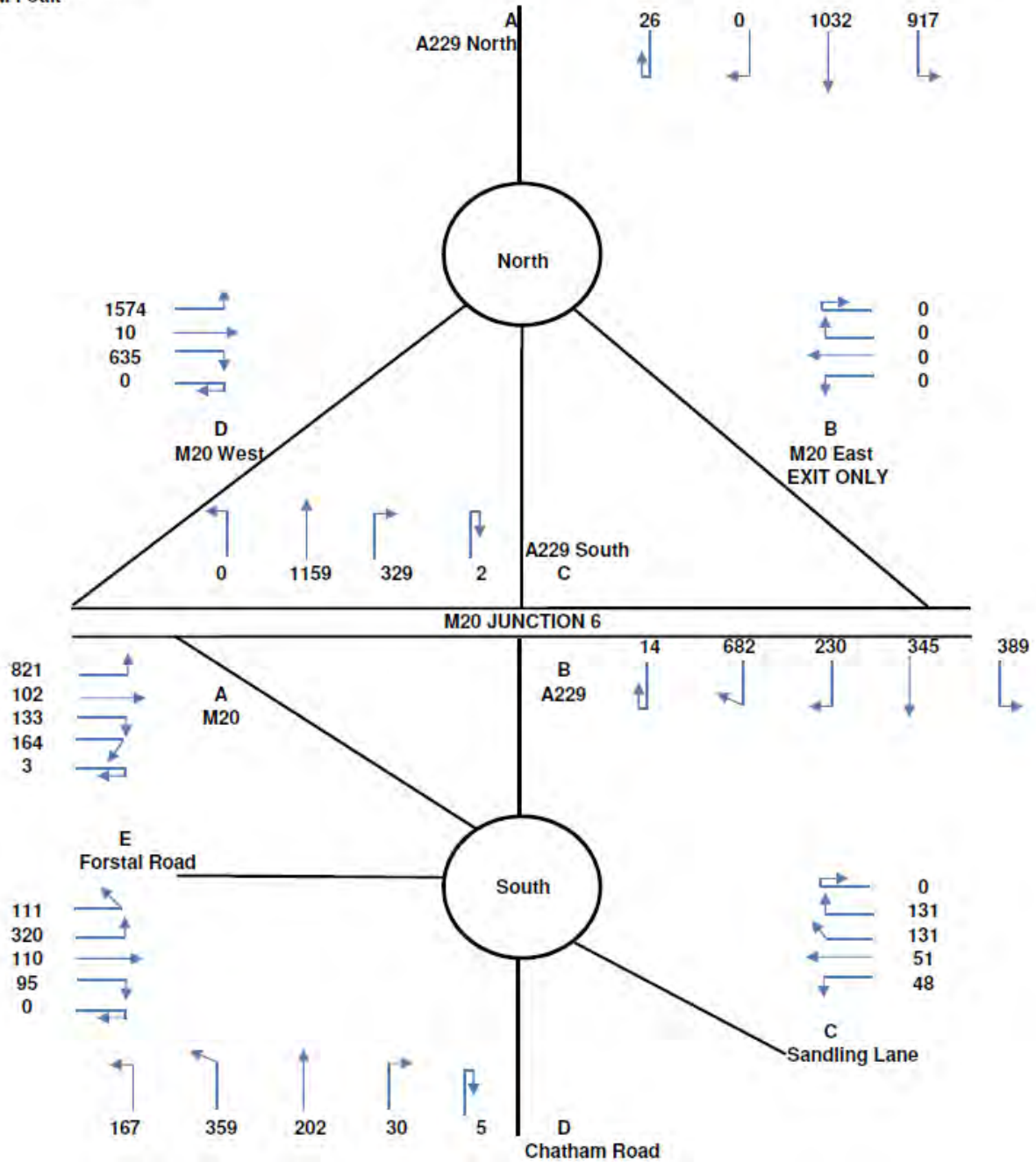


Figure 6: J6 Base 2016 Flows – PM Peak

Base 2016 Flows
PM Peak



It should be noted that the PCU conversion factors were amended in line with the other classified categories assigned for Junctions 5, 7 and 8. For these junctions, vehicles specified as a car or LGV were recorded under the same category 'car' and therefore assigned the same factor value (1.0). For Junction 6 they were recorded as two separate categories and although originally assigned different factor values (1.0 and 1.5 respectively) this was adjusted in line with the other junctions and both categories were assigned a value of 1.0.

Junction 7

Figure 7: J7 Base 2016 Flows – AM Peak

Base 2016 Flows
AM Peak

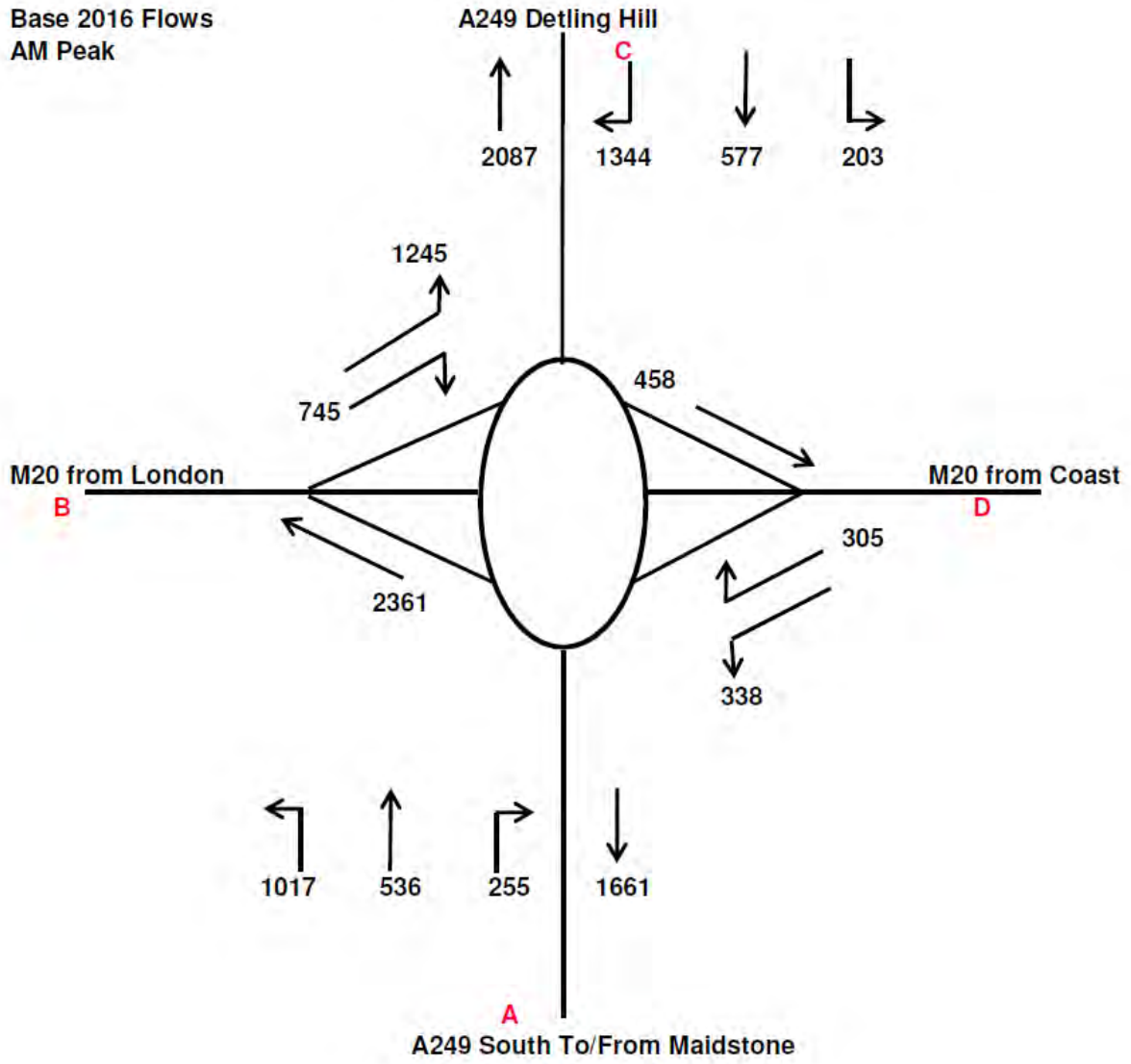
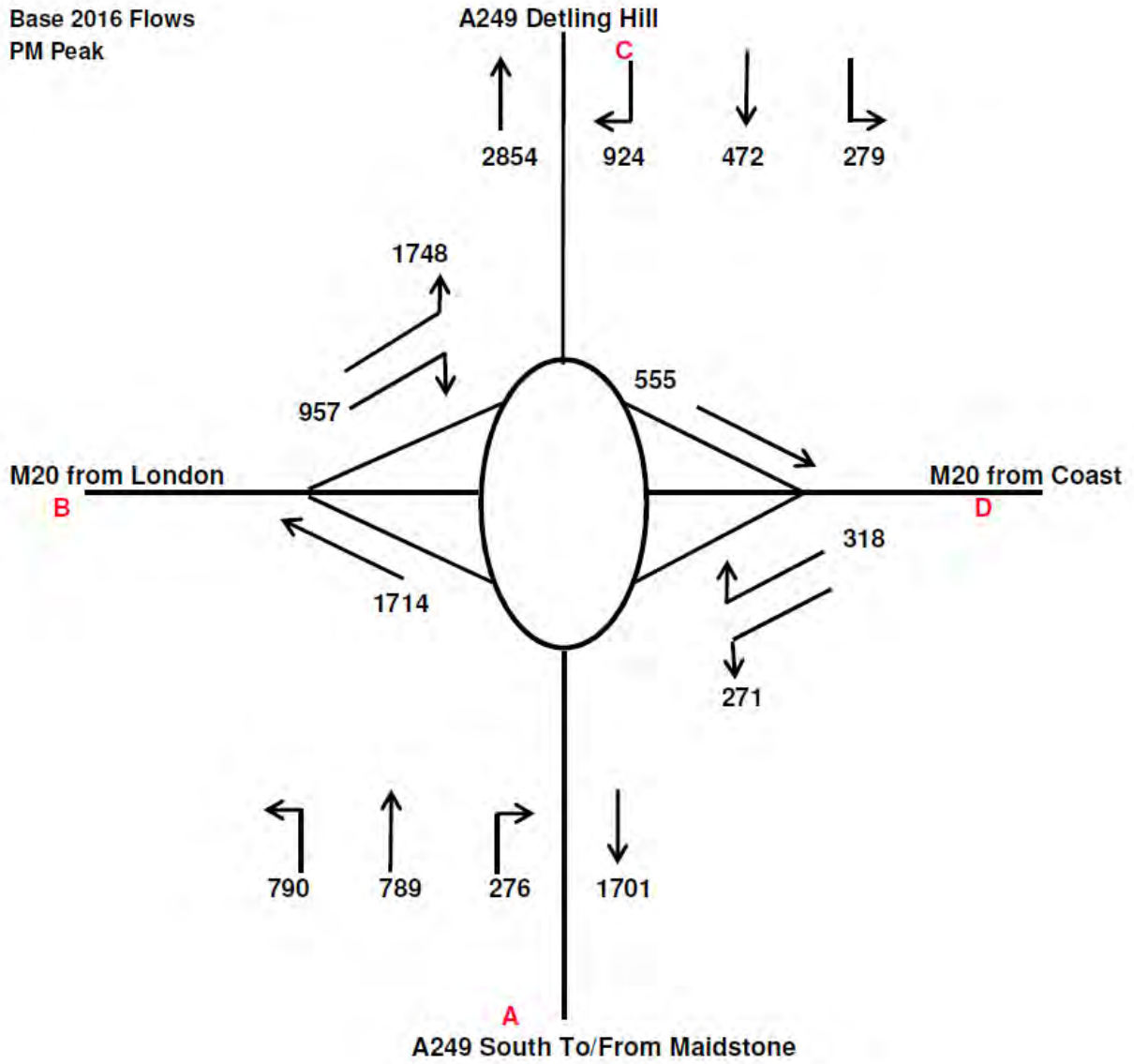


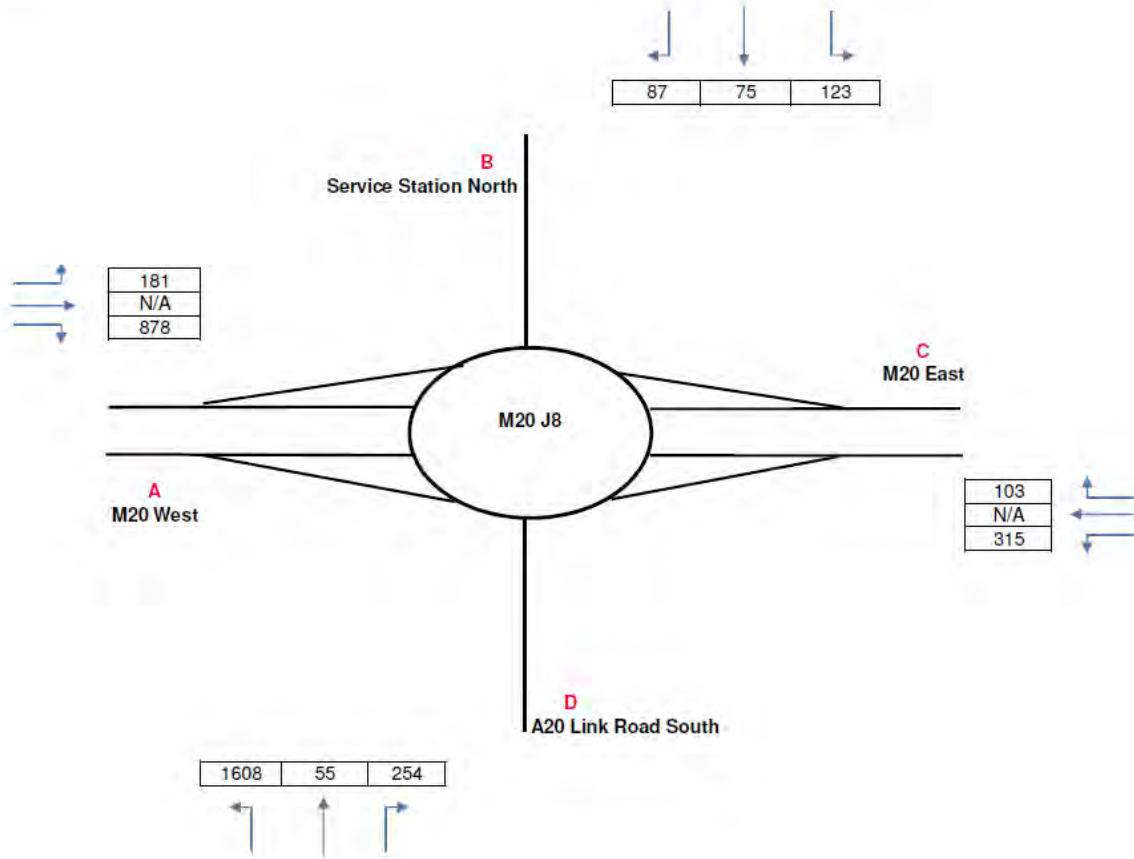
Figure 8: J7 Base 2016 Flows – PM Peak



Junction 8

Figure 9: J8 Base 2013 Flows – AM Peak

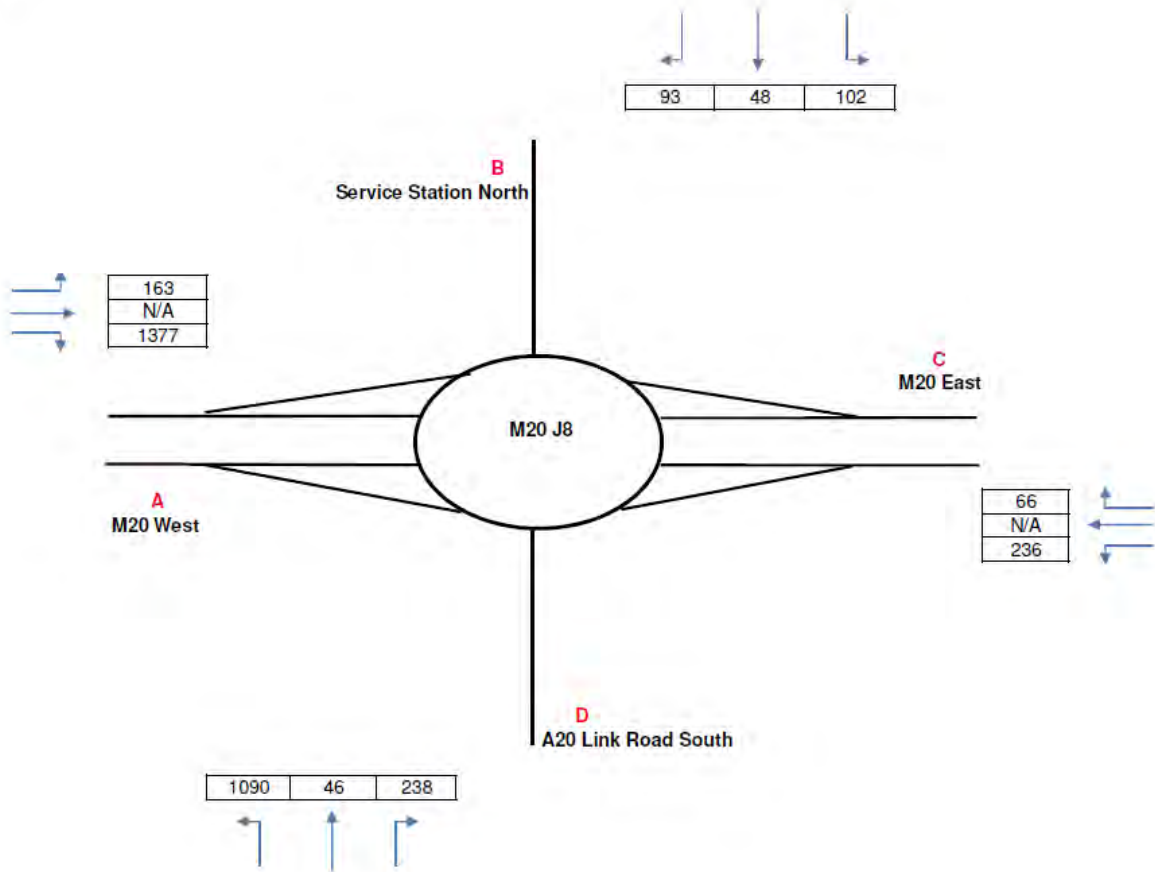
Base 2013 Flows
AM Peak



Source: Waterside Park M20 Junction 8, Maidstone, dha transport, September 2013.

Figure 10: J8 Base 2013 Flows – PM Peak

Base 2013 Flows
PM Peak



Source: Waterside Park M20 Junction 8, Maidstone, dha transport, September 2013.

Figure 11: J8 Base 2016 Flows – AM Peak

Base 2016 Flows
Calibration
AM Peak

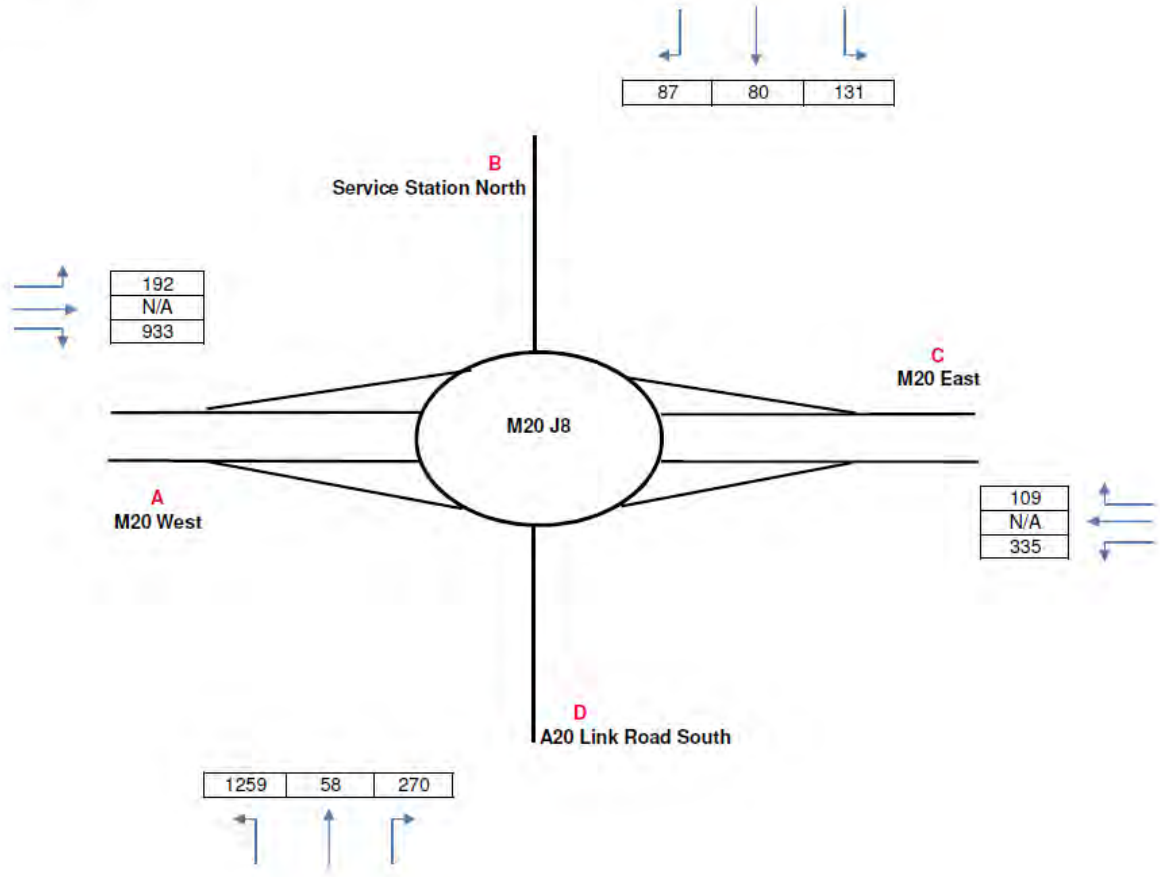
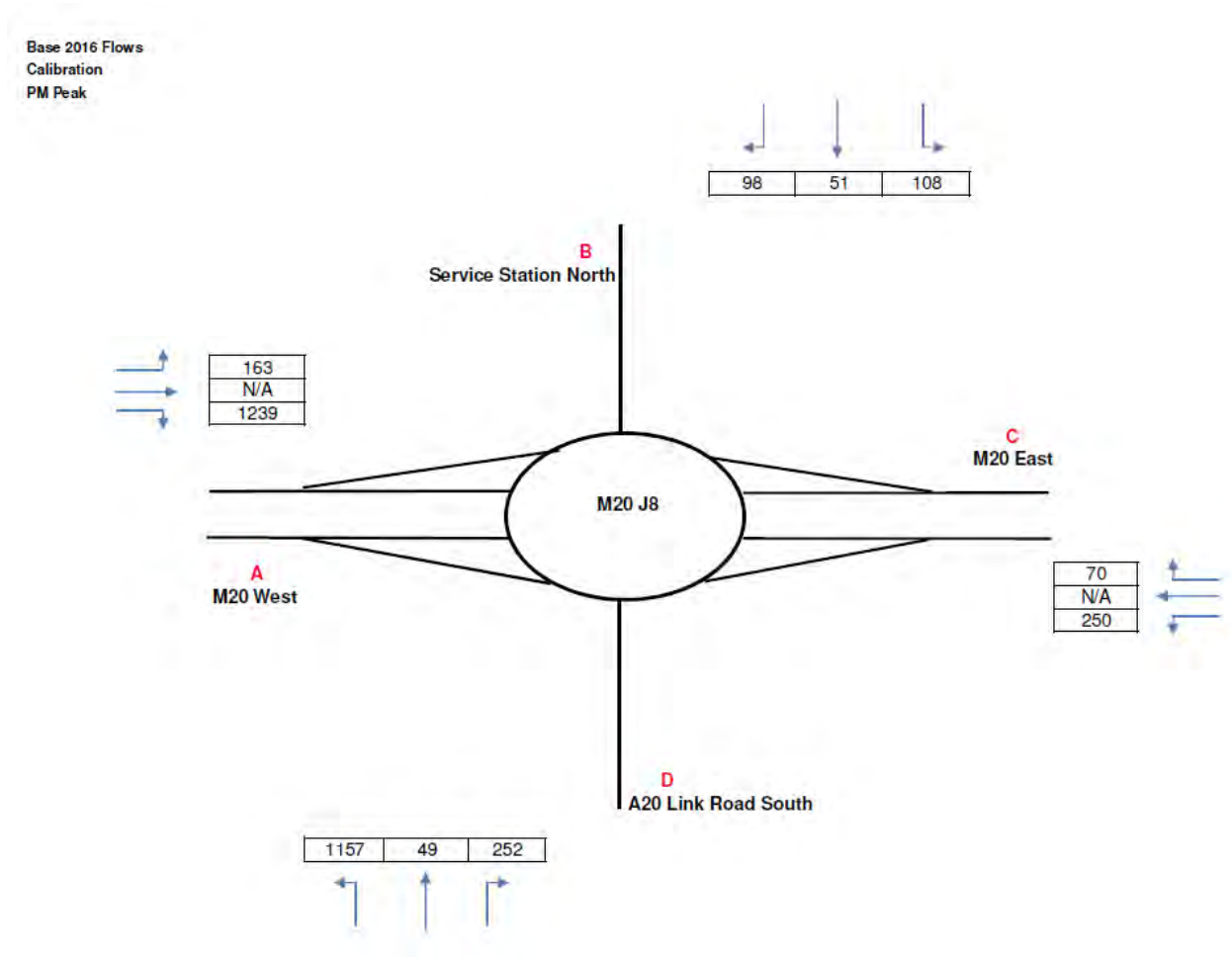


Figure 12: J8 Base 2016 Flows – PM Peak



Initial modelling results for Junction 8 produced significant queuing and delays for the existing 2016 scenario, exceeding the expected junction performance based on our local knowledge of this junction. Results were analysed and the surveyed flows for the left turn movement from the A20 Link Road South arm to the M20 West arm (on slip) appeared particularly high for the AM peak, with significantly lower values for the ahead and right turn movements from the southern arm.

The 2013 flows used for the initial modelling which were obtained from the Waterside Park Transport Assessment were then compared to TRADS data for the M20 West arm, with both the on and off slip roads showing significantly lower flows from the TRADS data for the years 2014, 2015 and 2016. The TRADS data illustrated a general decrease in flows rather than an increase in flows, which is assumed when applying the TEMPro factors to the 2013 traffic surveys.

TRADS data was used to replace the traffic survey data for the M20 West arm, using updated 2016 TRADS data in comparison to the 2013 traffic survey data.

For the AM peak, the TRADS on slip data was used as the new total flow to the M20 West, replacing traffic survey movements to the M20 West from the south and north arms, keeping the same ratio of traffic between the north and the south arms.

For the PM peak, the TRADS off slip data was used as the new total flow from the M20 West, replacing traffic survey movements from the M20 West to the south and north arms, using the same ratio between the north and the south arms.

With the traffic survey data obtained in the third week of May 2013, the third week in June was used as the most up to date representative sample for 2016 TRADS data, and the average of the AM and PM peak hours across the week was used as the new flow values. Flows of the eastbound on and off slip roads were not adjusted.

2.2 Development Flows

The development flows consider household and job number assumptions for Maidstone, Tonbridge and Malling, and Swale.

Maidstone includes the following developments:

- 5,171 approved units (as per the Maidstone Borough Local Plan Publication (Regulation 19) May 2016: Housing Sites)
- 3,457 pending units (as per the Maidstone Borough Local Plan Publication (Regulation 19) May 2016: Housing Sites)
- 3,790 units at Broad Allocation Sites (Invicta Park, Land at Lenham, Maidstone Town Centre)
- 2,860 housing units already built during the Local Plan period 1 April 2011 to 31 March 2016 (Source: Housing Topic Paper)
- 2,403 Extant Permission units (5,474 extant permission units as listed in Appendix C of the Housing Topic Paper minus the 3,072 extant units included in the Maidstone Borough Local Plan Publication)
- 1,600 units from the number of forecasted Windfall Sites
- 19,281 total housing units (sum of approved development, pending development, broad location, completed development, extant permissions and windfall sites)
- 721 units housing surplus (total housing units supply (19,821) minus the objectively assessed need number of units (18,650)).

Scenario 1 includes approved development and extant permissions, with completed developments assumed to be included in the 2016 baseline, i.e. all *consented development*, totalling 7,574 units. The numbers are presented in **Tables 4**.

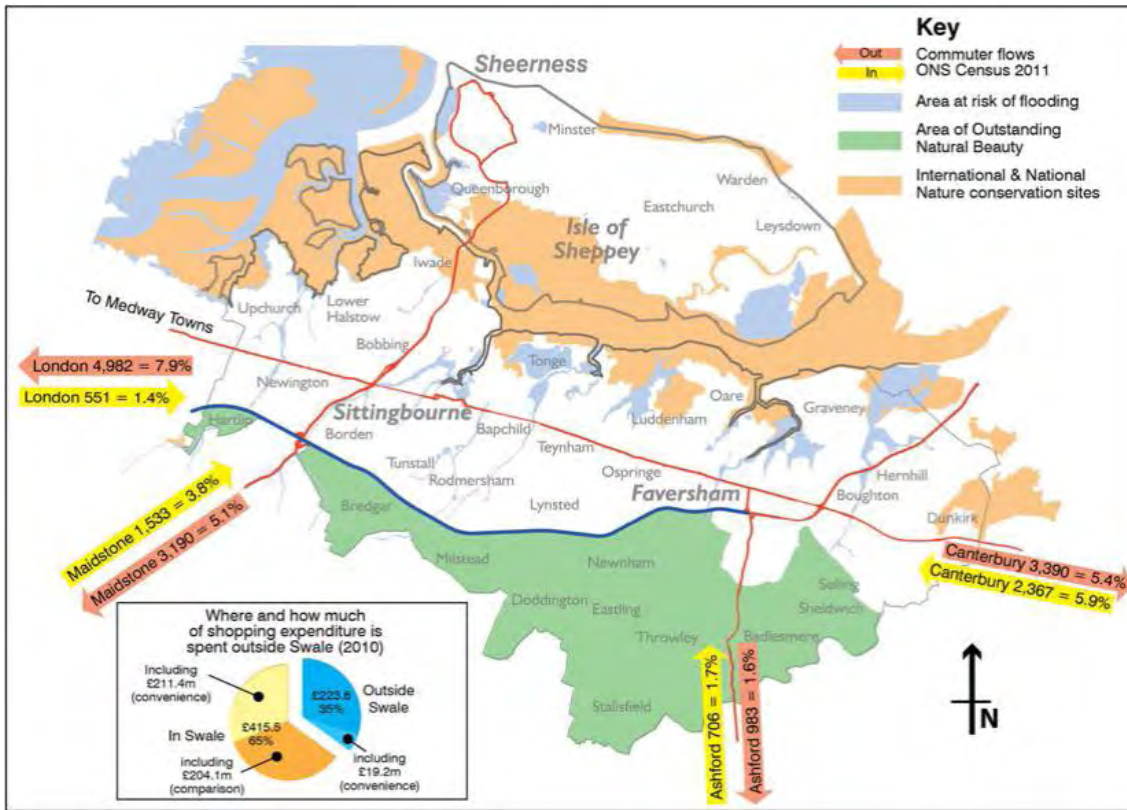
Scenario 2 includes approved development, pending development, development in Broad Locations, extant permissions and windfall sites, i.e. both *consented* and *non-consented development*, totalling 15,700 units. The numbers are presented in **Tables 5**.

Detailed discussions were held with officers of Tonbridge and Malling Borough Council with regards to sites to be included in their Regulation 18 Local Plan consultation and whether they were consented or non-consented. The numbers are presented in **Table 4** and **Table 5** below.

Contact was also made with officers from Swale Borough Council to establish the number of consented and non-consented households and jobs that could potentially impact the A249 and M20 Junction 7. The drawing shown in **Figure 13** below shows the commuter patterns of Swale based on the 2011 census. This suggests that 5.1% commute towards Maidstone with 7.9% towards London. In agreement with MBC officers it was assumed that all of the 5.1% would affect M20 Junction 7 and that a third of those travelling towards London (2.6%) would affect M20 Junction 7. Therefore, 7.7% of all consented and non-consented housing and employment

in Swale would affect M20 Junction 7. The numbers are presented in **Table 4** and **Table 5** below.

Figure 13: Swale Commuter Flows



Source: Bearing Fruits 2031: The Swale Borough Local Plan Proposed Main Modifications June 2016. <http://archive.swale.gov.uk/assets/Planning-General/Planning-Policy/Evidence-Base/Main-Modifications-June-2016/Local-Plan-Main-Modifications-Chapter-2.pdf>

The locations of the household and employment developments was considered in detail and a likely distribution across the four motorway junctions was assumed. This is shown in **Appendix B**. The resulting household and employment (job) numbers are summarised below in **Table 4** and **Table 5**.

Scenario 1 – Consented Development

Table 4: Household and Employment Distribution Summary

Distribution Summary	J5	J6	J7	J8	Total
Maidstone Household	1268	2295	2218	1056	6837
Maidstone Employment	0	42	4242	0	4285
Tonbridge and Malling Household	352	11	0	0	363
Tonbridge and Malling Employment	404	-34	0	0	371
Swale Household	0	0	262	0	262
Swale Employment	0	0	400	0	400
Overall Household	1620	2306	2480	1056	7462

Distribution Summary	J5	J6	J7	J8	Total
Overall Employment	404	9	4642	0	5055

Scenario 2 – All Development (Consented and Non Consented Development)

Table 5: Household and Employment Distribution Summary

Distribution Summary	J5	J6	J7	J8	Total
Maidstone Household	2183	5541	3736	2630	14090
Maidstone Employment	0	757	5117	883	6757
Tonbridge and Malling Household	2952	511	0	0	3463
Tonbridge and Malling Employment	1404	-34	0	0	1371
Swale Household	0	0	968	0	968
Swale Employment	0	0	400	0	400
Overall Household	5135	6052	4705	2630	18521
Overall Employment	1404	723	5517	883	8527

2.3 TEMPro

TEMPro (version 7 with planning dataset 70 and NTM dataset AF15) has been interrogated with regards to forecast background growth in traffic. The growth rates were adjusted using the National Transport Model (NTM) for rural motorway in Tonbridge and Malling for Junction 5 and in Maidstone for Junctions 6, 7 and 8. Growth rates between 2016 and 2031 have been generated for all junctions.

Table 6 and **Table 7** show the background growth rates.

Table 6: TEMPro Background Growth Rates for Tonbridge and Malling 2016-2031

Time Period	Factor
AM peak	1.079485
PM peak	1.078403

Table 7: TEMPro Background Growth Rates for Maidstone: 2016-2031

Time Period	Factor
AM Peak	1.084134
PM Peak	1.083107

The proposed development generates two scenarios (Scenario 1 and Scenario 2) as explained in **Section 2.2** above. The housing and job numbers as presented in **Table 4** and **Table 5** above were inputted into TEMPro for each junction to obtain 'with development' growth factors for each scenario and junction, as shown in **Table 8** to **Table 11** below:

Table 8: 'With Development' TEMPro Growth Rates for Junction 5 in Tonbridge and Malling: 2016-2031

Time Period	Factor
Scenario 1 - AM Peak	1.097704928
Scenario 1 - PM Peak	1.097921193
Scenario 2 - AM Peak	1.138254536
Scenario 2 - PM Peak	1.141390373

Table 9: 'With Development' TEMPro Growth Rates for Junction 6 in Maidstone: 2016-2031

Time Period	Factor
Scenario 1 - AM Peak	1.100408235
Scenario 1 - PM Peak	1.101219227
Scenario 2 - AM Peak	1.131658467
Scenario 2 - PM Peak	1.135010568

Table 10: 'With Development' TEMPro Growth Rates for Junction 7 in Maidstone: 2016-2031

Time Period	Factor
Scenario 1 - AM Peak	1.133118253
Scenario 1 - PM Peak	1.131171871
Scenario 2 - AM Peak	1.154690644
Scenario 2 - PM Peak	1.153933718

Table 11: 'With Development' TEMPro Growth Rates for Junction 8 in Maidstone: 2016-2031

Time Period	Factor
Scenario 1 - AM Peak	1.091595454
Scenario 1 - PM Peak	1.091379189
Scenario 2 - AM Peak	1.108680355
Scenario 2 - PM Peak	1.109166951

2.4 Future Base 2031 Flows

Based on the above factors in **Table 6** and **Table 7**, the 2031 future base flows were calculated. Note, they include background growth but no consented or non-consented development. The AM and PM peaks are illustrated in **Figure 14** to **Figure 21**.

Figure 14: Future Base 2031 Flows Junction 5 – AM Peak

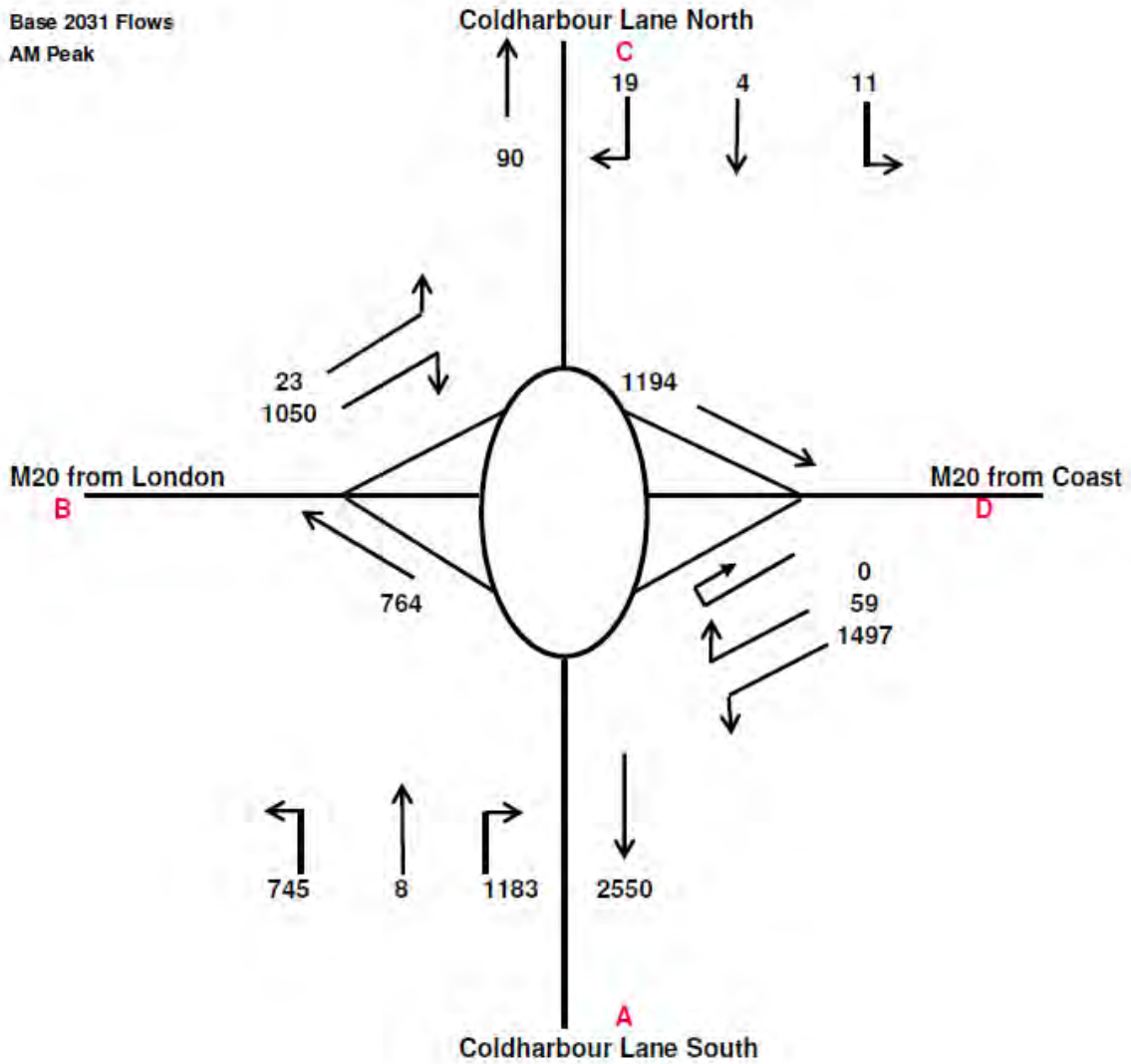


Figure 15: Future Base 2031 Flows Junction 5 – PM Peak

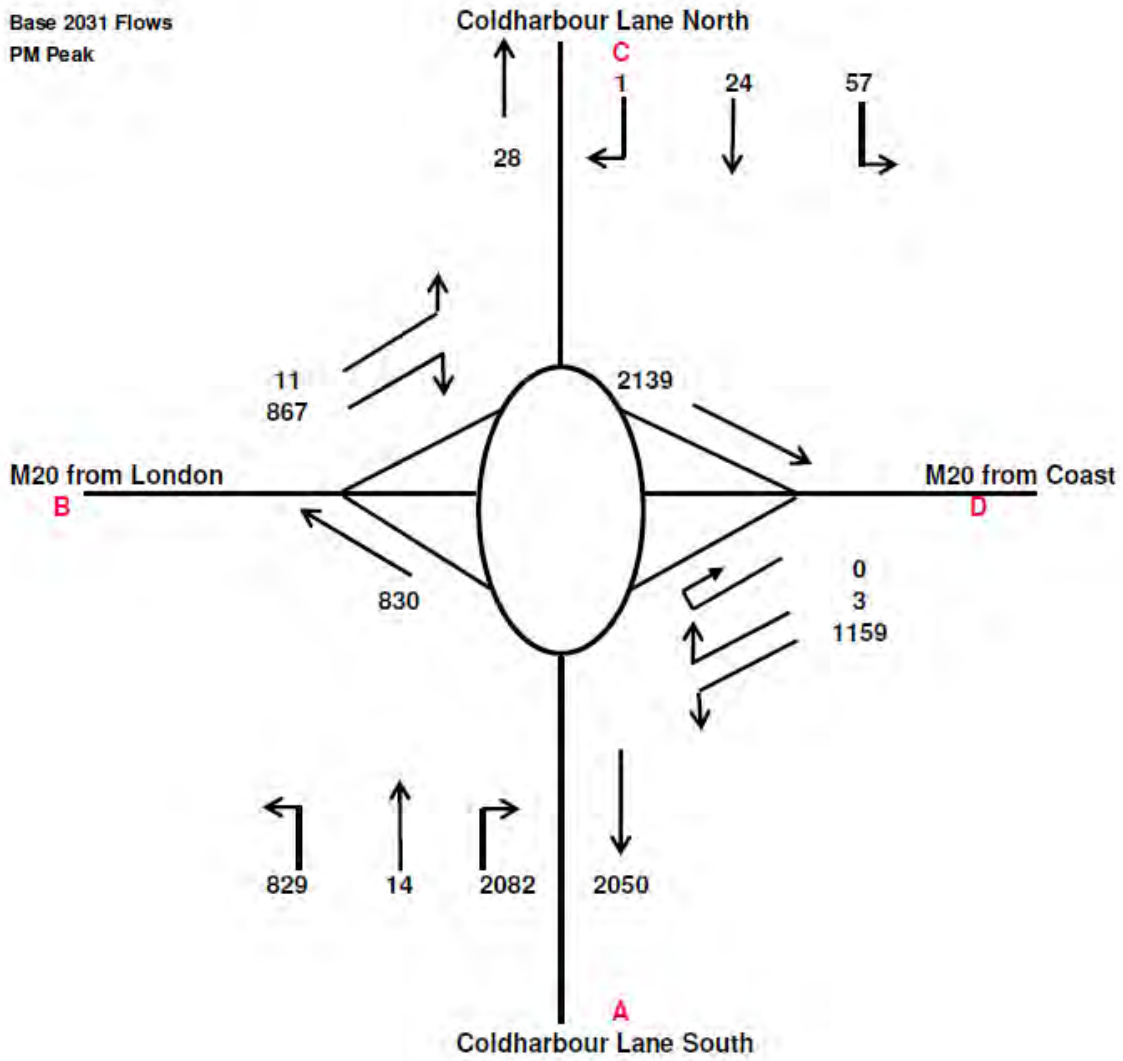


Figure 16: Future Base 2031 Flows Junction 6 – AM peak

Base 2031 Flows
AM Peak

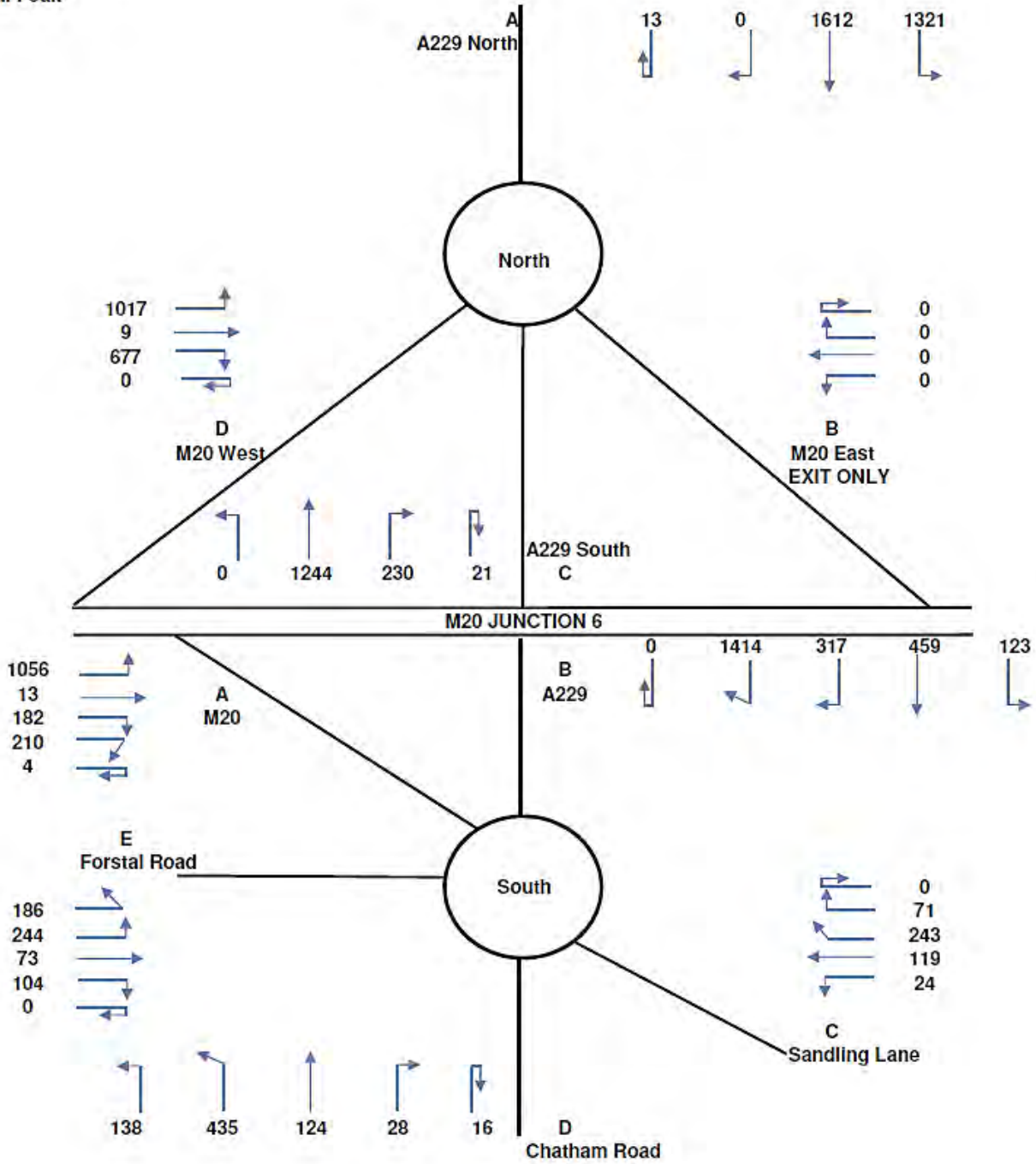


Figure 17: Future Base 2031 Flows Junction 6 – PM Peak

Base 2031 Flows
PM Peak

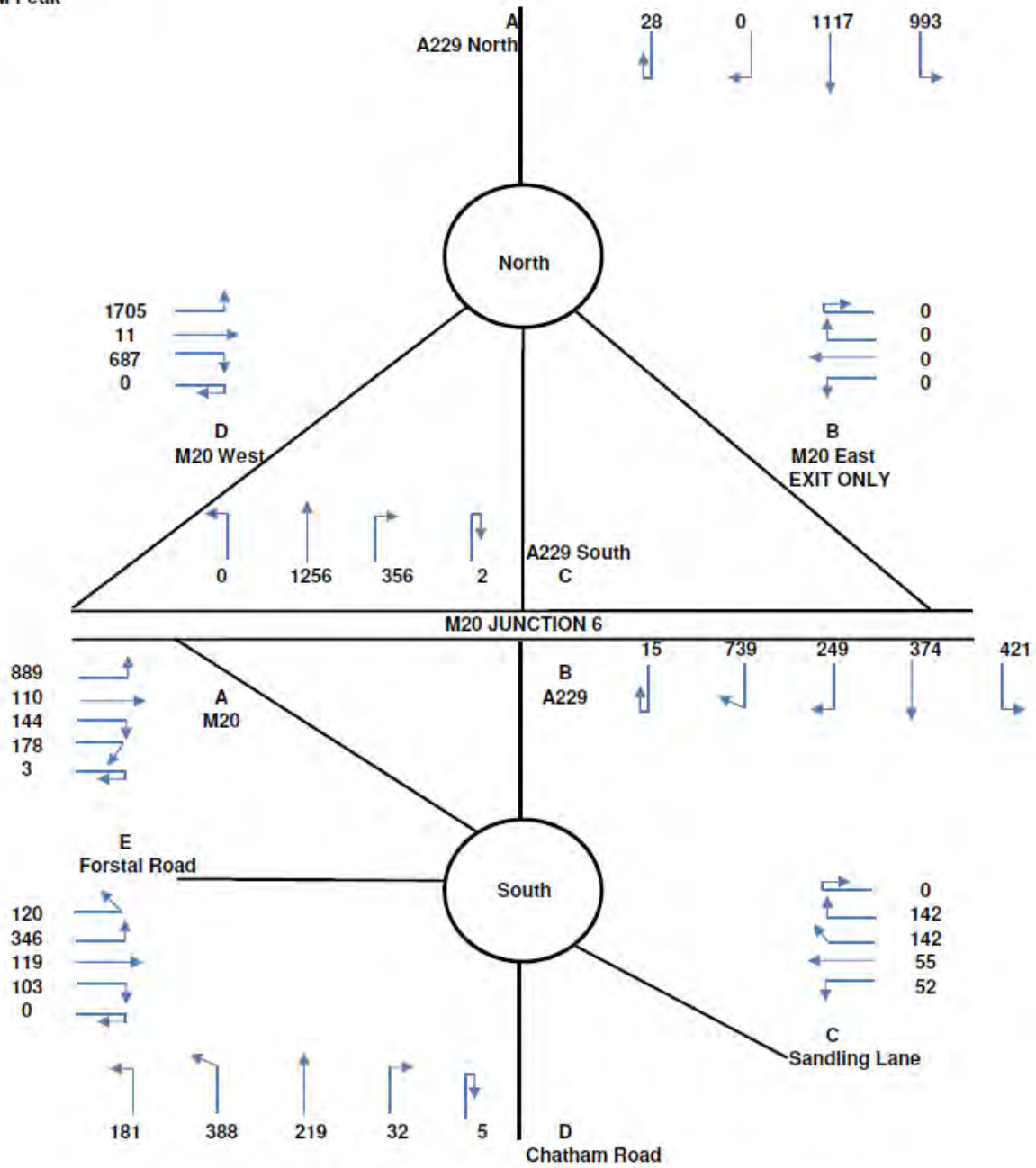


Figure 18: Future Base 2031 Flows Junction 7 – AM Peak

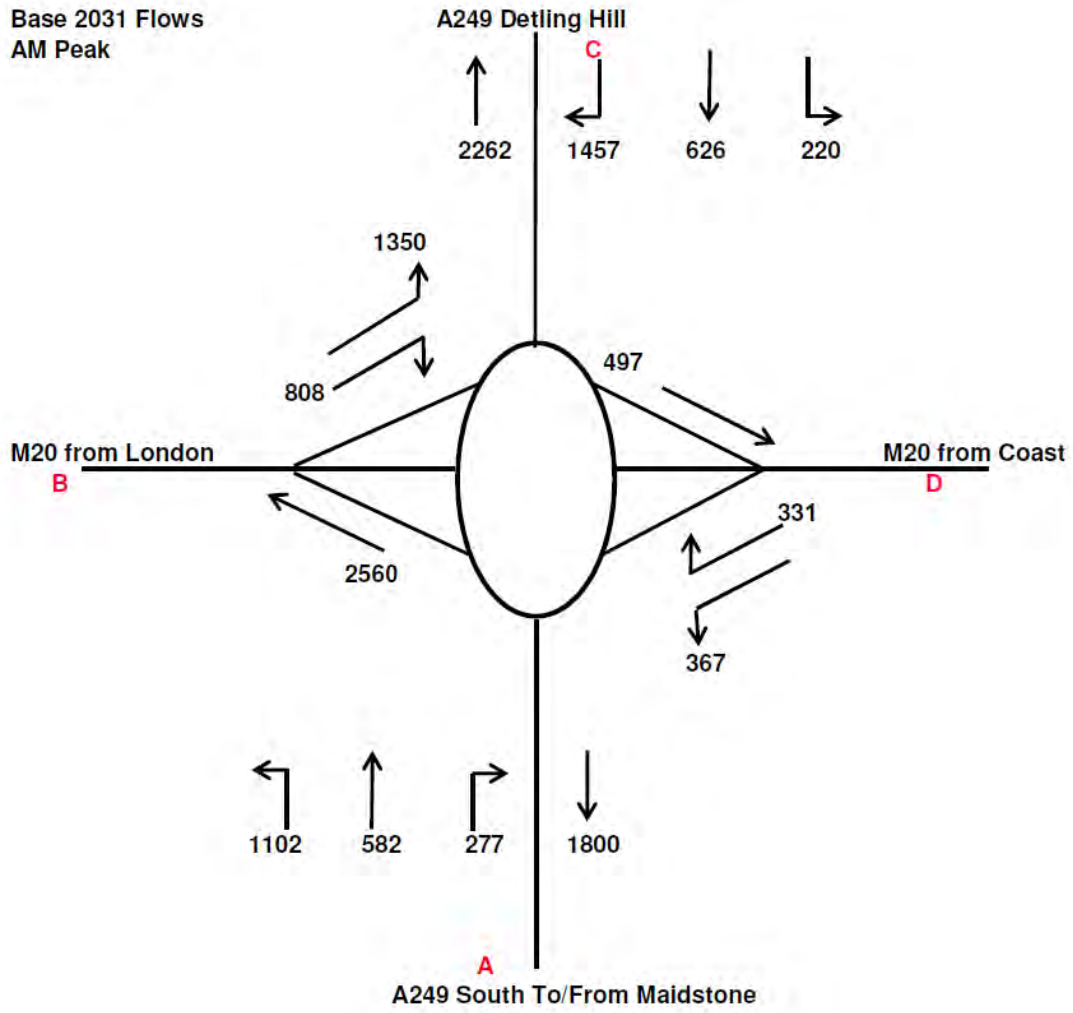


Figure 19: Future Base 2031 Flows Junction 7 – PM Peak

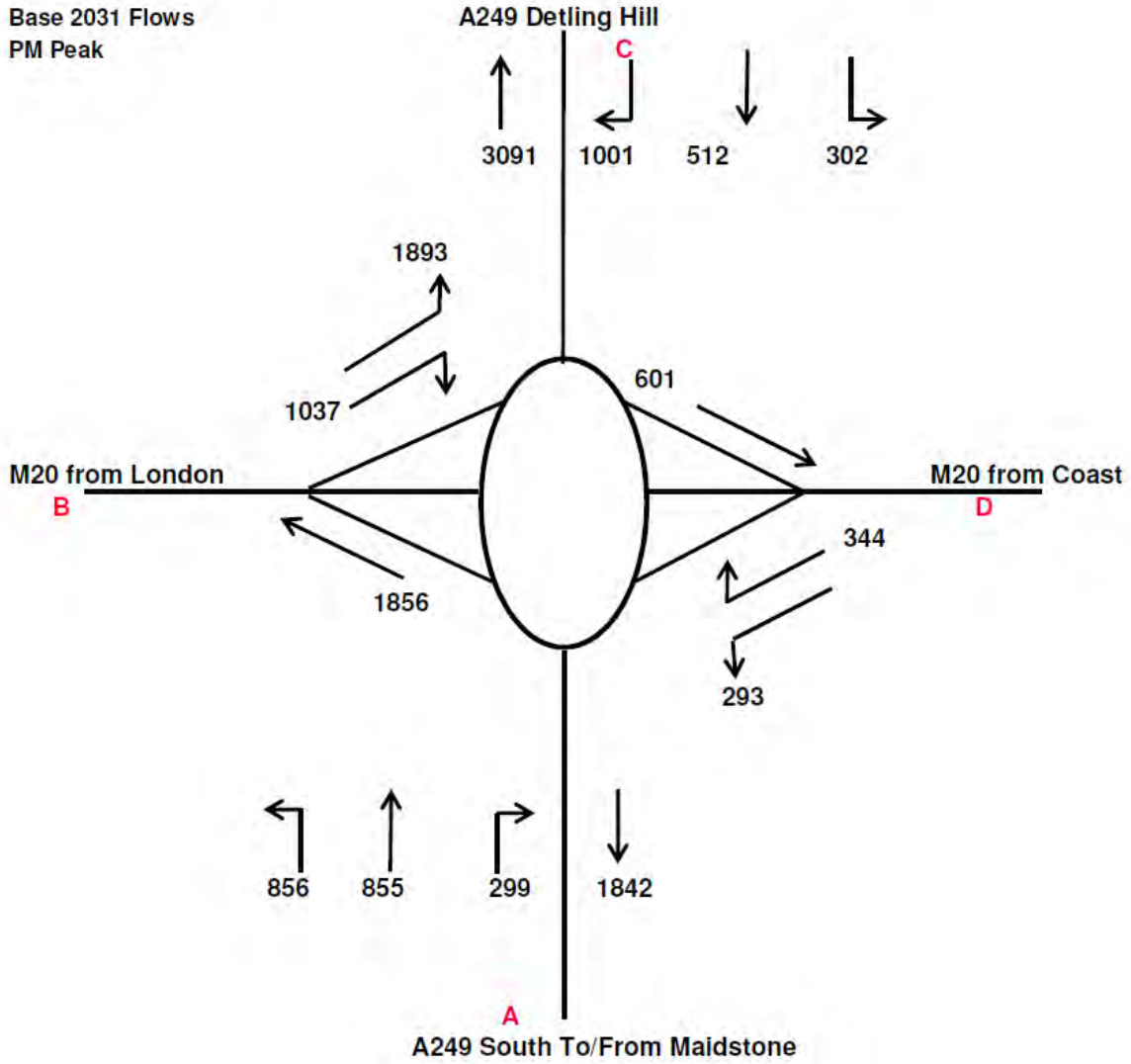


Figure 20: Future Base 2031 Flows Junction 8 – AM Peak

Base 2031 Flows
Calibration
AM Peak

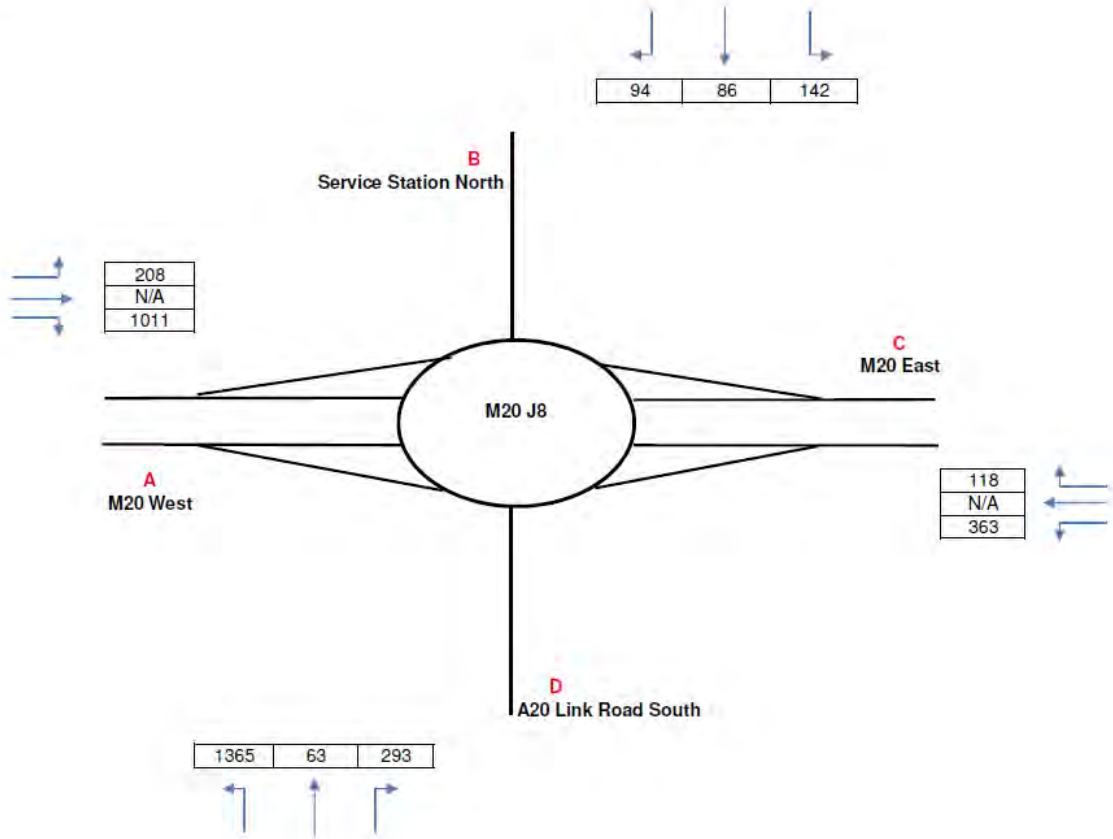
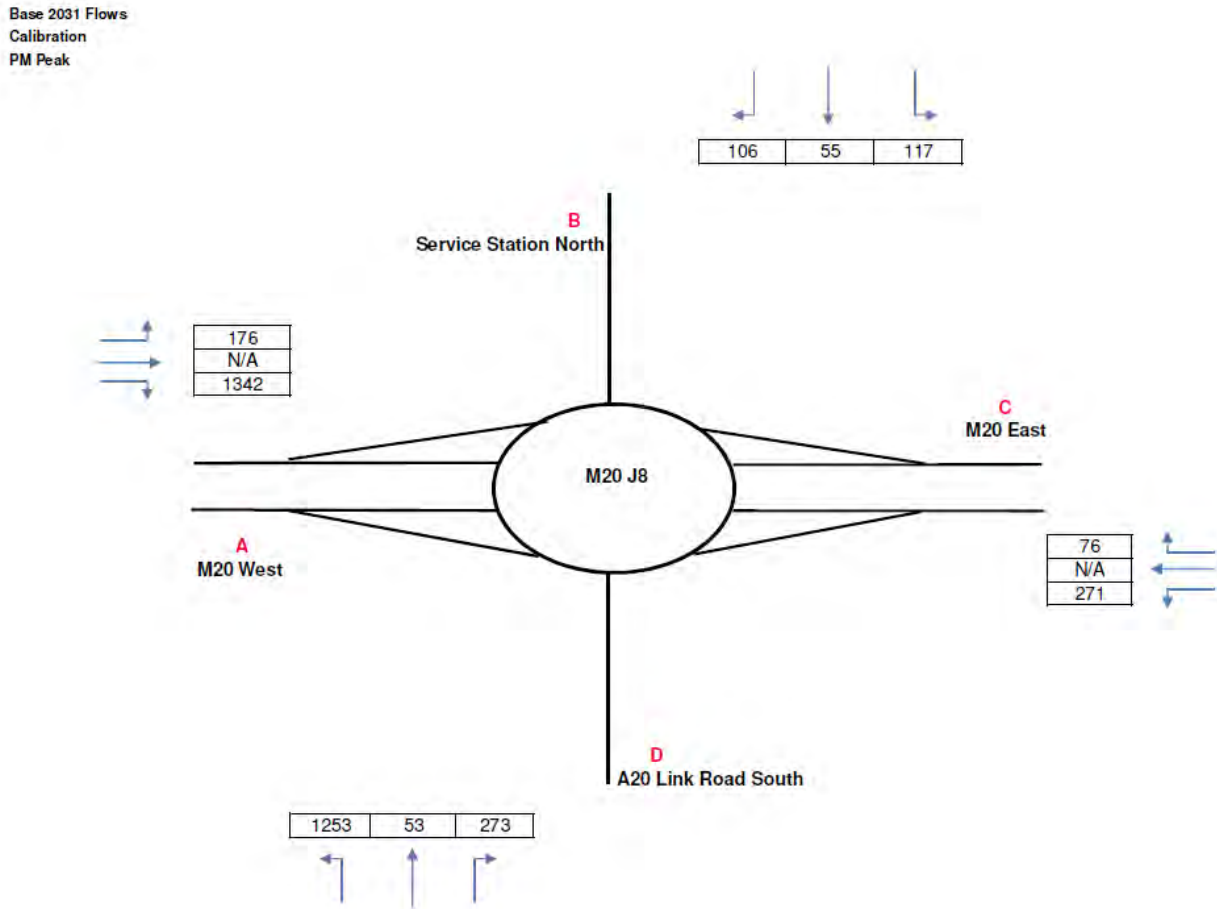


Figure 21: Future Base 2031 Flows Junction 8 – PM Peak



2.5 2031 ‘with consented development’ Flows (Scenario 1)

The future base 2031 flows were multiplied by the ‘with development’ growth factors for Scenario 1 shown in **Section 2.3**. The resulting 2031 ‘with consented development’ flows (Scenario 1) are shown in **Figure 22** to **Figure 29**.

Figure 22: Future 2031 'with consented development' Flows Junction 5 – AM Peak

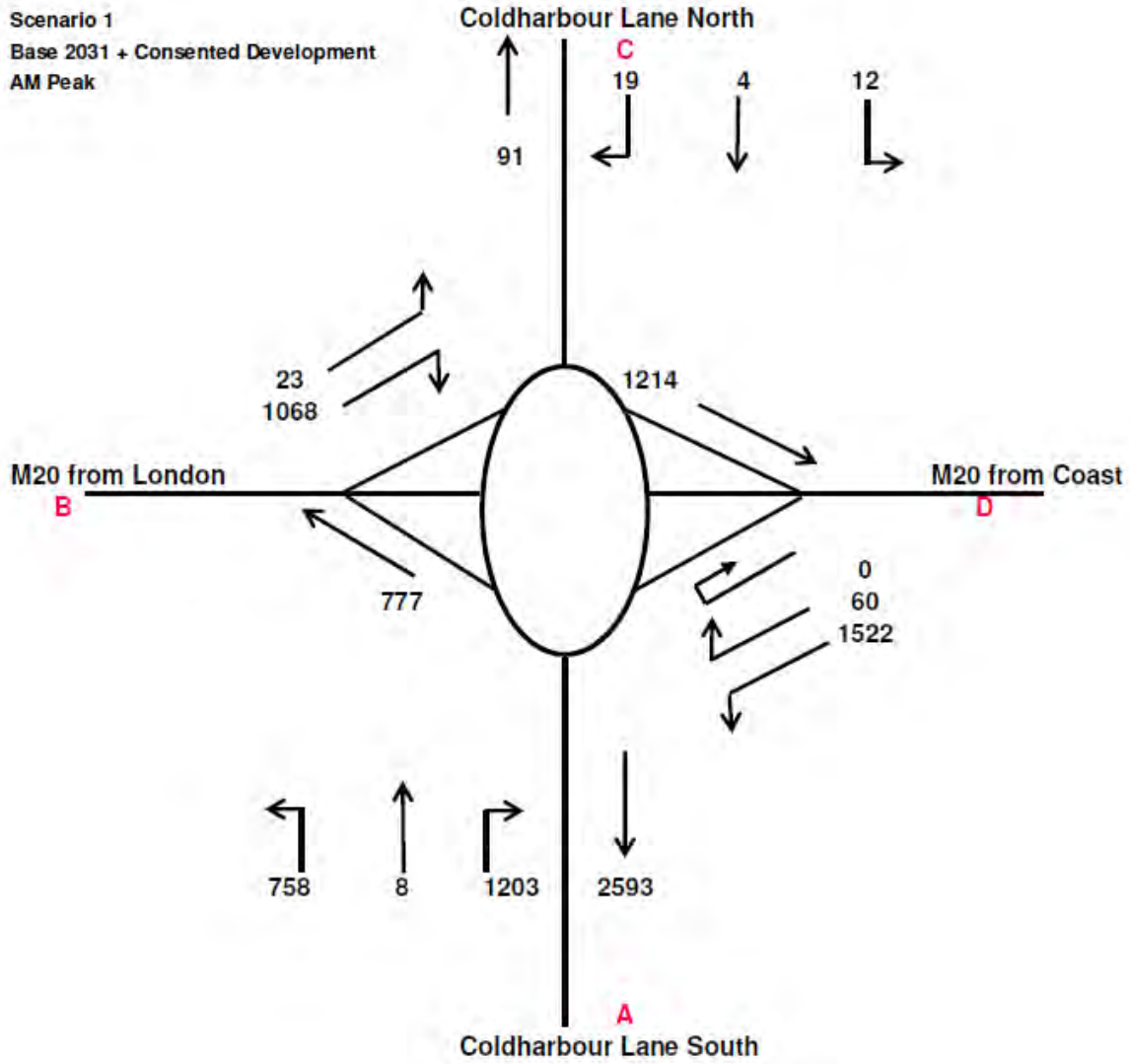


Figure 23: Future 2031 'with consented development' Flows Junction 5 – PM Peak

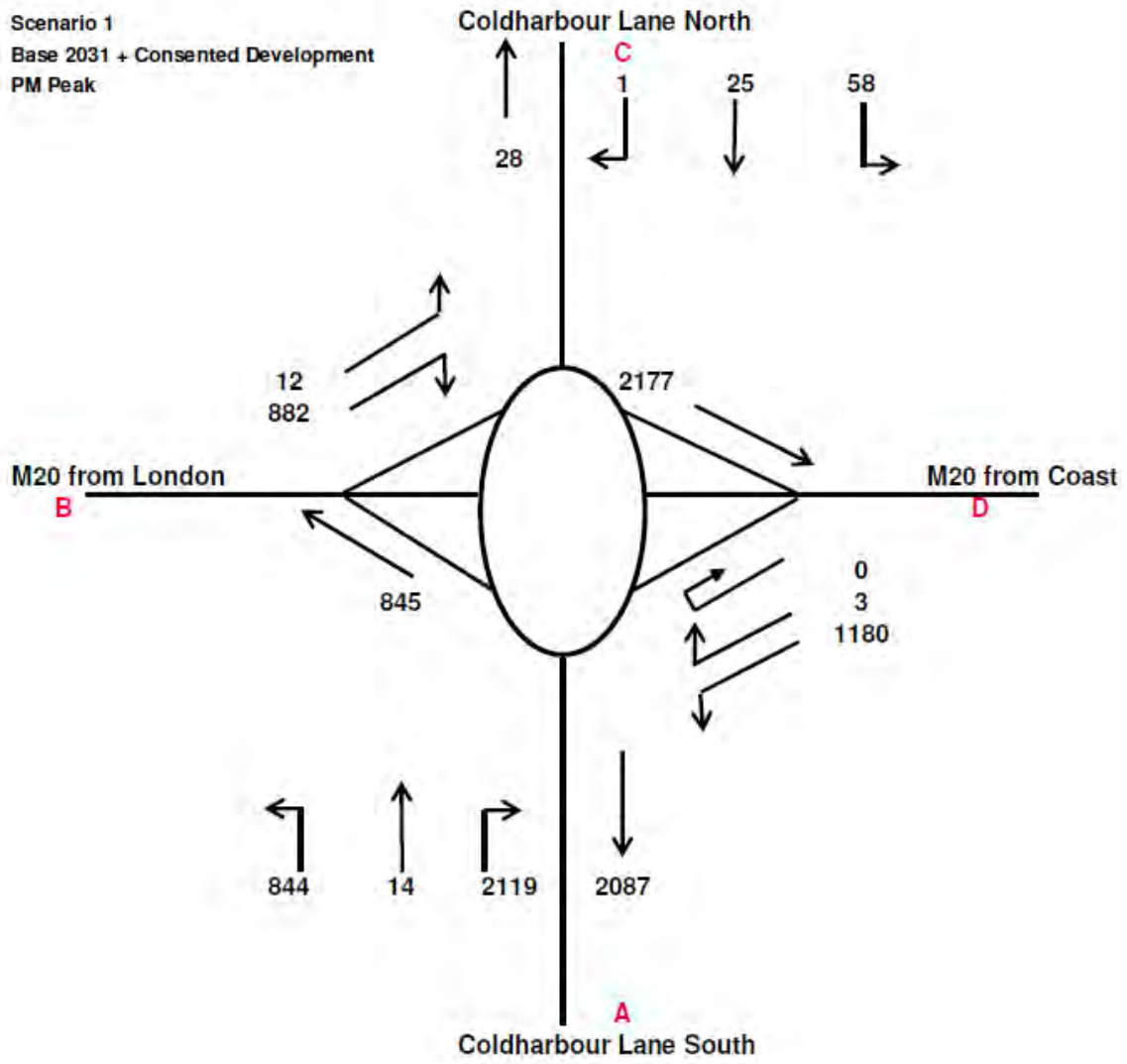


Figure 24: Future 2031 'with consented development' Flows Junction 6 – AM Peak

Scenario 1
 Base 2031 + Consented Development
 AM Peak

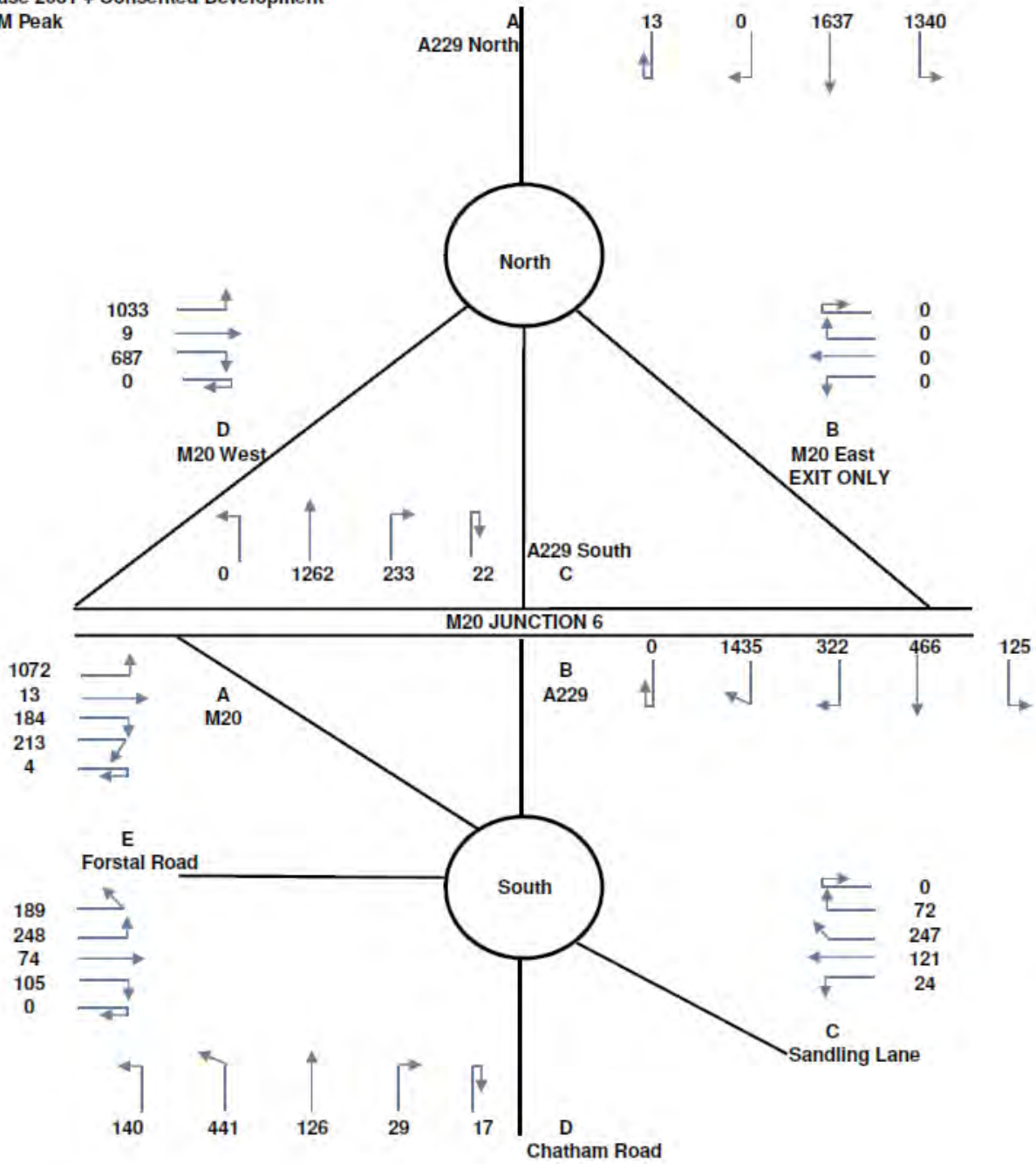


Figure 25: Future 2031 'with consented development' Flows Junction 6 – PM Peak

Scenario 1
Base 2031 + Consented Development
PM Peak

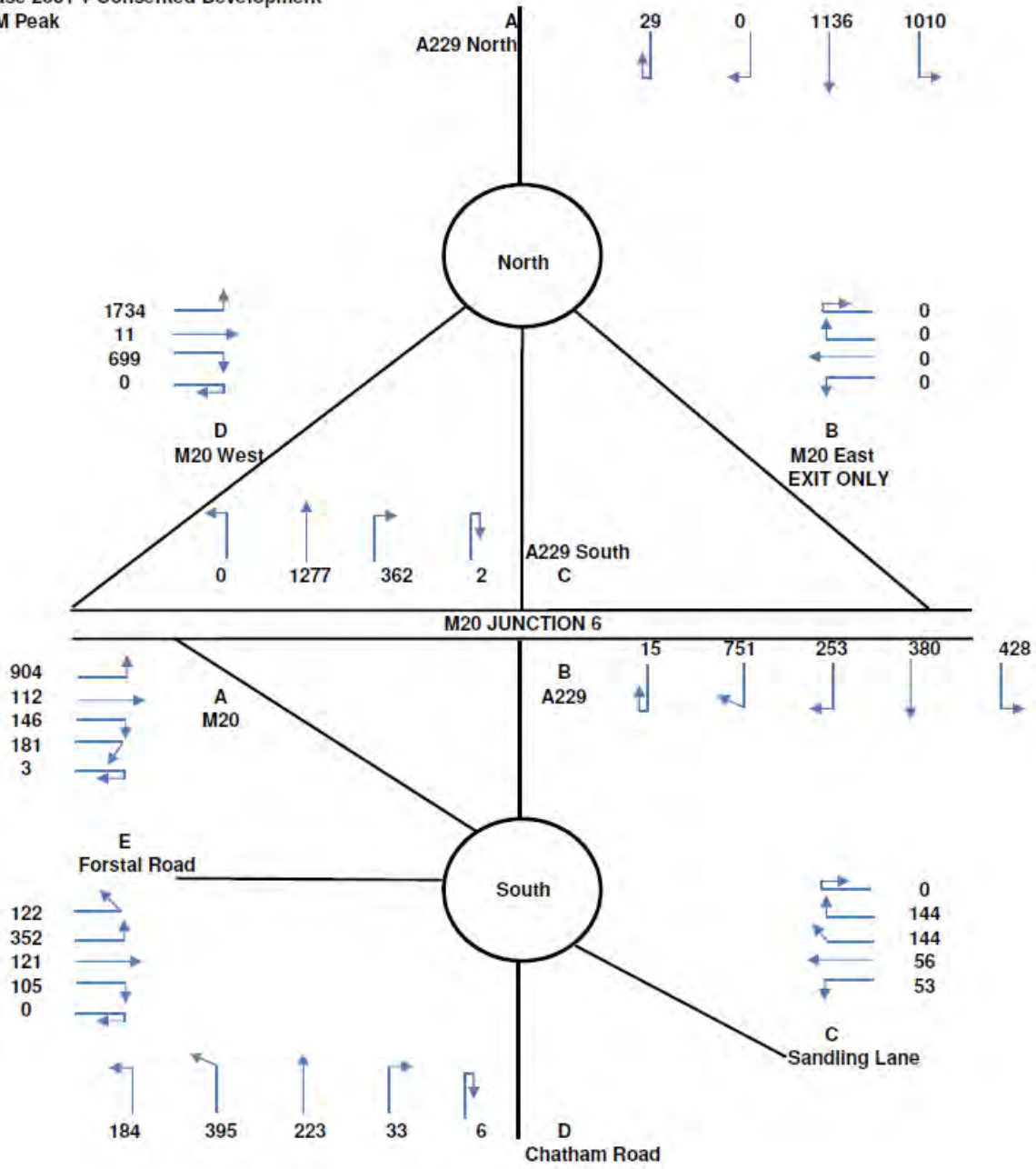


Figure 26: Future 2031 'with consented development' Flows Junction 7 – AM Peak

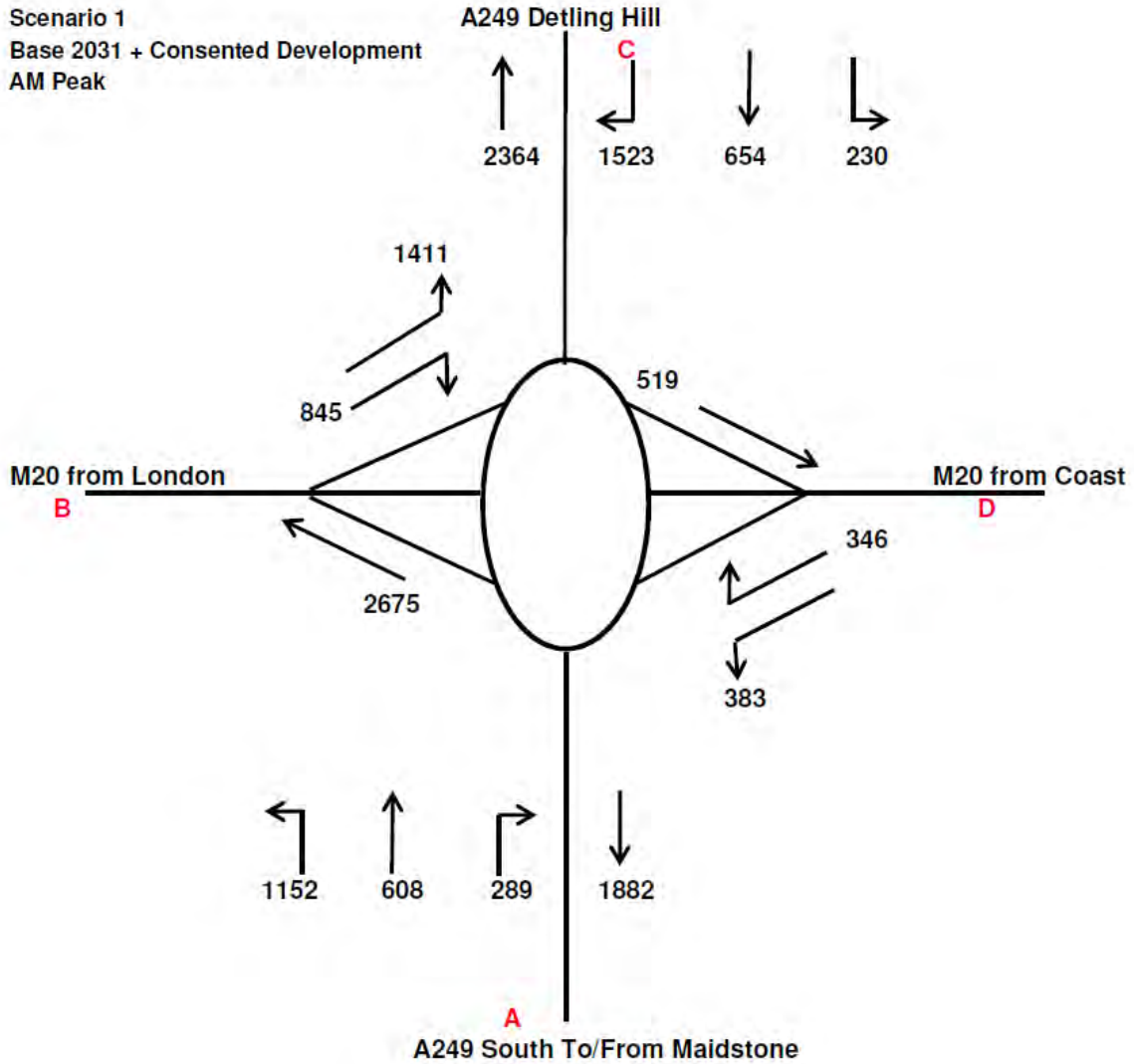


Figure 27: Future 2031 'with consented development' Flows Junction 7 – PM Peak

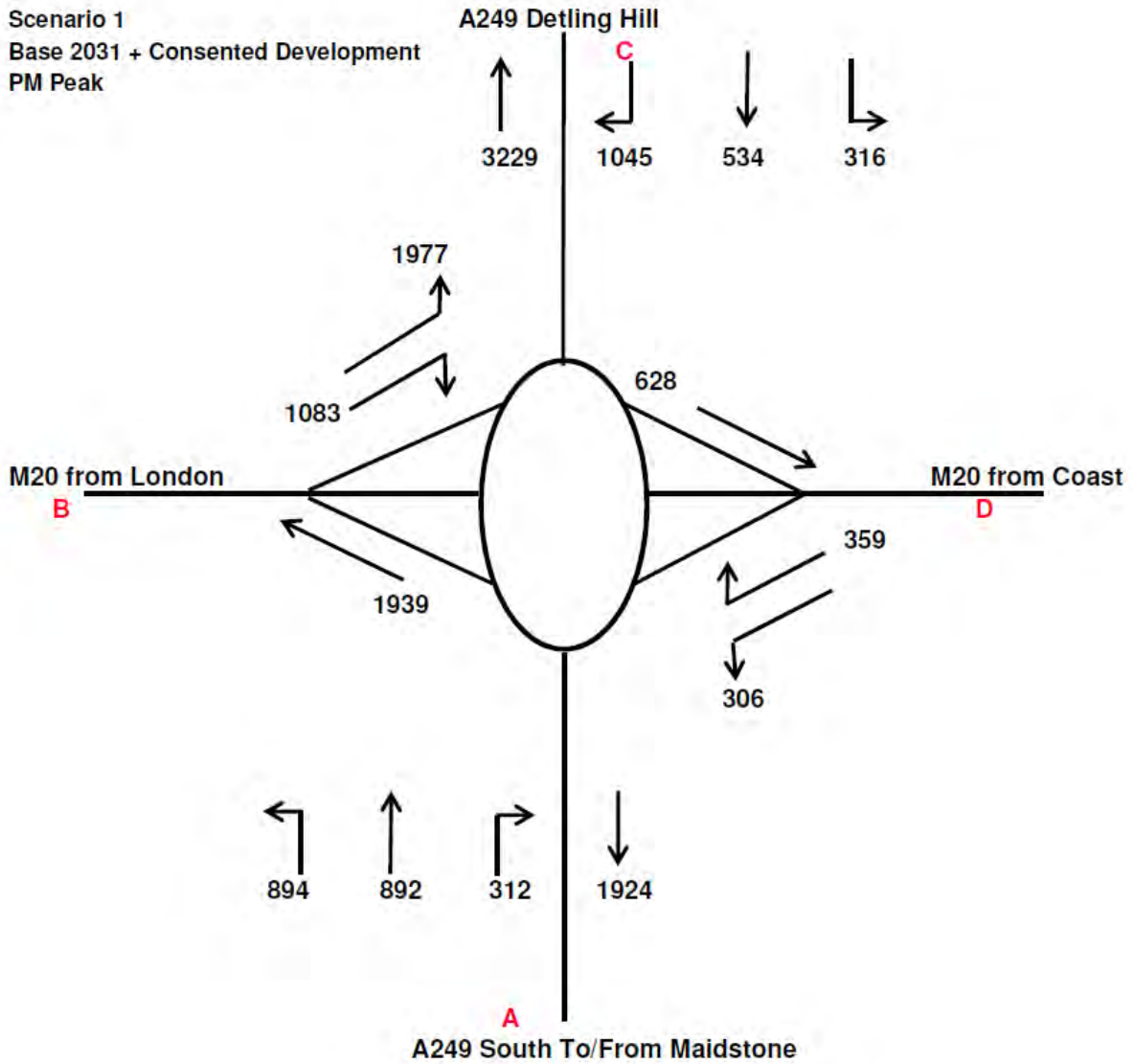


Figure 28: Future 2031 'with consented development' Flows Junction 8 – AM Peak

Scenario 1
 Base 2031 + Consented Development
 Calibration
 AM Peak

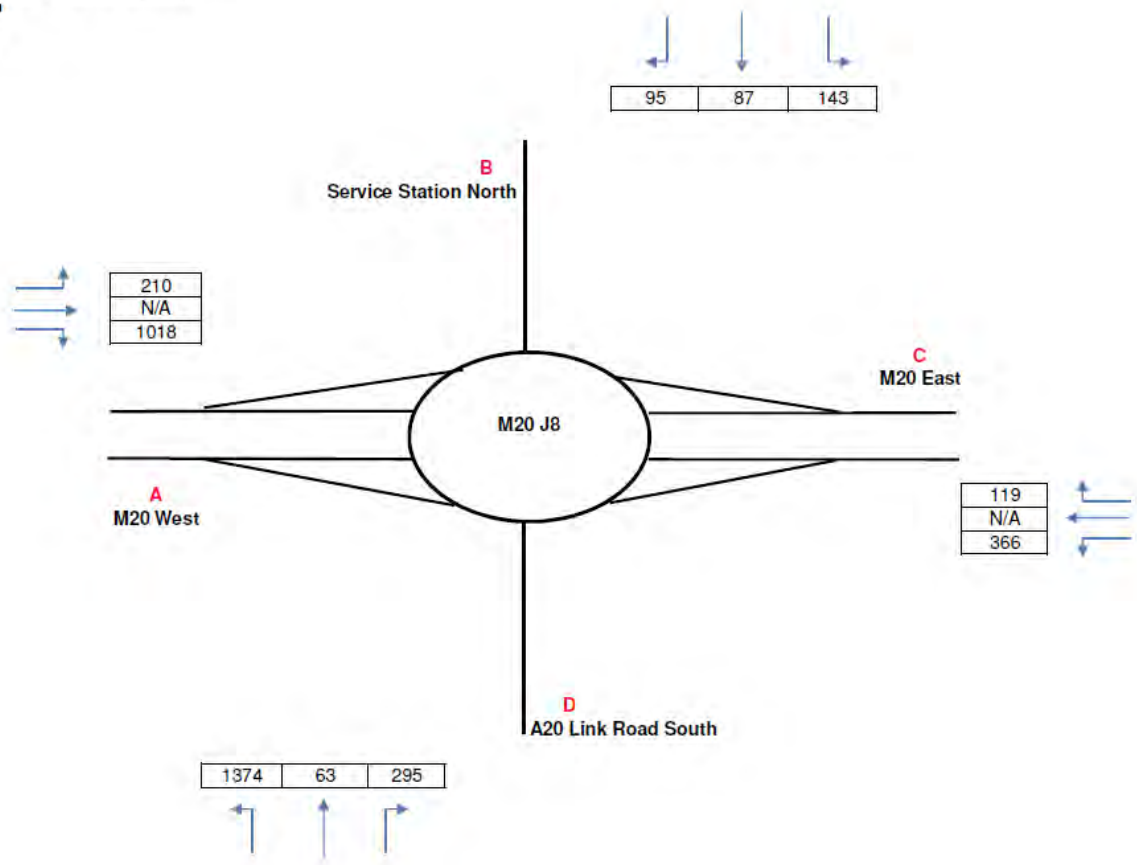
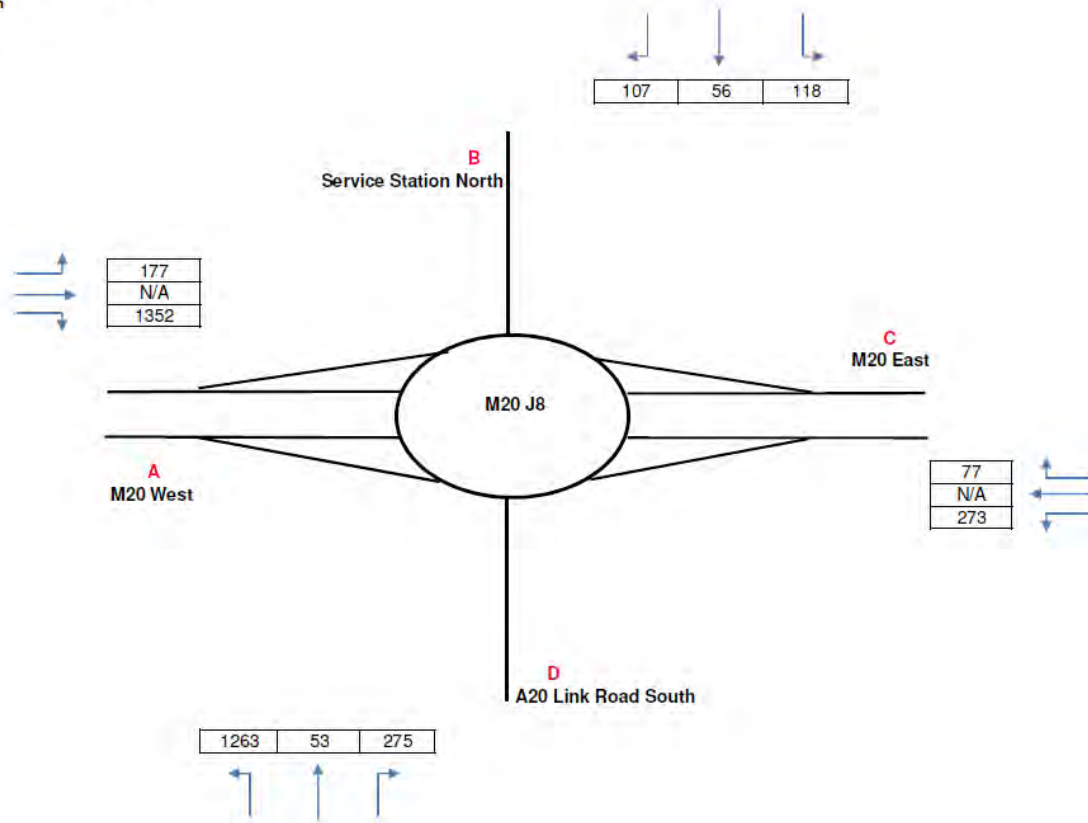


Figure 29: Future 2031 ‘with consented development’ Flows Junction 8 – PM Peak

Scenario 1
 Base 2031 + Consented Development
 Calibration
 PM Peak



2.6 2031 ‘with all development’ Flows (Scenario 2)

The future Base 2031 flows were multiplied by the ‘with development’ growth factors for Scenario 2 shown in **Section 2.3**. The resulting 2031 ‘with all development’ flows (consented and non-consented, Scenario 2) are shown in **Figure 30** to **Figure 37**.

Figure 30: Future 2031 'with all development' Flows Junction 5 – AM Peak

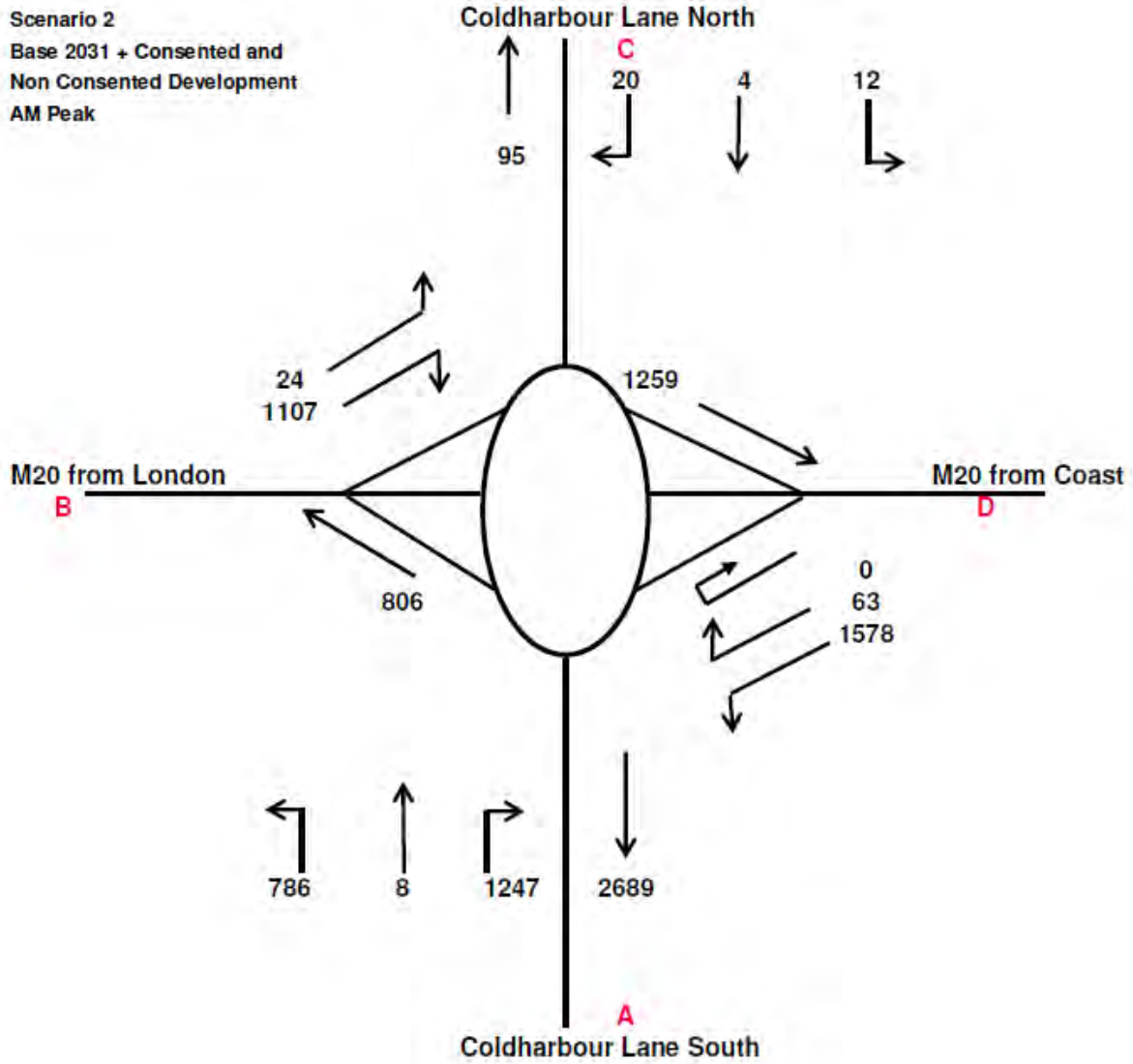


Figure 31: Future 2031 'with all development' Flows Junction 5 – PM Peak

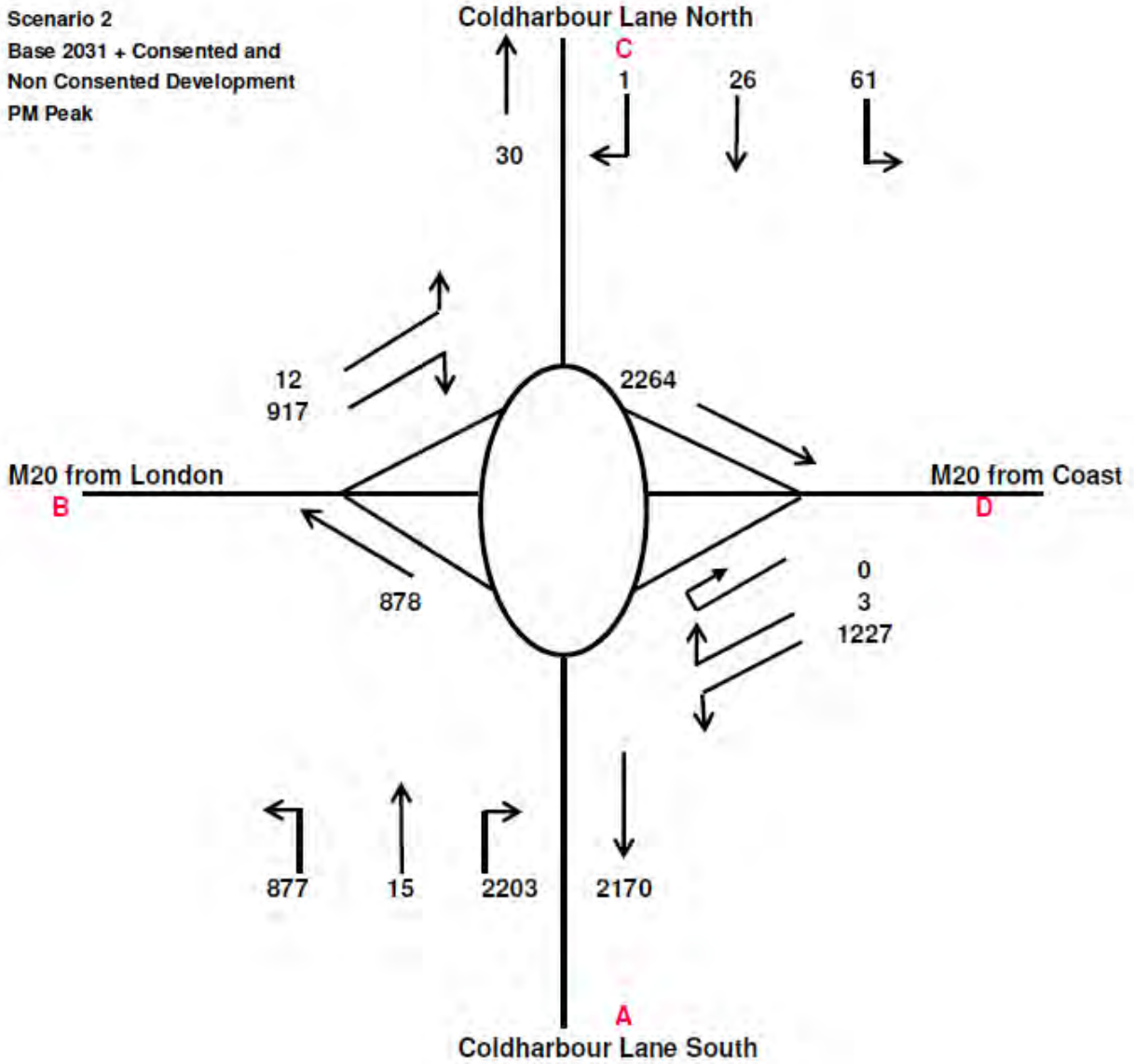


Figure 32: Future 2031 'with all development' Flows Junction 6 – AM Peak

Scenario 2
 Base 2031 + Consented and
 Non Consented Development
 AM Peak

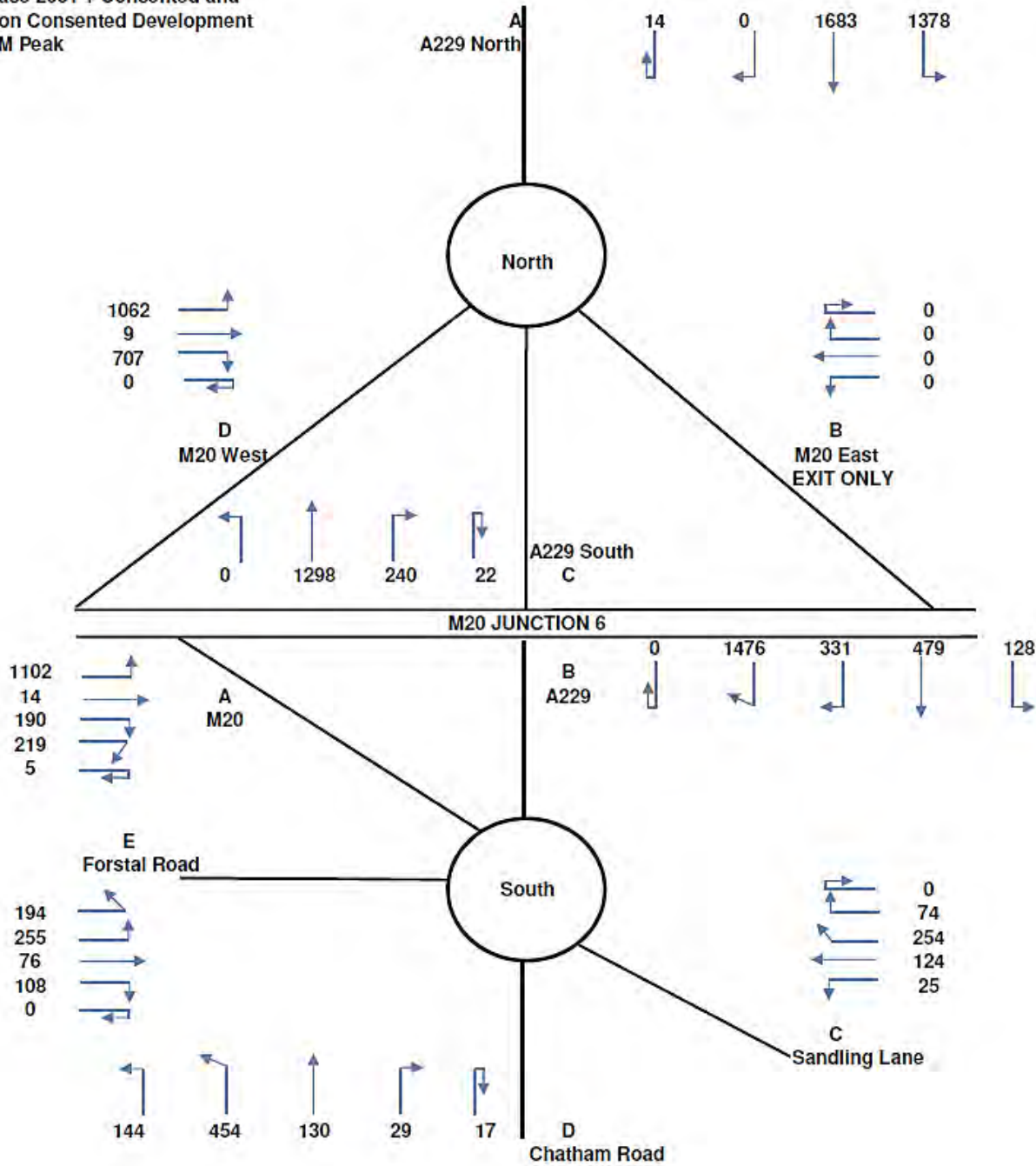


Figure 33: Future 2031 'with all development' Flows Junction 6 – PM Peak

Scenario 2
 Base 2031 + Consented and
 Non Consented Development
 PM Peak

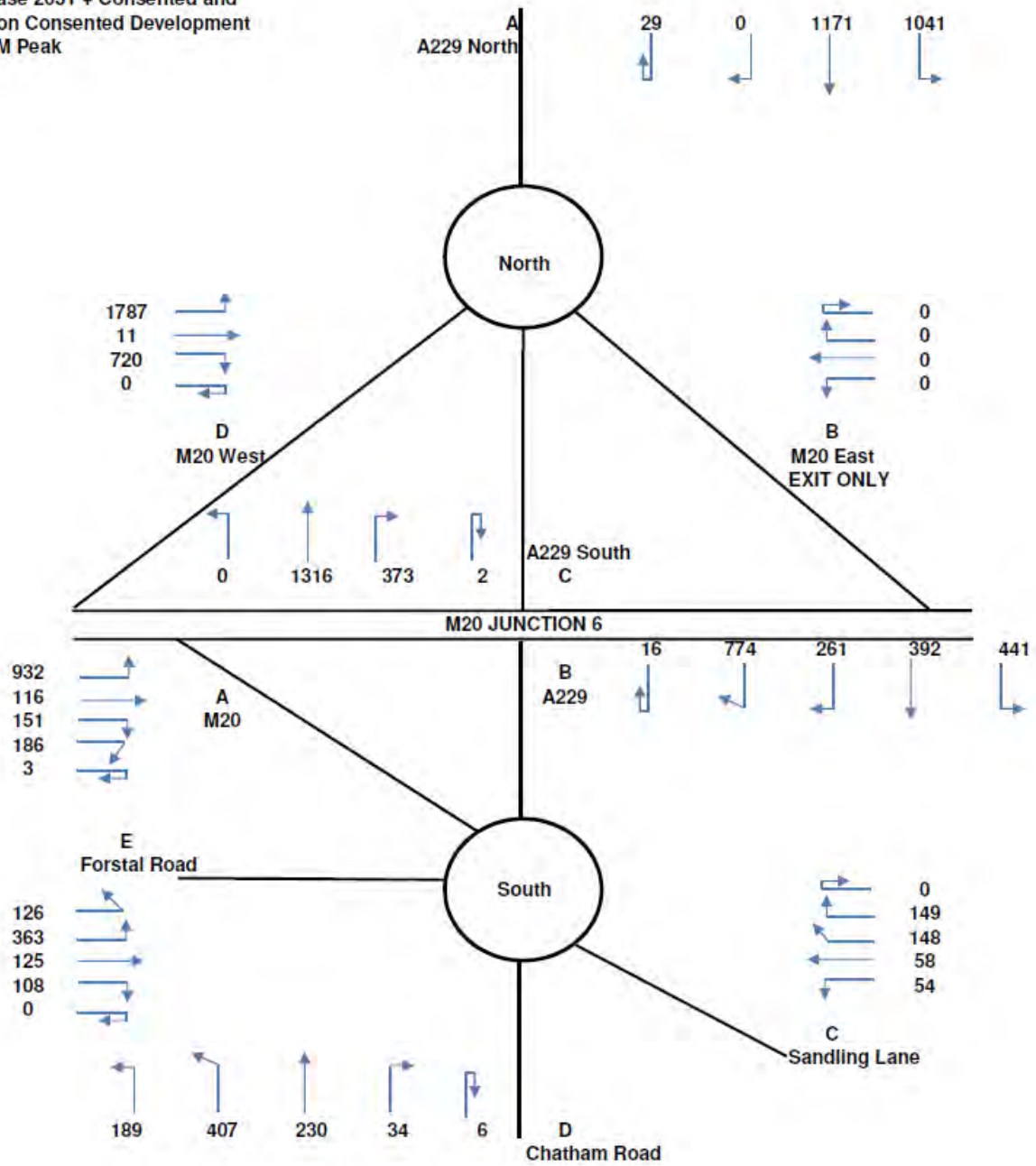


Figure 34: Future 2031 'with all development' Flows Junction 7 – AM Peak

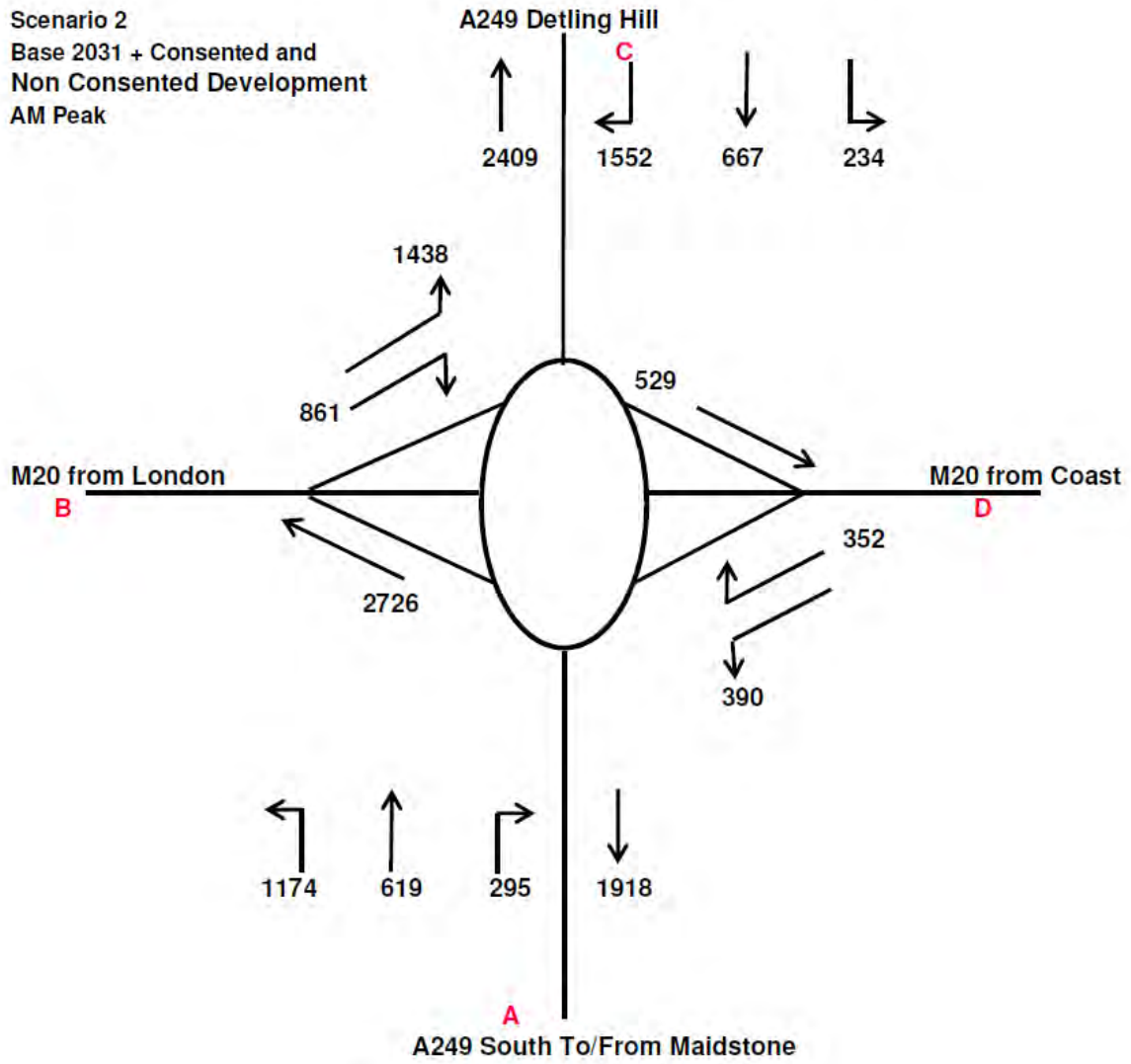


Figure 35: Future 2031 'with all development' Flows Junction 7 – PM Peak

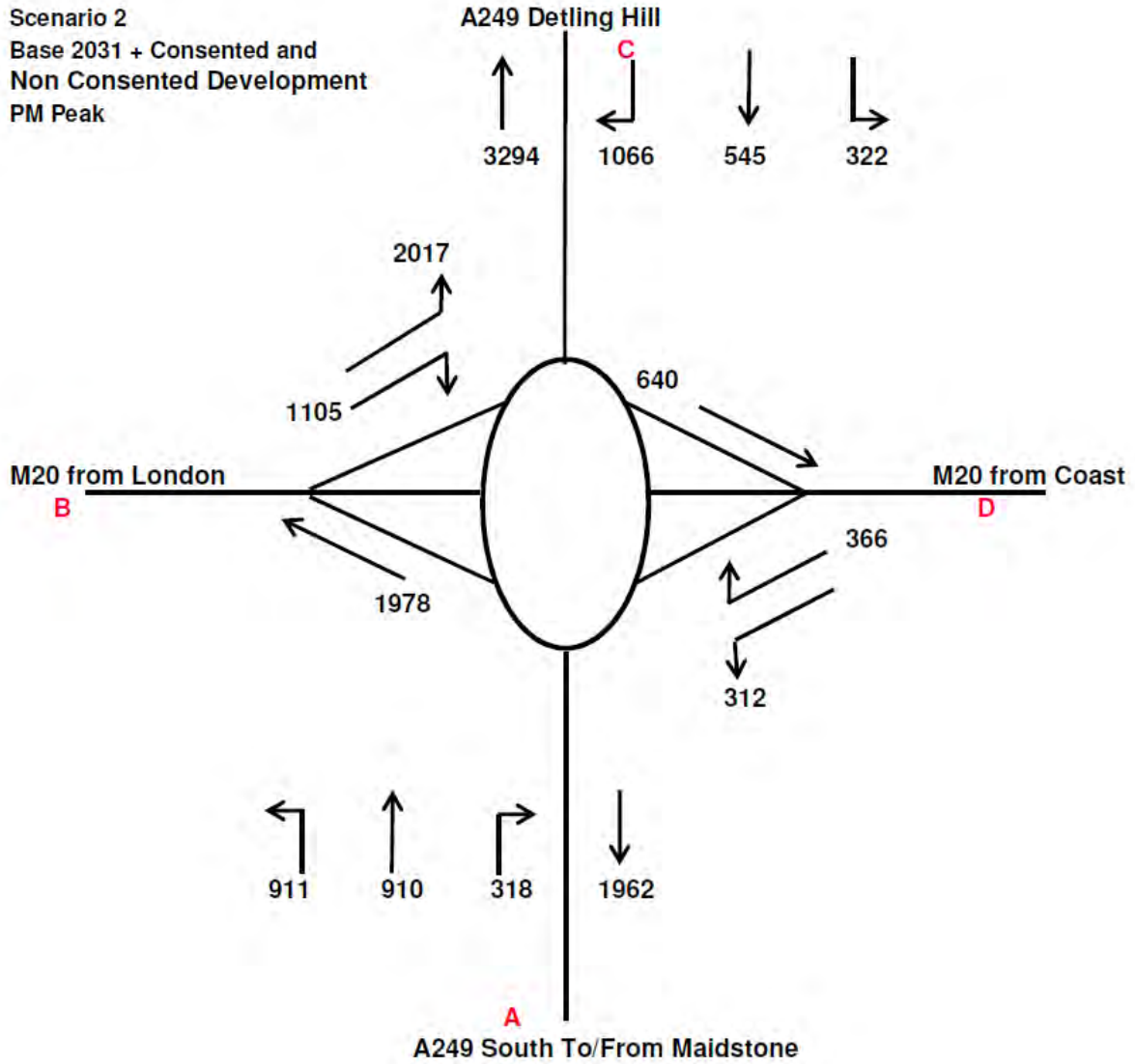


Figure 36: Future 2031 'with all development' Flows Junction 8 – AM Peak

Scenario 2
 Base 2031 + Consented and
 Non Consented Development
 Calibration
 AM Peak

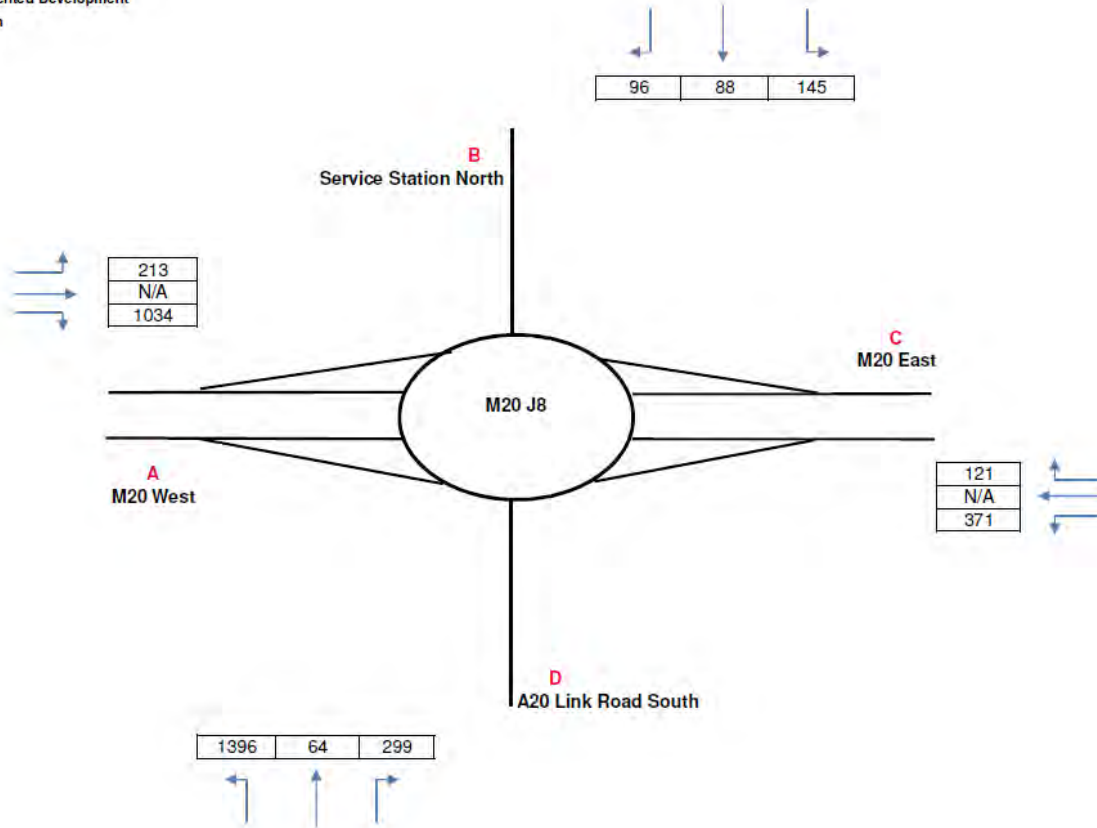
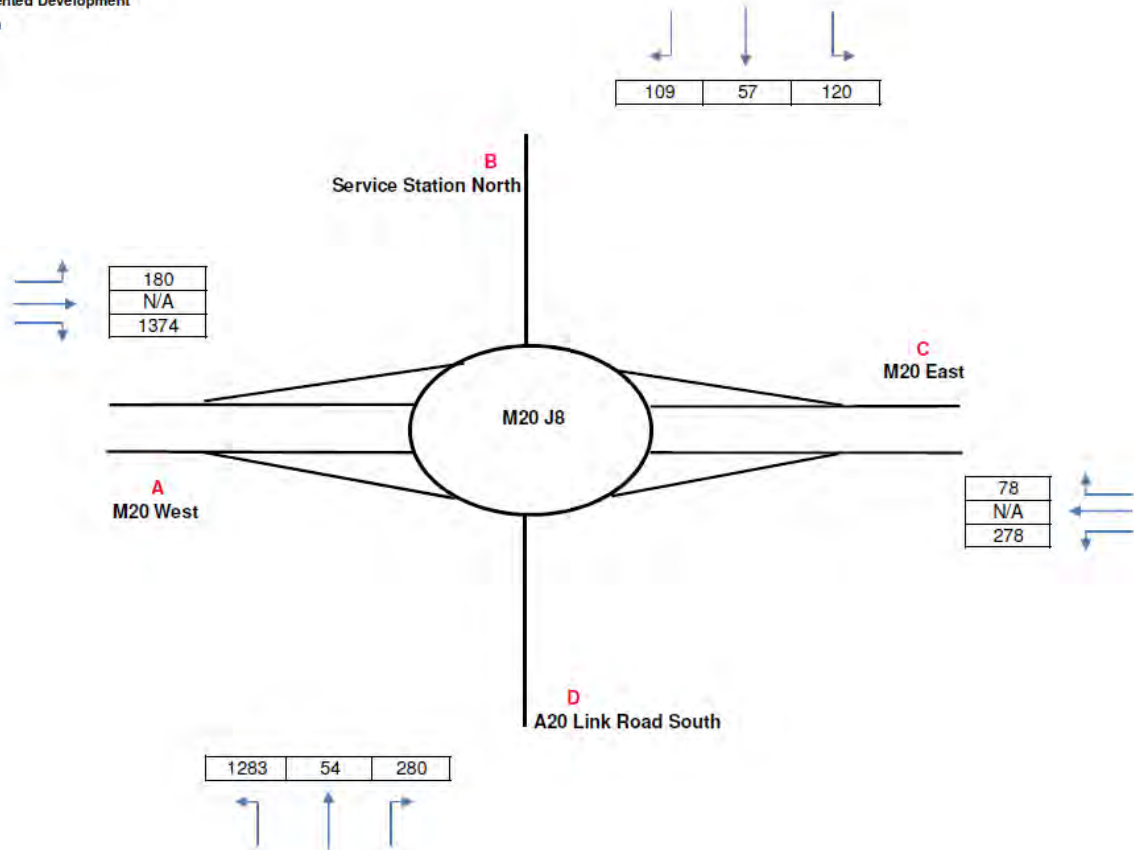


Figure 37: Future 2031 'with all development' Flows Junction 8 – PM Peak

Scenario 2
 Base 2031 + Consented and
 Non Consented Development
 Calibration
 PM Peak



2.7 SEMSL Flows

HE requested that the impact of the South East Maidstone Strategic Link (SEMSL) be considered. Flow information in the form of turning movements for each of the four motorway junctions was obtained from the strategic VISUM model from Amey for the 2031 DS4a (with SEMSL) and 2031 DS4b (without SEMSL) scenario runs.

The percent difference for each turning movement between the two runs was calculated and applied to the Future 2031 'with all development' flows (Scenario 2).

The calculated percentage difference with SEMSL for each movement at each junction and the SEMSL flows are shown in **Figure 38** to **Figure 53**.

Figure 38: J5 SEMSL AM growth factors

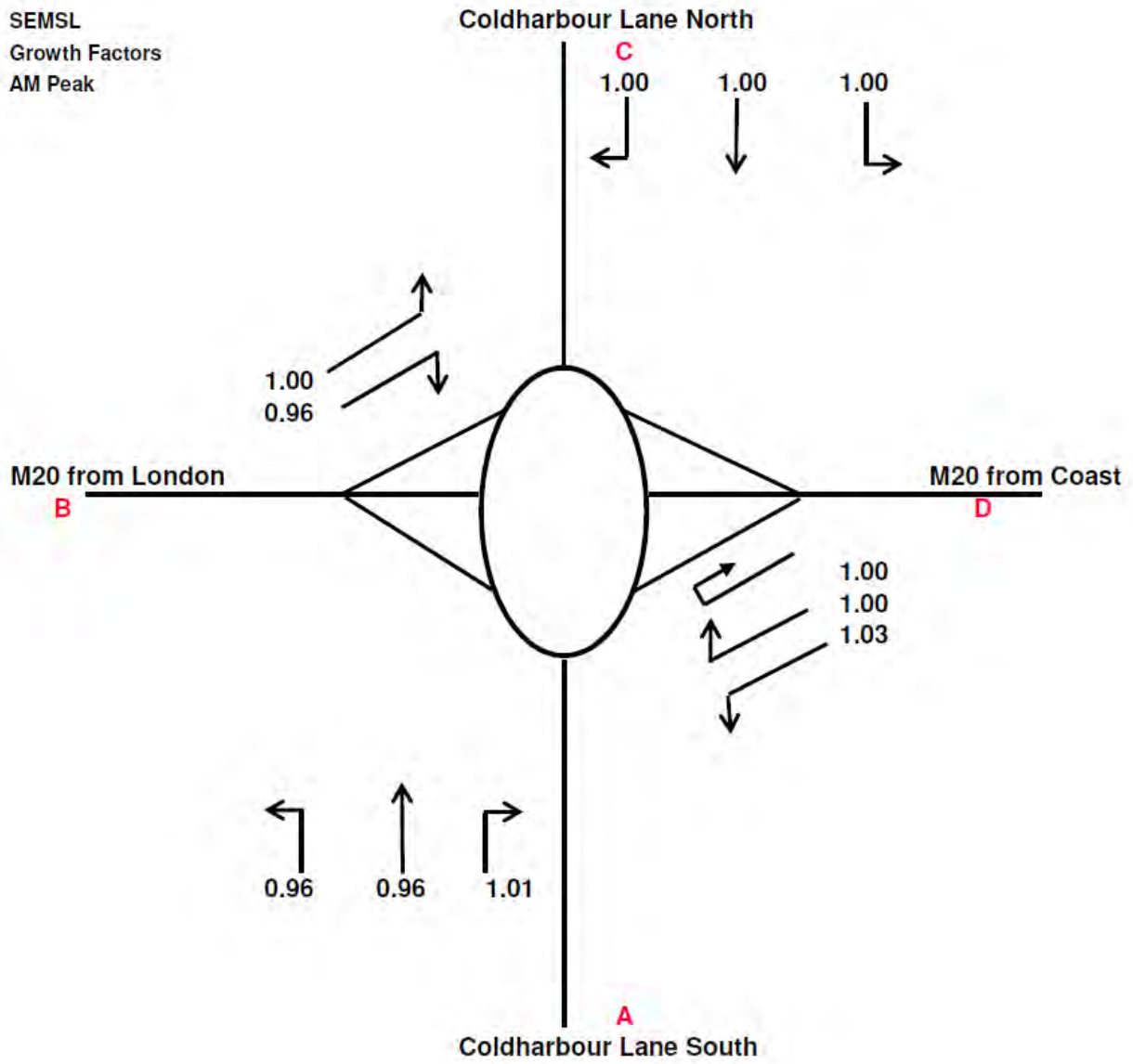


Figure 39: J5 SEMSL PM growth factors

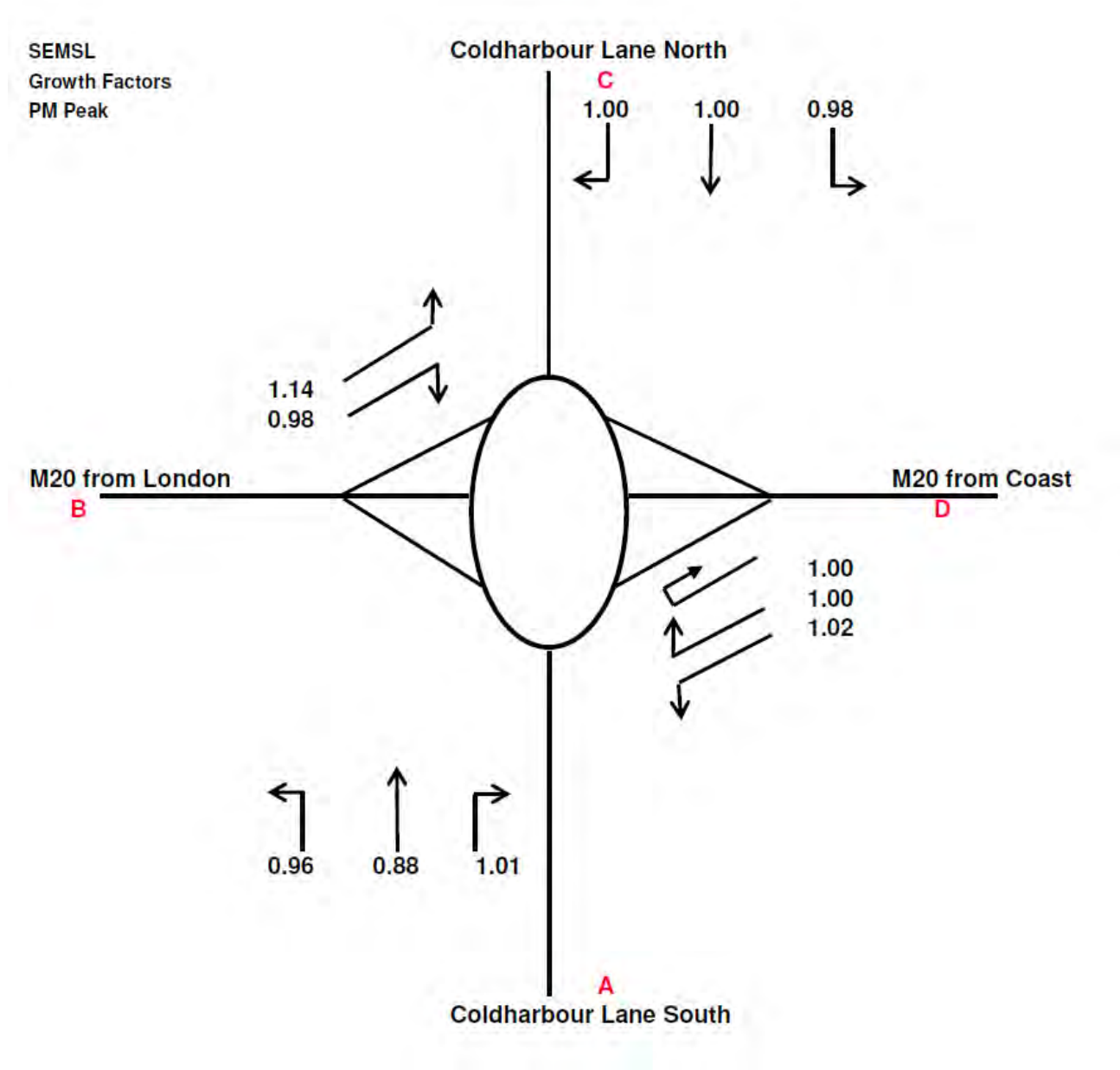


Figure 40: J5 SEMSL AM Flows

SEMSL Flows
AM Peak

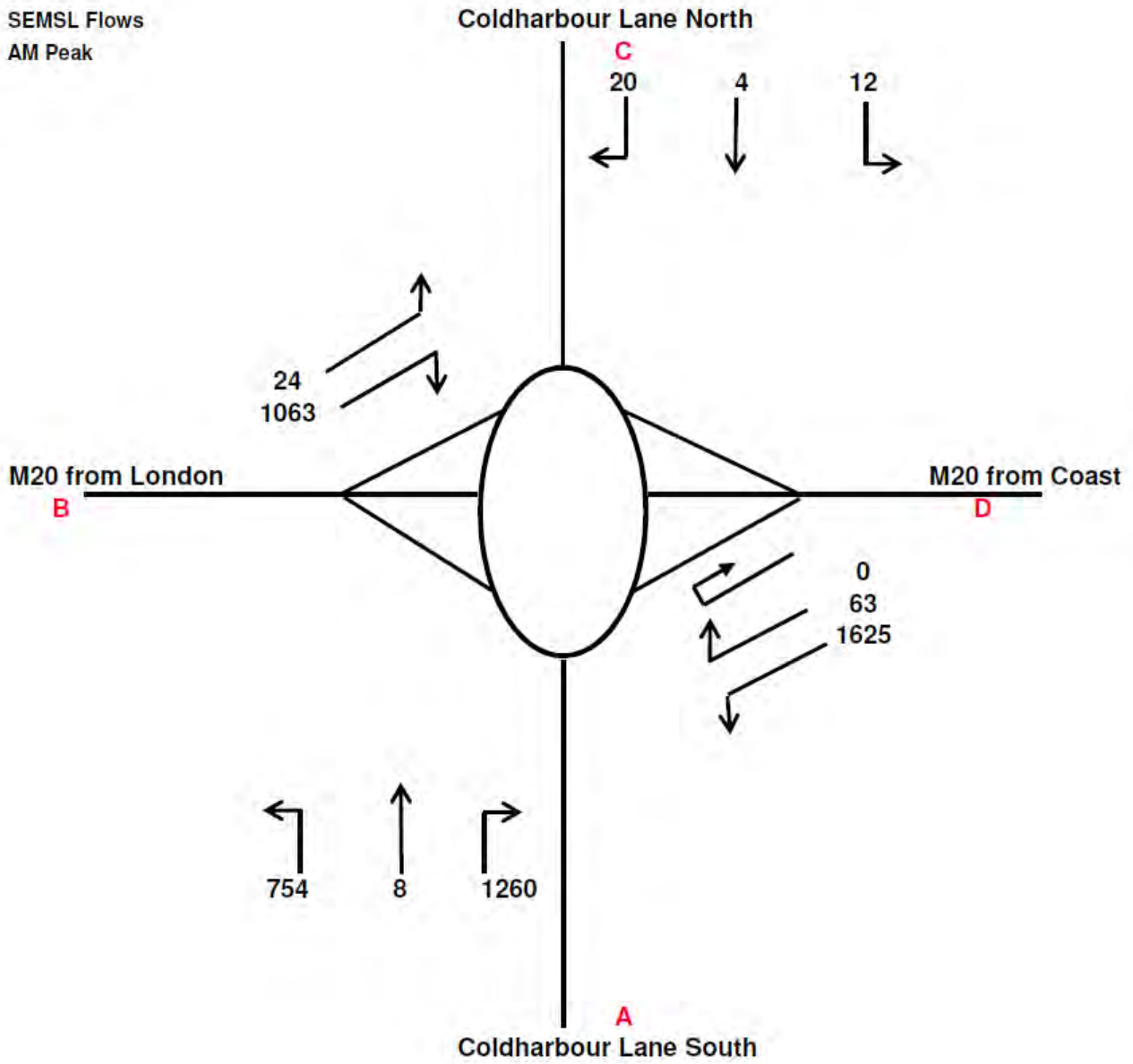


Figure 41: J5 SEMSL PM Flows

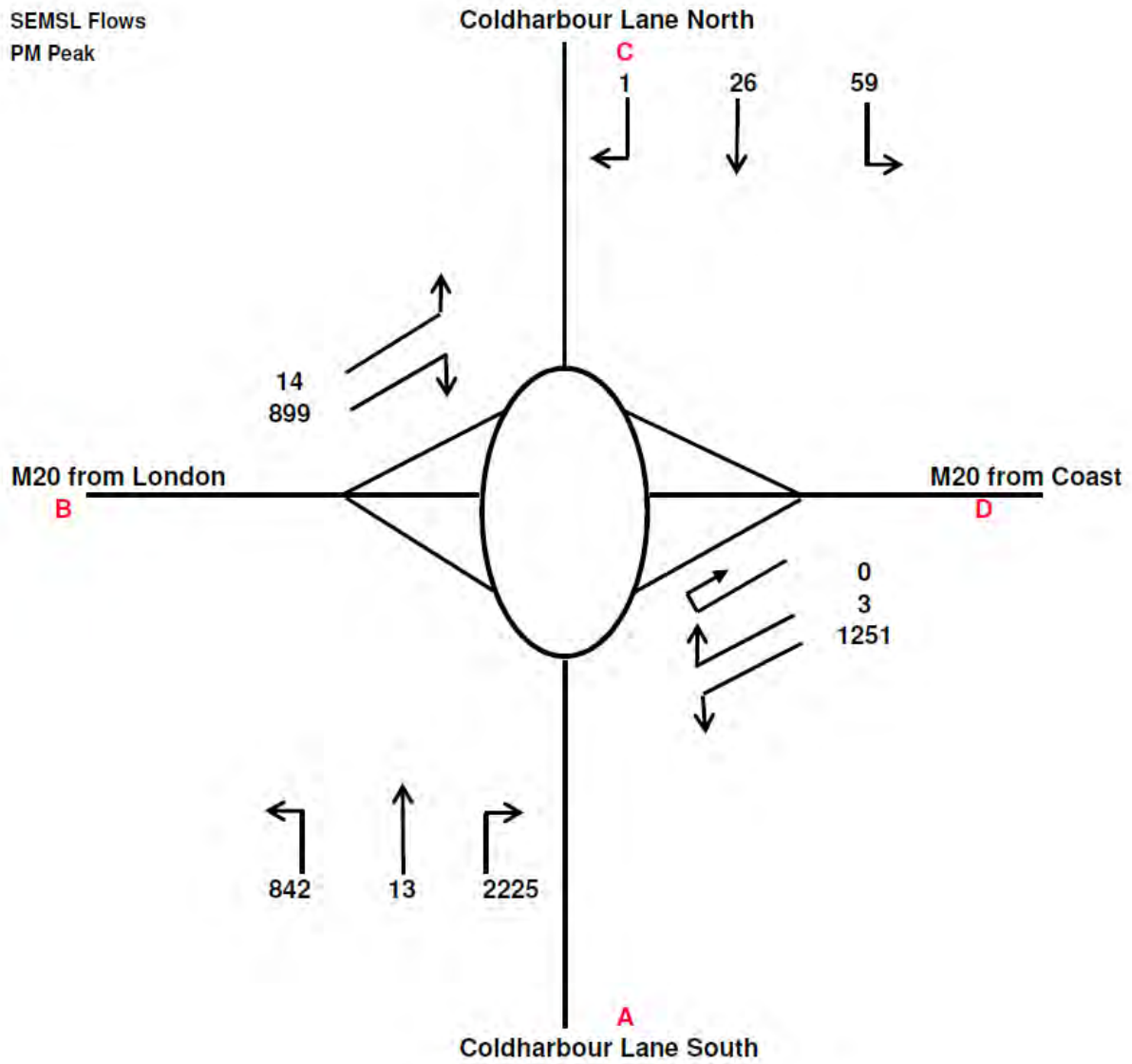


Figure 42: J6 SEMSL AM growth factors

SEMSL
Growth Factors
AM Peak

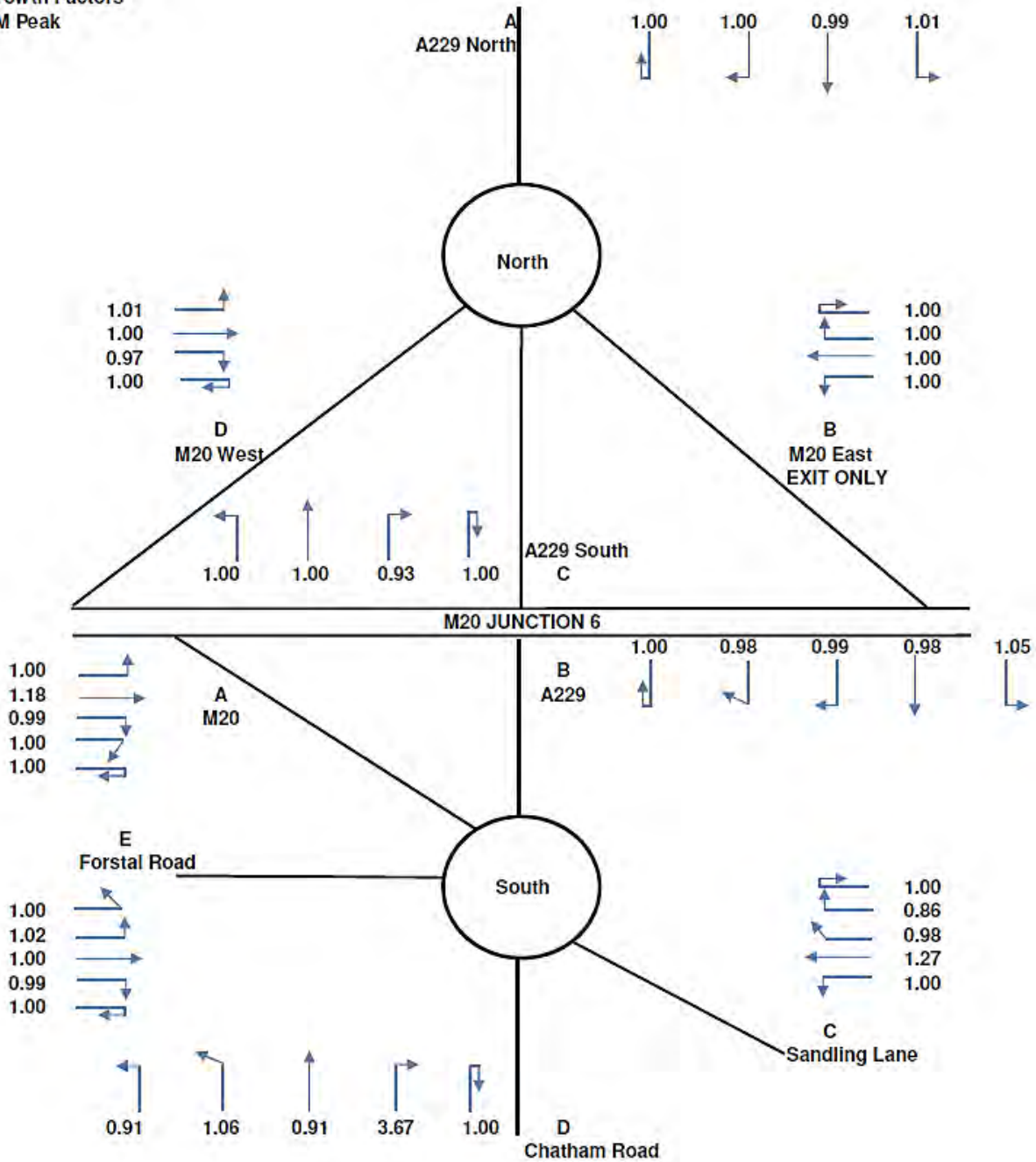


Figure 43: J6 SEMSL PM growth factors

SEMSL
Growth Factors
PM Peak

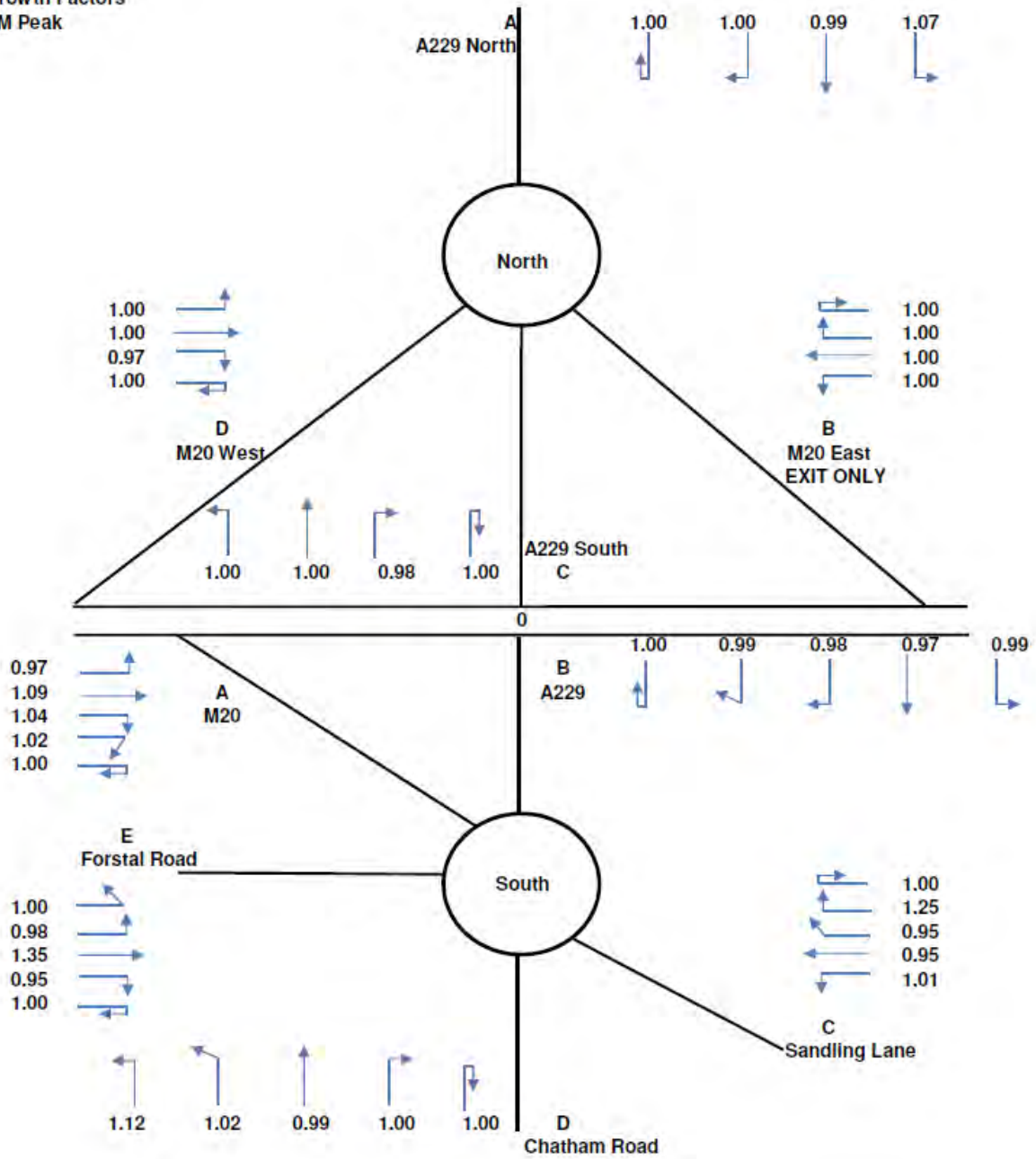


Figure 44: J6 SEMSL AM Flows

SEMSL Flows
AM Peak

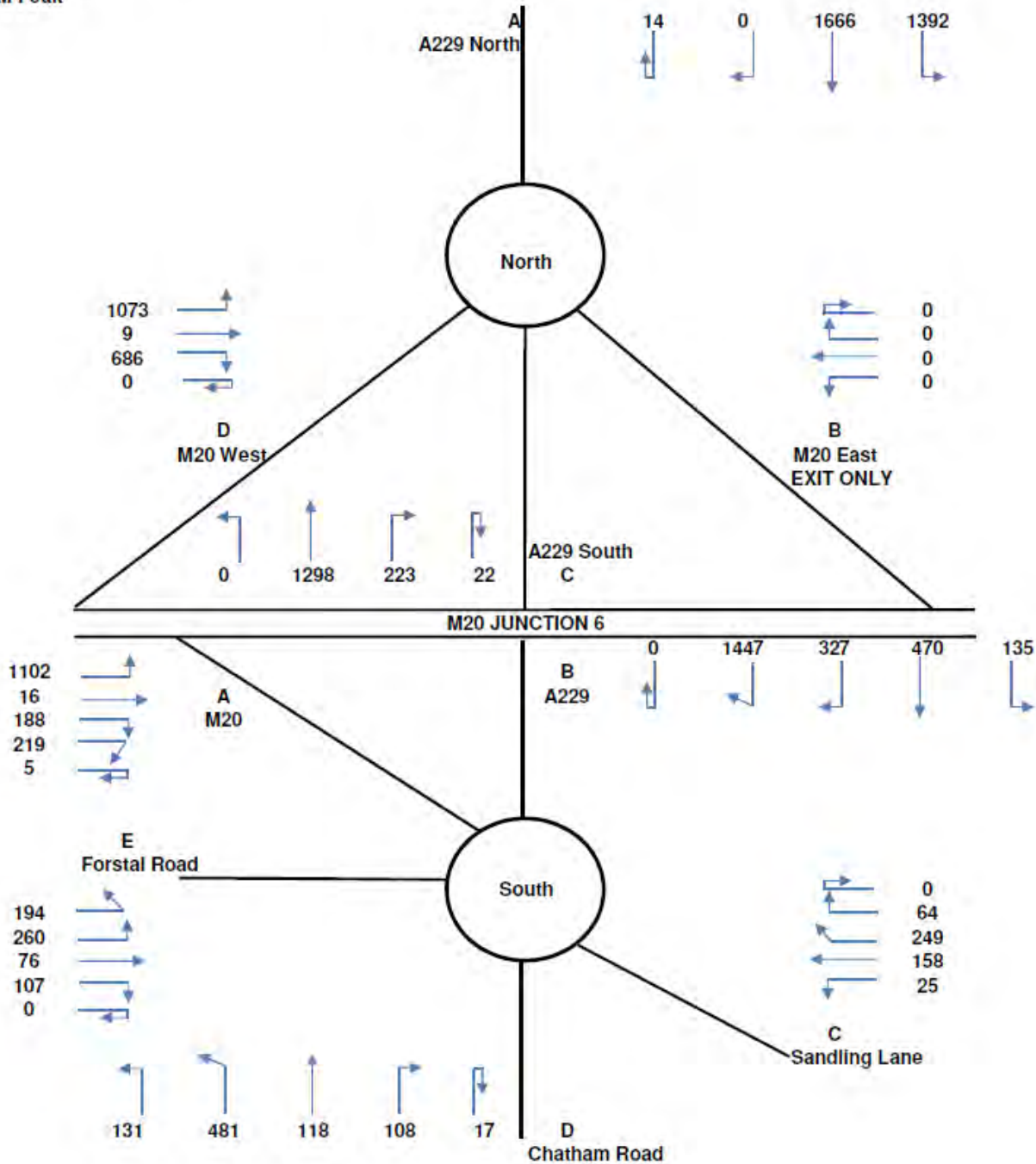


Figure 45: J6 SEMSL PM Flows

SEMSL Flows
PM Peak

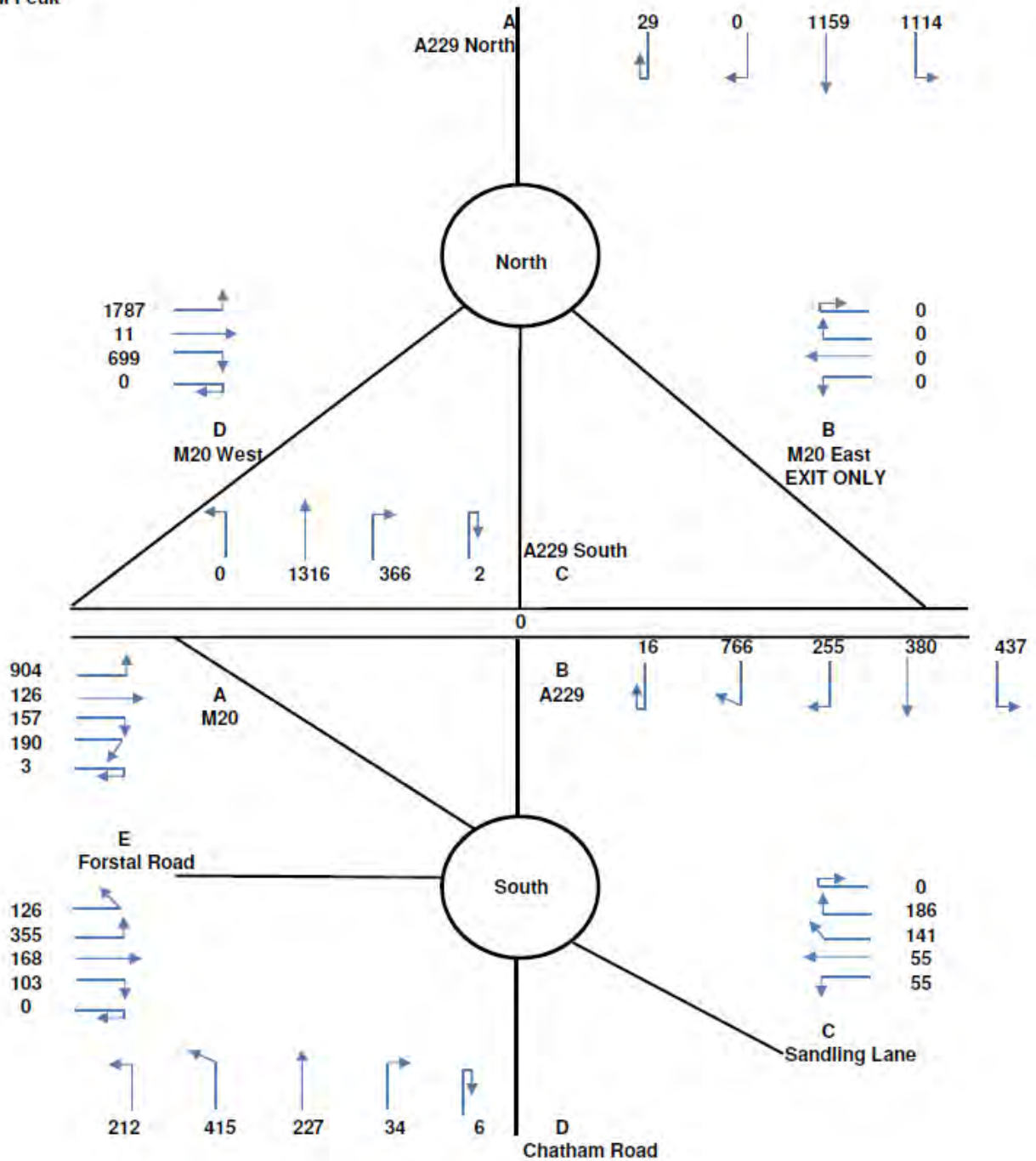


Figure 46: J7 SEMSL AM growth factors

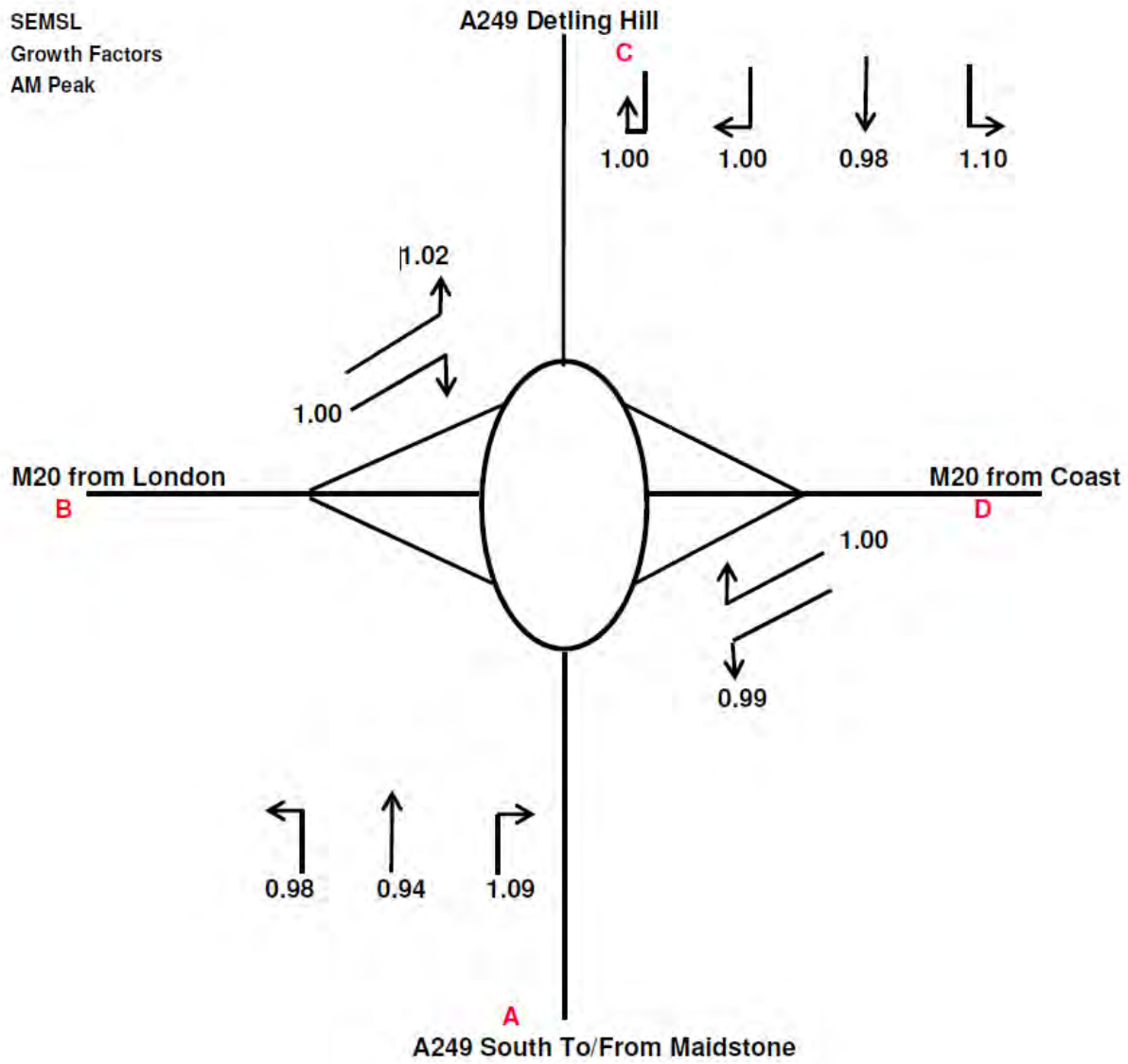


Figure 47: J7 SEMSL PM growth factors

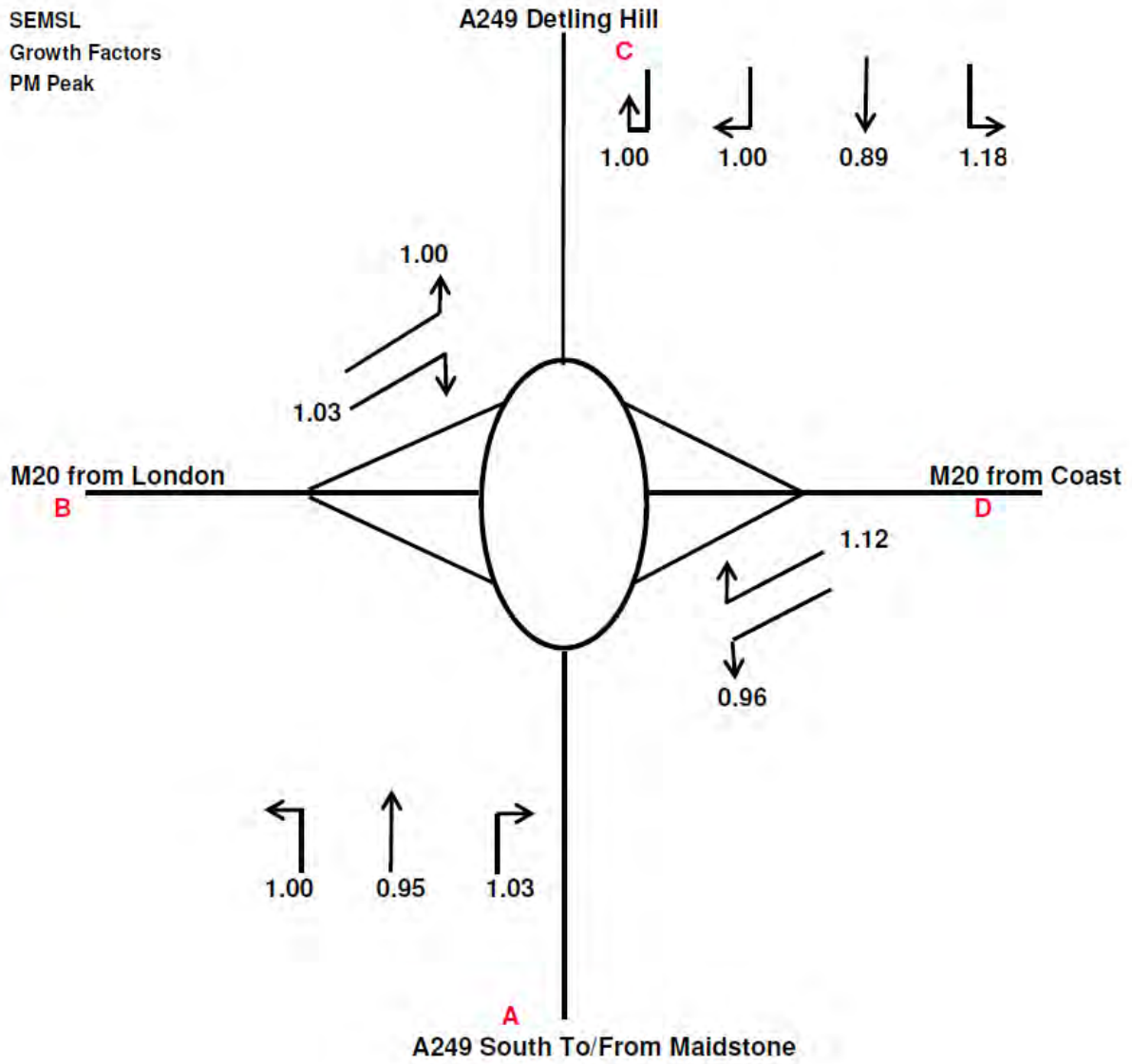


Figure 48: J7 SEMSL AM Flows

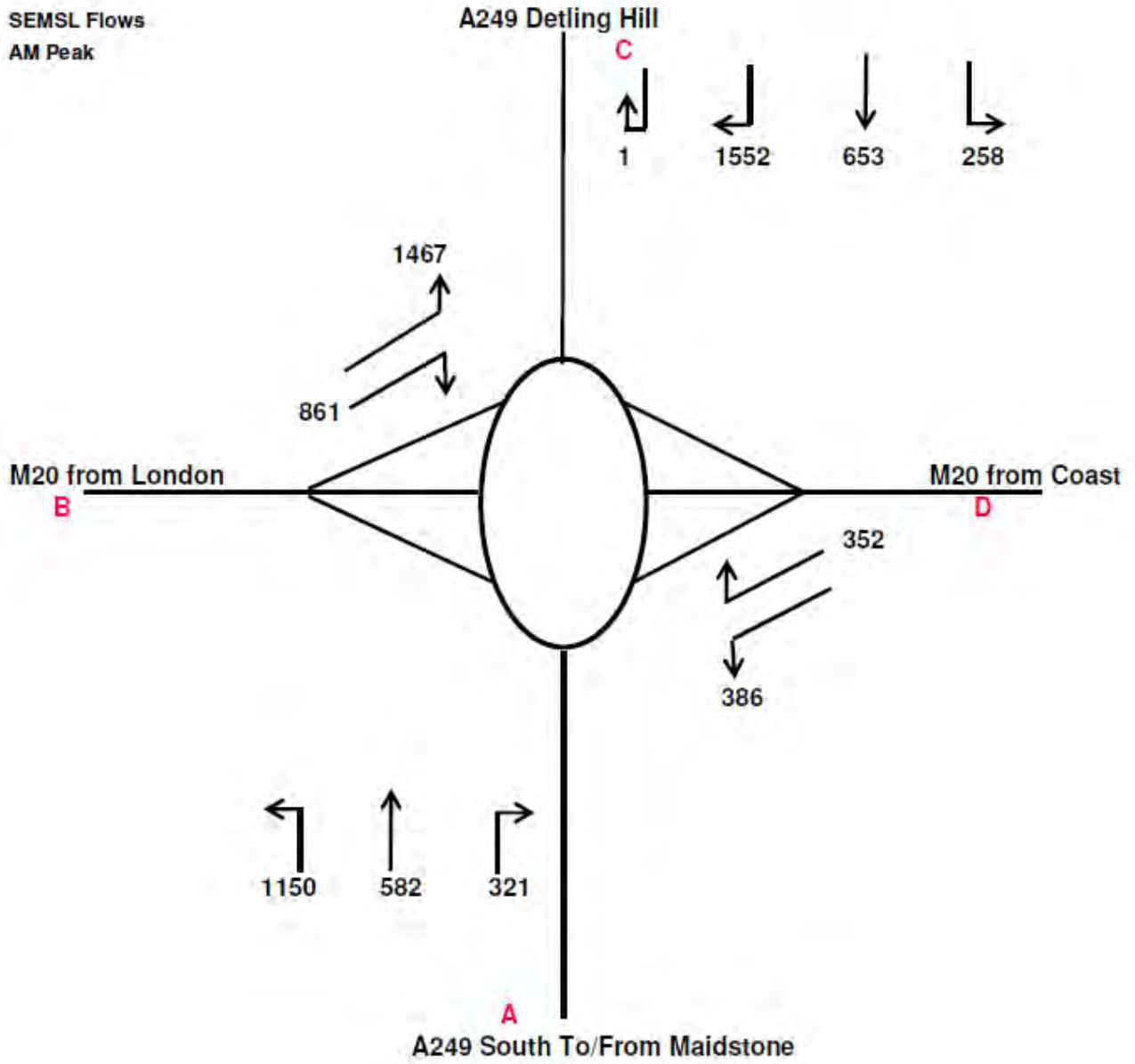


Figure 49: J7 SEMSL PM Flows

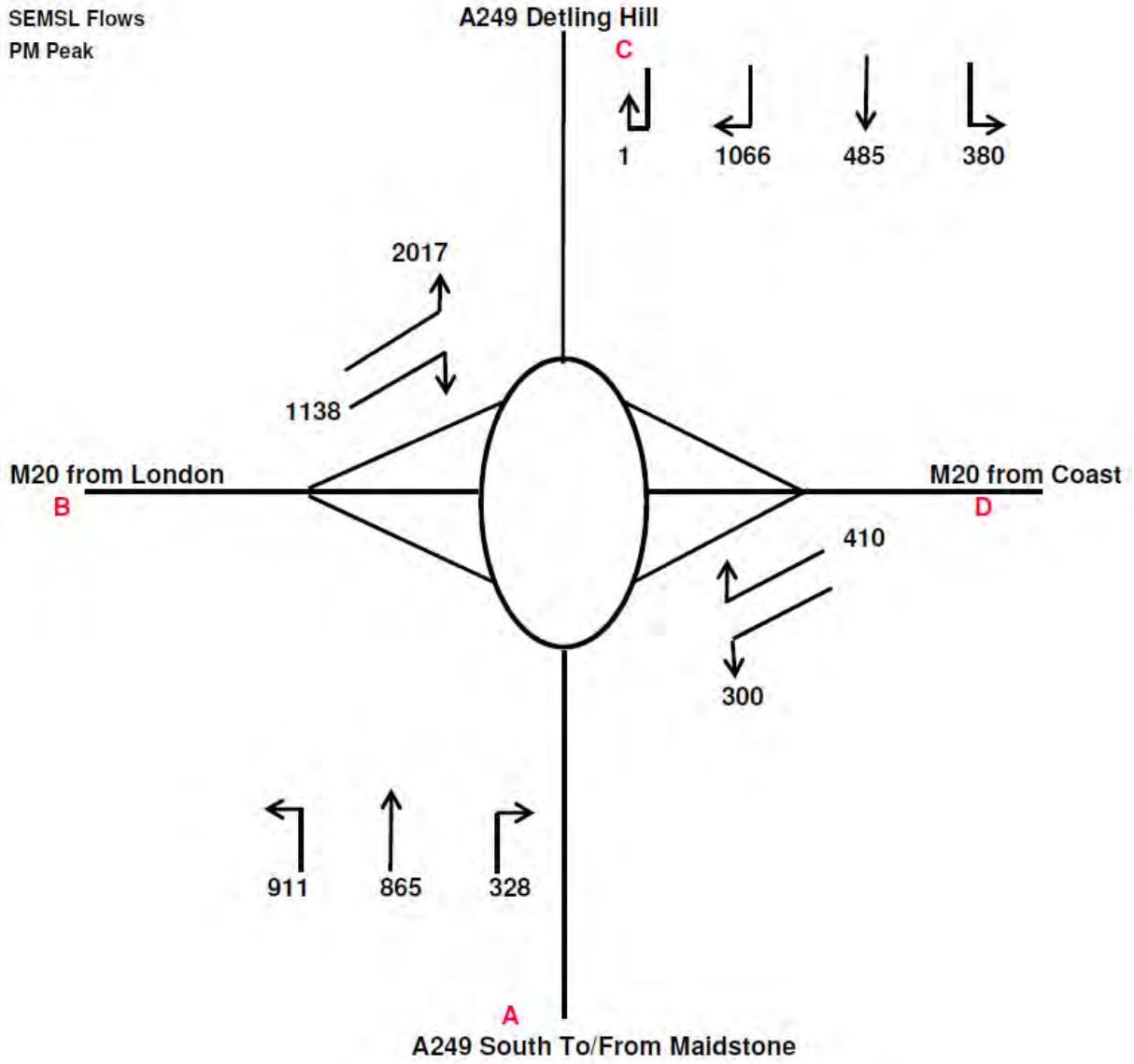


Figure 50: J8 SEMSL AM growth factors

SEMSL
Growth Factors
AM Peak

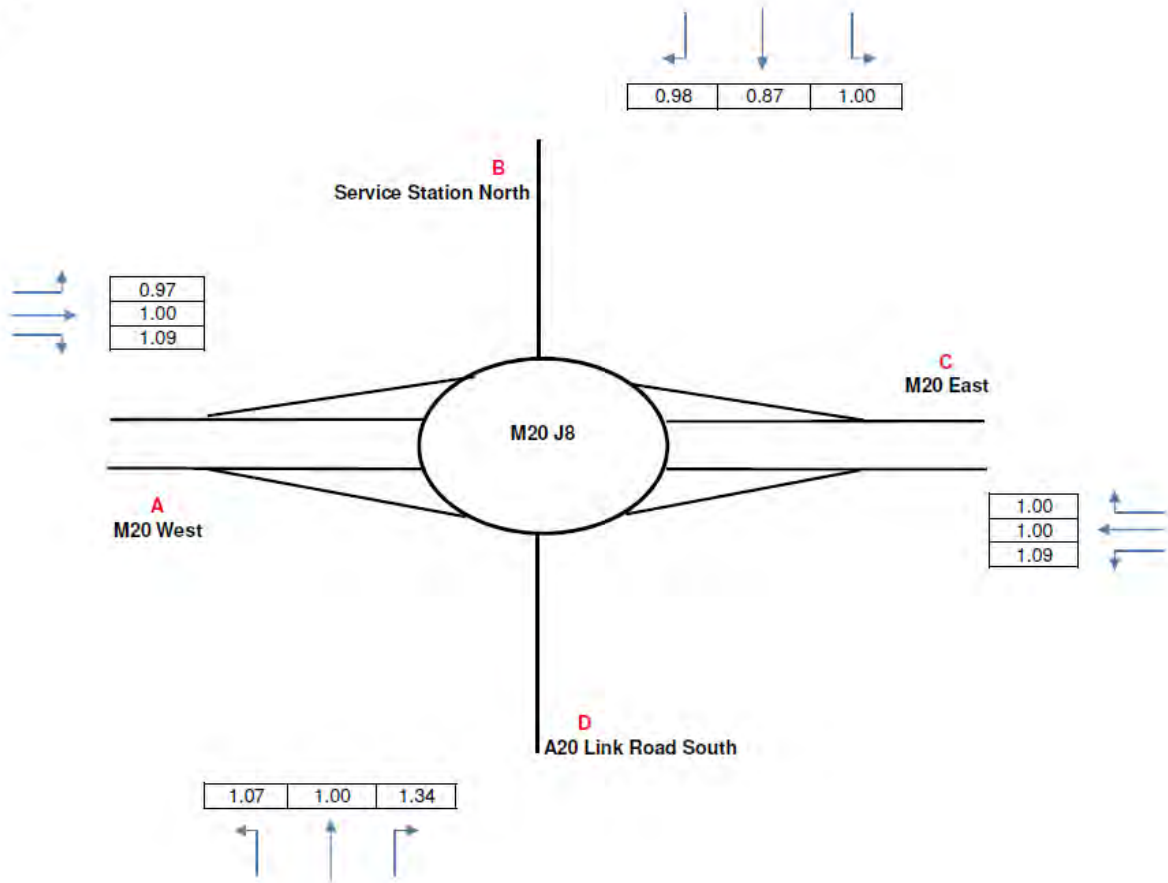


Figure 51: J8 SEMSL PM growth factors

SEMSL
Growth Factors
PM Peak

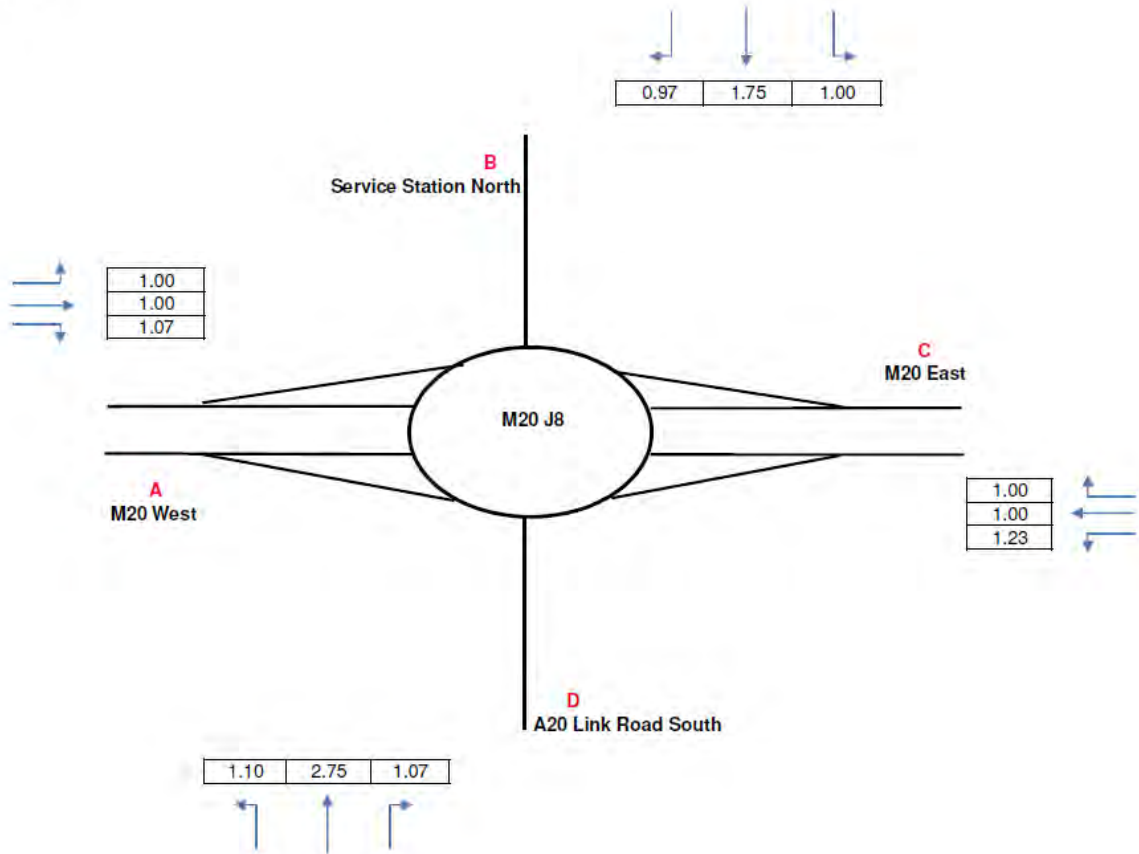


Figure 52: J8 SEMSL AM Flows

SEMSL Flows
AM Peak

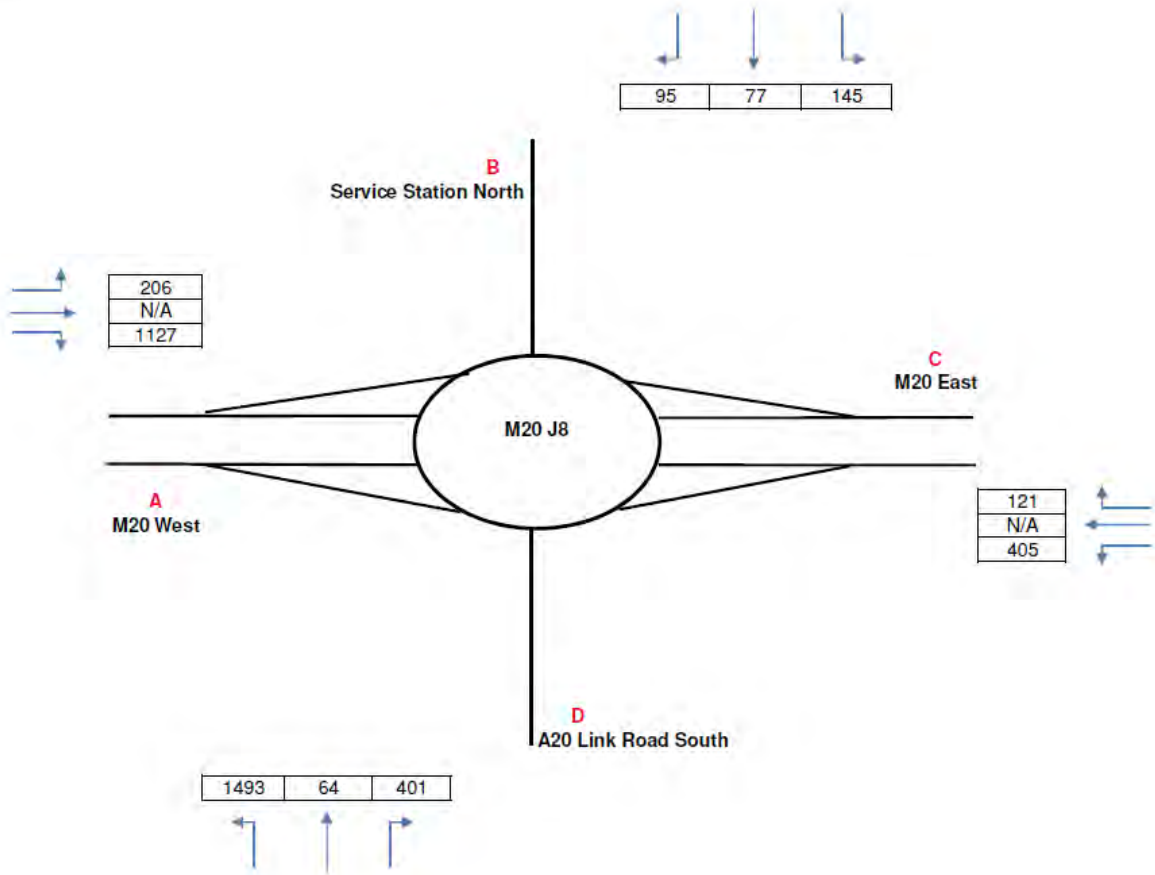
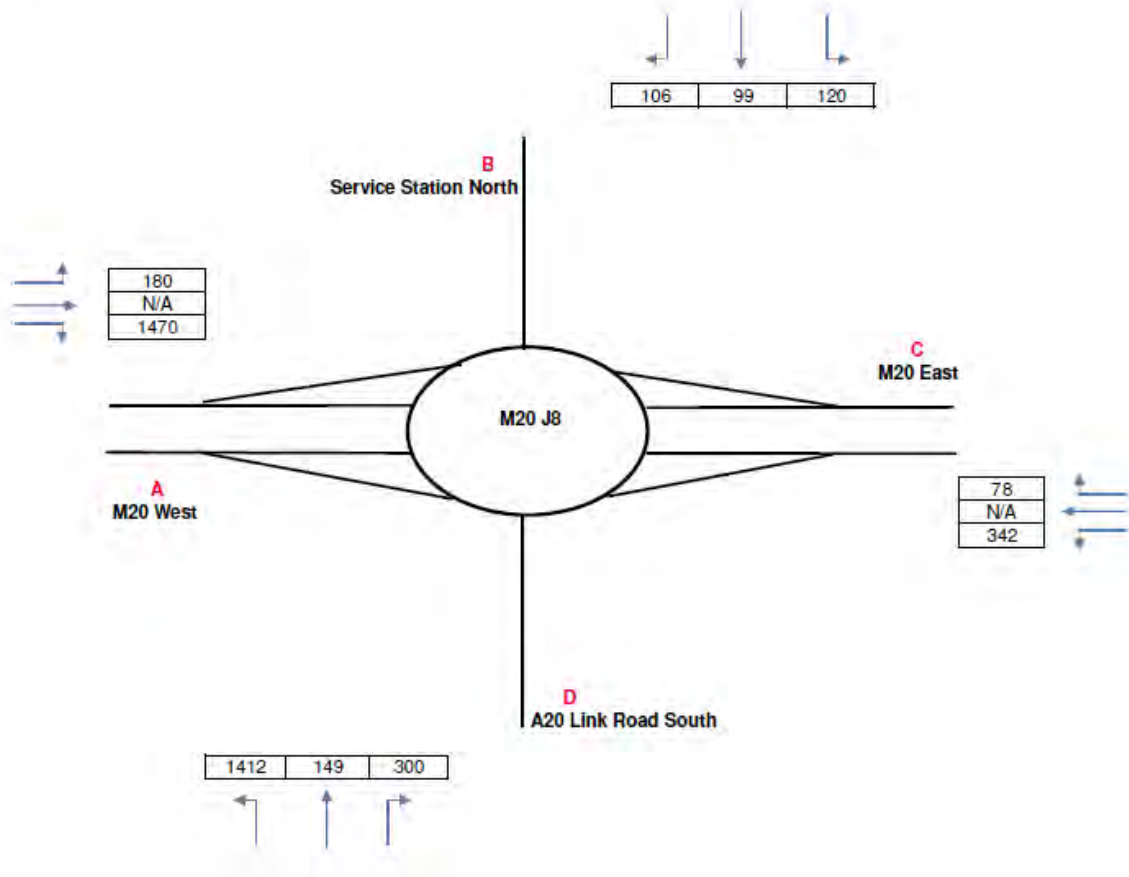


Figure 53: J8 SEMSL PM Flows

SEMSL Flows
PM Peak



3 Assessment of Existing Junction Layouts

3.1 Junction Modelling

ARCADY models were produced to test the roundabouts with the existing layouts, and Junctions 5, 7 and 8 were set up as large roundabouts while Junction 6 was set up as a linked dumbbell roundabout.

ARCADY requires for large roundabouts to be set up when the junction has an overall diameter in excess of 130 metres or if it connects with a motorway passing under or over it (i.e. grade-separated). This is applicable to Junctions 5, 7 and 8. Circulatory flows were calculated for the large junctions, based on the amount of traffic emerging from each arm, and the turning proportions, during the central 30 minutes of the modelled period. For Junction 6, the guidance states that where a motorway exit slip-road connects with an all-purpose road at a small roundabout on a different level from, but not directly above or below, the motorway, this should be modelled as a dumbbell junction and not as a grade separated junction.

ARCADY is one of the components within TRL's industry-standard package 'Junctions 9' (version 9.0.1) for the modelling of roundabout and priority intersections, and provides the assessment of the capacity and operation of a roundabout. A ratio of flow to capacity (RFC) is calculated, as well as estimated maximum queue. An RFC of 0.85 or below is the desirable threshold, but a junction would be considered to operate within its theoretical capacity between an RFC of 0.85 and 1.00. Any RFC values exceeding 1.00 indicate the junction would operate over maximum capacity and would become saturated with queuing concerns.

It should be noted for the ARCADY results presented, the max queue, delay and RFC are the 'worst' values over the total time period modelled (90 minutes), and therefore it is possible that each of the values are taken from a different time segment (divided into 15 minute time segments). Furthermore, the use of lane allocation within the model means the RFC values are provided for the entry lanes only, taking the 'worse case' result for a single entry lane for the worst time segment. The queue and delay values are provided for all lanes per arm (both entry and approach lanes) taking the 'worse case' result as a total arm as a whole for the worst time segment.

The assessment results for each junction can be found in **Table 12** to **Table 27** below, with full reports found in **Appendix C**.

Junction 5

Table 12: Base 2016

Movement	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Coldharbour Lane South	2	6	0.62	67	87	1.00
M20 West	34	90	0.98	124	529	1.03
Coldharbour Lane North	0	13	0.10	1	28	0.36
M20 East	186	464	1.02	7	17	0.82

The assessment results for Base 2016 show the junction is already operating over desirable and theoretical capacity in both the AM and PM peak hours, with RFC values exceeding 0.85 and 1.00. During the AM peak hour, the M20 West arm is operating over desirable capacity, with an RFC value for 0.98, a queue of 34 PCUs and delay of 90 seconds. Furthermore, the M20 East arm is operating over theoretical capacity, with an RFC value of 1.02, a queue of 186 PCUs and delay of 464 seconds.

During the PM peak hour, Coldharbour Lane South and M20 West arms are both operating over theoretical capacity, with RFC values of 1.00 and 1.03, queues of 67 and 124 PCUs and delays of 87 and 529 seconds.

Table 13: Base 2031

Movement	AM Queue (PCU)	Delay (s)	RFC	PM Queue (PCU)	Delay (s)	RFC
Coldharbour Lane South	3	7	0.66	149	199	1.01
M20 West	92	227	1.00	185	783	1.02
Coldharbour Lane North	0	13	0.11	1	24	0.35
M20 East	321	789	1.02	11	26	0.88

The assessment results for Base 2031 show the growth in background traffic would cause the junction to further exceed theoretical capacity in the AM and PM peak, with RFC values exceeding 1.00. During the AM peak hour, the M20 West and M20 East arms will both exceed theoretical capacity. The M20 West arm presents an RFC value of 1.00, a queue of 92 PCUs and delay of 227 seconds. The M20 East arm presents an RFC value of 1.02, a queue of 321 PCUs and delay of 789 seconds.

During the PM peak hour, Coldharbour Lane South and M20 West arms would both operate over theoretical capacity (experiencing excessive queuing and significant congestion), with the M20 East arm operating over desirable capacity. The Coldharbour Lane South arm would have an RFC value of 1.01, queue of 149 PCUs and delay of 199 seconds, while the M20 West arm would have an RFC value of 1.02, queue of 185 PCUs and delay of 783 seconds and the M20 East arm would have an RFC value of 0.88, queue of 11 PCUs and delay of 26 seconds.

Table 14: 2031 + Consented Development

Movement	AM Queue (PCU)	Delay (s)	RFC	PM Queue (PCU)	Delay (s)	RFC
Coldharbour Lane South	3	7	0.68	175	246	1.00
M20 West	112	278	1.02	124	560	1.01
Coldharbour Lane North	0	12	0.12	1	22	0.33
M20 East	350	860	1.01	13	33	0.91

The assessment results for 2031 + Consented Development show the growth in development traffic would cause the junction to further exceed capacity in the AM and PM peak, with RFC values exceeding 1.00. During the AM peak hour, the M20 West and M20 East arms will both exceed theoretical capacity. The M20 West arm presents an RFC value of 1.02, a queue of 112

PCUs and delay of 278 seconds. The M20 East arm presents an RFC value of 1.01, queuing of 350 PCUs and delay of 860 seconds.

During the PM peak hour, Coldharbour Lane South and M20 West arms would both operate over theoretical capacity, with the M20 East arm operating over desirable capacity. The Coldharbour Lane South arm would have an RFC of 1.00, queuing of 175 PCUs and delay of 246 seconds, whilst the M20 West arm would have an RFC 1.01, queuing of 124 PCUs and delay of 560 seconds and the M20 East arm would have an RFC value of 0.91, queue of 13 PCUs and delay of 33 seconds.

Table 15: 2031 + All Development

Movement	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Coldharbour Lane South	4	8	0.70	228	348	1.01
M20 West	149	387	1.01	223	911	1.02
Coldharbour Lane North	0	13	0.11	1	20	0.33
M20 East	423	973	1.01	20	46	0.95

The assessment results for 2031 + All Development show the growth in development traffic would lead to the junction further exceeding capacity in both the AM and PM peak, with RFC values over 1.00. During the AM peak, the M20 West and M20 East arms would both exceed theoretical capacity. The M20 West arm would have an RFC value of 1.01, a queue of 149 PCUs and delay of 387 seconds whilst the M20 East arm would have an RFC value of 1.01, a queue of 423 PCUs and delay of 973 seconds.

During the PM peak hour, Coldharbour Lane South and M20 West arms would both be exceeding theoretical capacity, with the M20 East arm exceeding desirable capacity. Coldharbour Lane South arm would have an RFC value of 1.01, a queue of 228 PCUs and delay of 348 seconds, whilst the M20 West arm would have an RFC value of 1.02, a queue of 223 PCUs and delay of 911 seconds and the M20 East arm would have an RFC value of 0.95, a queue of 20 PCUs and delay of 46 seconds.

Whilst the RFCs do not increase compared to Scenario 1, both queues and delays increase significantly.

Junction 6

It should be noted that the ARCADY model was adjusted for the Running Horse Roundabout at Junction 6, in order to calibrate against the traffic survey queue data obtained in June 2016. For the A229 North arm, the queueing counts illustrated significantly lower queuing than the queue lengths shown in the ARCADY model. It was expected that driver behaviour was influencing the queueing counts, with drivers using both lanes on entry to the M20 West arm (road markings assigning one lane only), and therefore lane allocation was adjusted to replicate this behaviour within the ARCADY model.

Table 16: Base 2016

Movement	AM Queue (PCU)	Delay (s)	RFC	PM Queue (PCU)	Delay (s)	RFC
Cobtree Roundabout						
A229 North	3	6	0.69	2	5	0.50
M20 East	-	-	-	-	-	-
A229 South	48	128	1.04	75	198	1.11
M20 West	3	17	0.73	3	17	0.76
Running Horse Roundabout						
M20 West	73	158	0.98	122	402	0.87
A229 North	34	48	0.99	5	9	0.78
Sandling Lane	2	18	0.61	1	10	0.33
Chatham Road	2	10	0.58	2	8	0.47
Forstal Road	38	194	0.99	27	115	0.83

The assessment results for Base 2016 show the junction is already operating over both theoretical and desirable capacity in both the AM and PM peak hours, with RFC values exceeding 1.00 and 0.85 respectively.

During the AM Peak hour, the A229 South arm at Cobtree Roundabout exceeds theoretical capacity while for the Running Horse Roundabout the M20 West, A229 North and Forstal Road arms exceed desirable capacity. The A229 South arm has an RFC value of 1.04, queue of 48 PCUs and delay of 128 seconds while the M20 West, A229 North and Forstal Road arms have RFC values of 0.98, 0.99 and 0.99, queues of 73, 34 and 28 PCUs and delays of 158, 48 and 194 seconds respectively.

During the PM peak hour, the A229 South arm at Cobtree Roundabout exceeds theoretical capacity with an RFC value of 1.11, queue of 75 PCUs and delay of 198 seconds. For the Running Horse Roundabout the M20 West exceeds desirable capacity with an RFC value of 0.87, queue of 122 PCUs and delay of 402 seconds.

Table 17: Base 2031

Movement	AM Queue (PCU)	Delay (s)	RFC	PM Queue (PCU)	Delay (s)	RFC
Cobtree Roundabout						
A229 North	6	9	0.76	2	5	0.56
M20 East	-	-	-	-	-	-
A229 South	56	146	1.04	76	201	1.07
M20 West	6	24	0.81	5	23	0.82
Running Horse Roundabout						
M20 West	142	383	0.99	255	805	0.86
A229 North	96	117	1.08	7	12	0.84
Sandling Lane	3	23	0.70	2	12	0.36
Chatham Road	3	13	0.64	3	11	0.52
Forstal Road	73	435	1.02	72	366	0.83

The assessment results for the Base 2031 shows the growth in background traffic would cause the junction to exceed theoretical capacity in the AM and PM peak, with RFC values exceeding 1.00.

During the AM peak hour, the A229 South arm at Cobtree Roundabout and the A229 North and Forstal Road arms at Running Horse Roundabout exceed theoretical capacity, with the M20 West arm exceeding desirable capacity. The A229 South arm has an RFC value of 1.04, queue of 56 PCUs and delay of 146 seconds, while the M20 West, A229 North and Forstal Road arms have RFC values of 0.99, 1.08 and 1.02, queues of 142, 96 and 73 PCUs and delays of 383, 117 and 435 seconds respectively.

During the PM peak hour, the A229 South arm at Cobtree Roundabout exceeds theoretical capacity with an RFC value of 1.07, queue of 76 PCUs and delay of 201 seconds. At Running Horse Roundabout, the M20 West arm exceeds desirable capacity with an RFC value of 0.86, queue of 255 PCUs and delay of 805 seconds.

Table 18: 2031 + Consented Development

Movement	AM Queue (PCU)	Delay (s)	RFC	PM Queue (PCU)	Delay (s)	RFC
Cobtree Roundabout						
A229 North	8	11	0.77	2	5	0.57
M20 East	-	-	-	-	-	-
A229 South	57	148	1.04	76	201	1.08
M20 West	8	29	0.82	5	25	0.84
Running Horse Roundabout						
M20 West	157	429	0.98	283	885	0.86
A229 North	109	132	1.09	8	13	0.85
Sandling Lane	3	23	0.71	2	12	0.37
Chatham Road	3	13	0.67	3	11	0.54
Forstal Road	85	530	1.02	82	441	0.82

The assessment results for the 2031 + Consented Development shows the growth in development traffic would cause the junction to again exceed theoretical capacity and desirable capacity during both the AM and PM peak hours.

During the AM peak hour, the A229 South arm at Cobtree Roundabout and the A229 North and Forstal Road arms at Running Horse Roundabout exceed theoretical capacity, with the M20 West arm exceeding desirable capacity. The A229 South arm has an RFC value of 1.04, queue of 57 PCUs and delay of 148 seconds, while the M20 West, A229 North and Forstal Road arms have RFC values of 0.98, 1.09 and 1.02, queues of 157, 109 and 85 PCUs and delays of 429, 132 and 530 seconds respectively.

During the PM peak hour, the A229 South arm at Cobtree Roundabout exceeds theoretical capacity with an RFC value of 1.08, queue of 76 PCUs and delay of 201 seconds. At Running Horse Roundabout, the M20 West and A229 North arms exceeds desirable capacity with RFC values of 0.86 and 0.85, queue of 283 and 8 PCUs and delay of 885 and 13 seconds.

Table 19: 2031 + All Development

Movement	AM Queue (PCU)	Delay (s)	RFC	PM Queue (PCU)	Delay (s)	RFC
Cobtree Roundabout						
A229 North	16	18	0.79	2	5	0.58
M20 East	-	-	-	-	-	-
A229 South	59	151	1.05	76	204	1.09
M20 West	14	50	0.83	6	28	0.86
Running Horse Roundabout						
M20 West	193	512	0.98	340	1025	0.87
A229 North	127	168	1.11	9	15	0.87
Sandling Lane	4	25	0.72	2	14	0.39
Chatham Road	3	14	0.68	3	12	0.57
Forstal Road	111	684	1.02	116	630	0.80

The assessment results for the 2031 + All Development shows the growth in development traffic would cause the junction to again exceed theoretical capacity and desirable capacity during both the AM and PM peak hours.

During the AM peak hour, the A229 South arm at Cobtree Roundabout and the A229 North and Forstal Road arms at Running Horse Roundabout exceed theoretical capacity, with the M20 West exceeding desirable capacity. The A229 South arm has an RFC value of 1.05, queue of 59 PCUs and delay of 151seconds, while the M20 West, A229 North and Forstal Road arms have RFC values of 0.98, 1.11 and 1.02, queues of 193, 127 and 111 PCUs and delays of 512, 168 and 684 seconds respectively.

During the PM peak hour, the A229 South arm at Cobtree Roundabout exceeds theoretical capacity with an RFC value of 1.09, queue of 76 PCUs and delay of 204 seconds. At Running Horse Roundabout, the M20 West and the A229 North arms exceed desirable capacity with an RFC values of 0.87, queues of 340 and 9 PCUs and delays of 1025 and 15 seconds respectively.

Junction 7

Table 20: Base 2016

Movement	AM Queue (PCU)	Delay (s)	RFC	PM Queue (PCU)	Delay (s)	RFC
A249 South	5	18	0.77	51	141	1.10
M20 West	5	19	0.76	75	229	1.02
A249 Detling Hill	419	780	1.00	94	209	1.01
M20 East	4	16	0.68	4	22	0.74

The assessment results for Base 2016 show the junction is already operating over theoretical capacity in both the AM and PM peak, with RFC values exceeding 1.00. During the AM peak hour, the A249 Detling Hill arm would be operating over theoretical capacity with an RFC value of 1.00, queue of 419 PCUs and delay of 780 seconds.

During the PM peak, the A249 South, M20 West and A249 Detling Hill arms all operate over theoretical capacity. The A249 South arm has an RFC value of 1.10, queue of 51 PCUs and

delay of 141 seconds while M20 West arm has an RFC value of 1.02, queue of 75 PCUs and delay of 229 seconds and A249 Detling Hill arm has an RFC value of 1.01, queue of 94 PCUs and delay of 209 seconds.

Table 21: Base 2031

Movement	AM Queue (PCU)	Delay (s)	RFC	PM Queue (PCU)	Delay (s)	RFC
A249 South	7	22	0.84	96	313	1.23
M20 West	10	39	0.90	135	506	1.01
A249 Detling Hill	592	950	1.02	151	334	1.01
M20 East	4	18	0.72	5	23	0.76

The assessment of results for the Base 2031 show the growth in background traffic would cause the junction to further exceed theoretical capacity in both the AM and PM peak, with the growth also causing the M20 West arm to exceed desirable capacity in the AM peak. During the AM peak hour, the A249 Detling Hill arm would have an RFC value of 1.02, queue of 592 PCUs and delay of 950 seconds while the M20 West arm would have an RFC value of 0.90, queue of 10 PCUs and delay of 39 seconds.

During the PM peak the A249 South, M20 West and A249 Detling Hill arms would all further exceed theoretical capacity. The A249 South arm would have an RFC value of 1.23, queue of 96 PCUs and delay of 313 seconds while the M20 West arm would have an RFC value of 1.01, queue of 135 PCUs and delay of 506 seconds and the A249 Detling Hill arm would have an RFC of 1.01, queue of 151 PCUs and delay 334 seconds.

Table 22: 2031 + Consented Development

Movement	AM Queue (PCU)	Delay (s)	RFC	PM Queue (PCU)	Delay (s)	RFC
A249 South	8	26	0.86	127	426	1.29
M20 West	20	68	0.97	185	678	1.02
A249 Detling Hill	708	1110	1.02	192	412	1.01
M20 East	4	18	0.74	5	24	0.77

The assessment of results for the 2031 + Consented Development show the growth in development traffic would cause the junction to further exceed theoretical and desirable capacity during both the AM and PM peak. During the AM peak, the A249 Detling Hill arm would have an RFC value of 1.02, queue of 708 PCUs and delay of 1110 seconds while the M20 West arm would have an RFC value of 0.97, queue of 20 PCUs and delay of 68 seconds and the A249 South arm an RFC value of 0.86, a queue of 8 PCUs and delay of 26 seconds.

During the PM peak the A249 South, M20 West and A249 Detling Hill arms would all further exceed theoretical capacity. The A249 South arm would have an RFC value of 1.29, queue of 127 PCUs and delay of 426 seconds while the M20 West arm would have an RFC value of 1.02, queue of 185 PCUs and delay of 678 seconds and the A249 Detling Hill arm would have an RFC of 1.01, queue of 192 PCUs and delay 412 seconds.

Table 23: 2031 + All Development

Movement	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
A249 South	9.0	30	0.88	148	490	1.33
M20 West	28	96	0.99	209	763	1.01
A249 Detling Hill	755	1154	1.02	216	458	1.01
M20 East	4	19	0.73	5	24	0.78

The assessment of results for the 2031 + All Development show the growth in development traffic would cause the junction to further exceed theoretical and desirable capacity during both the AM and PM peak. During the AM peak, the A249 Detling Hill arm would have an RFC value of 1.02, queue of 755 PCUs and delay of 1154 seconds while the M20 West arm would have an RFC value of 0.99, queue of 28 PCUs and delay of 96 seconds and the A249 South arm an RFC value of 0.88, a queue of 9 PCUs and delay of 30 seconds.

During the PM peak the A249 South, M20 West and A249 Detling Hill arms would all further exceed theoretical capacity. The A249 South arm would have an RFC value of 1.33, queue of 148 PCUs and delay of 490 seconds while the M20 West arm would have an RFC value of 1.01, queue of 209 PCUs and delay of 763 seconds and the A249 Detling Hill arm would have an RFC of 1.01, queue of 216 PCUs and delay 458 seconds.

Junction 8

Table 24: Base 2016

Movement	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
M20 West	2	5	0.52	2	5	0.60
Service Station North	1	6	0.27	1	7	0.22
M20 East	2	11	0.55	1	13	0.50
A20 Link Road South	13	27	0.93	6	13	0.84

The assessment results for Base 2016 show the junction is already operating over desirable capacity in the AM peak hour, with RFC values exceeding 0.85. During the AM peak hour, the A20 Link Road South arm is operating over desirable capacity with an RFC value of 0.93, queue of 13 PCUs and delay of 27 seconds.

During the PM peak, the junction would perform within desirable capacity on all arms.

Table 25: Base 2031

Movement	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
M20 West	2	5	0.58	3	6	0.67
Service Station North	1	7	0.29	1	7	0.27
M20 East	3	15	0.63	2	16	0.60
A20 Link Road South	40	68	1.02	12	24	0.92

The assessment results for Base 2031 show the growth in background traffic would cause the junction to exceed theoretical capacity in the AM and desirable capacity in the PM peak, with RFC values exceeding 0.85 and 1.00 respectively. During the AM peak hour, the A20 Link Road South arm exceeds theoretical capacity with an RFC value of 1.02, queue of 40 PCUs and delay of 68 seconds. In the PM peak hour, the A20 Link Road South arm would exceed desirable capacity with an RFC value of 0.92, queue of 12 PCUs and delay of 24 seconds.

Table 26: 2031 + Consented Development

Movement	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
M20 West	2	5	0.58	3	6	0.67
Service Station North	1	7	0.30	1	8	0.28
M20 East	2	15	0.63	2	17	0.60
A20 Link Road South	44	76	1.02	11	23	0.91

The assessment results for 2031 + Consented Development show the growth in development traffic would cause the junction to exceed theoretical capacity in the AM and desirable capacity in the PM peak, with RFC values exceeding 0.85 and 1.00 respectively. During the AM peak hour, the A20 Link Road South arm exceeds theoretical capacity with an RFC value of 1.02, queue of 44 PCUs and delay of 76 seconds. In the PM peak hour, the A20 Link Road South arm would exceed desirable capacity with an RFC value of 0.91, queue of 11 PCUs and delay of 23 seconds.

Table 27: 2031 + All Development

Movement	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
M20 West	2	5	0.59	3	6	0.68
Service Station North	1	7	0.30	1	8	0.29
M20 East	3	16	0.65	2	19	0.63
A20 Link Road South	51	82	1.03	14	28	0.94

The assessment results for 2031 + All Development show the growth in development traffic would cause the junction to further exceed theoretical capacity in the AM and desirable capacity in the PM peak, with RFC values exceeding 0.85 and 1.00 respectively. During the AM peak hour, the A20 Link Road South arm exceeds theoretical capacity with an RFC value of 1.03, queue of 51 PCUs and delay of 82 seconds. In the PM peak hour, the A20 Link Road South arm would exceed desirable capacity with an RFC value of 0.94, queue of 14 PCUs and delay of 28 seconds.

3.2 Summary

The assessment results presented in **Section 3.1** above show Junctions 5, 6 and 7 to be over theoretical capacity in all scenarios. Whilst RFCs don't increase much (if at all) when comparing Scenario 1 (consented development) with Scenario 2 (all development), both queues and delays increase significantly when adding the non-consented development.

Junction 8 performs significantly better than the other three junctions. Its southern arm exceeds theoretical capacity in the AM peak and its desirable capacity in the PM peak. The increases in queuing and delays between Scenario 1 and 2 are however very small.

Based on these results, mitigation for the impact of the non-consented element of the Local Plan development should therefore be considered for all junctions, although as explained above, this impact is very small at Junction 8.

4 Proposed Junction Improvements

4.1 Junction 5

This mitigation design was based on a drawing produced by Amey for Kent County Council (Indicative Layout: A20 / M20 Junction 5 Proposed Signalisation 4300390/000/09), presented at the October 2015 Maidstone Joint Transportation Board Meeting.

The circulatory carriageway of the roundabout at Junction 5 has been marked up to have three lanes except on the arm adjacent to Coldharbour Lane South. The M20 West, M20 East and Coldharbour Lane South arms, where there is currently congestion, are proposed to be signalised. No changes to the lane widths have been made and lane allocation is as shown in the drawing included in **Appendix D.1**.

Modelling results show that the junction would operate within theoretical capacity for all scenarios, as detailed in Chapter 5.

4.2 Junction 6 Cobtree Roundabout

The circulatory carriageway of Cobtree Roundabout at Junction 6 has been marked up to have two lanes except on the arm adjacent to the A229 South. The A229 South arm has been signalised and hatching removed to accommodate a 60m long flare. Lane allocation is shown in the option drawing which is included in **Appendix D.2**.

Modelling results show that the junction would operate within capacity for all scenarios, as detailed in Chapter 5.

4.3 Junction 6 Running Horse Roundabout

The Running Horse roundabout at Junction 6 was tested both with non-signalisation and signalisation improvements. It was found that considering all approaches, the non-signalised improvement scheme would perform better. The M20 West off-slip was amended, extending the storage of the two lanes at the approach from 7 PCUs per lane to 22 PCUs per lane. The A229 North arm was also amended, expanding from two lanes to three at the approach (removing existing hatching) with lane allocation feeding two lanes to the A229 south and two lanes to the M20 West on-slip. A sketch drawing is included in **Appendix D.2**.

Modelling results show that despite relatively similar RFC values to Scenario 1 with existing layout, the queues are significantly reduced for all arms in both the AM and PM peak (excluding Forstal Road arm in the AM peak) for the improved layout with Scenario 2. Although these queues still reach back to the M20 mainline, they are significantly reduced and it is therefore considered that the improved layout fully mitigates the impact of the Local Plan development on this junction.

4.4 Junction 7

This mitigation design was based on the drawings produced by dha transport (M20 Junction 7 Development Mitigation Scheme: Conceptual Design T0217/H/02 and T0217/H/03), presented within the Transport Assessment for Maidstone Medical Campus Limited, 'Proposed Medical Campus Newnham Park, Bearsted Road, Maidstone' June 2013 (JSL/T0217).

The circulatory carriageway of the roundabout at Junction 7 has been marked up to have three lanes throughout the roundabout. The left filter lanes on the A229 South and the M20 West arms have been removed to accommodate four lane approaches on these arms with the two nearside lanes catering for left turning vehicles. Both of these arms and the A249 Detling Hill arm have been signalised. Lane allocation is shown in the option drawing included in **Appendix D.3**.

Modelling results show that the junction would operate within capacity for all scenarios except on the M20 West arm during the PM peak. However, it should be noted that the congestion for the improvement scheme when tested with 2031 + All Development flows is lower compared to the existing layout when tested with 2031 + Consented Development flows.

4.5 Junction 8

The circulatory carriageway of the roundabout at Junction 8 has been marked up to have two lanes throughout the roundabout. The A20 Link Road South arm where the current congestion occurs is proposed to be signalised. No changes to the lane widths have been made and lane allocation is shown in the option drawing included in **Appendix D.4**.

The modelling results show that the junction would operate within capacity for all scenarios.

5 Assessment of Improved Junction Layouts

5.1 Junction Modelling

LinSig models were produced to test the roundabouts with the improvement schemes, as described in **Section 4**, to evaluate whether the proposed improvements sufficiently mitigate the impacts of development Scenario 2 when compared to Scenario 1 with the existing layouts.

LinSig software has been used to model the signal controlled junctions. Output from LinSig refers to Degree of Saturation % (DoS%, which is the equivalent measure to RFC for roundabouts) as the primary measure of performance. A DoS of below 90% suggests a junction will operate within capacity. A DoS of 90% to 100% suggests a junction is over desired capacity but within its theoretical capacity, whilst a DoS in excess of 100% suggests a junction will be in excess of theoretical capacity.

The assessment results can be found for each junction in **Table 28** to **Table 32** below, with improvement drawings in **Appendix D** and full LinSig and ARCADY reports found in **Appendix E**.

Junction 5

Table 28: J5 2031 + All Development

Movement	AM		PM	
	DoS (%)	Mean Max Queue (PCU)	DoS (%)	Mean Max Queue (PCU)
M20 West	83.0%	12	96.2%	19
Coldharbour Lane North	5.9%	0	25.4%	1
M20 East	88.9%	17	86.5%	17
Coldharbour Lane South	68.1%	3	89.5%	27

The assessment results for 2031 + All Development show the junction to exceed desirable capacity in the PM peak, with DoS values above 90%. During the PM peak hour, M20 West arm exceeds desirable capacity and would have a DoS of 96.2% and queuing of 19 PCUs. During the AM peak the junction operates within desirable capacity, with the M20 East arm having the highest DoS of 88.9% and a queue of 17 PCUs.

Junction 6

Table 29: J6 Cobtree Roundabout 2031 + All Development

Movement	AM		PM	
	DoS (%)	Mean Max Queue (PCU)	DoS (%)	Mean Max Queue (PCU)
A229 North	81.4%	2	60.8%	1
M20 East	-	-	-	-
A229 South	86.0%	10	89.5%	12
M20 West	41.8%	0	45.1%	0

The assessment results for 2031 + All Development show the junction operates within desirable capacity in both the AM and PM peak, with DoS values below 90%. During the AM peak hour, A229 South arm would have the highest DoS of 86.0% and queuing of 10 PCUs. During the PM peak hour, the A229 South arm would again have the highest DoS of 89.5% and queuing of 12 PCUs.

Table 30: J6 Running Horse Roundabout 2031 + All Development

Movement	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
M20 West	115	255	1.00	86	216	1.01
A229 North	91	137	1.01	10	16	0.88
Sandling Lane	3	21	0.71	1	10	0.42
Chatham Road	3	13	0.67	3	9	0.58
Forstal Road	97	580	1.00	45	176	0.98

The ARCADY assessment results for the 2031 + All Development scenario show the junction exceeds theoretical capacity in both the AM and PM peak periods. During the AM peak hour the A229 North arm has the highest RFC value of 1.01 and queuing of 91 PCUs with M20 West and Forstal Road arms having RFC values of 1.00 and queues of 115 and 97 PCUs respectively. During the PM peak hour the M20 West arm has the highest RFC value of 1.01 and queuing of 86 PCUs with the Forstal Road arm just under theoretical capacity, an RFC of 0.98 and queue of 45 PCUs.

Junction 7

Table 31: J7 2031 + All Development

Movement	AM		PM	
	DoS (%)	Mean Max Queue (PCU)	DoS (%)	Mean Max Queue (PCU)
M20 West	86.8%	14	100.7%	60
A249 South	86.2%	13	84.5%	17
M20 East	88.9%	8	67.9%	6
A249 Detling Hill	88.7%	17	86.6%	18

The assessment results for the 2031 + All Development scenario show the junction to be operating within desirable capacity in the AM peak hour, however it exceeds theoretical capacity in the PM peak hour. During the AM peak hour the M20 East arm has the highest DoS value of 88.9% and queuing of 8 PCUs. During the PM peak hour the M20 East arm exceeds theoretical capacity with a DoS value of 100.7% and queuing of 60 PCUs. The three other arms are all within desirable capacity during the PM peak hour.

Junction 8

Table 32: J8 2031 + All Development

Movement	AM		PM	
	DoS (%)	Mean Max Queue (PCU)	DoS (%)	Mean Max Queue (PCU)
M20 East	53.6%	1	49.4%	1
A20 Link Road South	89.8%	28	85.4%	18

		AM		PM	
M20 West	48.8%	1	56.7%	1	
Service Station North	18.5%	0	18.2%	0	

The assessment results for the 2031 + All Development scenario show the junction to operate within desirable capacity in both the AM and PM peak hours, with all DoS values below 90%. During the AM peak hour, A20 Link Road South arm would have the highest DoS of 89.8% and queuing of 28 PCUs. During the PM peak hour, the A20 Link Road South arm would again have the highest DoS of 85.4% and queuing of 18 PCUs.

5.2 South East Maidstone Strategic Link (SEMSL) Testing

Background

Turning movements from the strategic VISUM model were provided for each of the junctions by Amey, modelled with multiple nodes due to the complexities of the junctions and therefore with turning movements extracted using flow bundles. Turning movements were provided for both the 2031 DS4a (full Local Plan development and the proposed South East Maidstone Strategic Link (SEMSL)) and 2031 DS4b (full Local Plan development without SEMSL) scenario runs.

We calculated a factor for each turning movement, establishing the level of change from the scenario with all development but no SEMSL to that with the proposed SEMSL scenario, and applied this factor to the 2031+ All Development (Scenario 2) flows (including consented and non-consented developments).

A comparison between the 2031+ All Development (Scenario 2) flows and the amended 2031+ All Development (Scenario 2) flows adjusted with the SEMSL factors was undertaken (as shown in **Table 33** to **Table 36** below), assessing the difference in total entry flows into the junction for the AM and PM peaks. Junctions 5, 6 and 7 showed a difference of under 1% for each peak period. Remodelling with the SEMSL flows was therefore not undertaken for these junctions.

Junction 8 showed a difference of 7.4% in the AM peak and 10.4% in the PM peak. Further assessment was therefore undertaken for this junction with the flows reflecting the changes due to SEMSL. The results were compared against the 2031+ All Development (Scenario 2).

Table 33: Comparison of 2031+ All Development (Scenario 2) flows with 2031+ All Development (Scenario 2) flows adjusted with the SEMSL factors – Junction 5

Junction 5	2031 + All Development Flows		SEMSL Flows	
	AM	PM	AM	PM
Coldharbour Lane South	2041	3095	2022	3080
M20 West	1131	929	1087	912
Coldharbour Lane North	36	88	36	87
M20 East	1641	1230	1688	1255
Total	4849	5342	4833	5334
AM % Change		-0.34%		
PM % Change		-0.15%		

Table 34: Comparison of 2031+ All Development (Scenario 2) flows with 2031+ All Development (Scenario 2) flows adjusted with the SEMSL factors – Junction 6

	2031 + All Development Flows		SEMSL Flows	
	AM	PM	AM	PM
Cobtree Roundabout				
A229 North	3075	2241	3072	2302
M20 East	0	0	0	0
A229 South	1560	1691	1543	1684
M20 West	1778	2518	1767	2496
Running Horse Roundabout	AM	PM	AM	PM
M20 West	1530	1388	1531	1380
A229 North	2414	1884	2378	1855
Sandling Lane	477	409	495	436
Chatham Road	774	866	854	895
Forstal Road	633	722	637	753
Total	12241	11719	12277	11801
AM % Change		0.30%		
PM % Change		0.70%		

Table 35: Comparison of 2031+ All Development (Scenario 2) flows with 2031+ All Development (Scenario 2) flows adjusted with the SEMSL factors – Junction 7

	2031 + All Development Flows		SEMSL Flows	
	AM	PM	AM	PM
Junction 7				
A249 South	2088	2139	2054	2103
M20 West	2299	3122	2328	3155
A249 Detling Hill	2453	1933	2463	1931
M20 East	742	678	738	709
Total	7582	7872	7583	7899
AM % Change		0.01%		
PM % Change		0.34%		

Table 36: Comparison of 2031+ All Development (Scenario 2) flows with 2031+ All Development (Scenario 2) flows adjusted with the SEMSL factors – Junction 8

	2031 + All Development Flows		SEMSL Flows	
	AM	PM	AM	PM
Junction 8				
M20 West	1247	1554	1334	1650
Service Station North	329	286	316	325
M20 East	492	356	525	420
A20 Link Road South	1759	1617	1958	1859
Total	3827	3813	4133	4255
AM % Change		7.41%		
PM % Change		10.39%		

Junction Modelling

The results for the SEMSL modelling at Junction 8 are shown below in **Table 37**.

The assessment results for the SEMSL 2031+ All Development scenario show the junction would operate over desirable capacity in the AM peak (with DoS values exceeding 90%) and within capacity in the PM peak. During the AM peak hour, the A20 Link Road South arm exceeds desirable capacity with a DoS value of 91.9% and queue of 33 PCUs. In the PM peak, all arms operate within capacity, with the A20 Link Road South arm showing the highest DoS value and queueing, with 89.0% and 21 PCUs respectively.

Table 37: SEMSL 2031+ All Development – Junction 8

Movement	AM		PM	
	DoS (%)	Mean Max Queue (PCU)	DoS (%)	Mean Max Queue (PCU)
M20 West	54.8%	1	65.9%	1
Service Station North	19.7%	0	23.2%	0
M20 East	61.2%	1	67.2%	1
A20 Link Road South	91.9%	33	89.0%	21

5.3 Assessment Comparison

In the section below, the assessment results of Scenario 1 (consented development only) with existing junction layouts and of Scenario 2 (all development) with existing junction layouts and the improved junction layouts are compared to demonstrate whether the improvements provide sufficient mitigation for the Local Plan impacts (as shown in **Table 38** to **Table 47**).

RFC and DoS values are summarised to illustrate the total capacity of each arm at the junction, and the queue data is also summarised (mean max queue for LinSig results and total end queue for the worst time segment modelled for ARCADY results).

Junction 5

ARCADY with Scenario 1 flows (consented development) showed congestion on the M20 West and East arms during the AM peak, and on the Coldharbour Lane South, M20 West and M20 East arms during the PM peak.

Results from the LinSig model with 2031 + All Development based on the option drawing described in Section 4 and included in **Appendix E** showed that the junction would operate within capacity during the AM peak. During the PM peak the M20 West arm would be above desirable capacity but the DoS and queues are lower compared to Scenario 1 (consented flows only) with existing layout.

Table 38: RFC / DoS (%) for 2031 – Junction 5

J5	AM		Improved Layout (S2)	PM		Remarks
	Existing Layout (S1)	Existing Layout (S2)		Existing Layout (S1)	Existing Layout (S2)	
Coldharbour Lane South	0.68	0.70	68.1	1.00	1.01	89.5
M20 West	1.02	1.01	83.0	1.01	1.02	96.2
Coldharbour Lane North	0.12	0.11	5.9	0.33	0.33	25.4 Not Signalised
M20 East	1.01	1.01	88.9	0.91	0.95	86.5

The eastbound off-slip (western arm of junction) for both existing and improved layouts is approximately 22m long across 3 lanes, plus 265m across 2 lanes (excluding the dedicated motorway lane on the M20 mainline). The queues for the existing layout in Scenario 1 are 112 PCUs (616m) for the AM peak and 124 PCUs (682m) for the PM peak, exceeding the length of the slip road. The queues for the improved layout in Scenario 2 are 12 PCUs (66m) in the AM peak and 19 PCUs (104.5m) in the PM peak, with mitigation illustrating queue lengths are not expected to reach back to the M20 mainline.

The westbound off-slip (eastern arm of junction) for both existing and improved layouts is approximately 22m long across 3 lanes, plus 565m across 2 lanes. The queues for the existing layout in Scenario 1 are 350 PCUs (1925m) for the AM peak and 13 PCUs (71.5m) for the PM peak, with queues exceeding the length of the slip road in the AM peak. The queues for the improved layout in Scenario 2 are 17 PCUs (93.5m) in the AM peak and the PM peak, with mitigation illustrating queue lengths are not expected to reach back to the M20 mainline.

Table 39: Queue Data for 2031 – Junction 5

J5	AM		Improved Layout (S2)	PM		Remarks
	Existing Layout (S1)	Existing Layout (S2)		Existing Layout (S1)	Existing Layout (S2)	
Coldharbour Lane South	3	4	3	175	228	27
M20 West	112	149	12	124	223	19
Coldharbour Lane North	0	0	0	1	1	1 Not Signalised
M20 East	350	423	17	13	20	17

Junction 6

For the Cobtree Roundabout, ARCADY with Scenario 1 flows (consented development) showed congestion on the A229 South arm during the AM Peak and the PM peak.

Results from the LinSig model with 2031 + All Development based on Mott MacDonald's option drawing proposing signalisation of the A229 South showed that the junction would operate within capacity in both the AM and PM peak.

Table 40: RFC / DoS (%) for 2031 – Junction 6 Cobtree Roundabout

J6 Cobtree Roundabout	AM		Improved Layout (S2)	PM		Improved Layout (S2)	Remarks
	Existing Layout (S1)	Existing Layout (S2)		Existing Layout (S1)	Existing Layout (S2)		
A229 North	0.77	0.79	81.4	0.57	0.58	60.8	Except South Circulatory all others 2 lane
A229 South	1.04	1.05	86.0	1.08	1.09	89.5	Signalised, lane and a flare of 10 PCU
M20 West	0.82	0.83	41.8	0.84	0.86	45.1	

The eastbound off-slip (western arm of junction) for both existing and improved layouts is approximately 44m long across 2 lanes, plus 315m across 1 lane (excluding the dedicated jet lane). The queues for the existing layout in Scenario 1 are 14 PCUs (77m) in the AM peak and 6 PCUs (33m) in the PM peak. For the improved layout in Scenario 2, there are no expected queues in both the AM and PM peaks. The results show both existing and mitigated option layouts queue lengths are not expected to reach back to the M20 mainline.

Table 41: Queue Data for 2031 – Junction 6 Cobtree Roundabout

J6 Cobtree Roundabout	AM		Improved Layout (S2)	PM		Improved Layout (S2)	Remarks
	Existing Layout (S1)	Existing Layout (S2)		Existing Layout (S1)	Existing Layout (S2)		
A229 North	8	16	2	2	2	1	Except South Circulatory all others 2 lane
A229 South	57	59	10	76	76	12	Signalised, lane and a flare of 10 PCU
M20 West	8	14	0	5	6	0	

For the Running Horse Roundabout, ARCADY with Scenario 1 flows (consented development) showed congestion on the M20 West, A229 North and Forstal Road arms during the AM peak and on the M20 West and A229 North arms during the PM peak.

Results of the improved junction layout modelled in ARCADY with Scenario 2 (All Development) showed that despite relatively similar RFC values, the queues are significantly reduced for all arms in both the AM and PM peak (excluding Forstal Road arm in the AM peak).

Table 42: RFC for 2031 – Junction 6 Running Horse Roundabout

J6 Running Horse Roundabout	AM		Improved Layout (S2)	PM		Improved Layout (S2)	Remarks
	Existing Layout (S1)	Existing Layout (S2)		Existing Layout (S1)	Existing Layout (S2)		
M20 West	0.98	0.98	1.00	0.86	0.87	1.01	
A229 North	1.09	1.11	1.01	0.85	0.87	0.88	
Sandling Lane	0.71	0.72	0.71	0.37	0.39	0.42	
Chatham Road	0.67	0.68	0.67	0.54	0.57	0.58	
Forstal Road	1.02	1.02	1.00	0.82	0.80	0.98	

The westbound off-slip (western arm of junction) for the existing layout is approximately 38m long across 2 lanes, plus 287m across 1 lane (providing for 66 PCUs), and for the improved layout is approximately 125m long across 2 lanes, plus 200m across 1 lane (providing for 82 PCUs). The queues for the existing layout in Scenario 1 are 157 PCUs (863.5m) in the AM peak and 283 PCUs (1556.5m) in the PM peak, exceeding the length of the slip road. The queues for the improved layout in Scenario 2 are 115 PCUs (632.5m) in the AM peak and 86 PCUs (473m) in the PM peak.

Although these results show queueing still to reach back to the M20 mainline within the mitigation option with Scenario 2, queue lengths are significantly improved in comparison to the existing layout with Scenario 1, reducing queues on mainline from 91 PCUs to 33 PCUs in the AM peak and from 217 PCUs to 4 PCUs in the PM peak. It is therefore considered that the improved layout fully mitigates the impact of the Local Plan development on this junction.

Table 43: Queue Data for 2031 – Junction 6 Running Horse Roundabout

J6 Running Horse Roundabout	AM		PM				Remarks
	Existing Layout (S1)	Existing Layout (S2)	Improved Layout (S2)	Existing Layout (S1)	Existing Layout (S2)	Improved Layout (S2)	
M20 West	157	193	115	283	340	86	
A229 North	109	127	91	8	9	10	
Sandling Lane	3	4	3	2	2	1	
Chatham Road	3	3	3	3	3	3	
Forstal Road	85	111	97	82	116	45	

Junction 7

ARCADY with Scenario 1 flows (consented development) showed congestion on the A249 Detling Hill, A249 South and M20 West arms during the AM and PM peaks.

Results from the LinSig model with Scenario 2 (All Development) based on the sketch drawing included in **Appendix E** shows that the junction would be within capacity during the AM peak. During the PM peak the M20 West arm would be above capacity, although the queues are significantly lower than those in Scenario 1 (consented development) with existing layout. Comparing the results below with those presented in **Table 21 (Section 3)** for 2031 Base shows that the improvement scheme proposed would mitigate the impacts of both consented and non-consented development with improved RFC/DoS and queuing results.

Table 44: RFC / DoS (%) for 2031 – Junction 7

J7	AM		PM				Remarks
	Existing Layout (S1)	Existing Layout (S2)	Improved Layout (S2)	Existing Layout (S1)	Existing Layout (S2)	Improved Layout (S2)	
A249 South	0.86	0.88	86.2	1.29	1.33	84.5	
M20 West	0.97	0.99	86.8	1.02	1.01	100.7	
A249 Detling Hill	1.02	1.02	88.7	1.01	1.01	88.6	
M20 East	0.74	0.73	88.9	0.77	0.78	67.9	Not signalised

The eastbound off-slip (western arm of junction) for both existing and improved layouts is approximately 67m long across 2 lanes, plus 353m across 1 lane (excluding the dedicated motorway lane on the M20 mainline and dedicated jet lane). The queues for the existing layout in Scenario 1 are 20 PCUs (110m) for the AM peak and 185 (1017.5m) for the PM peak, with queues exceeding the length of the slip road in the PM peak. The queues for the improved layout in Scenario 2 are 14 PCUs (77m) for the AM peak and 60 PCUs (330m) for the PM peak, with mitigation illustrating queue lengths are not expected to reach back to the M20 mainline.

The westbound off-slip (eastern arm of junction) for both existing and improved layouts is approximately 45m long across 3 lanes, plus 345m across 2 lanes. The queues for the existing layout in Scenario 1 are 4 PCUs (22m) in the AM peak and 5 PCUs (27.5m) in the PM peak. The queues for the improved layout in Scenario 2 are 8 PCUs (44m) in the AM peak and 6 PCUs (33m) in the PM peak. The results show both existing and mitigated option layouts queue lengths are not expected to reach back to the M20 mainline.

Table 45: Queue Data for 2031 – Junction 7

J7	AM			PM			Remarks
	Existing Layout (S1)	Existing Layout (S2)	Improved Layout (S2)	Existing Layout (S1)	Existing Layout (S2)	Improved Layout (S2)	
A249 South	8	9	13	127	148	17	
M20 West	20	28	14	185	209	60	
A249 Detling Hill	708	755	17	192	216	18	
M20 East	4	4	8	5	5	6	Not signalised

Junction 8

ARCADY with Scenario 1 flows (consented development) showed congestion on the A20 Link Road South arm during the AM and PM peaks.

Results from the LinSig model with Scenario 2 (All Development) (assuming signalisation of the A20 Link Road South arm as shown in the sketch drawing included in **Appendix E**) shows that the junction would be within capacity during the AM and PM peak.

For the SEMSL scenario the A20 Link Road South arm would be slightly over desirable capacity in the AM peak but the results are insignificantly higher than those without SEMSL.

Table 46: RFC / DoS (%) for 2031 – Junction 8

J8	AM				PM				Remarks
	Existing Layout (S1)	Existing Layout (S2)	Improved Layout (S2)	SEMSL	Existing Layout (S1)	Existing Layout (S2)	Improved Layout (S2)	SEMSL	
M20 West	0.58	0.59	48.8	54.8	0.67	0.68	55.7	65.9	Not signalised
Service Station North	0.30	0.30	18.5	19.7	0.28	0.29	18.2	23.2	Not signalised
M20 East	0.63	0.65	53.6	61.2	0.60	0.63	49.4	67.2	Not signalised
A20 Link Road South	1.02	1.03	89.8	91.9	0.91	0.94	85.4	89.0	

The eastbound off-slip (western arm of junction) for both existing and improved layouts is approximately 257m long across 2 lanes, plus 110m across 1 lane. The queues for the existing layout in Scenario 1 are 2 PCUs (11m) in the AM peak and 3 PCUs (16.5m) in the PM peak. The queues for the improved layout in Scenario 2 are 1 PCU (5.5m) in both the AM and PM peaks. The results show both existing and mitigated option layouts queue lengths are not expected to reach back to the M20 mainline.

The westbound off-slip (eastern arm of junction) for both existing and improved layouts is approximately 65m long across 2 lanes, plus 332m across 1 lane. The queues for the existing layout in Scenario 1 are 2 PCUs (11m) in both the AM and PM peaks. The queues for the improved layout in Scenario 2 are 1 PCU (5.5m) in both the AM and PM peaks. The results show both existing and mitigated option layouts queue lengths are not expected to reach back to the M20 mainline.

Table 47: Queue Data for 2031 – Junction 8

J8	AM				PM				Remarks
	Existing Layout (S1)	Existing Layout (S2)	Improved Layout (S2)	SEMSL	Existing Layout (S1)	Existing Layout (S2)	Improved Layout (S2)	SEMSL	
M20 West	2	2	1	1	3	3	1	1	Not signalised
Service Station North		1	0	0	1	1	0	0	Not signalised
M20 East	2	3	1	1	2	2	1	1	Not signalised
A20 Link Road South	44	51	28	33	11	14	18	21	

6 Merge Assessment

Merge and diverge assessments are used to determine the suitability of slip roads and the main carriageway where traffic joins and leaves a motorway. TD 22/06 'The Layout of Grade Separated Junctions' sets out the procedure to be followed in assessing merge and diverge arrangements. Hourly flows on the slip roads and main carriageway are plotted on the diagrams provided in TD 22/06 to determine the type of merge or diverge that should be provided. This includes the number of lanes on the main carriageway (before and after the merge or diverge) and on the slip road, as well as whether auxiliary lanes or ghost islands are required.

The Highway England's TRADS database was interrogated to identify traffic flows along the M20 between Junctions 5 to 8 on the slip roads, distributor road and main carriageway. Flows were obtained for the full year in 2014, the most recent year available on the old TRADS database. Where this was not available, the latest year of data using the new TRADS system was used.

Thereafter, the 2014 flows were uplifted using TEMPro Version 7.0 (with planning dataset 70 and NTM dataset AF15) to provide flows for both 2016 and 2031 (as shown in **Tables 48 and 49**), assuming that no local development occurs i.e. zero additional houses and jobs. The growth rates for the junctions were adjusted using the National Transport Model (NTM) for rural motorway in Tonbridge and Malling for Junction 5, and in Maidstone for Junctions 6, 7 and 8 in accordance with the junction's geographical location.

Table 48: TEMPro Growth Rates for Tonbridge and Malling

Period	Time Period	Factor
2014-2016	AM Peak	1.0183
2014-2016	PM Peak	1.0187
2016-2031	AM Peak	1.0795
2016-2031	PM Peak	1.0784

Table 49: TEMPro Growth Rates for Maidstone

Period	Time Period	Factor
2014-2016	AM Peak	1.0135
2014-2016	PM Peak	1.0133
2016-2031	AM Peak	1.0841
2016-2031	PM Peak	1.0831

The development-only flows for Scenario 1 and Scenario 2 were calculated as shown in Chapter 2. Thereafter, the Scenario 1 development flows were added to the 2031 Base flows from the TRADS data, with the Scenario 2 development flows added onto the '2031 Base (TRADS) + Scenario 1' flows to create '2031 Base (TRADS) + Scenario 2' flows as shown in **Appendix F.1**.

The slip road and main carriageway flows for Scenarios 1 and 2 were plotted, in addition to Base 2016 and Base 2031 flows, for both AM and PM peaks for the merge/diverge assessments, as shown in **Appendix F.2**.

Tables 50 and 51 detail the type of merge / diverge layout that should be provided at each junction in the present and future years.

Table 50: Merge Flows – Junction Layouts

Merge Flows	Existing	Base 2016	Base 2031	Scenario 1	Scenario 2	SEMSL
AM Peak						
Junction 8 WB	B	B	B	B	E	E
Junction 7 WB	F	F	G	G	G	-
Junction 5E WB	C	F	F	F	F	-
Junction 5W WB	A	B	E	E	E	-
PM Peak						
Junction 8 WB	B	A or D	A or D	B	B	B
Junction 7 WB	F	F	F	F	F	-
Junction 5E WB	C	B	E	E	E	-
Junction 5W WB	A	E	E	A or D	A or D	-
AM Peak						
J8 EB	A	E	A or D	A or D	A or D	A or D
J7 EB	A	A or D	A or D	A or D	A or D	-
J6 EB	E	F	F	F	F	-
PM Peak						
J8 EB	A	A or D	A or D	A or D	A or D	A or D
J7 EB	A	E	E	E	E	-
J6 EB	E	F	G	G / F	F	-

The above table shows that in most circumstances the desirable layout changes with the different scenarios and is different from the existing layout. The required layouts are also different for the AM and PM peak. However, only for Junction 8 in the AM peak it changes between Scenario 1 and Scenario 2. Below the changes per junction are further detailed, in addition to the merge layouts.

Merge Layout Designs:

- A – Taper Merge
- B – Parallel Merge
- C – Ghost Island Merge
- D – 2 Lane Urban Merge
- E – Lane Gain
- F – Lane Gain with Ghost Island Merge
- G – 2 Lane Gain with Ghost Island
- H – Alternative Ghost Island Merge with Auxiliary Lane

Junction 8 - WB

The existing layout for Junction 8 WB is a parallel merge onto the main carriageway. The flows for the AM peak indicate that whilst most scenarios require no change in the road layout,

plotting the upstream mainline flows and merge flows onto the diagram for Scenario 2 this point just moves into design “E”, which would require a lane gain. The point in the diagram is however very much on the border between layout “B” and “E”. Flows should be monitored in the future to ascertain whether a change in layout would be required. During the PM peak, whilst Base 2016 and 2031 flows suggest a change in layout from a parallel merge to a taper merge or two lane urban merge, both Scenarios 1 and 2 require a parallel merge and therefore no change to the road layout.

Junction 8 - EB

The existing layout for Junction 8 EB is a taper merge. The flows for the AM peak indicate that a change would be required for the Base 2016 scenario to a lane gain. However, all other scenarios in the AM peak would need either a two lane merge or no changes to the layout, with the same outputs for all scenarios in the PM peak.

Junction 7 - WB

The existing layout for Junction 7 WB is a lane gain with a ghost island merge. Whilst the flows for the PM peak indicate that no changes will be required to the road layout, in the AM peak three scenarios require a change to a two lane gain with ghost island. However, it should be noted that this change in layout is triggered by the Base 2031 scenario and is therefore not solely needed to meet the requirements of the Local Plan development flows.

Junction 7 – EB

The existing layout for Junction 7 EB is a taper merge. The flows for the AM peak indicate that either no changes or a change to a two lane merge would be required for all scenarios. During the PM peak all scenarios would require a lane gain. As with the changes required for Junction 7 Westbound, it should be noted that the change in layout is triggered by the Base 2016 scenario in the PM peak and not resultant of Local Plan development flows.

Junction 6 – EB

The existing layout for Junction 6 is a lane gain. The flows for the AM peak indicate a change to a lane gain with ghost island merge would be required for all scenarios, and is therefore triggered by background growth and not Local Plan development. Furthermore, during the PM peak a change to a lane gain with ghost island merge would be required for Base 2016 and Scenario 2, whilst Base 2031 and Scenario 1 would require a change in layout to a two lane gain with ghost island.

Junction 5E - WB

The existing layout for Junction 5E is a ghost island merge. During the AM peak all future scenarios would require a change in layout to lane gain with ghost island merge. Again, it should be noted that the change in layout is triggered by the Base 2016 scenario and is therefore not resultant of Local Plan development. The flows from the PM peak indicate a change in layout to a parallel merge to meet the Base 2016 requirements and to a lane gain to meet all other scenarios. Therefore, whilst the AM and PM peak differ, the assessments show that for Junction 5E a lane gain is required.

Junction 5W - WB

The existing layout for Junction 5W is a taper merge. During the AM peak the Base 2016 scenario would require a change to a parallel merge whilst all other scenarios would need a lane gain. The PM peak flows indicate that a lane gain would be required for the Base 2016 and 2031 scenarios, however for Scenarios 1 or 2 a taper merge or two lane urban merge would be

sufficient. Therefore, the requirements during the AM and PM peak differ somewhat for the scenarios, from no change required to adding an extra lane.

Table 51: Diverge Flows – Junction Layouts

Diverge Flows	Existing	Base 2016	Base 2031	Scenario 1	Scenario 2	SEMSL
AM Peak						
J8 WB	A	A	A	A	A	A
J7 WB	A	A	A	C	C	-
J6 WB	C	D	D	D	D	-
PM Peak						
J8 WB	A	A	A	A	A	A
J7 WB	A	A	A	A	A	-
J6 WB	C	D	D	D	D	-
AM Peak						
J8 EB	A	A*	A	A	A	A
J7 EB	D	B / D	D	D	D	-
J5E EB	C	A	A	A	A	-
J5W EB	A	A	A	A / C	C	-
PM Peak						
J8 EB	A	A	C	C	C	D
J7 EB	D	E	E	E	E	-
J5E EB	C	C	C	A	A	-
J5W EB	A	A	A	C	C	-

The above table shows that in some circumstances the desirable layout is similar to the existing layout and consistent for all scenarios whilst others require changes in layout. Furthermore, there is little discrepancy between the AM and PM peaks. The changes required per junction are detailed below in addition to the diverge layouts.

Diverge Layout Diagrams:

- A – Taper Diverge
- B – Ghost Island diverge including for conversion of existing taper diverge (preferred) or parallel diverge (not preferred)
- C – Lane Drop at Taper Diverge
- D – Ghost Island diverge for Lane Drop including for conversion of existing Lane Drop at Taper Diverge (preferred) or Lane Drop at Parallel Diverge (not preferred)
- E – 2 Lane Drop

Junction 8 - WB

The existing layout for Junction 8 WB is a taper diverge. The flows for both the AM and PM peaks indicate that no changes to the road layout are required for all scenarios.

Junction 8 – EB

The existing layout for Junction 8 EB is a taper diverge. The flows for the AM peak indicate no changes to the road layout will be required, with the Base 2016 scenario falling out of range of any of the layout diagrams. During the PM peak, the Base 2016 scenario would require no change to the road layout, with Base 2031 and Scenarios 1 and 2 requiring a change to a lane

drop at the taper diverge. It should be noted that the change in road layout is a result of the background growth and not Local Plan development flows.

Junction 7 – WB

The existing layout for Junction 7 WB is a taper diverge. The flows for the PM peak demonstrate that no changes would be required for all scenarios. However, during the AM peak both Scenarios 1 and 2 would require a change in the road layout to a lane drop. It should be noted that the change in road layout is a result of consented development (Scenario 1), not non-consented development (Scenario 2).

Junction 7 – EB

The existing layout for Junction 7 EB is a ghost island diverge for lane drop including conversion of existing lane drop at taper diverge. The flows for the AM peak indicate that no changes to the road layout would be required for all scenarios. However, during the PM peak all scenarios indicate a change to a two lane drop would be required. Again, it should be noted that this change is a result of background growth in the Base 2016 scenario and not due to Local Plan development.

Junction 6 – WB

The existing layout of Junction 6 is a lane drop at the taper diverge. The flows for both the AM and PM peaks demonstrate that a change in the road layout will be required to a ghost island diverge for lane drop including the conversion of the existing lane drop to a taper diverge. It should be noted that the change in road layout is triggered by the 2016 Base scenario and not the Local Plan development.

Junction 5E – EB

The existing layout of Junction 5E is a lane drop at the taper diverge. The flows for the AM peak demonstrate that all scenarios would function with just a taper diverge at the junction. Furthermore, during the PM peak both Scenarios 1 and 2 would operate with just a taper diverge with Base 2016 and 2031 requiring no change to the road layout.

Junction 5W – EB

The existing layout of Junction 5W is a taper diverge. During both the AM and PM peaks for Base 2016 and 2031 no changes would be needed to the road layout. However, for both Scenarios 1 and 2 a change in the road layout would be required to include a lane drop at the taper diverge. It should be noted that the change in road layout is a result of consented development (Scenario 1), not non-consented development (Scenario 2).

7 Summary and Conclusions

Mott MacDonald was commissioned by Maidstone Borough Council (MBC) to consider the capacity at Junctions 5 to 8 of the M20.

The 2016 base flows are based on the following:

- Junction 5: M20 Maidstone New Growth Point Study, Parsons Brinckerhoff Ltd., July 2007
- Junction 6: Traffic surveys included in this report which were undertaken on Thursday 9th June 2016 from 07:00-19:00
- Junction 7: K&M Traffic Surveys, May 2016, provided to us by dha transport
- Junction 8: Flows obtained from the 'Waterside Park M20 Junction 8, Maidstone' Transport Assessment, dha transport, September 2013.

TEMPro version 7.0 was used to growth these base flows to 2031, creating Base 2031 flows which include background growth only. Background growth for Maidstone was 8.4% in the AM and 8.3% in the PM, whilst in Tonbridge and Malling background growth was 7.9% in the AM and 7.8% in the PM.

The Local Plan housing and employment numbers from Maidstone, Tonbridge and Malling, and Swale that would affect the four motorway junctions were calculated. They were categorised by consented (Scenario 1) and both consented and non-consented development (Scenario 2) with the difference between the latter and former representing the Local Plan impact. These numbers were then included in TEMPro to calculate scenario and junction specific growth factors which were then applied to the 2031 Base flows.

7.7% of development traffic from Swale was assumed to affect Junction 7 in creating junction specific growth factors. These growth factors for Scenario 1 and Scenario 2 are detailed below per junction.

Junction 5

- Scenario 1 – growth between 2016 and 2031 is 9.8% in both the AM and PM
- Scenario 2 - growth between 2016 and 2031 is 13.8% in the AM and 14.1% in the PM

Junction 6

- Scenario 1 – growth between 2016 and 2031 is 10% in the AM and 10.1% in the PM
- Scenario 2 – growth between 2016 and 2031 is 13.2% in the AM and 13.5% in the PM

Junction 7

- Scenario 1 – growth between 2016 and 2031 is 13.3% in the AM and 13.1% in the PM
- Scenario 2 – growth between 2016 and 2031 is 15.5% in the AM and 15.4% in the PM

Junction 8

- Scenario 1 – growth between 2016 and 2031 is 9.2% in the AM and 9.1% in the PM
- Scenario 2 - growth between 2016 and 2031 is 10.9% in the AM and 10.9% in the PM

Assessments were carried out for the following scenario for the existing junction layouts:

- a. 2016 Existing Situation
- b. 2031 Future Situation including TEMPro background growth only
- c. 2031 With Consented Development (Scenario 1)
- d. 2031 With Consented and Non-Consented (ALL) Development (Scenario 2)

The assessment results revealed that Junctions 5, 6 and 7 were over theoretical capacity with Junction 8 being over desirable capacity. Mitigation was therefore considered for all four junctions.

Improvement Layout Sketches are included in **Appendix D.1 to D.4** of this document.

Assessment were carried out testing these improvements to evaluate whether the proposed improvements sufficiently mitigate the impacts of development scenario 2 when compared to scenario 1 with the existing layouts.

The results show that in all but one case (Junction 6, Running Horse Roundabout, Forstal Road), the improvement scheme with Scenario 2 flows performs better than the existing layout with Scenario 1 flows. It is therefore considered that the improvements proposed sufficiently mitigate any impacts the non-consented developments contained in the Local Plan may have on the four motorway junctions.

In addition to the junction assessments, merge and diverge assessments were undertaken for each motorway mainline merge and diverge. The results show that whilst in most circumstances the layout for future scenarios is different from the existing layout and the required layouts also differ for the AM and PM peaks, only for Junction 8 westbound merge in the AM peak, a different layout would be required because of Scenario 2. The point in the diagram is however very much on the border towards the existing layout. Flows should be monitored in the future to ascertain whether a change in layout would be required. For all other merges and diverges, changes in the layout would not be required solely due to Scenario 2 (non-consented Local Plan development) flows, but because of earlier occurring scenarios.

In conclusion, the improvements proposed in this document mitigate any impacts of the Local Plan non-consented development at the four motorway junctions considered.

Appendices

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A. ATC Results

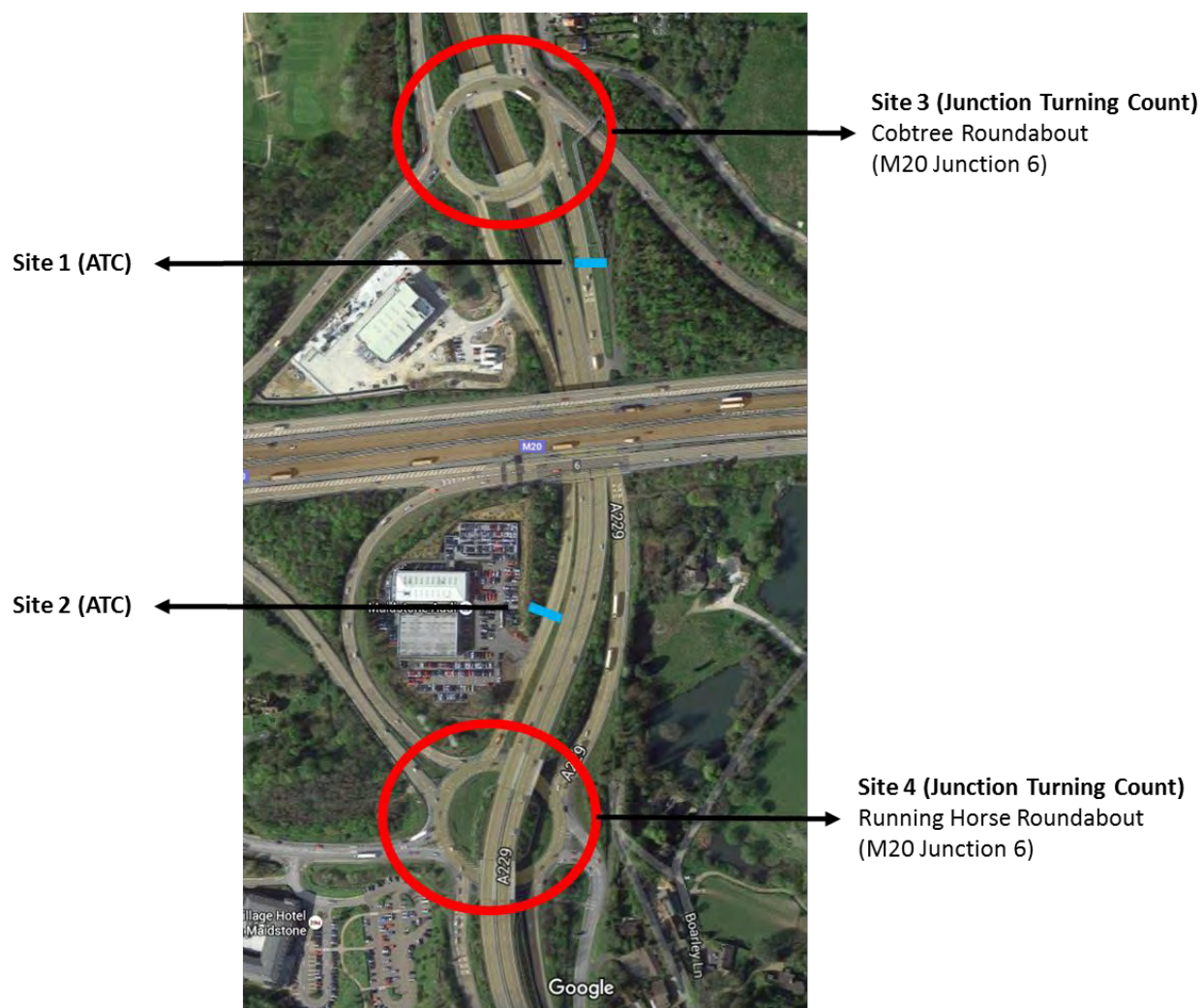
Traffic survey specification – M20 Junction 6, Maidstone, Kent

Location

The two junction turning counts and two ATC locations to be surveyed are:

- Site 1 (ATC)
- Site 2 (ATC)
- Site 3 (Junction Turning Count) – Cobtree Roundabout (M20 Junction 6)
- Site 4 (Junction Turning Count) – Running Horse Roundabout (M20 Junction 6)

The plan below shows the two junction turning count locations in addition to the two ATC locations.



Maidstone, Kent ATC 1, A229 (SBD)

Produced by Streetwise Services Ltd.



Channel 1 - Northbound

	10/06/2016 Friday	11/06/2016 Saturday	12/06/2016 Sunday	13/06/2016 Monday	14/06/2016 Tuesday	15/06/2016 Wednesday	16/06/2016 Thursday	5-DAY MEAN	7-DAY MEAN
0000-2400 Vehicle Flow	0	0	0	0	0	0	0	0	0
Mean Speed	-	-	-	-	-	-	-	-	-
85%ile Speed	-	-	-	-	-	-	-	-	-
No. Vehicles > 50 MPH Limit	0	0	0	0	0	0	0	0	0
% Vehicles > 50 MPH Limit	-	-	-	-	-	-	-	-	-
No. Vehicles > 65 MPH	0	0	0	0	0	0	0	0	0
% Vehicles > 65 MPH	-	-	-	-	-	-	-	-	-

Channel 2 - Southbound

	10/06/2016 Friday	11/06/2016 Saturday	12/06/2016 Sunday	13/06/2016 Monday	14/06/2016 Tuesday	15/06/2016 Wednesday	16/06/2016 Thursday	5-DAY MEAN	7-DAY MEAN
0000-2400 Vehicle Flow	26613	20091	15436	23925	24536	25196	0	0	0
Mean Speed	53.0	56.3	56.8	52.3	52.1	53.6	-	-	-
85%ile Speed	63.6	63.9	63.6	63.2	63.1	63.3	-	-	-
No. Vehicles > 50 MPH Limit	16817	15798	12330	15261	15413	17831	0	0	0
% Vehicles > 50 MPH Limit	63.2	78.6	79.9	63.8	62.8	70.8	-	-	-
No. Vehicles > 65 MPH	1499	1889	1666	1475	1517	2472	0	0	0
% Vehicles > 65 MPH	5.6	9.4	10.8	6.2	6.2	9.8	-	-	-

Channels 1+2 - Northbound & Southbound

	10/06/2016 Friday	11/06/2016 Saturday	12/06/2016 Sunday	13/06/2016 Monday	14/06/2016 Tuesday	15/06/2016 Wednesday	16/06/2016 Thursday	5-DAY MEAN	7-DAY MEAN
0000-2400 Vehicle Flow	26613	20091	15436	23925	24536	25196	0	0	0
Mean Speed	53.0	56.3	56.8	52.3	52.1	53.6	-	-	-
85%ile Speed	63.6	63.9	63.6	63.2	63.1	63.3	-	-	-
No. Vehicles > 50 MPH Limit	16817	15798	12330	15261	15413	17831	0	0	0
% Vehicles > 50 MPH Limit	63.2	78.6	79.9	63.8	62.8	70.8	-	-	-
No. Vehicles > 65 MPH	1499	1889	1666	1475	1517	2472	0	0	0
% Vehicles > 65 MPH	5.6	9.4	10.8	6.2	6.2	9.8	-	-	-

Maidstone, Kent ATC 2, A229 (NBD)

Produced by Streetwise Services Ltd.



Channel 1 - Northbound

	09/06/2016 Thursday	10/06/2016 Friday	11/06/2016 Saturday	12/06/2016 Sunday	13/06/2016 Monday	14/06/2016 Tuesday	15/06/2016 Wednesday	5-DAY MEAN	7-DAY MEAN
0000-2400 Vehicle Flow	15522	15614	12230	9670	14537	0	0	0	0
Mean Speed	32.7	32.8	36.3	37.6	33.3	-	-	-	-
85%ile Speed	38.6	43.9	43.6	43.2	43.1	-	-	-	-
No. Vehicles > 40 MPH Limit	1880	2383	2638	2504	2353	0	0	0	0
% Vehicles > 40 MPH Limit	12.1	15.3	21.6	25.9	16.2	-	-	-	-
No. Vehicles > 55 MPH	22	30	37	33	24	0	0	0	0
% Vehicles > 55 MPH	0.1	0.2	0.3	0.3	0.2	-	-	-	-

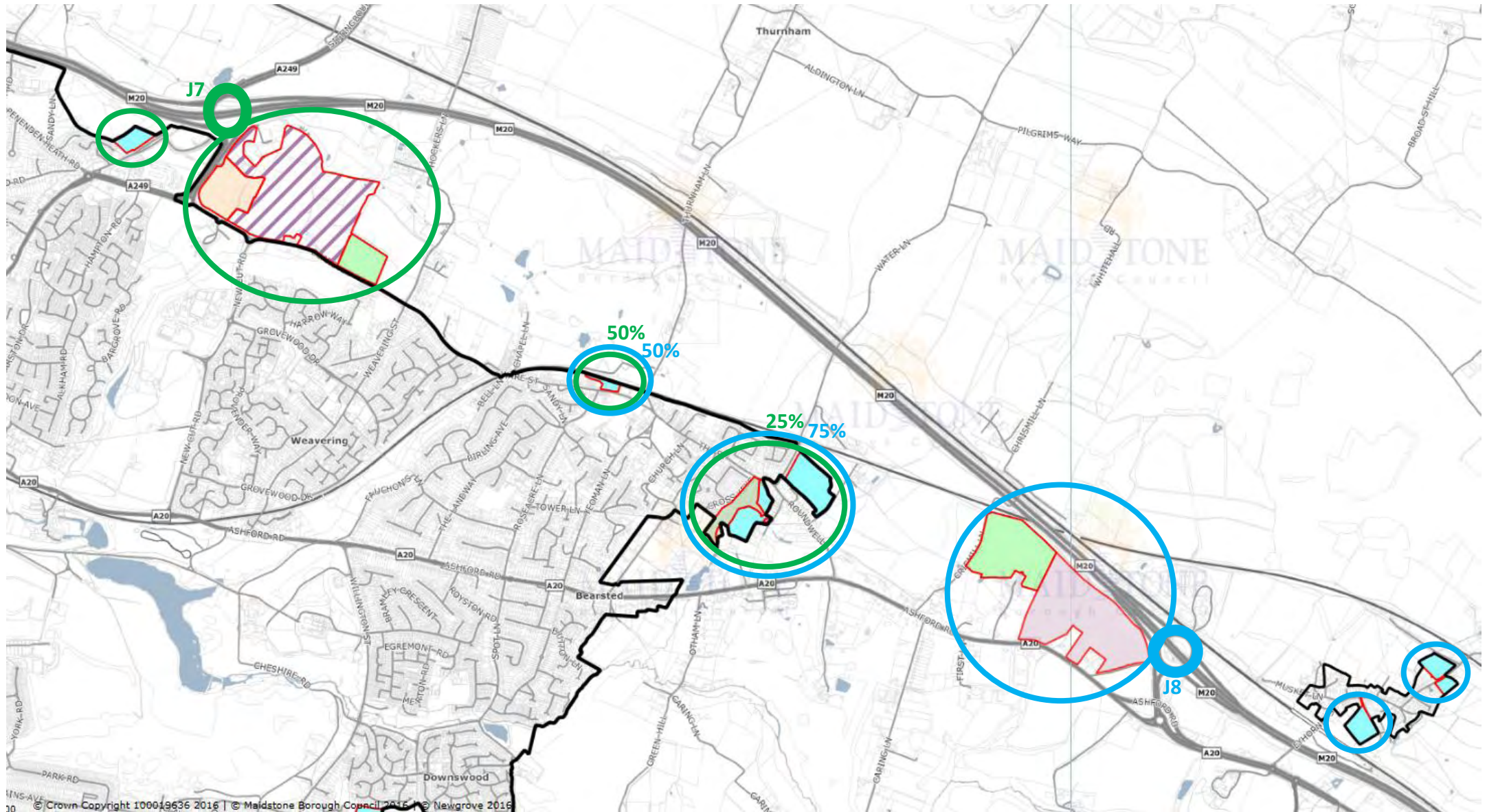
Channel 2 - Southbound

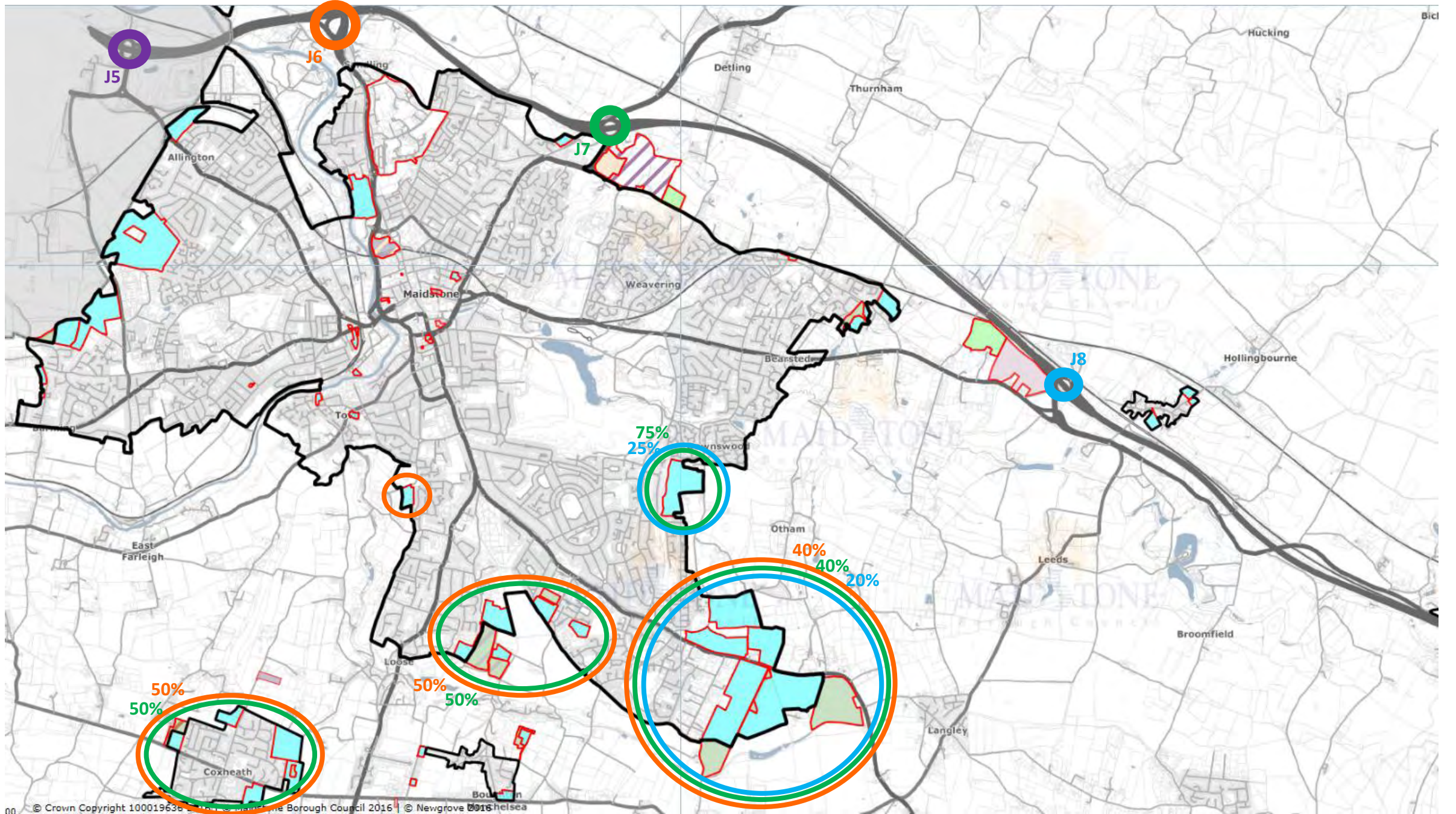
	09/06/2016 Thursday	10/06/2016 Friday	11/06/2016 Saturday	12/06/2016 Sunday	13/06/2016 Monday	14/06/2016 Tuesday	15/06/2016 Wednesday	5-DAY MEAN	7-DAY MEAN
0000-2400 Vehicle Flow	0	0	0	0	0	0	0	0	0
Mean Speed	-	-	-	-	-	-	-	-	-
85%ile Speed	-	-	-	-	-	-	-	-	-
No. Vehicles > 40 MPH Limit	0	0	0	0	0	0	0	0	0
% Vehicles > 40 MPH Limit	-	-	-	-	-	-	-	-	-
No. Vehicles > 55 MPH	0	0	0	0	0	0	0	0	0
% Vehicles > 55 MPH	-	-	-	-	-	-	-	-	-

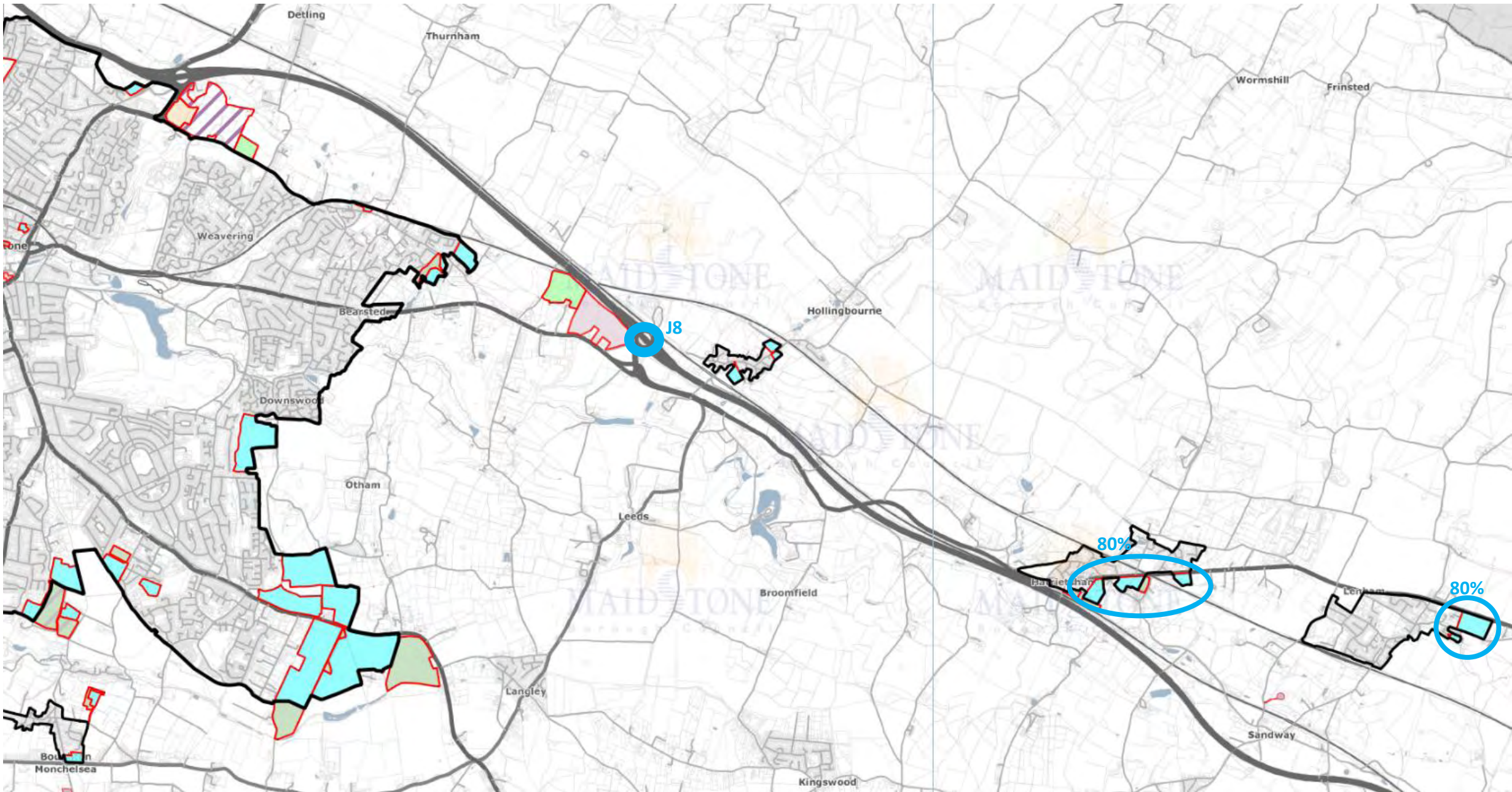
Channels 1+2 - Northbound & Southbound

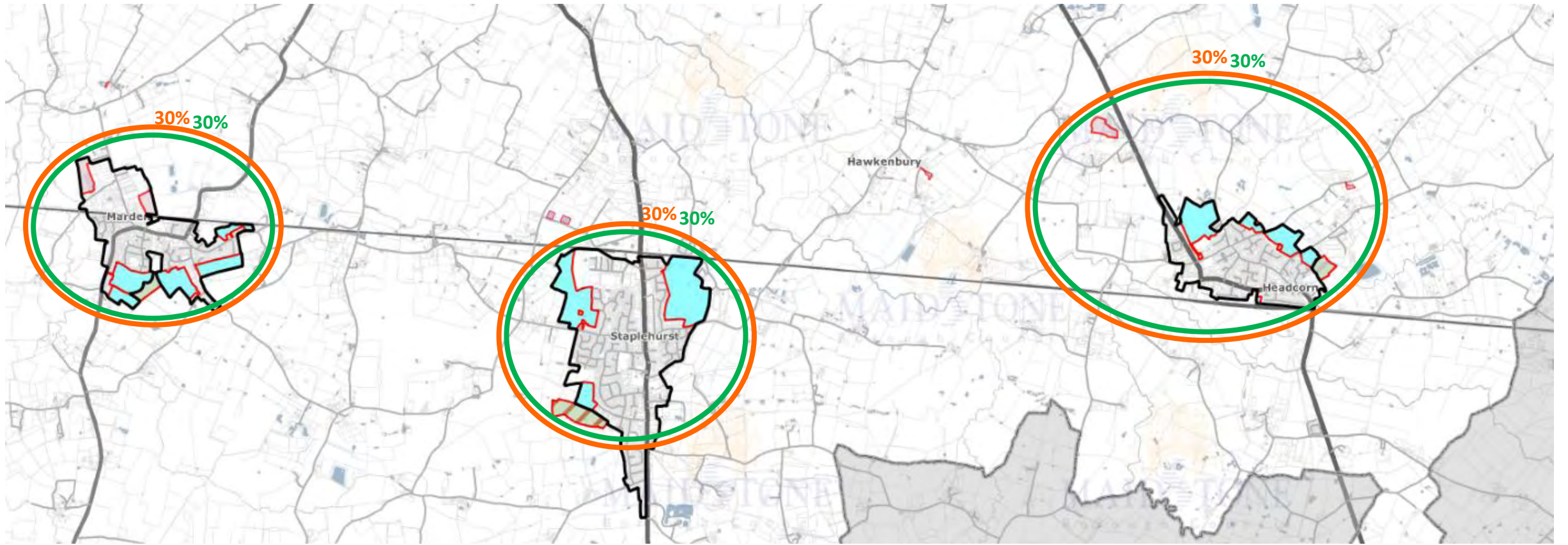
	09/06/2016 Thursday	10/06/2016 Friday	11/06/2016 Saturday	12/06/2016 Sunday	13/06/2016 Monday	14/06/2016 Tuesday	15/06/2016 Wednesday	5-DAY MEAN	7-DAY MEAN
0000-2400 Vehicle Flow	15522	15614	12230	9670	14537	0	0	0	0
Mean Speed	32.7	32.8	36.3	37.6	33.3	-	-	-	-
85%ile Speed	38.6	43.9	43.6	43.2	43.1	-	-	-	-
No. Vehicles > 40 MPH Limit	1880	2383	2638	2504	2353	0	0	0	0
% Vehicles > 40 MPH Limit	12.1	15.3	21.6	25.9	16.2	-	-	-	-
No. Vehicles > 55 MPH	22	30	37	33	24	0	0	0	0
% Vehicles > 55 MPH	0.1	0.2	0.3	0.3	0.2	-	-	-	-

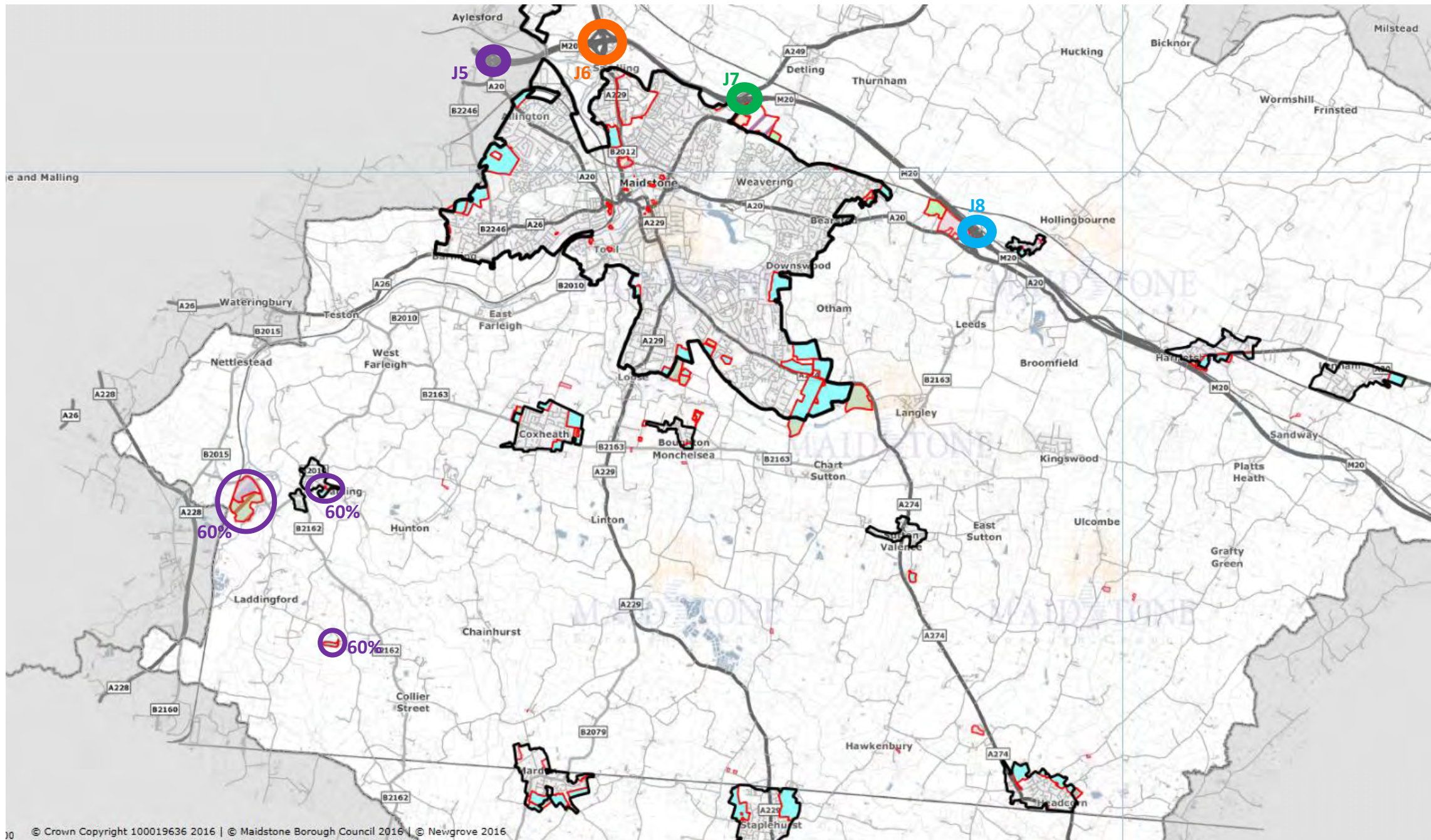
B. Junction Distribution

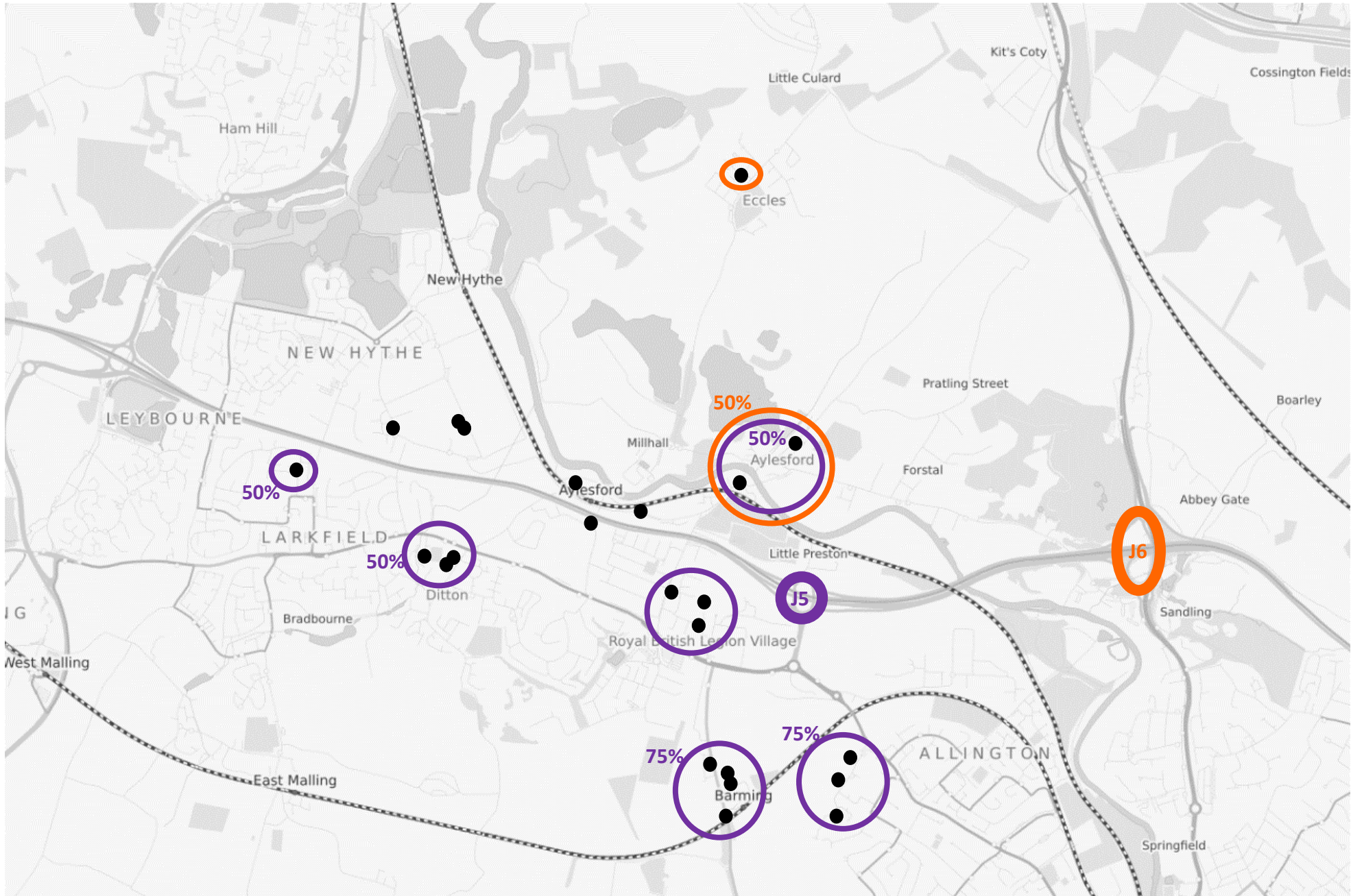














C. ARCADY Results

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Filename: M20 Junction 5- 2016 AM.j9
Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 5\ARCADY
Report generation date: 18/08/2016 09:35:01

«M20 Junction 5 - 2016, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 5 [Lane Simulation] - 2016				
Arm A	2.4	6.38		A
Arm B	33.6	90.43		F
Arm C	0.2	12.64		B
Arm D	186.3	464.15		F

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. Arm and junction delays are averages for all movements, including movements with zero delay.

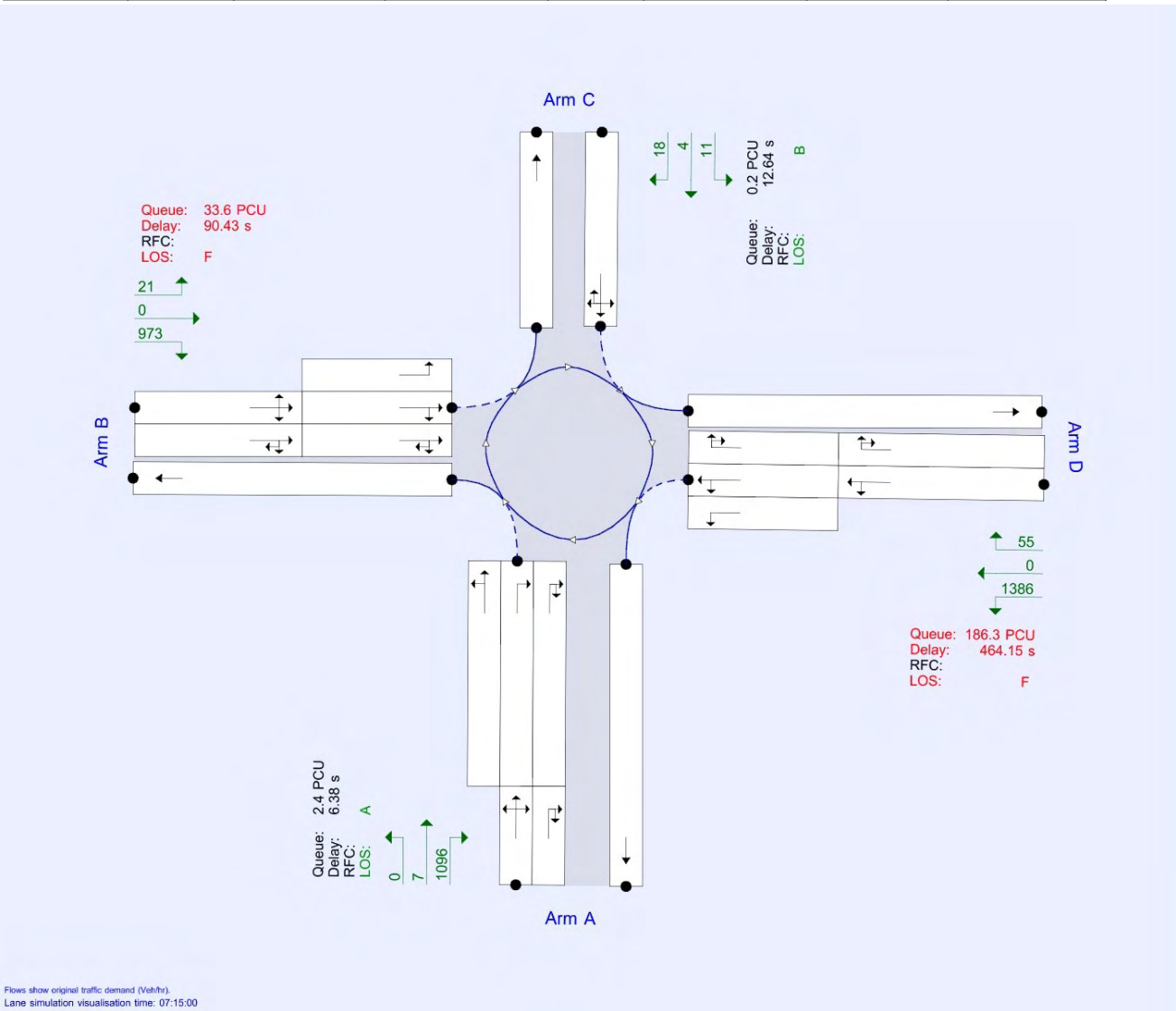
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Veh	PCU	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1422546047	175	58.14

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 5	✓	✓	100.000	100.000

M20 Junction 5 - 2016, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 5 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm D - Lane Simulation	Arm D: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 5	Large Roundabout	A,B,C,D	214.13	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	London Road A20	
B	M20 West	
C	Coldharbour Lane	
D	M20 East	

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)	Exit only
A	7.10	8.10	30.0	45.5	125.0	14.0	
B	7.25	10.50	22.0	30.0	234.0	20.0	
C	4.25	4.25	0.0	20.0	125.0	25.0	
D	7.25	10.00	14.5	30.0	234.0	16.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	73	50.00
B	1158	155.00
C	2069	0.00
D	995	132.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.250	3373
B	1.082	3281
C	0.533	1696
D	1.098	3248

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B,C	✓	6.00	0	99999
		2	D	✓	6.00	0	99999
		3	D,A	✓	6.00	0	99999
	2	1	(D,B,C)		Infinity		
		2	(D,A)		Infinity		
B	1 [Give-way line]	1	C	✓	4.00	0	99999
		2	D,A	✓	4.00	0	99999
		3	D,A,B	✓	4.00	0	99999
	2	1	(D,A,C)		Infinity		
		2	(D,A,B)		Infinity		
C	1 [Give-way line]	1	D,A,B,C		Infinity	0	99999
D	1 [Give-way line]	1	A	✓	4.00	0	99999
		2	A,B	✓	4.00	0	99999
		3	D,C	✓	4.00	0	99999
	2	1	(A,B)		Infinity		
		2	(D,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.417	1124
		2	0.417	1124
		3	0.417	1124
B	1 [Give-way line]	1	0.361	1094
		2	0.361	1094
		3	0.361	1094
C	1 [Give-way line]	1	0.533	1696
D	1 [Give-way line]	1	0.366	1083
		2	0.366	1083
		3	0.366	1083

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓	✓	
		3	✓			✓
	2	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1			✓	✓
		2	✓			
		3	✓	✓		
	2	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1				✓
		2	✓	✓		
		3	✓	✓	✓	
	2	1	✓	✓		✓
		2	✓	✓	✓	
C	1 [Give-way line]	1	✓	✓	✓	✓

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016	AM	ONE HOUR	07:15	08:45	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 (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1103	100.000
B		ONE HOUR	✓	994	100.000
C		ONE HOUR	✓	33	100.000
D		ONE HOUR	✓	1441	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	
From	A	0	0	7	1096	
	B	973	0	21	0	
	C	4	18	0	11	
	D	1386	0	55	0	

Proportions

		To				
		A	B	C	D	
From	A	0.00	0.00	0.01	0.99	
	B	0.98	0.00	0.02	0.00	
	C	0.12	0.55	0.00	0.33	
	D	0.96	0.00	0.04	0.00	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
From	A	10	10	10	10	
	B	10	10	10	10	
	C	10	10	10	10	
	D	10	10	10	10	

Average PCU Per Veh

		To				
		A	B	C	D	
From	A	1.100	1.100	1.100	1.100	
	B	1.100	1.100	1.100	1.100	
	C	1.100	1.100	1.100	1.100	
	D	1.100	1.100	1.100	1.100	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (Veh/hr)	Demand in PCU (PCU/hr)
07:15-07:30	A	830	913
	B	748	823
	C	25	27
	D	1085	1193
07:30-07:45	A	992	1091
	B	894	983
	C	30	33
	D	1295	1425
07:45-08:00	A	1214	1336
	B	1094	1204
	C	36	40
	D	1587	1745
08:00-08:15	A	1214	1336
	B	1094	1204
	C	36	40
	D	1587	1745
08:15-08:30	A	992	1091
	B	894	983
	C	30	33
	D	1295	1425
08:30-08:45	A	830	913
	B	748	823
	C	25	27
	D	1085	1193

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	6.38	2.4	A	1116	1673
B	90.43	33.6	F	1002	1503
C	12.64	0.2	B	33	49
D	464.15	186.3	F	1449	2174

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	915	229	57	917	1961	0.0	1.0	4.599	A
B	833	208	958	833	15	0.0	2.0	7.366	A
C	27	7	1726	26	66	0.0	0.1	4.908	A
D	1186	297	834	1185	919	0.0	4.7	11.178	B

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1099	275	70	1099	2293	1.0	1.7	5.146	A
B	972	243	1151	974	18	2.0	3.5	11.958	B
C	32	8	2044	32	81	0.1	0.0	6.633	A
D	1417	354	973	1389	1103	4.7	14.9	28.511	D

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1341	335	87	1342	2453	1.7	2.2	6.198	A
B	1209	302	1406	1135	22	3.5	23.9	46.883	E
C	40	10	2444	39	98	0.0	0.2	10.272	B
D	1736	434	1137	1403	1347	14.9	89.3	130.047	F

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1336	334	90	1334	2457	2.2	2.4	6.381	A
B	1204	301	1403	1163	21	23.9	33.6	90.430	F
C	39	10	2465	39	101	0.2	0.1	12.636	B
D	1742	435	1165	1382	1339	89.3	180.4	357.672	F

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1081	270	69	1081	2377	2.4	1.7	5.157	A
B	978	245	1134	1016	16	33.6	4.6	40.453	E
C	31	8	2068	31	82	0.1	0.1	8.651	A
D	1425	356	1013	1433	1086	180.4	186.3	464.145	F

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	922	230	58	922	2324	1.7	1.2	4.634	A
B	817	204	966	818	15	4.6	1.7	8.597	A
C	27	7	1717	27	67	0.1	0.1	6.263	A
D	1189	297	819	1564	925	186.3	92.9	310.379	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	6	1100	0.005	6	0.0	0.0	3.766	A
			2	D	456	1100	0.415	457	0.0	0.5	4.577	A
			3	D,A	453	1100	0.412	454	0.0	0.5	4.628	A
		2	1	(D,B,C)	466			466	0.0	0.0	0.002	A
			2	(D,A)	450			450	0.0	0.0	0.001	A
	Exit	1	1		1961			1961	0.0	0.0	0.000	A
B	Entry	1	1	C	18	748	0.024	18	0.0	0.0	4.766	A
			2	D,A	406	748	0.543	406	0.0	1.0	7.234	A
			3	D,A,B	409	748	0.546	409	0.0	1.0	7.304	A
		2	1	(D,A,C)	427			427	0.0	0.0	0.146	A
			2	(D,A,B)	406			406	0.0	0.0	0.151	A
	Exit	1	1		15			15	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	27	777	0.034	26	0.0	0.1	4.908	A
	Exit	1	1		66			66	0.0	0.0	0.000	A
D	Entry	1	1	A	576	778	0.741	578	0.0	1.7	9.545	A
			2	A,B	564	778	0.726	565	0.0	1.8	9.611	A
			3	D,C	42	778	0.054	42	0.0	0.1	5.143	A
		2	1	(A,B)	1145			1141	0.0	1.1	1.800	A
			2	(D,C)	42			42	0.0	0.0	0.000	A
	Exit	1	1		919			919	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	7	1095	0.006	7	0.0	0.0	3.609	A
			2	D	547	1095	0.499	548	0.5	0.8	5.101	A
			3	D,A	545	1095	0.498	545	0.5	0.9	5.198	A
		2	1	(D,B,C)	556			556	0.0	0.0	0.005	A
			2	(D,A)	542			542	0.0	0.0	0.007	A
	Exit	1	1		2293			2293	0.0	0.0	0.000	A
B	Entry	1	1	C	22	678	0.032	22	0.0	0.0	5.739	A
			2	D,A	474	678	0.699	475	1.0	1.5	10.775	B
			3	D,A,B	475	678	0.701	477	1.0	1.4	10.694	B
		2	1	(D,A,C)	492			492	0.0	0.3	1.274	A
			2	(D,A,B)	479			479	0.0	0.3	1.338	A
	Exit	1	1		18			18	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	32	607	0.053	32	0.1	0.0	6.633	A
	Exit	1	1		81			81	0.0	0.0	0.000	A
D	Entry	1	1	A	668	726	0.920	667	1.7	3.1	15.520	C
			2	A,B	671	726	0.924	670	1.8	3.1	15.321	C
			3	D,C	52	726	0.072	52	0.1	0.1	5.707	A
		2	1	(A,B)	1363			1340	1.1	8.5	13.890	B
			2	(D,C)	52			52	0.0	0.0	0.000	A
	Exit	1	1		1103			1103	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	8	1088	0.007	8	0.0	0.0	3.729	A
			2	D	659	1088	0.606	659	0.8	1.1	6.196	A
			3	D,A	675	1088	0.620	674	0.9	1.1	6.101	A
		2	1	(D,B,C)	675			676	0.0	0.0	0.061	A
			2	(D,A)	665			666	0.0	0.0	0.069	A
	Exit	1	1		2453			2453	0.0	0.0	0.000	A
B	Entry	1	1	C	25	586	0.043	25	0.0	0.0	6.712	A
			2	D,A	560	586	0.955	556	1.5	3.6	19.995	C
			3	D,A,B	556	586	0.949	554	1.4	3.6	20.117	C
		2	1	(D,A,C)	618			582	0.3	8.4	26.331	D
			2	(D,A,B)	592			559	0.3	8.3	27.490	D
	Exit	1	1		22			22	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	40	394	0.102	39	0.0	0.2	10.272	B
	Exit	1	1		98			98	0.0	0.0	0.000	A
D	Entry	1	1	A	677	667	1.016	677	3.1	3.9	20.058	C
			2	A,B	661	667	0.992	661	3.1	3.9	19.946	C
			3	D,C	64	667	0.096	64	0.1	0.1	6.396	A
		2	1	(A,B)	1671			1338	8.5	81.3	114.595	F
			2	(D,C)	64			64	0.0	0.0	0.012	A
	Exit	1	1		1347			1347	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	8	1087	0.007	8	0.0	0.0	4.030	A
			2	D	663	1087	0.611	662	1.1	1.2	6.345	A
			3	D,A	665	1087	0.612	665	1.1	1.2	6.326	A
		2	1	(D,B,C)	667			667	0.0	0.0	0.058	A
			2	(D,A)	669			669	0.0	0.0	0.064	A
	Exit	1	1		2457			2457	0.0	0.0	0.000	A
B	Entry	1	1	C	25	587	0.043	25	0.0	0.1	7.953	A
			2	D,A	576	587	0.980	576	3.6	3.6	22.538	C
			3	D,A,B	561	587	0.956	562	3.6	3.6	22.628	C
		2	1	(D,A,C)	623			603	8.4	13.3	68.501	F
			2	(D,A,B)	582			560	8.3	13.0	67.826	F
	Exit	1	1		21			21	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	39	383	0.103	39	0.2	0.1	12.636	B
	Exit	1	1		101			101	0.0	0.0	0.000	A
D	Entry	1	1	A	663	656	1.011	663	3.9	3.9	21.605	C
			2	A,B	649	656	0.990	650	3.9	3.9	21.229	C
			3	D,C	69	656	0.105	69	0.1	0.1	7.016	A
		2	1	(A,B)	1673			1313	81.3	172.5	350.663	F
			2	(D,C)	69			69	0.0	0.0	0.019	A
	Exit	1	1		1339			1339	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	6	1096	0.006	6	0.0	0.0	3.662	A
			2	D	533	1096	0.487	533	1.2	0.8	5.164	A
			3	D,A	541	1096	0.494	542	1.2	0.8	5.149	A
		2	1	(D,B,C)	548			548	0.0	0.0	0.009	A
			2	(D,A)	533			533	0.0	0.0	0.012	A
	Exit	1	1			2377			2377	0.0	0.0	0.000
B	Entry	1	1	C	23	685	0.033	23	0.1	0.0	6.784	A
			2	D,A	490	685	0.716	494	3.6	1.7	16.245	C
			3	D,A,B	496	685	0.725	500	3.6	1.8	16.166	C
		2	1	(D,A,C)	500			515	13.3	0.5	24.468	C
			2	(D,A,B)	478			494	13.0	0.5	25.846	D
	Exit	1	1			16			16	0.0	0.0	0.000
C	Entry	1	1	D,A,B,C	31	595	0.052	31	0.1	0.1	8.651	A
	Exit	1	1			82			82	0.0	0.0	0.000
D	Entry	1	1	A	683	712	0.959	684	3.9	3.9	20.950	C
			2	A,B	696	712	0.978	696	3.9	3.9	20.754	C
			3	D,C	53	712	0.075	53	0.1	0.1	6.566	A
		2	1	(A,B)	1373			1379	172.5	178.4	462.598	F
			2	(D,C)	53			53	0.0	0.0	0.001	A
	Exit	1	1			1086			1086	0.0	0.0	0.000

08:30 - 08:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	6	1100	0.005	5	0.0	0.0	3.459	A
			2	D	459	1100	0.417	458	0.8	0.6	4.630	A
			3	D,A	458	1100	0.416	459	0.8	0.6	4.649	A
		2	1	(D,B,C)	462			462	0.0	0.0	0.001	A
			2	(D,A)	460			460	0.0	0.0	0.000	A
	Exit	1	1			2324			2324	0.0	0.0	0.000
B	Entry	1	1	C	18	745	0.024	18	0.0	0.0	5.314	A
			2	D,A	398	745	0.534	399	1.7	0.9	8.450	A
			3	D,A,B	401	745	0.538	402	1.8	0.8	8.343	A
		2	1	(D,A,C)	419			419	0.5	0.0	0.330	A
			2	(D,A,B)	398			398	0.5	0.0	0.318	A
	Exit	1	1			15			15	0.0	0.0	0.000
C	Entry	1	1	D,A,B,C	27	781	0.035	27	0.1	0.1	6.263	A
	Exit	1	1			67			67	0.0	0.0	0.000
D	Entry	1	1	A	759	783	0.969	761	3.9	3.7	18.244	C
			2	A,B	758	783	0.968	760	3.9	3.7	18.197	C
			3	D,C	43	783	0.054	43	0.1	0.1	5.640	A
		2	1	(A,B)	1146			1517	178.4	85.5	307.329	F
			2	(D,C)	43			43	0.0	0.0	0.000	A
	Exit	1	1			925			925	0.0	0.0	0.000

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Filename: M20 Junction 5 - 2016 PM.j9
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Report generation date: 18/08/2016 09:30:14

«M20 Junction 5 - 2016, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 5 [Lane Simulation] - 2016				
Arm A	66.8	87.26		F
Arm B	124.3	529.13		F
Arm C	0.9	27.87		D
Arm D	7.2	17.02		C

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. Arm and junction delays are averages for all movements, including movements with zero delay.

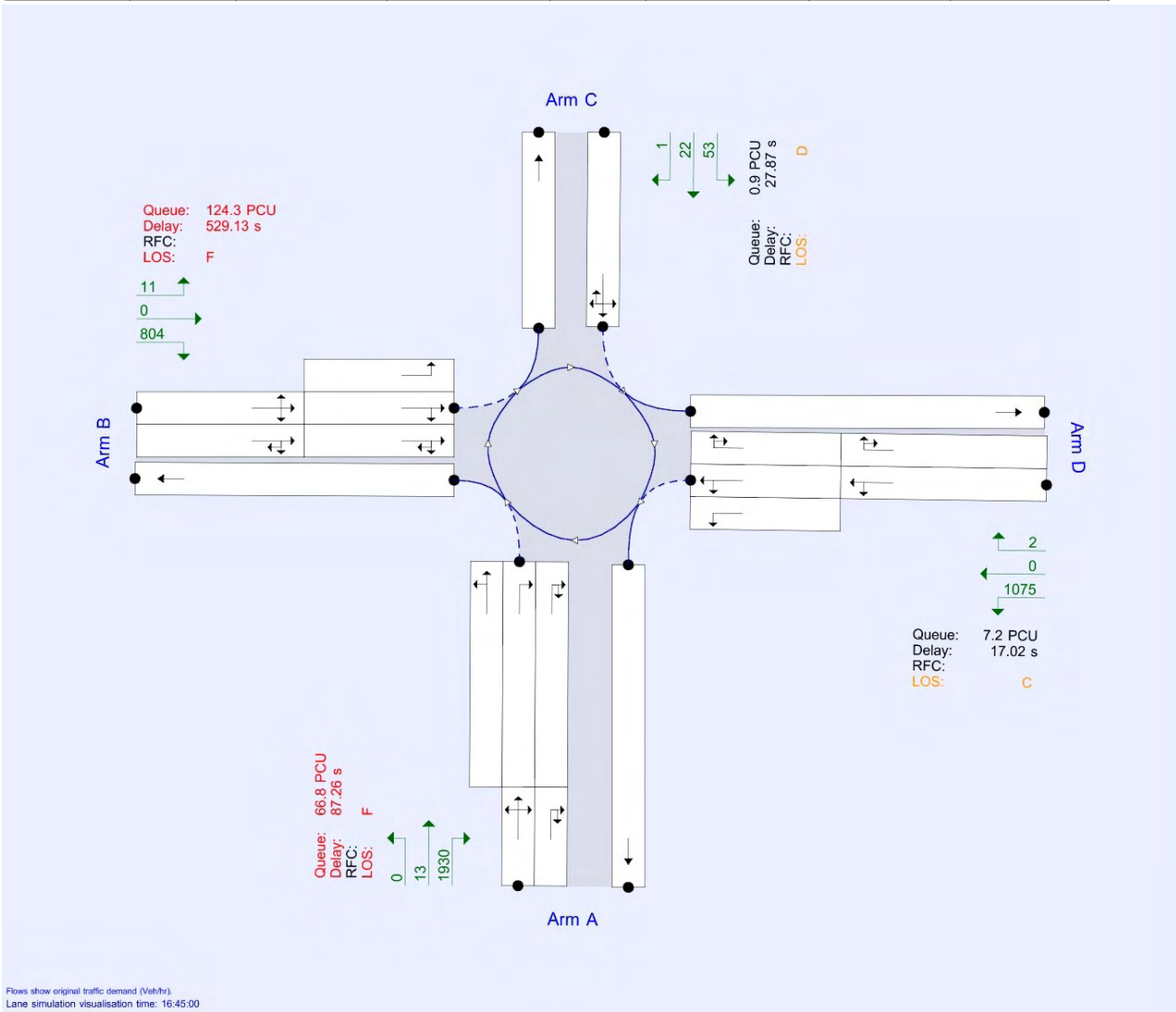
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Veh	PCU	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	158170195	269	107.72

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 5	✓	✓	100.000	100.000

M20 Junction 5 - 2016, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 5 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm B - Lane Simulation	Arm B: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 5	Large Roundabout	A,B,C,D	158.53	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	London Road A20	
B	M20 West	
C	Coldharbour Lane	
D	M20 East	

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)	Exit only
A	7.10	8.10	30.0	45.5	125.0	14.0	
B	7.25	10.50	22.0	30.0	234.0	20.0	
C	4.25	4.25	0.0	20.0	125.0	25.0	
D	7.25	10.00	14.5	30.0	234.0	16.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	3	50.00
B	1945	155.00
C	2734	0.00
D	827	132.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.266	3389
B	0.890	3099
C	0.432	1542
D	1.138	3287

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B,C	✓	6.00	0	99999
		2	D	✓	6.00	0	99999
		3	D,A	✓	6.00	0	99999
	2	1	(D,B,C)		Infinity		
		2	(D,A)		Infinity		
B	1 [Give-way line]	1	C	✓	4.00	0	99999
		2	D,A	✓	4.00	0	99999
		3	D,A,B	✓	4.00	0	99999
	2	1	(D,A,C)		Infinity		
		2	(D,A,B)		Infinity		
C	1 [Give-way line]	1	D,A,B,C		Infinity	0	99999
D	1 [Give-way line]	1	A	✓	4.00	0	99999
		2	A,B	✓	4.00	0	99999
		3	D,C	✓	4.00	0	99999
	2	1	(A,B)		Infinity		
		2	(D,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.422	1130
		2	0.422	1130
		3	0.422	1130
B	1 [Give-way line]	1	0.297	1033
		2	0.297	1033
		3	0.297	1033
C	1 [Give-way line]	1	0.432	1542
D	1 [Give-way line]	1	0.379	1096
		2	0.379	1096
		3	0.379	1096

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓	✓	
		3	✓			✓
	2	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1			✓	✓
		2	✓			
		3	✓	✓		
	2	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1				✓
		2	✓	✓		
		3	✓	✓	✓	
	2	1	✓	✓		✓
		2	✓	✓	✓	
C	1 [Give-way line]	1	✓	✓	✓	✓

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2016	PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1943	100.000
B		ONE HOUR	✓	815	100.000
C		ONE HOUR	✓	76	100.000
D		ONE HOUR	✓	1077	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	
From	A	0	0	13	1930	
	B	804	0	11	0	
	C	22	1	0	53	
	D	1075	0	2	0	

Proportions

		To				
		A	B	C	D	
From	A	0.00	0.00	0.01	0.99	
	B	0.99	0.00	0.01	0.00	
	C	0.29	0.01	0.00	0.70	
	D	1.00	0.00	0.00	0.00	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
From	A	10	10	10	10	
	B	10	10	10	10	
	C	10	10	10	10	
	D	10	10	10	10	

Average PCU Per Veh

		To				
		A	B	C	D	
From	A	1.100	1.100	1.100	1.100	
	B	1.100	1.100	1.100	1.100	
	C	1.100	1.100	1.100	1.100	
	D	1.100	1.100	1.100	1.100	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (Veh/hr)	Demand in PCU (PCU/hr)
16:45-17:00	A	1463	1609
	B	614	675
	C	57	63
	D	811	892
17:00-17:15	A	1747	1921
	B	733	806
	C	68	75
	D	968	1065
17:15-17:30	A	2139	2353
	B	897	987
	C	84	92
	D	1186	1304
17:30-17:45	A	2139	2353
	B	897	987
	C	84	92
	D	1186	1304
17:45-18:00	A	1747	1921
	B	733	806
	C	68	75
	D	968	1065
18:00-18:15	A	1463	1609
	B	614	675
	C	57	63
	D	811	892

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	87.26	66.8	F	1968	2953
B	529.13	124.3	F	822	1233
C	27.87	0.9	D	77	115
D	17.02	7.2	C	1090	1635

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1612	403	3	1612	1570	0.0	3.5	7.535	A
B	681	170	1614	678	0.94	0.0	2.4	10.720	B
C	63	16	2271	62	21	0.0	0.2	7.228	A
D	885	221	688	885	1645	0.0	2.0	6.704	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1929	482	3	1934	1874	3.5	6.8	12.726	B
B	803	201	1936	792	1	2.4	8.3	29.048	D
C	76	19	2703	77	25	0.2	0.2	12.492	B
D	1070	268	804	1073	1976	2.0	2.8	9.473	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2358	590	4	2237	2084	6.8	42.2	43.794	E
B	987	247	2239	765	2	8.3	59.5	161.042	F
C	92	23	2978	92	26	0.2	0.9	26.049	D
D	1315	329	783	1306	2288	2.8	7.2	16.825	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2369	592	4	2274	2057	42.2	66.8	87.264	F
B	985	246	2277	736	1	59.5	121.3	449.392	F
C	91	23	2985	90	28	0.9	0.8	27.874	D
D	1314	328	752	1310	2323	7.2	6.0	17.023	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1928	482	2	2047	1931	66.8	18.3	59.920	F
B	807	202	2049	855	0.94	121.3	124.3	529.130	F
C	74	19	2875	75	29	0.8	0.5	22.810	C
D	1066	267	867	1066	2083	6.0	3.4	11.078	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1615	404	2	1623	1919	18.3	3.7	12.770	B
B	669	167	1624	1027	0.62	124.3	41.5	272.567	F
C	64	16	2626	63	25	0.5	0.3	13.387	B
D	890	222	1034	887	1655	3.4	2.8	10.258	B

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	11	1129	0.009	10	0.0	0.0	3.849	A
			2	D	798	1129	0.707	798	0.0	1.7	7.356	A
			3	D,A	803	1129	0.711	803	0.0	1.6	7.342	A
		2	1	(D,B,C)	809			808	0.0	0.1	0.210	A
			2	(D,A)	803			803	0.0	0.0	0.201	A
		Exit	1	1		1570			1570	0.0	0.0	0.000
B	Entry	1	1	C	9	554	0.016	9	0.0	0.0	6.930	A
			2	D,A	336	554	0.606	336	0.0	1.1	10.266	B
			3	D,A,B	335	554	0.604	334	0.0	1.1	10.304	B
		2	1	(D,A,C)	342			341	0.0	0.1	0.455	A
			2	(D,A,B)	339			338	0.0	0.1	0.464	A
		Exit	1	1		0.94			0.94	0.0	0.0	0.000
C	Entry	1	1	D,A,B,C	63	561	0.112	62	0.0	0.2	7.228	A
	Exit	1	1		21			21	0.0	0.0	0.000	A
D	Entry	1	1	A	443	835	0.531	443	0.0	1.0	6.581	A
			2	A,B	440	835	0.527	440	0.0	0.9	6.598	A
			3	D,C	2	835	0.002	2	0.0	0.0	4.067	A
		2	1	(A,B)	883			883	0.0	0.1	0.115	A
			2	(D,C)	2			2	0.0	0.0	0.000	A
		Exit	1	1		1645			1645	0.0	0.0	0.000

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	13	1128	0.012	13	0.0	0.0	3.758	A
			2	D	957	1128	0.848	958	1.7	2.9	10.601	B
			3	D,A	963	1128	0.854	963	1.6	2.9	10.636	B
		2	1	(D,B,C)	975			977	0.1	0.5	2.110	A
			2	(D,A)	954			956	0.0	0.5	2.168	A
		Exit	1	1		1874			1874	0.0	0.0	0.000
B	Entry	1	1	C	10	459	0.022	10	0.0	0.0	7.917	A
			2	D,A	396	459	0.863	394	1.1	2.5	20.150	C
			3	D,A,B	388	459	0.846	387	1.1	2.4	20.264	C
		2	1	(D,A,C)	407			402	0.1	1.7	8.613	A
			2	(D,A,B)	396			392	0.1	1.7	9.006	A
		Exit	1	1		1			1	0.0	0.0	0.000
C	Entry	1	1	D,A,B,C	76	375	0.202	77	0.2	0.2	12.492	B
	Exit	1	1		25			25	0.0	0.0	0.000	A
D	Entry	1	1	A	535	790	0.677	538	1.0	1.2	8.846	A
			2	A,B	533	790	0.674	533	0.9	1.4	8.918	A
			3	D,C	2	790	0.002	2	0.0	0.0	4.443	A
		2	1	(A,B)	1068			1068	0.1	0.2	0.601	A
			2	(D,C)	2			2	0.0	0.0	0.000	A
		Exit	1	1		1976			1976	0.0	0.0	0.000

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	14	1128	0.012	14	0.0	0.0	3.450	A
			2	D	1129	1128	1.001	1124	2.9	5.7	16.392	C
			3	D,A	1104	1128	0.979	1099	2.9	5.6	16.604	C
		2	1	(D,B,C)	1178			1124	0.5	15.4	27.246	D
			2	(D,A)	1180			1122	0.5	15.6	27.289	D
	Exit	1	1		2084			2084	0.0	0.0	0.000	A
B	Entry	1	1	C	10	369	0.027	10	0.0	0.0	10.754	B
			2	D,A	374	369	1.016	374	2.5	3.9	34.275	D
			3	D,A,B	381	369	1.033	381	2.4	3.9	34.515	D
		2	1	(D,A,C)	501			390	1.7	25.8	123.863	F
			2	(D,A,B)	486			375	1.7	25.8	128.018	F
	Exit	1	1		2			2	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	92	256	0.360	92	0.2	0.9	26.049	D
	Exit	1	1		26			26	0.0	0.0	0.000	A
D	Entry	1	1	A	655	799	0.820	654	1.2	2.3	12.055	B
			2	A,B	651	799	0.815	649	1.4	2.4	12.046	B
			3	D,C	3	799	0.003	3	0.0	0.0	5.541	A
		2	1	(A,B)	1313			1306	0.2	2.5	4.743	A
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1		2288			2288	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	15	1128	0.014	15	0.0	0.0	3.698	A
			2	D	1126	1128	0.998	1126	5.7	5.8	18.148	C
			3	D,A	1132	1128	1.004	1133	5.6	5.7	18.196	C
		2	1	(D,B,C)	1181			1133	15.4	27.7	69.230	F
			2	(D,A)	1188			1140	15.6	27.6	69.063	F
	Exit	1	1		2057			2057	0.0	0.0	0.000	A
B	Entry	1	1	C	9	357	0.026	9	0.0	0.0	11.591	B
			2	D,A	364	357	1.018	364	3.9	3.9	39.369	E
			3	D,A,B	362	357	1.013	362	3.9	3.9	39.075	E
		2	1	(D,A,C)	492			368	25.8	56.7	417.633	F
			2	(D,A,B)	493			367	25.8	56.7	405.239	F
	Exit	1	1		1			1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	91	253	0.361	90	0.9	0.8	27.874	D
	Exit	1	1		28			28	0.0	0.0	0.000	A
D	Entry	1	1	A	654	810	0.808	655	2.3	2.2	11.995	B
			2	A,B	652	810	0.804	651	2.4	2.2	12.002	B
			3	D,C	3	810	0.004	3	0.0	0.0	5.021	A
		2	1	(A,B)	1310			1306	2.5	1.6	5.075	A
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1		2323			2323	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	14	1129	0.013	15	0.0	0.0	3.628	A
			2	D	1002	1129	0.888	1008	5.8	3.8	15.647	C
			3	D,A	1017	1129	0.901	1024	5.7	3.7	15.574	C
		2	1	(D,B,C)	963			1017	27.7	5.5	45.305	E
			2	(D,A)	964			1015	27.6	5.4	44.073	E
	Exit	1	1			1931		1931	0.0	0.0	0.000	A
B	Entry	1	1	C	13	425	0.029	13	0.0	0.0	11.005	B
			2	D,A	414	425	0.975	415	3.9	3.9	36.330	E
			3	D,A,B	428	425	1.006	428	3.9	3.9	35.699	E
		2	1	(D,A,C)	397			420	56.7	58.3	498.791	F
			2	(D,A,B)	410			434	56.7	58.2	497.912	F
	Exit	1	1			0.94		0.94	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	74	300	0.247	75	0.8	0.5	22.810	C
	Exit	1	1			29		29	0.0	0.0	0.000	A
D	Entry	1	1	A	527	767	0.688	528	2.2	1.4	9.570	A
			2	A,B	537	767	0.701	537	2.2	1.5	9.479	A
			3	D,C	1	767	0.002	1	0.0	0.0	5.323	A
		2	1	(A,B)	1065			1065	1.6	0.6	1.587	A
			2	(D,C)	1			1	0.0	0.0	0.000	A
	Exit	1	1			2083		2083	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	11	1129	0.009	10	0.0	0.0	3.536	A
			2	D	803	1129	0.712	805	3.8	1.6	8.652	A
			3	D,A	806	1129	0.714	807	3.7	1.7	8.632	A
		2	1	(D,B,C)	813			816	5.5	0.1	4.523	A
			2	(D,A)	802			804	5.4	0.1	4.332	A
	Exit	1	1			1919		1919	0.0	0.0	0.000	A
B	Entry	1	1	C	13	551	0.023	13	0.0	0.0	8.584	A
			2	D,A	496	551	0.900	502	3.9	3.1	26.508	D
			3	D,A,B	505	551	0.916	512	3.9	3.1	26.388	D
		2	1	(D,A,C)	333			498	58.3	17.9	247.351	F
			2	(D,A,B)	336			516	58.2	17.4	246.564	F
	Exit	1	1			0.62		0.62	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	64	408	0.157	63	0.5	0.3	13.387	B
	Exit	1	1			25		25	0.0	0.0	0.000	A
D	Entry	1	1	A	444	703	0.631	443	1.4	1.2	9.441	A
			2	A,B	444	703	0.631	442	1.5	1.4	9.525	A
			3	D,C	2	703	0.002	2	0.0	0.0	5.140	A
		2	1	(A,B)	888			888	0.6	0.2	0.814	A
			2	(D,C)	2			2	0.0	0.0	0.000	A
	Exit	1	1			1655		1655	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Filename: M20 Junction 5- 2031 AM.j9
Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 5\ARCADY
Report generation date: 18/08/2016 09:26:05

- «M20 Junction 5 - 2031, AM
 - »Junction Network
 - »Arms
 - »Traffic Demand
 - »Origin-Destination Data
 - »Vehicle Mix
 - »Detailed Demand Data
 - »Results
 - »Lane Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 5 [Lane Simulation] - 2031				
Arm A	3.1	7.16		A
Arm B	91.7	227.31		F
Arm C	0.2	12.62		B
Arm D	321.3	788.66		F

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. Arm and junction delays are averages for all movements, including movements with zero delay.

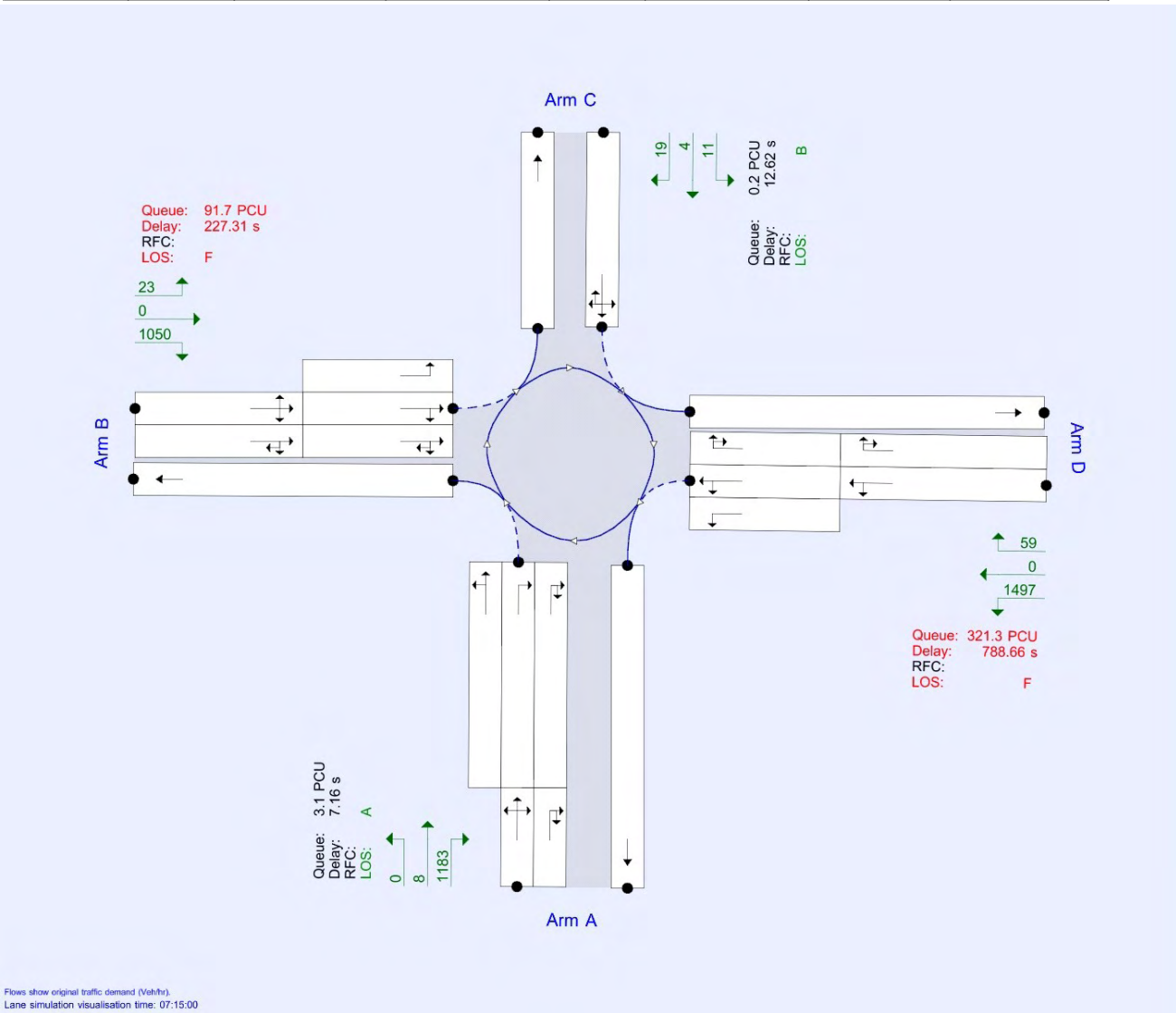
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Veh	PCU	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1545809821	355	121.75

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 5	✓	✓	100.000	100.000

M20 Junction 5 - 2031, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 5 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm D - Lane Simulation	Arm D: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 5	Large Roundabout	A,B,C,D	383.54	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	London Road A20	
B	M20 West	
C	Coldharbour Lane	
D	M20 East	

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)	Exit only
A	7.10	8.10	30.0	45.5	125.0	14.0	
B	7.25	10.50	22.0	30.0	234.0	20.0	
C	4.25	4.25	0.0	20.0	125.0	25.0	
D	7.25	10.00	14.5	30.0	234.0	16.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	78	50.00
B	1250	155.00
C	2233	0.00
D	1073	132.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.249	3372
B	1.060	3260
C	0.508	1658
D	1.079	3230

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B,C	✓	6.00	0	99999
		2	D	✓	6.00	0	99999
		3	D,A	✓	6.00	0	99999
	2	1	(D,B,C)		Infinity		
		2	(D,A)		Infinity		
B	1 [Give-way line]	1	C	✓	4.00	0	99999
		2	D,A	✓	4.00	0	99999
		3	D,A,B	✓	4.00	0	99999
	2	1	(D,A,C)		Infinity		
		2	(D,A,B)		Infinity		
C	1 [Give-way line]	1	D,A,B,C		Infinity	0	99999
D	1 [Give-way line]	1	A	✓	4.00	0	99999
		2	A,B	✓	4.00	0	99999
		3	D,C	✓	4.00	0	99999
	2	1	(A,B)		Infinity		
		2	(D,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.416	1124
		2	0.416	1124
		3	0.416	1124
B	1 [Give-way line]	1	0.353	1087
		2	0.353	1087
		3	0.353	1087
C	1 [Give-way line]	1	0.508	1658
D	1 [Give-way line]	1	0.360	1077
		2	0.360	1077
		3	0.360	1077

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓	✓	
		3	✓			✓
	2	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1			✓	✓
		2	✓			
		3	✓	✓		
	2	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1				✓
		2	✓	✓		
		3	✓	✓	✓	
	2	1	✓	✓		✓
		2	✓	✓	✓	
C	1 [Give-way line]	1	✓	✓	✓	✓

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	2031	AM	ONE HOUR	07:15	08:45	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 (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1191	100.000
B		ONE HOUR	✓	1073	100.000
C		ONE HOUR	✓	34	100.000
D		ONE HOUR	✓	1556	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	
From	A	0	0	8	1183	
	B	1050	0	23	0	
	C	4	19	0	11	
	D	1497	0	59	0	

Proportions

		To				
		A	B	C	D	
From	A	0.00	0.00	0.01	0.99	
	B	0.98	0.00	0.02	0.00	
	C	0.12	0.56	0.00	0.32	
	D	0.96	0.00	0.04	0.00	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
From	A	10	10	10	10	
	B	10	10	10	10	
	C	10	10	10	10	
	D	10	10	10	10	

Average PCU Per Veh

		To				
		A	B	C	D	
From	A	1.100	1.100	1.100	1.100	
	B	1.100	1.100	1.100	1.100	
	C	1.100	1.100	1.100	1.100	
	D	1.100	1.100	1.100	1.100	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (Veh/hr)	Demand in PCU (PCU/hr)
07:15-07:30	A	897	986
	B	808	889
	C	26	28
	D	1171	1289
07:30-07:45	A	1071	1178
	B	965	1061
	C	31	34
	D	1399	1539
07:45-08:00	A	1311	1442
	B	1181	1300
	C	37	41
	D	1713	1885
08:00-08:15	A	1311	1442
	B	1181	1300
	C	37	41
	D	1713	1885
08:15-08:30	A	1071	1178
	B	965	1061
	C	31	34
	D	1399	1539
08:30-08:45	A	897	986
	B	808	889
	C	26	28
	D	1171	1289

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	7.16	3.1	A	1206	1809
B	227.31	91.7	F	1081	1622
C	12.62	0.2	B	34	50
D	788.66	321.3	F	1568	2352

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	998	249	64	999	2103	0.0	1.3	4.833	A
B	882	221	1048	885	16	0.0	2.4	8.475	A
C	27	7	1859	27	74	0.0	0.1	4.854	A
D	1286	322	885	1282	1001	0.0	6.6	14.130	B

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1183	296	77	1185	2393	1.3	2.0	5.587	A
B	1070	268	1244	1064	19	2.4	6.1	17.109	C
C	34	8	2219	34	89	0.1	0.1	7.547	A
D	1535	384	1064	1407	1189	6.6	38.1	58.072	F

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1443	361	95	1438	2464	2.0	3.1	7.068	A
B	1301	325	1511	1125	22	6.1	49.2	89.892	F
C	40	10	2528	41	108	0.1	0.1	12.440	B
D	1886	472	1128	1431	1441	38.1	153.0	248.893	F

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1448	362	93	1447	2460	3.1	3.0	7.163	A
B	1288	322	1518	1124	23	49.2	91.7	227.306	F
C	40	10	2537	40	105	0.1	0.2	12.617	B
D	1884	471	1127	1426	1450	153.0	269.0	556.087	F

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1175	294	79	1176	2479	3.0	1.8	5.544	A
B	1055	264	1236	1256	20	91.7	42.7	189.367	F
C	34	9	2395	34	96	0.2	0.1	10.319	B
D	1523	381	1251	1307	1179	269.0	321.3	788.658	F

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	990	248	64	990	2379	1.8	1.4	4.844	A
B	891	223	1040	937	14	42.7	3.3	40.336	E
C	26	7	1902	26	75	0.1	0.1	7.942	A
D	1295	324	935	1508	992	321.3	291.0	639.097	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	6	1097	0.006	6	0.0	0.0	3.536	A
			2	D	491	1097	0.447	492	0.0	0.7	4.863	A
			3	D,A	501	1097	0.457	502	0.0	0.7	4.811	A
		2	1	(D,B,C)	503			503	0.0	0.0	0.005	A
			2	(D,A)	495			495	0.0	0.0	0.006	A
		Exit	1	1		2103			2103	0.0	0.0	0.000
B	Entry	1	1	C	19	716	0.027	19	0.0	0.0	5.378	A
			2	D,A	436	716	0.608	437	0.0	1.1	8.162	A
			3	D,A,B	429	716	0.599	430	0.0	1.2	8.187	A
		2	1	(D,A,C)	450			451	0.0	0.0	0.351	A
			2	(D,A,B)	433			434	0.0	0.0	0.367	A
		Exit	1	1		16			16	0.0	0.0	0.000
C	Entry	1	1	D,A,B,C	27	714	0.038	27	0.0	0.1	4.854	A
	Exit	1	1		74			74	0.0	0.0	0.000	A
D	Entry	1	1	A	618	758	0.815	616	0.0	2.3	11.107	B
			2	A,B	617	758	0.814	617	0.0	2.2	11.004	B
			3	D,C	49	758	0.065	49	0.0	0.1	5.451	A
		2	1	(A,B)	1237			1235	0.0	1.9	3.367	A
			2	(D,C)	49			49	0.0	0.0	0.007	A
		Exit	1	1		1001			1001	0.0	0.0	0.000

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	8	1092	0.007	8	0.0	0.0	3.863	A
			2	D	588	1092	0.538	590	0.7	1.0	5.616	A
			3	D,A	587	1092	0.537	588	0.7	1.0	5.546	A
		2	1	(D,B,C)	594			594	0.0	0.0	0.016	A
			2	(D,A)	589			588	0.0	0.0	0.017	A
		Exit	1	1		2393			2393	0.0	0.0	0.000
B	Entry	1	1	C	22	647	0.035	22	0.0	0.0	6.277	A
			2	D,A	521	647	0.806	521	1.1	2.1	13.595	B
			3	D,A,B	522	647	0.806	521	1.2	2.2	13.640	B
		2	1	(D,A,C)	538			536	0.0	0.9	3.567	A
			2	(D,A,B)	532			529	0.0	0.8	3.610	A
		Exit	1	1		19			19	0.0	0.0	0.000
C	Entry	1	1	D,A,B,C	34	531	0.064	34	0.1	0.1	7.547	A
	Exit	1	1		89			89	0.0	0.0	0.000	A
D	Entry	1	1	A	676	694	0.974	674	2.3	3.7	18.066	C
			2	A,B	677	694	0.975	674	2.2	3.8	17.938	C
			3	D,C	58	694	0.084	59	0.1	0.1	6.067	A
		2	1	(A,B)	1477			1352	1.9	30.5	41.888	E
			2	(D,C)	58			58	0.0	0.0	0.002	A
		Exit	1	1		1189			1189	0.0	0.0	0.000

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	10	1084	0.010	10	0.0	0.0	3.720	A
			2	D	717	1084	0.662	716	1.0	1.5	6.981	A
			3	D,A	714	1084	0.659	712	1.0	1.5	6.968	A
		2	1	(D,B,C)	726			726	0.0	0.1	0.112	A
			2	(D,A)	717			716	0.0	0.1	0.116	A
	Exit	1	1		2464			2464	0.0	0.0	0.000	A
B	Entry	1	1	C	25	553	0.045	25	0.0	0.1	7.943	A
			2	D,A	550	553	0.995	549	2.1	3.9	23.091	C
			3	D,A,B	552	553	0.999	551	2.2	3.9	23.048	C
		2	1	(D,A,C)	667			581	0.9	20.6	66.293	F
			2	(D,A,B)	634			546	0.8	20.7	67.418	F
	Exit	1	1		22			22	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	40	375	0.108	41	0.1	0.1	12.440	B
	Exit	1	1		108			108	0.0	0.0	0.000	A
D	Entry	1	1	A	674	671	1.005	674	3.7	3.9	20.936	C
			2	A,B	684	671	1.020	685	3.8	3.9	20.592	C
			3	D,C	72	671	0.108	73	0.1	0.1	6.515	A
		2	1	(A,B)	1814			1358	30.5	145.1	237.468	F
			2	(D,C)	72			72	0.0	0.0	0.046	A
	Exit	1	1		1441			1441	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	10	1085	0.009	9	0.0	0.0	3.686	A
			2	D	718	1085	0.662	718	1.5	1.4	7.054	A
			3	D,A	720	1085	0.664	720	1.5	1.5	7.068	A
		2	1	(D,B,C)	736			736	0.1	0.0	0.126	A
			2	(D,A)	712			712	0.1	0.0	0.126	A
	Exit	1	1		2460			2460	0.0	0.0	0.000	A
B	Entry	1	1	C	24	550	0.044	25	0.1	0.1	7.904	A
			2	D,A	547	550	0.994	547	3.9	3.9	25.337	D
			3	D,A,B	553	550	1.004	553	3.9	3.9	25.517	D
		2	1	(D,A,C)	651			571	20.6	41.8	200.074	F
			2	(D,A,B)	637			553	20.7	42.0	205.367	F
	Exit	1	1		23			23	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	40	370	0.108	40	0.1	0.2	12.617	B
	Exit	1	1		105			105	0.0	0.0	0.000	A
D	Entry	1	1	A	677	671	1.009	677	3.9	3.9	21.081	C
			2	A,B	679	671	1.012	679	3.9	3.9	20.941	C
			3	D,C	72	671	0.107	71	0.1	0.2	6.542	A
		2	1	(A,B)	1813			1356	145.1	261.0	555.991	F
			2	(D,C)	72			72	0.0	0.0	0.006	A
	Exit	1	1		1450			1450	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	8	1091	0.008	8	0.0	0.0	3.573	A
			2	D	585	1091	0.536	586	1.4	0.9	5.531	A
			3	D,A	582	1091	0.534	582	1.5	0.9	5.555	A
		2	1	(D,B,C)	597			597	0.0	0.0	0.017	A
			2	(D,A)	578			578	0.0	0.0	0.015	A
	Exit	1	1		2479			2479	0.0	0.0	0.000	A
B	Entry	1	1	C	29	650	0.044	29	0.1	0.1	7.020	A
			2	D,A	606	650	0.932	609	3.9	3.4	21.800	C
			3	D,A,B	614	650	0.945	618	3.9	3.4	21.738	C
		2	1	(D,A,C)	516			614	41.8	18.1	168.567	F
			2	(D,A,B)	538			635	42.0	17.8	168.577	F
	Exit	1	1		20			20	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	34	442	0.077	34	0.2	0.1	10.319	B
	Exit	1	1		96			96	0.0	0.0	0.000	A
D	Entry	1	1	A	624	627	0.995	623	3.9	3.9	22.191	C
			2	A,B	625	627	0.998	625	3.9	3.9	22.212	C
			3	D,C	59	627	0.095	59	0.2	0.1	7.167	A
		2	1	(A,B)	1464			1249	261.0	313.3	799.022	F
			2	(D,C)	59			59	0.0	0.0	0.018	A
	Exit	1	1		1179			1179	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	7	1097	0.006	7	0.0	0.0	3.699	A
			2	D	492	1097	0.449	493	0.9	0.7	4.860	A
			3	D,A	491	1097	0.448	491	0.9	0.7	4.840	A
		2	1	(D,B,C)	496			496	0.0	0.0	0.002	A
			2	(D,A)	494			494	0.0	0.0	0.002	A
	Exit	1	1		2379			2379	0.0	0.0	0.000	A
B	Entry	1	1	C	19	719	0.026	18	0.1	0.0	5.954	A
			2	D,A	456	719	0.634	460	3.4	1.2	13.502	B
			3	D,A,B	455	719	0.633	458	3.4	1.2	13.469	B
		2	1	(D,A,C)	455			475	18.1	0.4	27.598	D
			2	(D,A,B)	436			455	17.8	0.4	28.440	D
	Exit	1	1		14			14	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	26	692	0.038	26	0.1	0.1	7.942	A
	Exit	1	1		75			75	0.0	0.0	0.000	A
D	Entry	1	1	A	729	740	0.984	729	3.9	3.9	20.512	C
			2	A,B	728	740	0.984	729	3.9	3.9	20.489	C
			3	D,C	50	740	0.067	50	0.1	0.1	6.479	A
		2	1	(A,B)	1245			1457	313.3	283.2	721.239	F
			2	(D,C)	50			50	0.0	0.0	0.009	A
	Exit	1	1		992			992	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 5\ARCADY
Report generation date: 18/08/2016 09:34:16

«M20 Junction 5 - 2031, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	M20 Junction 5 [Lane Simulation] - 2031			
Arm A	148.8	198.52		F
Arm B	184.8	782.51		F
Arm C	0.7	24.15		C
Arm D	10.5	26.46		D

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. Arm and junction delays are averages for all movements, including movements with zero delay.

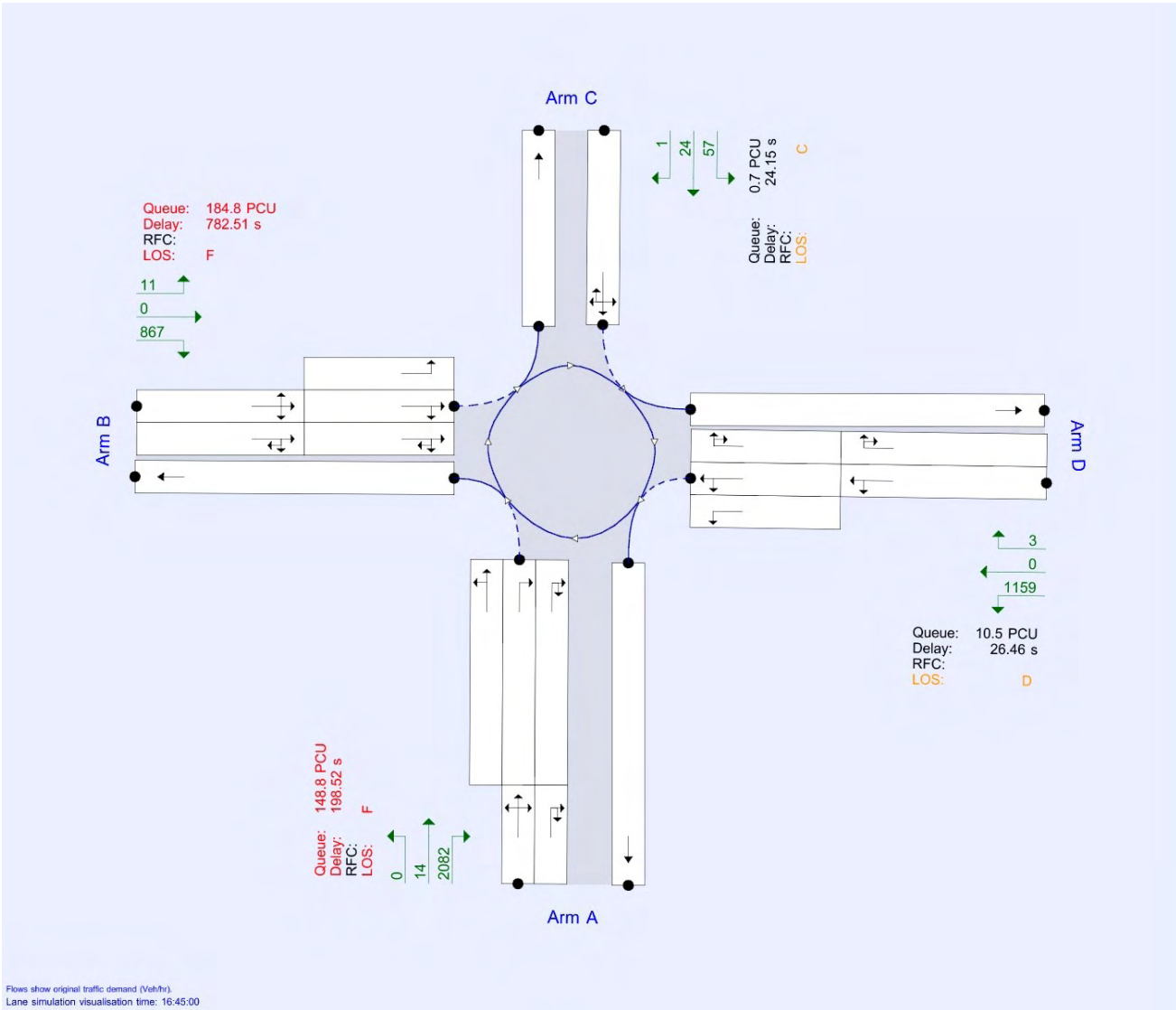
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Veh	PCU	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	122010479	311	140.13

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 5	✓	✓	100.000	100.000

M20 Junction 5 - 2031, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 5 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Arm B - Lane Simulation	Arm B: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 5	Large Roundabout	A,B,C,D	269.27	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	London Road A20	
B	M20 West	
C	Coldharbour Lane	
D	M20 East	

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)	Exit only
A	7.10	8.10	30.0	45.5	125.0	14.0	
B	7.25	10.50	22.0	30.0	234.0	20.0	
C	4.25	4.25	0.0	20.0	125.0	25.0	
D	7.25	10.00	14.5	30.0	234.0	16.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	4	50.00
B	2099	155.00
C	2949	0.00
D	892	132.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.266	3389
B	0.852	3063
C	0.399	1492
D	1.123	3272

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B,C	✓	6.00	0	99999
		2	D	✓	6.00	0	99999
		3	D,A	✓	6.00	0	99999
	2	1	(D,B,C)		Infinity		
		2	(D,A)		Infinity		
B	1 [Give-way line]	1	C	✓	4.00	0	99999
		2	D,A	✓	4.00	0	99999
		3	D,A,B	✓	4.00	0	99999
	2	1	(D,A,C)		Infinity		
		2	(D,A,B)		Infinity		
C	1 [Give-way line]	1	D,A,B,C		Infinity	0	99999
D	1 [Give-way line]	1	A	✓	4.00	0	99999
		2	A,B	✓	4.00	0	99999
		3	D,C	✓	4.00	0	99999
	2	1	(A,B)		Infinity		
		2	(D,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.422	1130
		2	0.422	1130
		3	0.422	1130
B	1 [Give-way line]	1	0.284	1021
		2	0.284	1021
		3	0.284	1021
C	1 [Give-way line]	1	0.399	1492
D	1 [Give-way line]	1	0.374	1091
		2	0.374	1091
		3	0.374	1091

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓	✓	
		3	✓			✓
	2	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1			✓	✓
		2	✓			
		3	✓	✓		
	2	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1				✓
		2	✓	✓		
		3	✓	✓	✓	
	2	1	✓	✓		✓
		2	✓	✓	✓	
C	1 [Give-way line]	1	✓	✓	✓	✓

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	2031	PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	2096	100.000
B		ONE HOUR	✓	878	100.000
C		ONE HOUR	✓	82	100.000
D		ONE HOUR	✓	1162	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	
From	A	0	0	14	2082	
	B	867	0	11	0	
	C	24	1	0	57	
	D	1159	0	3	0	

Proportions

		To				
		A	B	C	D	
From	A	0.00	0.00	0.01	0.99	
	B	0.99	0.00	0.01	0.00	
	C	0.29	0.01	0.00	0.70	
	D	1.00	0.00	0.00	0.00	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
From	A	10	10	10	10	
	B	10	10	10	10	
	C	10	10	10	10	
	D	10	10	10	10	

Average PCU Per Veh

		To				
		A	B	C	D	
From	A	1.100	1.100	1.100	1.100	
	B	1.100	1.100	1.100	1.100	
	C	1.100	1.100	1.100	1.100	
	D	1.100	1.100	1.100	1.100	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (Veh/hr)	Demand in PCU (PCU/hr)
16:45-17:00	A	1578	1736
	B	661	727
	C	62	68
	D	875	962
17:00-17:15	A	1884	2073
	B	789	868
	C	74	81
	D	1045	1149
17:15-17:30	A	2308	2539
	B	967	1063
	C	90	99
	D	1279	1407
17:30-17:45	A	2308	2539
	B	967	1063
	C	90	99
	D	1279	1407
17:45-18:00	A	1884	2073
	B	789	868
	C	74	81
	D	1045	1149
18:00-18:15	A	1578	1736
	B	661	727
	C	62	68
	D	875	962

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	198.52	148.8	F	2117	3176
B	782.51	184.8	F	884	1326
C	24.15	0.7	C	84	126
D	26.46	10.5	D	1166	1749

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1755	439	3	1750	1690	0.0	4.9	9.091	A
B	723	181	1752	722	0.77	0.0	3.2	12.957	B
C	68	17	2450	68	24	0.0	0.2	7.052	A
D	958	240	734	959	1785	0.0	2.1	7.356	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2080	520	4	2058	1975	4.9	12.5	17.733	C
B	863	216	2060	821	1	3.2	16.9	48.728	E
C	85	21	2854	86	27	0.2	0.3	14.281	B
D	1144	286	836	1143	2104	2.1	3.9	11.518	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2544	636	5	2274	2169	12.5	82.0	78.141	F
B	1058	265	2277	757	1	16.9	85.3	242.672	F
C	102	25	3004	103	30	0.3	0.6	22.918	C
D	1398	349	778	1396	2329	3.9	9.8	23.761	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2533	633	6	2284	2176	82.0	148.8	185.489	F
B	1079	270	2289	759	1	85.3	162.3	592.987	F
C	99	25	3018	100	29	0.6	0.7	24.155	C
D	1401	350	778	1403	2340	9.8	10.5	26.460	D

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2061	515	5	2260	1940	148.8	100.0	198.519	F
B	864	216	2264	773	1	162.3	184.8	782.511	F
C	84	21	3005	84	32	0.7	0.5	21.492	C
D	1148	287	790	1155	2300	10.5	3.6	13.650	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1729	432	3	1928	1861	100.0	15.8	77.121	F
B	716	179	1931	911	0.81	184.8	154.5	600.404	F
C	67	17	2815	68	27	0.5	0.2	16.836	C
D	948	237	922	942	1961	3.6	3.0	9.482	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	13	1128	0.012	13	0.0	0.0	3.646	A
			2	D	871	1128	0.772	868	0.0	2.3	8.590	A
			3	D,A	871	1128	0.772	868	0.0	2.2	8.535	A
		2	1	(D,B,C)	886			886	0.0	0.2	0.553	A
			2	(D,A)	869			870	0.0	0.2	0.558	A
	Exit	1	1		1690			1690	0.0	0.0	0.000	A
B	Entry	1	1	C	8	523	0.016	8	0.0	0.0	6.709	A
			2	D,A	357	523	0.682	357	0.0	1.4	12.003	B
			3	D,A,B	356	523	0.681	357	0.0	1.4	11.998	B
		2	1	(D,A,C)	364			363	0.0	0.2	0.976	A
			2	(D,A,B)	359			358	0.0	0.2	0.998	A
	Exit	1	1		0.77			0.77	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	68	514	0.133	68	0.0	0.2	7.052	A
	Exit	1	1		24			24	0.0	0.0	0.000	A
D	Entry	1	1	A	476	816	0.584	477	0.0	1.0	7.179	A
			2	A,B	479	816	0.587	480	0.0	1.0	7.137	A
			3	D,C	2	816	0.003	3	0.0	0.0	4.221	A
		2	1	(A,B)	956			956	0.0	0.1	0.203	A
			2	(D,C)	2			2	0.0	0.0	0.000	A
	Exit	1	1		1785			1785	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	13	1128	0.012	13	0.0	0.0	3.612	A
			2	D	1025	1128	0.909	1024	2.3	3.9	12.780	B
			3	D,A	1024	1128	0.907	1021	2.2	3.9	12.784	B
		2	1	(D,B,C)	1051			1042	0.2	2.4	4.924	A
			2	(D,A)	1029			1020	0.2	2.3	4.990	A
	Exit	1	1		1975			1975	0.0	0.0	0.000	A
B	Entry	1	1	C	11	436	0.025	11	0.0	0.0	9.288	A
			2	D,A	409	436	0.939	405	1.4	3.4	24.670	C
			3	D,A,B	407	436	0.933	404	1.4	3.3	25.026	D
		2	1	(D,A,C)	446			427	0.2	5.1	23.107	C
			2	(D,A,B)	417			399	0.2	5.0	24.314	C
	Exit	1	1		1			1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	85	353	0.240	86	0.2	0.3	14.281	B
	Exit	1	1		27			27	0.0	0.0	0.000	A
D	Entry	1	1	A	566	778	0.728	565	1.0	1.8	10.183	B
			2	A,B	575	778	0.739	575	1.0	1.6	10.092	B
			3	D,C	2	778	0.003	3	0.0	0.0	5.512	A
		2	1	(A,B)	1142			1141	0.1	0.5	1.380	A
			2	(D,C)	2			2	0.0	0.0	0.000	A
	Exit	1	1		2104			2104	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	16	1128	0.014	16	0.0	0.0	3.791	A
			2	D	1131	1128	1.003	1131	3.9	5.9	18.058	C
			3	D,A	1128	1128	1.000	1127	3.9	6.0	18.072	C
		2	1	(D,B,C)	1263			1126	2.4	35.1	60.280	F
			2	(D,A)	1282			1149	2.3	35.0	59.894	F
	Exit	1	1		2169			2169	0.0	0.0	0.000	A
B	Entry	1	1	C	10	374	0.026	10	0.0	0.0	10.859	B
			2	D,A	372	374	0.994	372	3.4	3.9	35.916	E
			3	D,A,B	375	374	1.001	375	3.3	3.9	35.942	E
		2	1	(D,A,C)	533			382	5.1	38.8	206.524	F
			2	(D,A,B)	525			374	5.0	38.7	205.763	F
	Exit	1	1		1			1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	102	293	0.347	103	0.3	0.6	22.918	C
	Exit	1	1		30			30	0.0	0.0	0.000	A
D	Entry	1	1	A	701	799	0.876	700	1.8	2.7	13.647	B
			2	A,B	692	799	0.866	692	1.6	2.7	13.691	B
			3	D,C	4	799	0.005	4	0.0	0.0	5.457	A
		2	1	(A,B)	1394			1393	0.5	4.4	10.090	B
			2	(D,C)	4			4	0.0	0.0	0.000	A
	Exit	1	1		2329			2329	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	16	1127	0.014	16	0.0	0.0	3.554	A
			2	D	1136	1127	1.008	1136	5.9	6.0	18.913	C
			3	D,A	1133	1127	1.005	1133	6.0	6.0	18.963	C
		2	1	(D,B,C)	1284			1160	35.1	68.4	166.976	F
			2	(D,A)	1250			1125	35.0	68.4	166.301	F
	Exit	1	1		2176			2176	0.0	0.0	0.000	A
B	Entry	1	1	C	10	371	0.026	9	0.0	0.0	11.642	B
			2	D,A	375	371	1.010	375	3.9	3.9	37.730	E
			3	D,A,B	375	371	1.010	375	3.9	4.0	37.906	E
		2	1	(D,A,C)	544			385	38.8	77.1	547.592	F
			2	(D,A,B)	535			374	38.7	77.3	564.743	F
	Exit	1	1		1			1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	99	287	0.346	100	0.6	0.7	24.155	C
	Exit	1	1		29			29	0.0	0.0	0.000	A
D	Entry	1	1	A	698	799	0.874	698	2.7	2.8	13.795	B
			2	A,B	702	799	0.879	701	2.7	2.8	13.858	B
			3	D,C	4	799	0.005	4	0.0	0.0	4.496	A
		2	1	(A,B)	1397			1401	4.4	4.9	12.686	B
			2	(D,C)	4			4	0.0	0.0	0.000	A
	Exit	1	1		2340			2340	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	17	1128	0.015	17	0.0	0.0	3.597	A
			2	D	1118	1128	0.992	1120	6.0	5.7	18.739	C
			3	D,A	1122	1128	0.995	1123	6.0	5.7	18.788	C
		2	1	(D,B,C)	1003			1103	68.4	44.4	183.004	F
			2	(D,A)	1057			1155	68.4	44.2	176.898	F
	Exit	1	1			1940		1940	0.0	0.0	0.000	A
B	Entry	1	1	C	11	378	0.029	11	0.0	0.0	11.454	B
			2	D,A	377	378	0.997	377	3.9	4.0	37.802	E
			3	D,A,B	385	378	1.020	386	4.0	4.0	36.903	E
		2	1	(D,A,C)	445			399	77.1	88.3	739.570	F
			2	(D,A,B)	419			374	77.3	88.6	761.255	F
	Exit	1	1			1		1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	84	292	0.288	84	0.7	0.5	21.492	C
	Exit	1	1			32		32	0.0	0.0	0.000	A
D	Entry	1	1	A	572	795	0.720	574	2.8	1.6	10.636	B
			2	A,B	576	795	0.725	578	2.8	1.5	10.609	B
			3	D,C	4	795	0.004	3	0.0	0.0	5.028	A
		2	1	(A,B)	1145			1148	4.9	0.5	3.160	A
			2	(D,C)	4			4	0.0	0.0	0.000	A
	Exit	1	1			2300		2300	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	13	1128	0.011	13	0.0	0.0	3.774	A
			2	D	944	1128	0.837	956	5.7	3.0	15.427	C
			3	D,A	946	1128	0.839	958	5.7	3.0	15.408	C
		2	1	(D,B,C)	878			963	44.4	4.8	61.310	F
			2	(D,A)	852			940	44.2	4.9	62.909	F
	Exit	1	1			1861		1861	0.0	0.0	0.000	A
B	Entry	1	1	C	11	473	0.023	11	0.0	0.0	9.692	A
			2	D,A	458	473	0.969	458	4.0	3.9	33.329	D
			3	D,A,B	442	473	0.936	443	4.0	4.0	34.071	D
		2	1	(D,A,C)	357			457	88.3	73.3	576.865	F
			2	(D,A,B)	359			455	88.6	73.4	572.349	F
	Exit	1	1			0.81		0.81	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	67	368	0.181	68	0.5	0.2	16.836	C
	Exit	1	1			27		27	0.0	0.0	0.000	A
D	Entry	1	1	A	473	746	0.635	471	1.6	1.4	8.881	A
			2	A,B	471	746	0.631	469	1.5	1.4	8.852	A
			3	D,C	3	746	0.004	3	0.0	0.0	5.039	A
		2	1	(A,B)	945			944	0.5	0.2	0.656	A
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1			1961		1961	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 5\ARCADY
Report generation date: 18/08/2016 09:42:21

«M20 Junction 5 - Dev Scenario 1, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	M20 Junction 5 [Lane Simulation] - Dev Scenario 1			
Arm A	3.2	7.29		A
Arm B	111.9	278.28		F
Arm C	0.2	12.38		B
Arm D	349.5	859.53		F

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. Arm and junction delays are averages for all movements, including movements with zero delay.

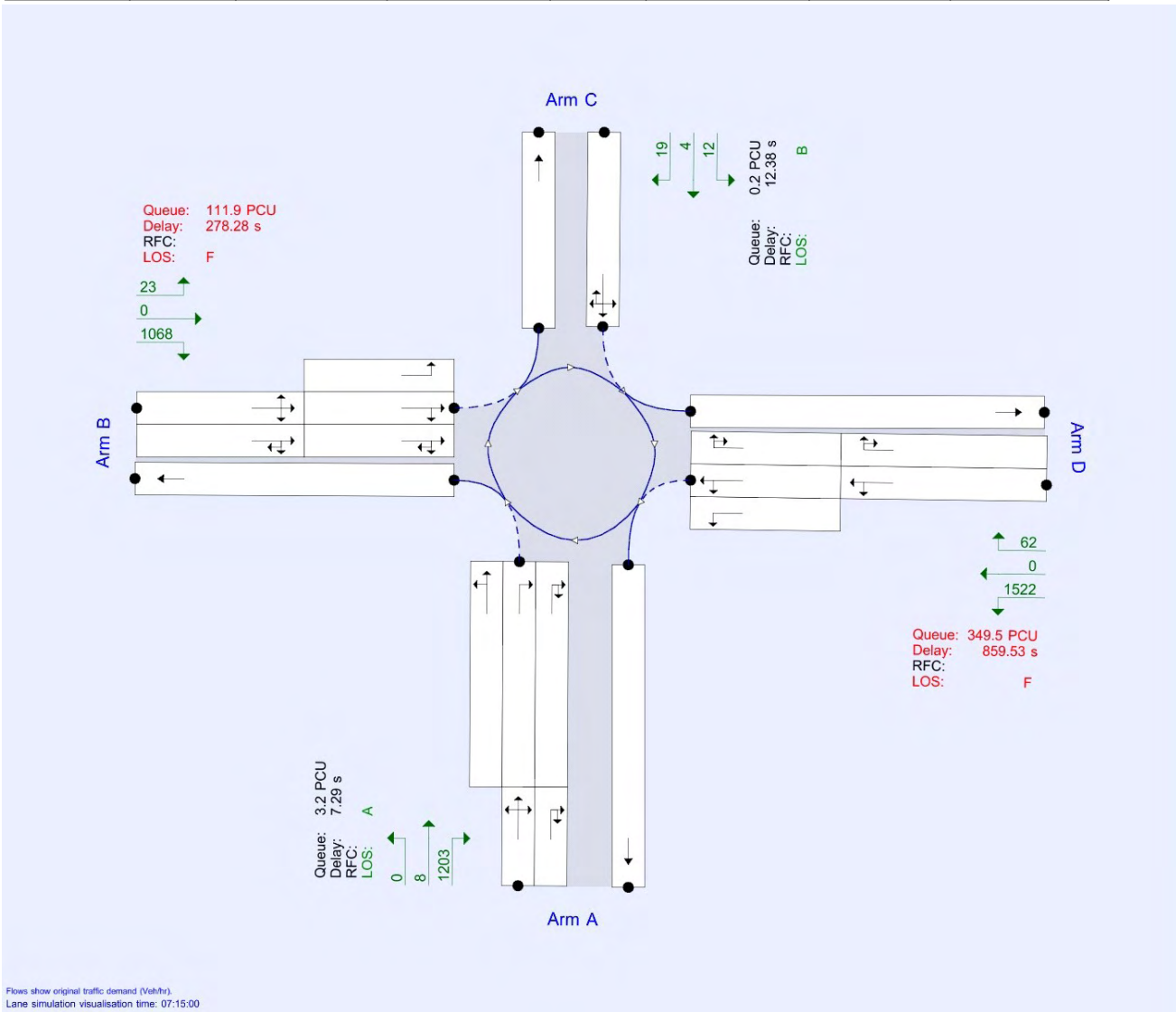
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Veh	PCU	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	55608577	400	143.18

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 5	✓	✓	100.000	100.000

M20 Junction 5 - Dev Scenario 1, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 5 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm D - Lane Simulation	Arm D: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 5	Large Roundabout	A,B,C,D	428.04	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	London Road A20	
B	M20 West	
C	Coldharbour Lane	
D	M20 East	

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)	Exit only
A	7.10	8.10	30.0	45.5	125.0	14.0	
B	7.25	10.50	22.0	30.0	234.0	20.0	
C	4.25	4.25	0.0	20.0	125.0	25.0	
D	7.25	10.00	14.5	30.0	234.0	16.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	79	50.00
B	1271	155.00
C	2271	0.00
D	1091	132.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.249	3371
B	1.055	3255
C	0.502	1649
D	1.075	3226

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B,C	✓	6.00	0	99999
		2	D	✓	6.00	0	99999
		3	D,A	✓	6.00	0	99999
	2	1	(D,B,C)		Infinity		
		2	(D,A)		Infinity		
B	1 [Give-way line]	1	C	✓	4.00	0	99999
		2	D,A	✓	4.00	0	99999
		3	D,A,B	✓	4.00	0	99999
	2	1	(D,A,C)		Infinity		
		2	(D,A,B)		Infinity		
C	1 [Give-way line]	1	D,A,B,C		Infinity	0	99999
D	1 [Give-way line]	1	A	✓	4.00	0	99999
		2	A,B	✓	4.00	0	99999
		3	D,C	✓	4.00	0	99999
	2	1	(A,B)		Infinity		
		2	(D,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.416	1124
		2	0.416	1124
		3	0.416	1124
B	1 [Give-way line]	1	0.352	1085
		2	0.352	1085
		3	0.352	1085
C	1 [Give-way line]	1	0.502	1649
D	1 [Give-way line]	1	0.358	1075
		2	0.358	1075
		3	0.358	1075

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓	✓	
		3	✓			✓
	2	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1			✓	✓
		2	✓			
		3	✓	✓		
	2	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1				✓
		2	✓	✓		
		3	✓	✓	✓	
	2	1	✓	✓		✓
		2	✓	✓	✓	
C	1 [Give-way line]	1	✓	✓	✓	✓

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	Dev Scenario 1	AM	ONE HOUR	07:15	08:45	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 (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1211	100.000
B		ONE HOUR	✓	1091	100.000
C		ONE HOUR	✓	35	100.000
D		ONE HOUR	✓	1584	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	
From	A	0	0	8	1203	
	B	1068	0	23	0	
	C	4	19	0	12	
	D	1522	0	62	0	

Proportions

		To				
		A	B	C	D	
From	A	0.00	0.00	0.01	0.99	
	B	0.98	0.00	0.02	0.00	
	C	0.11	0.54	0.00	0.34	
	D	0.96	0.00	0.04	0.00	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
From	A	10	10	10	10	
	B	10	10	10	10	
	C	10	10	10	10	
	D	10	10	10	10	

Average PCU Per Veh

		To				
		A	B	C	D	
From	A	1.100	1.100	1.100	1.100	
	B	1.100	1.100	1.100	1.100	
	C	1.100	1.100	1.100	1.100	
	D	1.100	1.100	1.100	1.100	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (Veh/hr)	Demand in PCU (PCU/hr)
07:15-07:30	A	912	1003
	B	821	903
	C	26	29
	D	1193	1312
07:30-07:45	A	1089	1198
	B	981	1079
	C	31	35
	D	1424	1566
07:45-08:00	A	1333	1467
	B	1201	1321
	C	39	42
	D	1744	1918
08:00-08:15	A	1333	1467
	B	1201	1321
	C	39	42
	D	1744	1918
08:15-08:30	A	1089	1198
	B	981	1079
	C	31	35
	D	1424	1566
08:30-08:45	A	912	1003
	B	821	903
	C	26	29
	D	1193	1312

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	7.29	3.2	A	1220	1830
B	278.28	111.9	F	1098	1646
C	12.38	0.2	B	35	53
D	859.53	349.5	F	1605	2407

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1013	253	69	1014	2132	0.0	1.4	4.817	A
B	897	224	1067	896	16	0.0	2.7	8.630	A
C	28	7	1885	28	78	0.0	0.1	4.898	A
D	1320	330	897	1304	1016	0.0	8.0	15.451	C

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1197	299	80	1195	2426	1.4	2.0	5.645	A
B	1075	269	1257	1078	18	2.7	6.3	19.261	C
C	33	8	2243	33	93	0.1	0.1	7.997	A
D	1568	392	1078	1428	1198	8.0	43.0	64.899	F

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1464	366	99	1467	2440	2.0	2.9	7.291	A
B	1323	331	1543	1103	23	6.3	58.4	105.349	F
C	42	11	2537	42	109	0.1	0.2	12.106	B
D	1922	480	1108	1432	1472	43.0	165.8	269.972	F

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1454	364	99	1453	2458	2.9	3.2	7.266	A
B	1324	331	1529	1120	23	58.4	111.9	278.279	F
C	43	11	2540	43	109	0.2	0.2	12.384	B
D	1930	482	1125	1431	1457	165.8	287.2	592.025	F

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1195	299	82	1196	2493	3.2	1.9	5.800	A
B	1073	268	1260	1291	19	111.9	64.0	249.643	F
C	36	9	2452	35	99	0.2	0.1	10.859	B
D	1577	394	1286	1289	1201	287.2	349.5	859.533	F

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	999	250	66	998	2372	1.9	1.3	4.829	A
B	894	223	1049	1002	16	64.0	5.3	68.482	F
C	29	7	1975	29	76	0.1	0.1	7.927	A
D	1311	328	1002	1436	1002	349.5	340.3	666.193	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	7	1095	0.007	7	0.0	0.0	3.432	A
			2	D	502	1095	0.458	502	0.0	0.7	4.837	A
			3	D,A	504	1095	0.460	504	0.0	0.7	4.810	A
		2	1	(D,B,C)	509			509	0.0	0.0	0.002	A
			2	(D,A)	504			504	0.0	0.0	0.003	A
	Exit	1	1		2132			2132	0.0	0.0	0.000	A
B	Entry	1	1	C	18	710	0.025	18	0.0	0.0	5.381	A
			2	D,A	445	710	0.626	445	0.0	1.2	8.303	A
			3	D,A,B	433	710	0.611	434	0.0	1.2	8.456	A
		2	1	(D,A,C)	456			456	0.0	0.1	0.308	A
			2	(D,A,B)	440			440	0.0	0.1	0.305	A
	Exit	1	1		16			16	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	28	703	0.040	28	0.0	0.1	4.898	A
	Exit	1	1		78			78	0.0	0.0	0.000	A
D	Entry	1	1	A	623	754	0.827	622	0.0	2.4	11.541	B
			2	A,B	629	754	0.835	629	0.0	2.4	11.459	B
			3	D,C	53	754	0.071	53	0.0	0.1	5.311	A
		2	1	(A,B)	1266			1253	0.0	3.1	4.301	A
			2	(D,C)	53			53	0.0	0.0	0.005	A
	Exit	1	1		1016			1016	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	8	1090	0.008	8	0.0	0.0	3.349	A
			2	D	590	1090	0.541	589	0.7	1.0	5.628	A
			3	D,A	599	1090	0.549	598	0.7	1.0	5.661	A
		2	1	(D,B,C)	601			601	0.0	0.0	0.014	A
			2	(D,A)	596			596	0.0	0.0	0.016	A
	Exit	1	1		2426			2426	0.0	0.0	0.000	A
B	Entry	1	1	C	23	643	0.035	23	0.0	0.0	6.627	A
			2	D,A	530	643	0.824	530	1.2	2.2	14.357	B
			3	D,A,B	525	643	0.816	525	1.2	2.2	14.444	B
		2	1	(D,A,C)	548			549	0.1	1.0	4.931	A
			2	(D,A,B)	527			529	0.1	0.9	5.023	A
	Exit	1	1		18			18	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	33	523	0.063	33	0.1	0.1	7.997	A
	Exit	1	1		93			93	0.0	0.0	0.000	A
D	Entry	1	1	A	686	689	0.996	685	2.4	3.8	18.466	C
			2	A,B	682	689	0.990	681	2.4	3.8	18.449	C
			3	D,C	61	689	0.089	62	0.1	0.1	6.189	A
		2	1	(A,B)	1507			1369	3.1	35.2	48.693	E
			2	(D,C)	61			61	0.0	0.0	0.015	A
	Exit	1	1		1198			1198	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	10	1083	0.009	10	0.0	0.0	3.951	A
			2	D	731	1083	0.675	732	1.0	1.4	7.159	A
			3	D,A	724	1083	0.669	725	1.0	1.4	7.171	A
		2	1	(D,B,C)	740			740	0.0	0.1	0.149	A
			2	(D,A)	724			724	0.0	0.0	0.138	A
	Exit	1	1		2440			2440	0.0	0.0	0.000	A
B	Entry	1	1	C	23	542	0.042	23	0.0	0.1	7.830	A
			2	D,A	538	542	0.993	538	2.2	3.9	23.796	C
			3	D,A,B	542	542	1.000	542	2.2	3.9	23.701	C
		2	1	(D,A,C)	661			551	1.0	25.4	80.879	F
			2	(D,A,B)	662			553	0.9	25.1	82.129	F
	Exit	1	1		23			23	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	42	375	0.113	42	0.1	0.2	12.106	B
	Exit	1	1		109			109	0.0	0.0	0.000	A
D	Entry	1	1	A	674	678	0.994	674	3.8	3.9	20.749	C
			2	A,B	681	678	1.004	682	3.8	3.9	20.823	C
			3	D,C	76	678	0.112	76	0.1	0.1	6.636	A
		2	1	(A,B)	1846			1356	35.2	157.8	259.955	F
			2	(D,C)	76			76	0.0	0.0	0.006	A
	Exit	1	1		1472			1472	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	11	1083	0.010	11	0.0	0.0	3.698	A
			2	D	720	1083	0.665	719	1.4	1.6	7.159	A
			3	D,A	725	1083	0.669	724	1.4	1.6	7.153	A
		2	1	(D,B,C)	735			735	0.1	0.0	0.133	A
			2	(D,A)	719			719	0.0	0.0	0.137	A
	Exit	1	1		2458			2458	0.0	0.0	0.000	A
B	Entry	1	1	C	23	547	0.042	23	0.1	0.1	8.288	A
			2	D,A	542	547	0.990	542	3.9	3.9	26.228	D
			3	D,A,B	555	547	1.015	555	3.9	4.0	25.957	D
		2	1	(D,A,C)	663			562	25.4	52.0	251.665	F
			2	(D,A,B)	661			558	25.1	52.0	255.049	F
	Exit	1	1		23			23	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	43	374	0.115	43	0.2	0.2	12.384	B
	Exit	1	1		109			109	0.0	0.0	0.000	A
D	Entry	1	1	A	679	672	1.010	679	3.9	3.9	20.704	C
			2	A,B	677	672	1.007	676	3.9	3.9	20.797	C
			3	D,C	76	672	0.114	76	0.1	0.1	6.664	A
		2	1	(A,B)	1853			1356	157.8	279.3	594.144	F
			2	(D,C)	76			76	0.0	0.0	0.011	A
	Exit	1	1		1457			1457	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	8	1090	0.007	8	0.0	0.0	3.485	A
			2	D	594	1090	0.545	594	1.6	0.9	5.790	A
			3	D,A	594	1090	0.545	594	1.6	1.0	5.761	A
		2	1	(D,B,C)	597			597	0.0	0.0	0.039	A
			2	(D,A)	598			598	0.0	0.0	0.041	A
	Exit	1	1		2493			2493	0.0	0.0	0.000	A
B	Entry	1	1	C	28	642	0.043	28	0.1	0.0	7.060	A
			2	D,A	631	642	0.983	633	3.9	3.7	22.214	C
			3	D,A,B	630	642	0.981	630	4.0	3.7	22.293	C
		2	1	(D,A,C)	553			658	52.0	28.2	226.778	F
			2	(D,A,B)	520			631	52.0	28.3	230.271	F
	Exit	1	1		19			19	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	36	418	0.085	35	0.2	0.1	10.859	B
	Exit	1	1		99			99	0.0	0.0	0.000	A
D	Entry	1	1	A	613	614	0.998	614	3.9	3.9	22.433	C
			2	A,B	613	614	0.998	612	3.9	3.9	22.346	C
			3	D,C	64	614	0.103	63	0.1	0.2	7.270	A
		2	1	(A,B)	1514			1226	279.3	341.5	874.433	F
			2	(D,C)	64			64	0.0	0.0	0.002	A
	Exit	1	1		1201			1201	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	6	1096	0.006	6	0.0	0.0	3.632	A
			2	D	494	1096	0.451	494	0.9	0.7	4.856	A
			3	D,A	498	1096	0.454	498	1.0	0.6	4.810	A
		2	1	(D,B,C)	503			503	0.0	0.0	0.005	A
			2	(D,A)	496			496	0.0	0.0	0.004	A
	Exit	1	1		2372			2372	0.0	0.0	0.000	A
B	Entry	1	1	C	20	716	0.028	20	0.0	0.0	6.327	A
			2	D,A	482	716	0.673	490	3.7	1.4	15.699	C
			3	D,A,B	486	716	0.678	493	3.7	1.4	15.780	C
		2	1	(D,A,C)	451			497	28.2	1.3	53.176	F
			2	(D,A,B)	443			491	28.3	1.2	54.610	F
	Exit	1	1		16			16	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	29	658	0.044	29	0.1	0.1	7.927	A
	Exit	1	1		76			76	0.0	0.0	0.000	A
D	Entry	1	1	A	687	716	0.960	687	3.9	3.9	21.610	C
			2	A,B	699	716	0.975	699	3.9	3.9	21.535	C
			3	D,C	50	716	0.070	50	0.2	0.1	6.602	A
		2	1	(A,B)	1261			1386	341.5	332.4	791.320	F
			2	(D,C)	50			50	0.0	0.0	0.000	A
	Exit	1	1		1002			1002	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
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Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 5\ARCADY
Report generation date: 18/08/2016 09:35:53

«M20 Junction 5 - Dev Scenario 1, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 5 [Lane Simulation] - Dev Scenario 1				
Arm A	175.4	246.48		F
Arm B	124.0	559.96		F
Arm C	0.7	22.23		C
Arm D	13.1	32.82		D

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. Arm and junction delays are averages for all movements, including movements with zero delay.

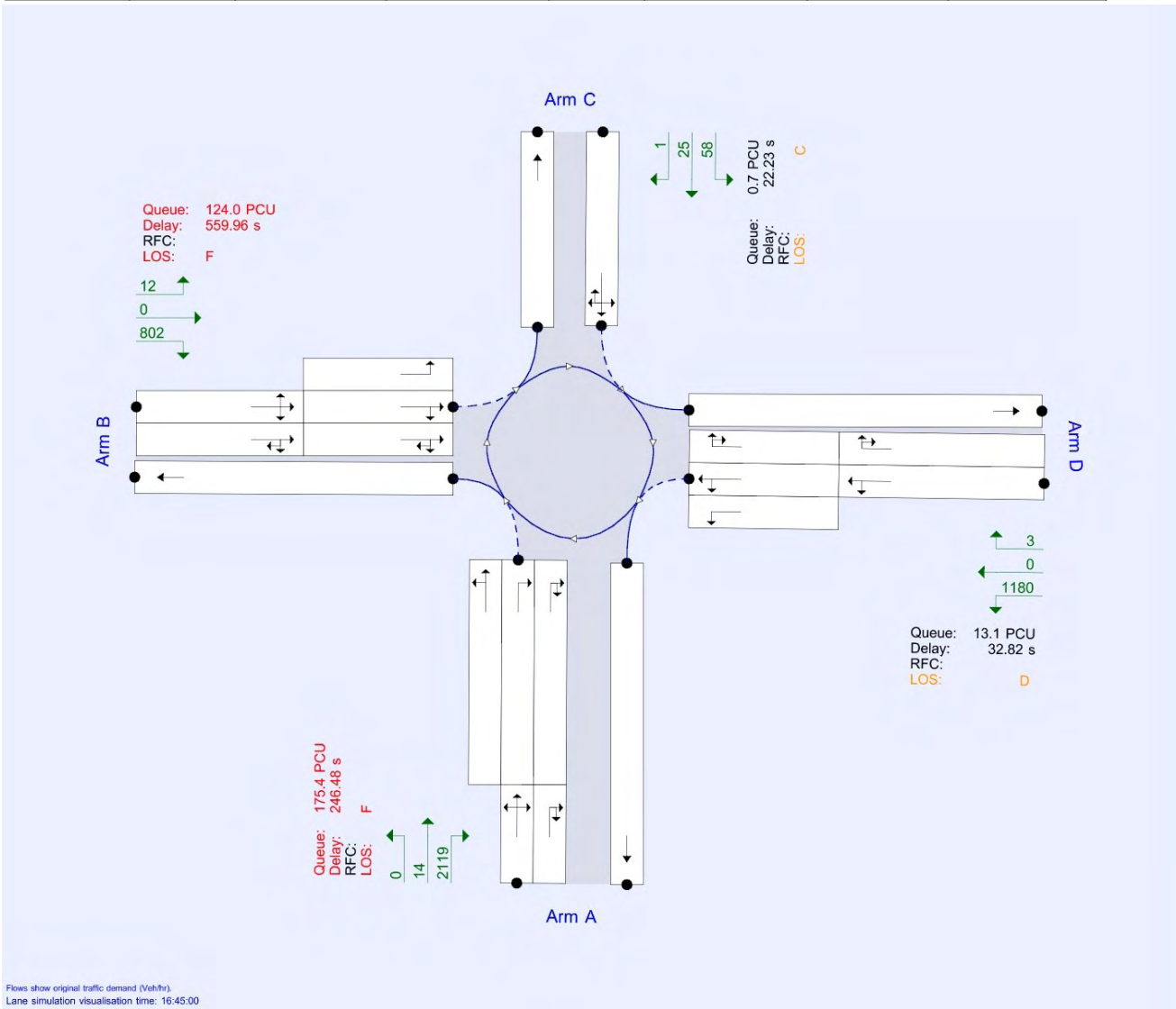
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Veh	PCU	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	515128949	350	158.10

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 5	✓	✓	100.000	100.000

M20 Junction 5 - Dev Scenario 1, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 5 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Arm B - Lane Simulation	Arm B: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 5	Large Roundabout	A,B,C,D	242.68	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	London Road A20	
B	M20 West	
C	Coldharbour Lane	
D	M20 East	

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)	Exit only
A	7.10	8.10	30.0	45.5	125.0	14.0	
B	7.25	10.50	22.0	30.0	234.0	20.0	
C	4.25	4.25	0.0	20.0	125.0	25.0	
D	7.25	10.00	14.5	30.0	234.0	16.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	4	50.00
B	2136	155.00
C	3001	0.00
D	908	132.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.266	3389
B	0.843	3054
C	0.391	1480
D	1.119	3268

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B,C	✓	6.00	0	99999
		2	D	✓	6.00	0	99999
		3	D,A	✓	6.00	0	99999
	2	1	(D,B,C)		Infinity		
		2	(D,A)		Infinity		
B	1 [Give-way line]	1	C	✓	4.00	0	99999
		2	D,A	✓	4.00	0	99999
		3	D,A,B	✓	4.00	0	99999
	2	1	(D,A,C)		Infinity		
		2	(D,A,B)		Infinity		
C	1 [Give-way line]	1	D,A,B,C		Infinity	0	99999
D	1 [Give-way line]	1	A	✓	4.00	0	99999
		2	A,B	✓	4.00	0	99999
		3	D,C	✓	4.00	0	99999
	2	1	(A,B)		Infinity		
		2	(D,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.422	1130
		2	0.422	1130
		3	0.422	1130
B	1 [Give-way line]	1	0.281	1018
		2	0.281	1018
		3	0.281	1018
C	1 [Give-way line]	1	0.391	1480
D	1 [Give-way line]	1	0.373	1089
		2	0.373	1089
		3	0.373	1089

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓	✓	
		3	✓			✓
	2	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1			✓	✓
		2	✓			
		3	✓	✓		
	2	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1				✓
		2	✓	✓		
		3	✓	✓	✓	
	2	1	✓	✓		✓
		2	✓	✓	✓	
C	1 [Give-way line]	1	✓	✓	✓	✓

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	Dev Scenario 1	PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	2133	100.000
B		ONE HOUR	✓	814	100.000
C		ONE HOUR	✓	84	100.000
D		ONE HOUR	✓	1183	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	
From	A	0	0	14	2119	
	B	802	0	12	0	
	C	25	1	0	58	
	D	1180	0	3	0	

Proportions

		To				
		A	B	C	D	
From	A	0.00	0.00	0.01	0.99	
	B	0.99	0.00	0.01	0.00	
	C	0.30	0.01	0.00	0.69	
	D	1.00	0.00	0.00	0.00	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
From	A	10	10	10	10	
	B	10	10	10	10	
	C	10	10	10	10	
	D	10	10	10	10	

Average PCU Per Veh

		To				
		A	B	C	D	
From	A	1.100	1.100	1.100	1.100	
	B	1.100	1.100	1.100	1.100	
	C	1.100	1.100	1.100	1.100	
	D	1.100	1.100	1.100	1.100	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (Veh/hr)	Demand in PCU (PCU/hr)
16:45-17:00	A	1606	1766
	B	613	674
	C	63	70
	D	891	980
17:00-17:15	A	1918	2109
	B	732	805
	C	76	83
	D	1063	1170
17:15-17:30	A	2348	2583
	B	896	986
	C	92	102
	D	1303	1433
17:30-17:45	A	2348	2583
	B	896	986
	C	92	102
	D	1303	1433
17:45-18:00	A	1918	2109
	B	732	805
	C	76	83
	D	1063	1170
18:00-18:15	A	1606	1766
	B	613	674
	C	63	70
	D	891	980

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	246.48	175.4	F	2148	3222
B	559.96	124.0	F	824	1237
C	22.23	0.7	C	84	126
D	32.82	13.1	D	1197	1795

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1771	443	3	1771	1666	0.0	4.9	9.723	A
B	678	170	1774	676	1	0.0	3.1	11.743	B
C	71	18	2425	70	24	0.0	0.2	7.236	A
D	982	246	687	983	1809	0.0	2.4	7.391	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2104	526	4	2095	1966	4.9	13.8	19.953	C
B	806	201	2097	777	1	3.1	12.7	40.553	E
C	81	20	2849	81	25	0.2	0.4	13.989	B
D	1179	295	793	1177	2137	2.4	4.2	11.713	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2581	645	5	2267	2205	13.8	95.2	89.915	F
B	997	249	2271	770	1	12.7	64.3	181.069	F
C	101	25	3009	101	31	0.4	0.6	21.294	C
D	1440	360	787	1422	2324	4.2	12.8	25.664	D

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2569	642	5	2261	2223	95.2	175.4	218.029	F
B	989	247	2265	769	1	64.3	115.8	424.395	F
C	100	25	3003	100	31	0.6	0.7	22.232	C
D	1439	360	788	1440	2315	12.8	13.1	32.819	D

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2108	527	4	2268	1959	175.4	135.5	246.479	F
B	804	201	2271	773	1	115.8	124.0	559.960	F
C	83	21	3015	83	29	0.7	0.5	20.354	C
D	1172	293	786	1177	2312	13.1	4.1	16.870	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1754	439	4	2052	1823	135.5	34.1	122.199	F
B	674	168	2055	845	0.69	124.0	92.0	413.860	F
C	69	17	2872	69	28	0.5	0.4	16.827	C
D	970	242	853	973	2087	4.1	2.4	9.179	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	11	1128	0.010	11	0.0	0.0	3.661	A
			2	D	886	1128	0.785	886	0.0	2.3	8.902	A
			3	D,A	873	1128	0.774	874	0.0	2.2	8.952	A
		2	1	(D,B,C)	891			891	0.0	0.2	0.815	A
			2	(D,A)	880			879	0.0	0.3	0.824	A
	Exit	1	1		1666			1666	0.0	0.0	0.000	A
B	Entry	1	1	C	11	520	0.020	11	0.0	0.0	7.019	A
			2	D,A	336	520	0.647	336	0.0	1.4	11.106	B
			3	D,A,B	330	520	0.636	329	0.0	1.4	11.230	B
		2	1	(D,A,C)	344			344	0.0	0.1	0.603	A
			2	(D,A,B)	334			333	0.0	0.2	0.606	A
	Exit	1	1		1			1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	71	531	0.134	70	0.0	0.2	7.236	A
	Exit	1	1		24			24	0.0	0.0	0.000	A
D	Entry	1	1	A	489	833	0.587	489	0.0	1.1	7.150	A
			2	A,B	491	833	0.589	491	0.0	1.1	7.148	A
			3	D,C	2	833	0.003	2	0.0	0.0	4.674	A
		2	1	(A,B)	980			980	0.0	0.1	0.243	A
			2	(D,C)	2			2	0.0	0.0	0.000	A
	Exit	1	1		1809			1809	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	13	1128	0.011	13	0.0	0.0	3.557	A
			2	D	1037	1128	0.919	1037	2.3	4.1	13.282	B
			3	D,A	1044	1128	0.925	1045	2.2	4.1	13.321	B
		2	1	(D,B,C)	1044			1039	0.2	2.9	6.650	A
			2	(D,A)	1060			1055	0.3	2.8	6.675	A
	Exit	1	1		1966			1966	0.0	0.0	0.000	A
B	Entry	1	1	C	10	429	0.024	10	0.0	0.1	9.098	A
			2	D,A	383	429	0.893	380	1.4	3.0	23.811	C
			3	D,A,B	389	429	0.908	387	1.4	3.0	23.829	C
		2	1	(D,A,C)	407			394	0.1	3.3	16.404	C
			2	(D,A,B)	398			388	0.2	3.3	16.783	C
	Exit	1	1		1			1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	81	365	0.222	81	0.2	0.4	13.989	B
	Exit	1	1		25			25	0.0	0.0	0.000	A
D	Entry	1	1	A	589	794	0.742	589	1.1	1.7	10.051	B
			2	A,B	586	794	0.738	585	1.1	1.7	10.051	B
			3	D,C	3	794	0.003	3	0.0	0.0	4.686	A
		2	1	(A,B)	1176			1175	0.1	0.8	1.658	A
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1		2137			2137	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	16	1128	0.014	15	0.0	0.0	3.773	A
			2	D	1131	1128	1.003	1131	4.1	5.9	18.379	C
			3	D,A	1121	1128	0.994	1121	4.1	5.9	18.445	C
		2	1	(D,B,C)	1284			1130	2.9	41.8	72.102	F
			2	(D,A)	1297			1138	2.8	41.5	70.925	F
	Exit	1	1		2205			2205	0.0	0.0	0.000	A
B	Entry	1	1	C	12	380	0.031	12	0.1	0.0	11.580	B
			2	D,A	377	380	0.993	376	3.0	3.9	35.436	E
			3	D,A,B	382	380	1.006	381	3.0	3.9	35.116	E
		2	1	(D,A,C)	513			401	3.3	28.2	144.439	F
			2	(D,A,B)	484			370	3.3	28.3	147.334	F
	Exit	1	1		1			1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	101	302	0.333	101	0.4	0.6	21.294	C
	Exit	1	1		31			31	0.0	0.0	0.000	A
D	Entry	1	1	A	708	796	0.890	707	1.7	3.0	13.922	B
			2	A,B	713	796	0.896	712	1.7	3.0	13.938	B
			3	D,C	3	796	0.004	3	0.0	0.0	5.228	A
		2	1	(A,B)	1437			1422	0.8	6.8	11.726	B
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1		2324			2324	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	16	1128	0.014	16	0.0	0.0	3.724	A
			2	D	1122	1128	0.995	1122	5.9	5.9	19.008	C
			3	D,A	1123	1128	0.996	1123	5.9	6.0	19.128	C
		2	1	(D,B,C)	1273			1120	41.8	81.8	200.581	F
			2	(D,A)	1296			1141	41.5	81.7	197.594	F
	Exit	1	1		2223			2223	0.0	0.0	0.000	A
B	Entry	1	1	C	12	382	0.030	11	0.0	0.0	11.201	B
			2	D,A	376	382	0.985	376	3.9	3.9	36.849	E
			3	D,A,B	382	382	1.001	382	3.9	3.9	36.686	E
		2	1	(D,A,C)	506			395	28.2	53.9	377.737	F
			2	(D,A,B)	484			374	28.3	53.9	398.215	F
	Exit	1	1		1			1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	100	304	0.329	100	0.6	0.7	22.232	C
	Exit	1	1		31			31	0.0	0.0	0.000	A
D	Entry	1	1	A	723	795	0.909	724	3.0	2.8	14.649	B
			2	A,B	713	795	0.897	713	3.0	2.9	14.694	B
			3	D,C	3	795	0.004	3	0.0	0.0	5.163	A
		2	1	(A,B)	1436			1436	6.8	7.3	18.211	C
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1		2315			2315	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	14	1128	0.012	14	0.0	0.0	3.429	A
			2	D	1129	1128	1.001	1130	5.9	5.9	18.927	C
			3	D,A	1124	1128	0.996	1124	6.0	5.9	18.928	C
		2	1	(D,B,C)	1030			1110	81.8	61.9	230.787	F
			2	(D,A)	1078			1157	81.7	61.8	224.726	F
	Exit	1	1		1959			1959	0.0	0.0	0.000	A
B	Entry	1	1	C	12	380	0.031	12	0.0	0.0	11.496	B
			2	D,A	379	380	0.998	379	3.9	3.9	37.437	E
			3	D,A,B	382	380	1.006	382	3.9	3.9	37.062	E
		2	1	(D,A,C)	401			382	53.9	58.1	521.571	F
			2	(D,A,B)	403			391	53.9	58.0	526.434	F
	Exit	1	1		1			1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	83	300	0.278	83	0.7	0.5	20.354	C
	Exit	1	1		29			29	0.0	0.0	0.000	A
D	Entry	1	1	A	588	796	0.739	588	2.8	1.7	11.465	B
			2	A,B	585	796	0.735	586	2.9	1.7	11.356	B
			3	D,C	3	796	0.004	3	0.0	0.0	5.075	A
		2	1	(A,B)	1169			1174	7.3	0.6	5.633	A
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1		2312			2312	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	13	1128	0.012	13	0.0	0.0	3.479	A
			2	D	1012	1128	0.897	1023	5.9	4.0	17.135	C
			3	D,A	1005	1128	0.891	1016	5.9	4.0	17.149	C
		2	1	(D,B,C)	901			1042	61.9	12.9	104.212	F
			2	(D,A)	853			988	61.8	13.3	105.866	F
	Exit	1	1		1823			1823	0.0	0.0	0.000	A
B	Entry	1	1	C	12	441	0.028	12	0.0	0.0	10.793	B
			2	D,A	416	441	0.945	417	3.9	3.8	35.180	E
			3	D,A,B	416	441	0.944	416	3.9	3.9	35.235	E
		2	1	(D,A,C)	332			417	58.1	42.4	386.951	F
			2	(D,A,B)	342			427	58.0	41.9	379.330	F
	Exit	1	1		0.69			0.69	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	69	356	0.194	69	0.5	0.4	16.827	C
	Exit	1	1		28			28	0.0	0.0	0.000	A
D	Entry	1	1	A	484	771	0.627	485	1.7	1.1	8.607	A
			2	A,B	483	771	0.627	485	1.7	1.1	8.543	A
			3	D,C	3	771	0.004	3	0.0	0.0	6.002	A
		2	1	(A,B)	967			967	0.6	0.1	0.640	A
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1		2087			2087	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 5\ARCADY
Report generation date: 18/08/2016 09:41:47

«M20 Junction 5 - Dev Scenario 2, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	M20 Junction 5 [Lane Simulation] - Dev Scenario 2			
Arm A	3.5	7.73		A
Arm B	149.1	386.74		F
Arm C	0.2	12.83		B
Arm D	422.5	973.43		F

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. Arm and junction delays are averages for all movements, including movements with zero delay.

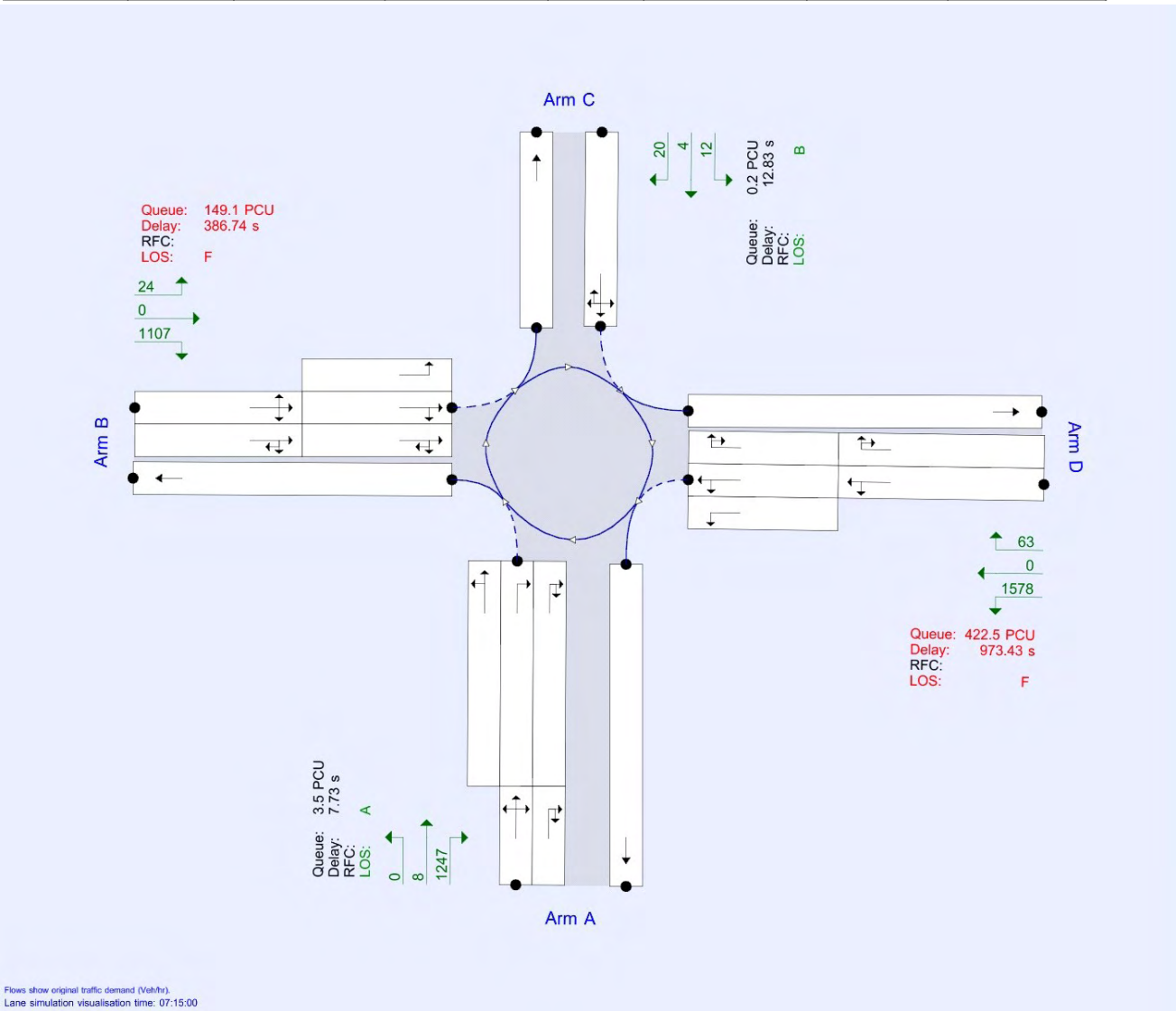
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Veh	PCU	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	2054270132	516	193.25

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 5	✓	✓	100.000	100.000

M20 Junction 5 - Dev Scenario 2, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 5 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm B - Lane Simulation	Arm B: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Arm D - Lane Simulation	Arm D: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 5	Large Roundabout	A,B,C,D	502.83	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	London Road A20	
B	M20 West	
C	Coldharbour Lane	
D	M20 East	

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)	Exit only
A	7.10	8.10	30.0	45.5	125.0	14.0	
B	7.25	10.50	22.0	30.0	234.0	20.0	
C	4.25	4.25	0.0	20.0	125.0	25.0	
D	7.25	10.00	14.5	30.0	234.0	16.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	83	50.00
B	1318	155.00
C	2354	0.00
D	1131	132.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.248	3370
B	1.043	3244
C	0.490	1630
D	1.066	3217

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B,C	✓	6.00	0	99999
		2	D	✓	6.00	0	99999
		3	D,A	✓	6.00	0	99999
	2	1	(D,B,C)		Infinity		
		2	(D,A)		Infinity		
B	1 [Give-way line]	1	C	✓	4.00	0	99999
		2	D,A	✓	4.00	0	99999
		3	D,A,B	✓	4.00	0	99999
	2	1	(D,A,C)		Infinity		
		2	(D,A,B)		Infinity		
C	1 [Give-way line]	1	D,A,B,C		Infinity	0	99999
D	1 [Give-way line]	1	A	✓	4.00	0	99999
		2	A,B	✓	4.00	0	99999
		3	D,C	✓	4.00	0	99999
	2	1	(A,B)		Infinity		
		2	(D,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.416	1123
		2	0.416	1123
		3	0.416	1123
B	1 [Give-way line]	1	0.348	1081
		2	0.348	1081
		3	0.348	1081
C	1 [Give-way line]	1	0.490	1630
D	1 [Give-way line]	1	0.355	1072
		2	0.355	1072
		3	0.355	1072

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓	✓	
		3	✓			✓
	2	1		✓	✓	
		2	✓			✓
	A	1 [Give-way line]	1			✓
2			✓			
3			✓	✓		
2		1	✓		✓	✓
		2	✓	✓		
B		1 [Give-way line]	1			
	2		✓	✓		
	3		✓	✓	✓	
	2	1	✓	✓		✓
		2	✓	✓	✓	
	C	1 [Give-way line]	1	✓	✓	✓

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	Dev Scenario 2	AM	ONE HOUR	07:15	08:45	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 (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1255	100.000
B		ONE HOUR	✓	1131	100.000
C		ONE HOUR	✓	36	100.000
D		ONE HOUR	✓	1641	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	
From	A	0	0	8	1247	
	B	1107	0	24	0	
	C	4	20	0	12	
	D	1578	0	63	0	

Proportions

		To				
		A	B	C	D	
From	A	0.00	0.00	0.01	0.99	
	B	0.98	0.00	0.02	0.00	
	C	0.11	0.56	0.00	0.33	
	D	0.96	0.00	0.04	0.00	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
From	A	10	10	10	10	
	B	10	10	10	10	
	C	10	10	10	10	
	D	10	10	10	10	

Average PCU Per Veh

		To				
		A	B	C	D	
From	A	1.100	1.100	1.100	1.100	
	B	1.100	1.100	1.100	1.100	
	C	1.100	1.100	1.100	1.100	
	D	1.100	1.100	1.100	1.100	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (Veh/hr)	Demand in PCU (PCU/hr)
07:15-07:30	A	945	1039
	B	851	937
	C	27	30
	D	1235	1359
07:30-07:45	A	1128	1241
	B	1017	1118
	C	32	36
	D	1475	1623
07:45-08:00	A	1382	1520
	B	1245	1370
	C	40	44
	D	1807	1987
08:00-08:15	A	1382	1520
	B	1245	1370
	C	40	44
	D	1807	1987
08:15-08:30	A	1128	1241
	B	1017	1118
	C	32	36
	D	1475	1623
08:30-08:45	A	945	1039
	B	851	937
	C	27	30
	D	1235	1359

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	7.73	3.5	A	1268	1901
B	386.74	149.1	F	1143	1715
C	12.83	0.2	B	36	54
D	973.43	422.5	F	1653	2480

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1033	258	69	1033	2207	0.0	1.6	4.934	A
B	935	234	1084	931	17	0.0	3.1	9.702	A
C	31	8	1937	32	78	0.0	0.0	5.373	A
D	1370	343	932	1344	1037	0.0	10.8	18.860	C

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1245	311	80	1245	2459	1.6	2.1	5.826	A
B	1128	282	1306	1124	20	3.1	9.4	24.643	C
C	34	9	2339	35	91	0.0	0.1	8.315	A
D	1621	405	1125	1415	1248	10.8	61.8	93.707	F

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1521	380	100	1520	2431	2.1	3.4	7.726	A
B	1362	341	1596	1077	23	9.4	76.3	141.493	F
C	43	11	2564	42	109	0.1	0.2	12.827	B
D	1992	498	1082	1449	1524	61.8	203.2	342.892	F

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1516	379	102	1511	2438	3.4	3.5	7.731	A
B	1371	343	1589	1074	23	76.3	149.1	371.446	F
C	43	11	2551	43	112	0.2	0.2	12.558	B
D	1979	495	1079	1461	1515	203.2	334.0	693.952	F

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1247	312	83	1249	2492	3.5	2.0	5.851	A
B	1127	282	1312	1277	20	149.1	119.9	386.736	F
C	35	9	2492	35	97	0.2	0.1	11.188	B
D	1617	404	1273	1302	1254	334.0	400.8	973.433	F

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1043	261	68	1041	2452	2.0	1.7	5.052	A
B	937	234	1092	1237	16	119.9	24.7	169.502	F
C	30	8	2244	30	85	0.1	0.1	9.366	A
D	1340	335	1229	1290	1045	400.8	422.5	681.260	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	7	1095	0.006	7	0.0	0.0	3.563	A
			2	D	515	1095	0.471	515	0.0	0.8	4.948	A
			3	D,A	511	1095	0.467	511	0.0	0.8	4.929	A
		2	1	(D,B,C)	521			521	0.0	0.0	0.003	A
			2	(D,A)	512			512	0.0	0.0	0.004	A
	Exit	1	1			2207			2207	0.0	0.0	0.000
B	Entry	1	1	C	20	704	0.028	20	0.0	0.0	5.503	A
			2	D,A	454	704	0.644	453	0.0	1.4	9.133	A
			3	D,A,B	459	704	0.652	459	0.0	1.4	9.134	A
		2	1	(D,A,C)	476			474	0.0	0.2	0.630	A
			2	(D,A,B)	459			458	0.0	0.2	0.627	A
	Exit	1	1			17			17	0.0	0.0	0.000
C	Entry	1	1	D,A,B,C	31	682	0.046	32	0.0	0.0	5.373	A
	Exit	1	1			78			78	0.0	0.0	0.000
D	Entry	1	1	A	647	741	0.873	645	0.0	2.8	12.536	B
			2	A,B	650	741	0.877	648	0.0	2.8	12.461	B
			3	D,C	51	741	0.069	51	0.0	0.1	5.427	A
		2	1	(A,B)	1320			1297	0.0	5.0	6.789	A
			2	(D,C)	51			51	0.0	0.0	0.000	A
	Exit	1	1			1037			1037	0.0	0.0	0.000

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	8	1090	0.007	8	0.0	0.0	3.582	A
			2	D	619	1090	0.568	618	0.8	1.1	5.824	A
			3	D,A	618	1090	0.567	619	0.8	1.0	5.812	A
		2	1	(D,B,C)	632			632	0.0	0.0	0.024	A
			2	(D,A)	613			613	0.0	0.0	0.022	A
	Exit	1	1			2459			2459	0.0	0.0	0.000
B	Entry	1	1	C	22	627	0.035	22	0.0	0.0	6.499	A
			2	D,A	553	627	0.881	552	1.4	2.7	16.195	C
			3	D,A,B	549	627	0.875	550	1.4	2.7	16.146	C
		2	1	(D,A,C)	567			565	0.2	2.0	8.528	A
			2	(D,A,B)	561			559	0.2	1.9	8.619	A
	Exit	1	1			20			20	0.0	0.0	0.000
C	Entry	1	1	D,A,B,C	34	485	0.070	35	0.0	0.1	8.315	A
	Exit	1	1			91			91	0.0	0.0	0.000
D	Entry	1	1	A	677	673	1.007	677	2.8	3.9	19.698	C
			2	A,B	677	673	1.007	677	2.8	3.9	19.474	C
			3	D,C	61	673	0.090	61	0.1	0.1	6.317	A
		2	1	(A,B)	1560			1354	5.0	53.9	77.398	F
			2	(D,C)	61			61	0.0	0.0	0.006	A
	Exit	1	1			1248			1248	0.0	0.0	0.000

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	10	1082	0.009	10	0.0	0.0	3.724	A
			2	D	754	1082	0.697	754	1.1	1.7	7.538	A
			3	D,A	757	1082	0.700	756	1.0	1.6	7.530	A
		2	1	(D,B,C)	770			770	0.0	0.0	0.215	A
			2	(D,A)	752			751	0.0	0.1	0.212	A
	Exit	1	1		2431			2431	0.0	0.0	0.000	A
B	Entry	1	1	C	24	526	0.045	23	0.0	0.1	8.235	A
			2	D,A	523	526	0.994	523	2.7	3.9	25.328	D
			3	D,A,B	531	526	1.009	531	2.7	3.9	25.033	D
		2	1	(D,A,C)	681			538	2.0	34.3	116.353	F
			2	(D,A,B)	681			540	1.9	34.0	116.230	F
	Exit	1	1		23			23	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	43	375	0.114	42	0.1	0.2	12.827	B
	Exit	1	1		109			109	0.0	0.0	0.000	A
D	Entry	1	1	A	682	688	0.991	682	3.9	3.9	20.753	C
			2	A,B	690	688	1.003	690	3.9	3.9	20.828	C
			3	D,C	76	688	0.110	76	0.1	0.1	6.546	A
		2	1	(A,B)	1917			1372	53.9	195.3	335.407	F
			2	(D,C)	76			76	0.0	0.0	0.018	A
	Exit	1	1		1524			1524	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	10	1081	0.009	9	0.0	0.0	3.599	A
			2	D	752	1081	0.695	749	1.7	1.7	7.564	A
			3	D,A	754	1081	0.697	752	1.6	1.7	7.510	A
		2	1	(D,B,C)	760			760	0.0	0.1	0.217	A
			2	(D,A)	756			755	0.1	0.1	0.219	A
	Exit	1	1		2438			2438	0.0	0.0	0.000	A
B	Entry	1	1	C	24	529	0.045	24	0.1	0.1	8.643	A
			2	D,A	524	529	0.991	524	3.9	4.0	26.852	D
			3	D,A,B	526	529	0.996	526	3.9	3.9	26.920	D
		2	1	(D,A,C)	704			555	34.3	70.6	343.197	F
			2	(D,A,B)	666			519	34.0	70.5	349.062	F
	Exit	1	1		23			23	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	43	381	0.113	43	0.2	0.2	12.558	B
	Exit	1	1		112			112	0.0	0.0	0.000	A
D	Entry	1	1	A	689	689	0.999	689	3.9	3.9	20.462	C
			2	A,B	694	689	1.007	694	3.9	3.9	20.451	C
			3	D,C	79	689	0.114	79	0.1	0.1	6.596	A
		2	1	(A,B)	1901			1383	195.3	326.0	700.535	F
			2	(D,C)	79			79	0.0	0.0	0.014	A
	Exit	1	1		1515			1515	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	7	1089	0.007	7	0.0	0.0	3.781	A
			2	D	620	1089	0.569	620	1.7	1.0	5.838	A
			3	D,A	620	1089	0.570	622	1.7	1.0	5.843	A
		2	1	(D,B,C)	628			628	0.1	0.0	0.027	A
			2	(D,A)	619			619	0.1	0.0	0.028	A
	Exit	1	1		2492			2492	0.0	0.0	0.000	A
B	Entry	1	1	C	27	625	0.043	27	0.1	0.1	7.021	A
			2	D,A	624	625	0.998	624	4.0	3.9	23.219	C
			3	D,A,B	626	625	1.002	626	3.9	3.9	23.288	C
		2	1	(D,A,C)	554			634	70.6	55.9	368.024	F
			2	(D,A,B)	573			642	70.5	56.2	362.137	F
	Exit	1	1		20			20	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	35	410	0.085	35	0.2	0.1	11.188	B
	Exit	1	1		97			97	0.0	0.0	0.000	A
D	Entry	1	1	A	622	620	1.003	621	3.9	4.0	21.886	C
			2	A,B	617	620	0.996	617	3.9	3.9	21.897	C
			3	D,C	63	620	0.101	63	0.1	0.1	6.948	A
		2	1	(A,B)	1554			1239	326.0	392.8	996.527	F
			2	(D,C)	63			63	0.0	0.0	0.023	A
	Exit	1	1		1254			1254	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	7	1095	0.006	7	0.0	0.0	3.818	A
			2	D	518	1095	0.473	517	1.0	0.8	5.066	A
			3	D,A	518	1095	0.473	518	1.0	0.8	5.048	A
		2	1	(D,B,C)	523			523	0.0	0.0	0.004	A
			2	(D,A)	520			520	0.0	0.0	0.005	A
	Exit	1	1		2452			2452	0.0	0.0	0.000	A
B	Entry	1	1	C	27	701	0.039	27	0.1	0.1	6.542	A
			2	D,A	598	701	0.852	606	3.9	2.5	19.052	C
			3	D,A,B	596	701	0.850	604	3.9	2.5	19.009	C
		2	1	(D,A,C)	480			620	55.9	10.0	150.198	F
			2	(D,A,B)	457			601	56.2	9.6	151.319	F
	Exit	1	1		16			16	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	30	532	0.057	30	0.1	0.1	9.366	A
	Exit	1	1		85			85	0.0	0.0	0.000	A
D	Entry	1	1	A	618	636	0.973	618	4.0	3.9	23.013	C
			2	A,B	620	636	0.976	620	3.9	3.9	23.057	C
			3	D,C	51	636	0.080	51	0.1	0.1	7.369	A
		2	1	(A,B)	1289			1239	392.8	414.6	847.477	F
			2	(D,C)	51			51	0.0	0.0	0.009	A
	Exit	1	1		1045			1045	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
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Report generation date: 18/08/2016 09:36:52

«M20 Junction 5 - Dev Scenario 2, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 5 [Lane Simulation] - Dev Scenario 2				
Arm A	228.2	348.32		F
Arm B	222.6	911.44		F
Arm C	0.7	20.18		C
Arm D	20.0	46.27		E

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. Arm and junction delays are averages for all movements, including movements with zero delay.

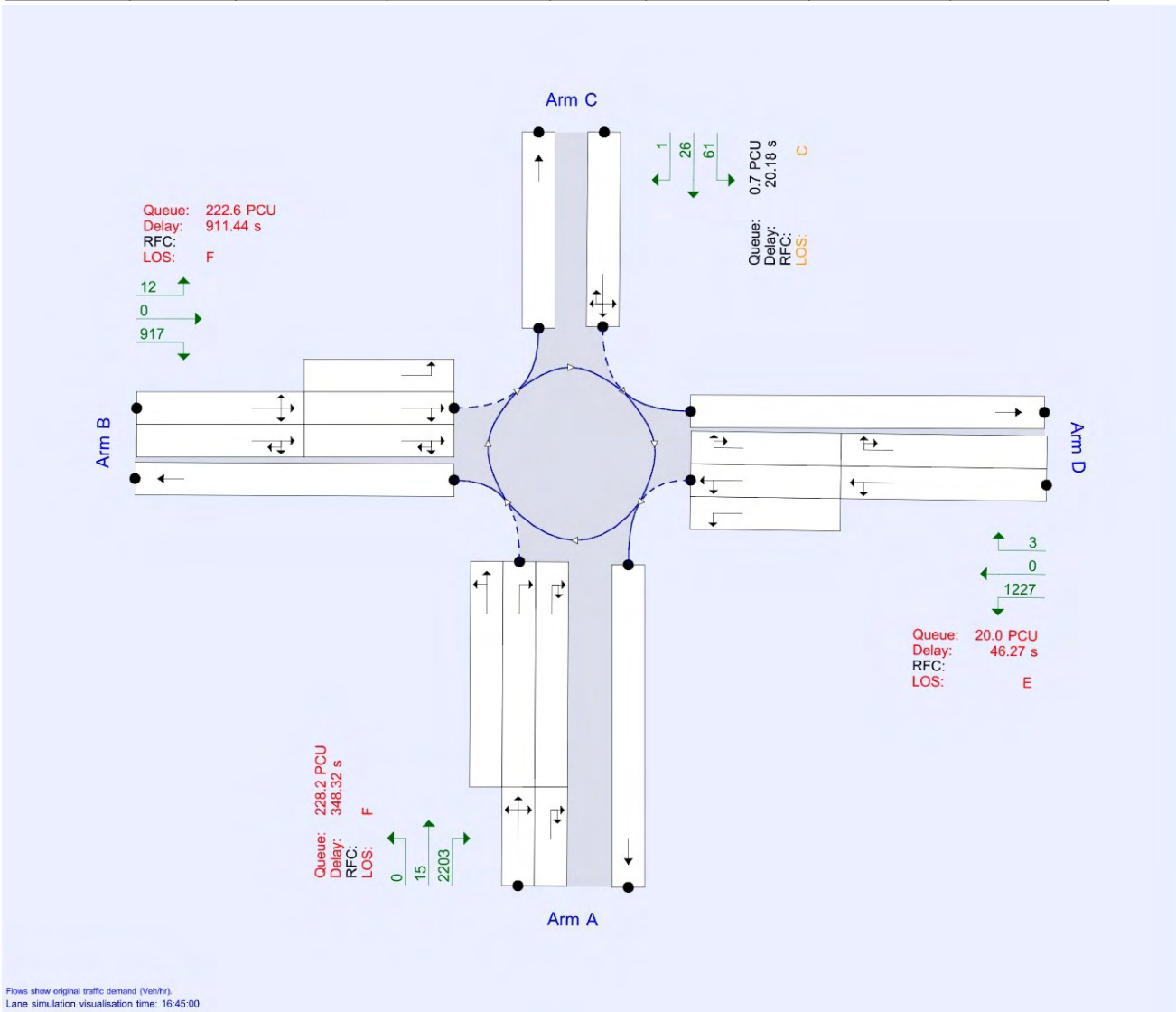
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Veh	PCU	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	751771847	454	218.19

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 5	✓	✓	100.000	100.000

M20 Junction 5 - Dev Scenario 2, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 5 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Arm B - Lane Simulation	Arm B: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 5	Large Roundabout	A,B,C,D	375.58	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	London Road A20	
B	M20 West	
C	Coldharbour Lane	
D	M20 East	

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)	Exit only
A	7.10	8.10	30.0	45.5	125.0	14.0	
B	7.25	10.50	22.0	30.0	234.0	20.0	
C	4.25	4.25	0.0	20.0	125.0	25.0	
D	7.25	10.00	14.5	30.0	234.0	16.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	4	50.00
B	2221	155.00
C	3120	0.00
D	944	132.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.266	3389
B	0.822	3035
C	0.373	1452
D	1.110	3260

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B,C	✓	6.00	0	99999
		2	D	✓	6.00	0	99999
		3	D,A	✓	6.00	0	99999
	2	1	(D,B,C)		Infinity		
		2	(D,A)		Infinity		
B	1 [Give-way line]	1	C	✓	4.00	0	99999
		2	D,A	✓	4.00	0	99999
		3	D,A,B	✓	4.00	0	99999
	2	1	(D,A,C)		Infinity		
		2	(D,A,B)		Infinity		
C	1 [Give-way line]	1	D,A,B,C		Infinity	0	99999
D	1 [Give-way line]	1	A	✓	4.00	0	99999
		2	A,B	✓	4.00	0	99999
		3	D,C	✓	4.00	0	99999
	2	1	(A,B)		Infinity		
		2	(D,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.422	1130
		2	0.422	1130
		3	0.422	1130
B	1 [Give-way line]	1	0.274	1012
		2	0.274	1012
		3	0.274	1012
C	1 [Give-way line]	1	0.373	1452
D	1 [Give-way line]	1	0.370	1087
		2	0.370	1087
		3	0.370	1087

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓	✓	
		3	✓			✓
	2	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1			✓	✓
		2	✓			
		3	✓	✓		
	2	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1				✓
		2	✓	✓		
		3	✓	✓	✓	
	2	1	✓	✓		✓
		2	✓	✓	✓	
C	1 [Give-way line]	1	✓	✓	✓	✓

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	Dev Scenario 2	PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	2218	100.000
B		ONE HOUR	✓	929	100.000
C		ONE HOUR	✓	88	100.000
D		ONE HOUR	✓	1230	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	
From	A	0	0	15	2203	
	B	917	0	12	0	
	C	26	1	0	61	
	D	1227	0	3	0	

Proportions

		To				
		A	B	C	D	
From	A	0.00	0.00	0.01	0.99	
	B	0.99	0.00	0.01	0.00	
	C	0.30	0.01	0.00	0.69	
	D	1.00	0.00	0.00	0.00	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
From	A	10	10	10	10	
	B	10	10	10	10	
	C	10	10	10	10	
	D	10	10	10	10	

Average PCU Per Veh

		To				
		A	B	C	D	
From	A	1.100	1.100	1.100	1.100	
	B	1.100	1.100	1.100	1.100	
	C	1.100	1.100	1.100	1.100	
	D	1.100	1.100	1.100	1.100	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (Veh/hr)	Demand in PCU (PCU/hr)
16:45-17:00	A	1670	1837
	B	699	769
	C	66	73
	D	926	1019
17:00-17:15	A	1994	2193
	B	835	919
	C	79	87
	D	1106	1216
17:15-17:30	A	2442	2686
	B	1023	1125
	C	97	107
	D	1354	1490
17:30-17:45	A	2442	2686
	B	1023	1125
	C	97	107
	D	1354	1490
17:45-18:00	A	1994	2193
	B	835	919
	C	79	87
	D	1106	1216
18:00-18:15	A	1670	1837
	B	699	769
	C	66	73
	D	926	1019

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	348.32	228.2	F	2243	3364
B	911.44	222.6	F	936	1404
C	20.18	0.7	C	88	131
D	46.27	20.0	E	1243	1864

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1847	462	4	1838	1799	0.0	6.0	10.760	B
B	775	194	1841	775	1	0.0	4.6	15.781	C
C	74	18	2590	73	26	0.0	0.2	7.822	A
D	1018	254	787	1015	1876	0.0	3.0	8.294	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2188	547	4	2151	2064	6.0	20.9	26.497	D
B	924	231	2155	834	1	4.6	27.3	72.274	F
C	85	21	2960	85	29	0.2	0.4	15.571	C
D	1215	304	851	1217	2194	3.0	5.0	14.265	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2688	672	5	2278	2285	20.9	125.8	119.212	F
B	1126	282	2281	793	1	27.3	106.7	310.280	F
C	104	26	3047	104	27	0.4	0.6	20.182	C
D	1496	374	815	1475	2336	5.0	17.9	35.685	E

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2691	673	5	2280	2294	125.8	228.2	282.194	F
B	1117	279	2284	787	1	106.7	190.8	692.173	F
C	105	26	3041	104	30	0.6	0.7	19.713	C
D	1494	373	808	1491	2337	17.9	20.0	46.274	E

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	2203	551	3	2280	2013	228.2	210.1	348.325	F
B	911	228	2283	780	0.95	190.8	222.6	911.439	F
C	86	22	3035	86	28	0.7	0.6	19.491	C
D	1214	304	797	1220	2325	20.0	5.3	23.181	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1841	460	4	2242	1826	210.1	105.5	242.591	F
B	762	191	2245	803	0.82	222.6	217.4	723.985	F
C	72	18	3019	72	28	0.6	0.3	16.433	C
D	1019	255	815	1015	2277	5.3	2.9	9.749	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	13	1128	0.011	13	0.0	0.0	3.613	A
			2	D	920	1128	0.815	918	0.0	2.5	9.510	A
			3	D,A	910	1128	0.807	907	0.0	2.6	9.616	A
		2	1	(D,B,C)	924			922	0.0	0.4	1.211	A
			2	(D,A)	923			921	0.0	0.4	1.229	A
	Exit	1	1			1799			1799	0.0	0.0	0.000
B	Entry	1	1	C	10	507	0.020	10	0.0	0.0	7.310	A
			2	D,A	381	507	0.751	382	0.0	1.8	13.778	B
			3	D,A,B	382	507	0.753	383	0.0	1.8	13.669	B
		2	1	(D,A,C)	396			395	0.0	0.5	2.077	A
			2	(D,A,B)	378			377	0.0	0.4	2.064	A
	Exit	1	1			1			1	0.0	0.0	0.000
C	Entry	1	1	D,A,B,C	74	485	0.152	73	0.0	0.2	7.822	A
	Exit	1	1			26			26	0.0	0.0	0.000
D	Entry	1	1	A	508	795	0.639	507	0.0	1.3	7.921	A
			2	A,B	506	795	0.636	505	0.0	1.3	7.853	A
			3	D,C	3	795	0.003	2	0.0	0.0	5.669	A
		2	1	(A,B)	1015			1014	0.0	0.3	0.401	A
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1			1876			1876	0.0	0.0	0.000

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	15	1128	0.013	15	0.0	0.0	3.484	A
			2	D	1078	1128	0.956	1074	2.5	4.8	14.575	B
			3	D,A	1066	1128	0.945	1063	2.6	4.7	14.590	B
		2	1	(D,B,C)	1099			1086	0.4	5.6	11.913	B
			2	(D,A)	1088			1074	0.4	5.7	11.921	B
	Exit	1	1			2064			2064	0.0	0.0	0.000
B	Entry	1	1	C	11	421	0.026	11	0.0	0.0	9.038	A
			2	D,A	413	421	0.981	410	1.8	3.7	27.978	D
			3	D,A,B	417	421	0.990	413	1.8	3.7	27.809	D
		2	1	(D,A,C)	463			422	0.5	10.0	44.232	E
			2	(D,A,B)	461			419	0.4	9.8	43.870	E
	Exit	1	1			1			1	0.0	0.0	0.000
C	Entry	1	1	D,A,B,C	85	347	0.245	85	0.2	0.4	15.571	C
	Exit	1	1			29			29	0.0	0.0	0.000
D	Entry	1	1	A	605	772	0.784	606	1.3	1.9	11.390	B
			2	A,B	607	772	0.787	608	1.3	1.9	11.405	B
			3	D,C	3	772	0.004	3	0.0	0.0	5.240	A
		2	1	(A,B)	1212			1212	0.3	1.1	2.871	A
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1			2194			2194	0.0	0.0	0.000

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	15	1128	0.013	15	0.0	0.0	3.645	A
			2	D	1124	1128	0.997	1124	4.8	6.0	18.690	C
			3	D,A	1140	1128	1.011	1139	4.7	5.9	18.537	C
		2	1	(D,B,C)	1339			1135	5.6	56.9	101.190	F
			2	(D,A)	1349			1144	5.7	57.0	100.087	F
	Exit	1	1		2285			2285	0.0	0.0	0.000	A
B	Entry	1	1	C	10	386	0.025	9	0.0	0.0	10.785	B
			2	D,A	392	386	1.015	392	3.7	3.9	35.319	E
			3	D,A,B	392	386	1.015	392	3.7	3.9	35.438	E
		2	1	(D,A,C)	574			404	10.0	49.6	271.432	F
			2	(D,A,B)	552			389	9.8	49.2	278.043	F
	Exit	1	1		1			1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	104	315	0.330	104	0.4	0.6	20.182	C
	Exit	1	1		27			27	0.0	0.0	0.000	A
D	Entry	1	1	A	736	785	0.937	734	1.9	3.3	15.210	C
			2	A,B	739	785	0.941	737	1.9	3.2	15.231	C
			3	D,C	3	785	0.004	3	0.0	0.0	5.480	A
		2	1	(A,B)	1493			1474	1.1	11.4	20.455	C
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1		2336			2336	0.0	0.0	0.000	A

17:30 - 17:45


Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	16	1127	0.014	16	0.0	0.0	3.745	A
			2	D	1132	1127	1.004	1132	6.0	6.0	18.969	C
			3	D,A	1132	1127	1.004	1132	5.9	5.9	18.965	C
		2	1	(D,B,C)	1352			1149	56.9	108.1	263.616	F
			2	(D,A)	1339			1132	57.0	108.2	263.088	F
	Exit	1	1		2294			2294	0.0	0.0	0.000	A
B	Entry	1	1	C	10	385	0.027	10	0.0	0.0	11.571	B
			2	D,A	387	385	1.004	387	3.9	3.9	36.504	E
			3	D,A,B	389	385	1.010	390	3.9	3.9	36.601	E
		2	1	(D,A,C)	566			400	49.6	91.5	642.636	F
			2	(D,A,B)	552			387	49.2	91.4	669.661	F
	Exit	1	1		1			1	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	105	317	0.330	104	0.6	0.7	19.713	C
	Exit	1	1		30			30	0.0	0.0	0.000	A
D	Entry	1	1	A	741	788	0.940	741	3.3	3.3	15.683	C
			2	A,B	747	788	0.948	746	3.2	3.3	15.635	C
			3	D,C	4	788	0.005	4	0.0	0.0	4.651	A
		2	1	(A,B)	1490			1487	11.4	13.5	30.713	D
			2	(D,C)	4			4	0.0	0.0	0.000	A
	Exit	1	1		2337			2337	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	15	1128	0.014	15	0.0	0.0	3.726	A
			2	D	1136	1128	1.007	1136	6.0	5.9	18.879	C
			3	D,A	1129	1128	1.001	1129	5.9	6.0	18.955	C
		2	1	(D,B,C)	1096			1136	108.1	99.1	333.392	F
			2	(D,A)	1107			1145	108.2	99.1	325.679	F
	Exit	1	1		2013			2013	0.0	0.0	0.000	A
B	Entry	1	1	C	10	386	0.025	10	0.0	0.0	10.782	B
			2	D,A	385	386	0.999	385	3.9	3.9	36.775	E
			3	D,A,B	385	386	0.998	385	3.9	4.0	36.377	E
		2	1	(D,A,C)	464			396	91.5	107.5	873.552	F
			2	(D,A,B)	447			384	91.4	107.2	889.978	F
	Exit	1	1		0.95			0.95	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	86	319	0.271	86	0.7	0.6	19.491	C
	Exit	1	1		28			28	0.0	0.0	0.000	A
D	Entry	1	1	A	611	792	0.771	609	3.3	2.0	12.527	B
			2	A,B	610	792	0.770	608	3.3	2.1	12.549	B
			3	D,C	2	792	0.003	2	0.0	0.0	4.772	A
		2	1	(A,B)	1212			1220	13.5	1.2	10.893	B
			2	(D,C)	2			2	0.0	0.0	0.000	A
	Exit	1	1		2325			2325	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	15	1128	0.013	15	0.0	0.0	3.611	A
			2	D	1117	1128	0.990	1119	5.9	5.6	18.554	C
			3	D,A	1105	1128	0.979	1107	6.0	5.6	18.676	C
		2	1	(D,B,C)	931			1125	99.1	47.3	223.582	F
			2	(D,A)	911			1112	99.1	47.0	222.916	F
	Exit	1	1		1826			1826	0.0	0.0	0.000	A
B	Entry	1	1	C	11	396	0.027	10	0.0	0.0	10.559	B
			2	D,A	395	396	0.997	395	3.9	3.9	36.404	E
			3	D,A,B	398	396	1.003	398	4.0	3.9	36.193	E
		2	1	(D,A,C)	390			408	107.5	104.7	694.909	F
			2	(D,A,B)	372			395	107.2	104.8	714.599	F
	Exit	1	1		0.82			0.82	0.0	0.0	0.000	A
C	Entry	1	1	D,A,B,C	72	325	0.221	72	0.6	0.3	16.433	C
	Exit	1	1		28			28	0.0	0.0	0.000	A
D	Entry	1	1	A	505	785	0.644	505	2.0	1.4	8.949	A
			2	A,B	509	785	0.648	508	2.1	1.3	8.971	A
			3	D,C	3	785	0.004	3	0.0	0.0	4.870	A
		2	1	(A,B)	1016			1015	1.2	0.2	0.848	A
			2	(D,C)	3			3	0.0	0.0	0.000	A
	Exit	1	1		2277			2277	0.0	0.0	0.000	A

<h1>Junctions 9</h1>
<h2>ARCADY 9 - Roundabout Module</h2>
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Filename: M20 Junction 6.j9

Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 6\ARCADY

Report generation date: 06/09/2016 11:00:42

- »M20 Junction 6 - 2016, AM
- »M20 Junction 6 - 2016, PM
- »M20 Junction 6 - 2031, AM
- »M20 Junction 6 - 2031, PM
- »M20 Junction 6 - Dev Scenario 1, AM
- »M20 Junction 6 - Dev Scenario 1, PM
- »M20 Junction 6 - Dev Scenario 2, AM
- »M20 Junction 6 - Dev Scenario 2, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 6 [Lane Simulation] - 2016								
Junction 1 - Arm A	3.2	6.32		A	1.5	4.62		A
Junction 1 - Arm C	47.6	128.00		F	75.0	198.11		F
Junction 1 - Arm D	3.4	17.10		C	3.3	16.98		C
Junction 2 - Arm A	73.2	158.15		F	121.5	402.37		F
Junction 2 - Arm B	34.4	48.26		E	4.8	8.97		A
Junction 2 - Arm C	2.4	18.35		C	1.2	10.07		B
Junction 2 - Arm D	2.3	10.32		B	2.0	8.37		A
Junction 2 - Arm E	38.2	194.33		F	27.3	114.94		F
M20 Junction 6 [Lane Simulation] - 2031								
Junction 1 - Arm A	5.7	8.84		A	1.9	5.01		A
Junction 1 - Arm C	55.6	146.34		F	75.8	200.95		F
Junction 1 - Arm D	5.8	23.84		C	4.8	22.70		C
Junction 2 - Arm A	141.9	383.15		F	255.3	805.49		F
Junction 2 - Arm B	96.1	116.87		F	6.8	11.64		B
Junction 2 - Arm C	3.4	23.18		C	1.5	12.06		B
Junction 2 - Arm D	3.1	12.70		B	2.8	10.68		B
Junction 2 - Arm E	72.9	434.84		F	71.8	366.15		F
M20 Junction 6 [Lane Simulation] - Dev Scenario 1								
Junction 1 - Arm A	8.4	11.14		B	2.1	5.12		A
Junction 1 - Arm C	57.4	147.61		F	75.8	201.49		F
Junction 1 - Arm D	7.6	29.09		D	5.4	25.02		D
Junction 2 - Arm A	157.2	429.05		F	282.7	885.06		F
Junction 2 - Arm B	108.5	131.79		F	7.5	13.15		B
Junction 2 - Arm C	3.3	23.25		C	1.6	12.49		B
Junction 2 - Arm D	3.4	13.09		B	3.1	11.05		B
Junction 2 - Arm E	84.9	529.72		F	82.2	441.42		F
M20 Junction 6 [Lane Simulation] - Dev Scenario 2								
Junction 1 - Arm A	15.6	18.43		C	1.9	5.46		A
Junction 1 - Arm C	58.6	150.83		F	75.9	203.71		F
Junction 1 - Arm D	13.6	50.45		F	6.3	28.26		D
Junction 2 - Arm A	193.4	511.97		F	340.1	1025.25		F
Junction 2 - Arm B	126.8	167.67		F	9.1	14.71		B
Junction 2 - Arm C	3.5	24.74		C	1.9	13.99		B
Junction 2 - Arm D	3.4	14.31		B	3.3	12.41		B
Junction 2 - Arm E	110.5	683.54		F	116.0	630.20		F

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. Arm and junction delays are averages for all movements, including movements with zero delay.

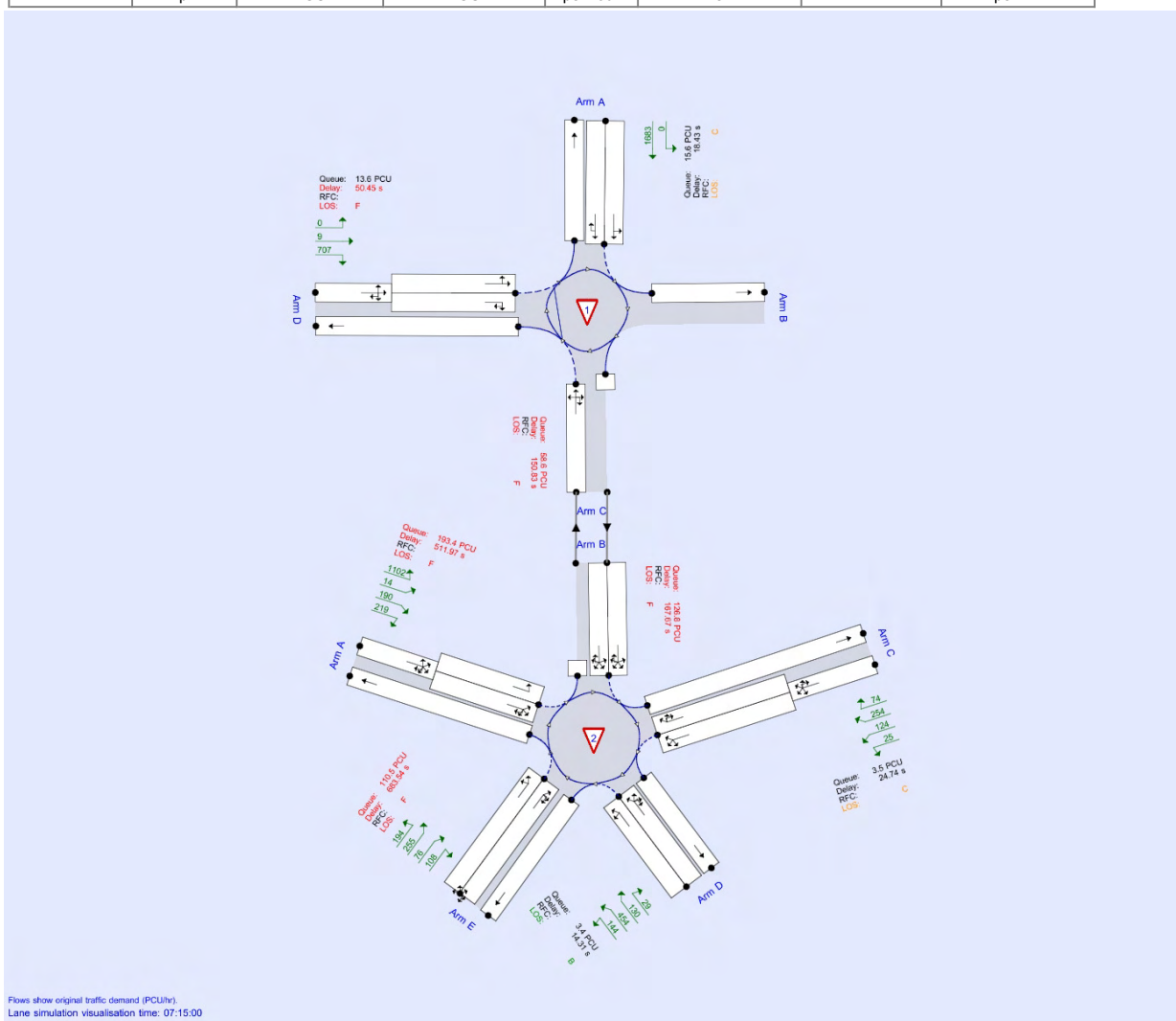
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
Description	

Units

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



Flows show original traffic demand (PCU/hr). Lane simulation visualisation time: 07:15:00. The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)

1.00	100000	100000	-1	3	1	✓	787079403	395	320.42
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Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016	AM	ONE HOUR	07:15	08:45	15	✓
D2	2016	PM	ONE HOUR	17:00	18:30	15	✓
D3	2031	AM	ONE HOUR	07:15	08:45	15	✓
D4	2031	PM	ONE HOUR	17:00	18:30	15	✓
D5	Dev Scenario 1	AM	ONE HOUR	07:15	08:45	15	✓
D6	Dev Scenario 1	PM	ONE HOUR	17:00	18:30	15	✓
D7	Dev Scenario 2	AM	ONE HOUR	07:15	08:45	15	✓
D8	Dev Scenario 2	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 6	✓	✓	100.000	100.000

M20 Junction 6 - 2016, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 6 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Junction 1 - Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Linked junction	Junction 2 - Arm B	Linked arm: Junction 2 Arm B has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 6 North	Standard Roundabout	A,B,C,D	55.90	F
2	M20 Junction 6 South	Standard Roundabout	A,B,C,D,E	85.43	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Junction	Arm	Name	Description
1	A	A229 North	
	B	M20 East	
	C	A229 South	
	D	M20 West	
2	A	M20	
	B	A229	
	C	Sandling Lane	
	D	Chatham Road	
	E	Forstal Road	

Roundabout Geometry

Junction	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)	Exit only
1	A	8.80	9.60	4.7	33.0	91.0	14.6	
	B							✓
	C	4.00	4.50	1.5	19.0	91.0	12.5	
	D	5.30	9.80	30.0	29.2	91.0	16.0	
2	A	6.28	8.14	9.0	31.4	102.0	19.8	
	B	8.42	8.85	0.8	24.5	102.0	17.3	
	C	3.98	9.12	26.0	12.9	102.0	16.5	
	D	8.00	9.25	5.7	24.6	102.0	18.0	
	E	3.79	8.04	19.0	18.0	102.0	18.1	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1	A	0.659	3029
	B		
	C	0.420	1360
	D	0.609	2689
2	A	0.553	2361
	B	0.605	2737
	C	0.523	2202
	D	0.611	2782

E	0.494	1967
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The slope and intercept shown above include any corrections and adjustments.

Lane Simulation: Arm options

Junction	Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
1	A	Evenly split	10.00
	B	Evenly split	10.00
	C	Evenly split	10.00
	D	Evenly split	10.00
2	A	Evenly split	10.00
	B	Evenly split	10.00
	C	Evenly split	10.00
	D	Evenly split	10.00
	E	Evenly split	10.00

Lanes

Junction	Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
1	A	1 [Give-way line]	1	B,C		Infinity	0	99999
			2	A,C		Infinity	0	99999
	C	1 [Give-way line]	1	B,C,D,A	✓	78.00	0	99999
	D	1 [Give-way line]	1	B,A	✓	8.00	0	99999
			2	C,D	✓	8.00	0	99999
	2	1	(A,B,C,D)		Infinity			
2	A	1 [Give-way line]	1	B	✓	7.00	0	99999
			2	A,C,D,E	✓	7.00	0	99999
			1	(A,B,C,D,E)		Infinity		
	B	1 [Give-way line]	1	B,C,D,A,E	✓	78.00	0	99999
			2	A,B,C,D,E	✓	78.00	0	99999
	C	1 [Give-way line]	1	D,A,E	✓	9.00	0	99999
			2	A,B,C	✓	9.00	0	99999
			1	(A,B,C,D,E)		Infinity		
	D	1 [Give-way line]	1	A,E		Infinity	0	99999
			2	A,B,C,D		Infinity	0	99999
	E	1 [Give-way line]	1	B,A	✓	14.00	0	99999
			2	C,D,E	✓	14.00	0	99999
1			(A,B,C,D,E)		Infinity			

Entry Lane slope and intercept

Junction	Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1	A	1 [Give-way line]	1	0.329	1514
			2	0.329	1514
	C	1 [Give-way line]	1	0.420	1360
	D	1 [Give-way line]	1	0.305	1344
2			0.305	1344	
2	A	1 [Give-way line]	1	0.276	1181
			2	0.276	1181
	B	1 [Give-way line]	1	0.302	1369
			2	0.302	1369
	C	1 [Give-way line]	1	0.262	1101
			2	0.262	1101
	D	1 [Give-way line]	1	0.305	1391
			2	0.305	1391
	E	1 [Give-way line]	1	0.247	983
			2	0.247	983

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm			
				A	B	C	D
1	A	1 [Give-way line]	1	✓	✓		
			2	✓		✓	
	C	1 [Give-way line]	1	✓	✓	✓	✓
	D	1 [Give-way line]	1	✓	✓		
			2			✓	✓
	2	1	✓	✓	✓	✓	

Lane Movements

--	--	--	--	--	--

Junction	Arm	Lane Level	Lane	Destination arm					
				A	B	C	D	E	
2	A	1 [Give-way line]	1		✓				
			2	✓		✓	✓	✓	
	2	1	1	✓	✓	✓	✓	✓	
			2	✓	✓	✓	✓	✓	
	B	1 [Give-way line]	1	✓	✓	✓	✓	✓	
			2	✓	✓	✓	✓	✓	
	C	1 [Give-way line]	1	✓			✓	✓	
			2	✓	✓	✓			
	2	1	1	✓	✓	✓	✓	✓	
			2	✓	✓	✓	✓	✓	
	D	1 [Give-way line]	1	✓				✓	
			2	✓	✓	✓	✓		
	E	1 [Give-way line]	1	✓	✓				
			2			✓	✓	✓	
2	1	1	✓	✓	✓	✓	✓		
		2	✓	✓	✓	✓	✓		

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	C	2	B	Simple (vertical queueing)	Normal	0	100.00	
2	B	1	C	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	1499	100.000
	B					
	C	✓				
	D		ONE HOUR	✓	633	100.000
2	A		ONE HOUR	✓	1351	100.000
	B	✓				
	C		ONE HOUR	✓	423	100.000
	D		ONE HOUR	✓	684	100.000
	E		ONE HOUR	✓	560	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	
Junction 1	From	A	12	0	1487	0
		B	Exit-only	Exit-only	Exit-only	Exit-only
		C	1147	212	20	0
		D	0	8	625	0

Demand (PCU/hr)

		To					
		A	B	C	D	E	
Junction 2	From	A	4	974	12	168	193
		B	1305	0	114	424	292
		C	225	66	0	22	110
		D	401	115	26	15	127
		E	172	225	67	96	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
Junction 1	From	A	0	0	3	0
		B	Exit-only	Exit-only	Exit-only	Exit-only
		C	8	14	13	0
		D	0	0	11	0

Heavy Vehicle Percentages

		To					
		A	B	C	D	E	
Junction 2	From	A	0	8	0	2	4
		B	3	0	5	6	19
		C	2	7	0	0	4
		D	6	5	4	0	7
		E	28	20	0	12	7

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	A	6.32	3.2	A	1375	2062
	B					
	C	128.00	47.6	F	1257	1885
	D	17.10	3.4	C	579	868
2	A	158.15	73.2	F	1240	1859
	B	48.26	34.4	E	1954	2931
	C	18.35	2.4	C	387	580
	D	10.32	2.3	B	632	948
	E	194.33	38.2	F	513	770

Main Results for each time segment

07:15 - 07:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1126	282	650	1127	878	0.0	1.1	3.595	A
	B			0		167				
	C	1048	262	9	1046	1602	0.0	4.3	12.517	B
	D	475	119	1055	474	0	0.0	1.0	6.665	A
2	A	1015	254	461	1022	1582	0.0	2.8	10.107	B
	B	1602	400	434	1601	1048	0.0	2.7	5.596	A
	C	319	80	1873	318	163	0.0	0.6	6.654	A
	D	514	129	1645	515	545	0.0	0.7	4.839	A
	E	418	104	1622	421	538	0.0	1.7	12.302	B

07:30 - 07:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1360	340	777	1358	1029	1.1	1.8	4.409	A
	B			0		201				
	C	1245	311	11	1230	1922	4.3	10.8	25.652	D
	D	565	141	1241	565	0	1.0	1.8	9.893	A
2	A	1213	303	558	1212	1894	2.8	7.5	20.348	C
	B	1922	481	525	1923	1245	2.7	4.9	8.945	A
	C	381	95	2249	382	198	0.6	1.0	9.478	A
	D	616	154	1976	617	655	0.7	1.1	6.387	A
	E	505	126	1946	505	647	1.7	4.0	23.629	C

07:45 - 08:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1656	414	919	1654	1123	1.8	3.2	6.137	A
	B			0		213				
	C	1404	351	13	1332	2347	10.8	30.0	57.187	F
	D	695	174	1345	697	0	1.8	3.4	16.290	C
2	A	1479	370	630	1360	2269	7.5	40.8	68.663	F
	B	2347	587	586	2292	1404	4.9	26.2	29.106	D
	C	458	114	2649	460	230	1.0	2.1	15.250	C
	D	759	190	2342	759	767	1.1	2.1	9.310	A
	E	617	154	2344	555	757	4.0	20.7	85.626	F

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1643	411	910	1648	1128	3.2	2.8	6.323	A
	B			0		215				
	C	1398	349	12	1343	2331	30.0	45.8	103.502	F
	D	684	171	1356	683	0	3.4	3.4	17.105	C
2	A	1494	373	619	1358	2283	40.8	73.2	153.780	F
	B	2331	583	579	2308	1398	26.2	34.4	48.261	E
	C	463	116	2662	463	225	2.1	2.4	18.348	C
	D	762	191	2366	759	759	2.1	2.3	10.316	B
	E	617	154	2365	537	760	20.7	38.2	194.328	F

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1341	335	803	1339	1137	2.8	1.7	4.586	A
	B			0		216				
	C	1338	334	11	1355	1915	45.8	47.6	128.000	F
	D	571	143	1366	574	0	3.4	1.7	11.706	B
2	A	1213	303	602	1298	1931	73.2	46.0	158.147	F
	B	1915	479	562	1935	1338	34.4	6.2	23.690	C
	C	379	95	2289	380	208	2.4	1.1	12.681	B
	D	617	154	1996	619	673	2.3	1.2	7.580	A
	E	500	125	1952	581	663	38.2	17.2	159.925	F

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1124	281	687	1124	1026	1.7	1.2	3.789	A
	B			0		194				
	C	1108	277	9	1223	1608	47.6	20.8	98.400	F
	D	483	121	1232	480	0	1.7	1.4	9.059	A
2	A	1025	256	473	1099	1605	46.0	10.2	63.684	F
	B	1608	402	464	1610	1108	6.2	2.6	6.409	A
	C	322	81	1904	322	170	1.1	0.7	8.131	A
	D	521	130	1668	520	558	1.2	0.8	5.517	A
	E	423	106	1640	439	549	17.2	2.5	38.902	E

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS			
1	A	Entry	1	1	B,C	563	1300	0.433	563	0.0	0.6	3.593	A			
				2	A,C	563	1300	0.433	564	0.0	0.5	3.597	A			
		Exit	1	1			878			878	0.0	0.0	0.000	A		
	B	Exit	1	1			167			167	0.0	0.0	0.000	A		
					Entry	1	1	B,C,D,A	1048	1356	0.773	1046	0.0	4.3	12.517	B
	C	Exit	1	1			1602			1602	0.0	0.0	0.000	A		
					Entry	1	1	B,A	6	1023	0.006	6	0.0	0.0	3.182	A
							2	C,D	469	1023	0.458	469	0.0	1.0	6.673	A

2	Exit	2	1	(A,B,C,D)	475			474	0.0	0.0	0.038	A	
		1	1		0			0	0.0	0.0	0.000	A	
	A	Entry	1	1	B	734	1053	0.697	740	0.0	2.0	10.481	B
			2	2	A,C,D,E	283	1053	0.269	282	0.0	0.4	4.782	A
		2	1	(A,B,C,D,E)	1015			1016	0.0	0.3	1.247	A	
		Exit	1	1		1582			1582	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	798	1237	0.645	798	0.0	1.4	5.630	A
			2	2	A,B,C,D,E	804	1237	0.650	804	0.0	1.3	5.562	A
	Exit	1	1		1048			1048	0.0	0.0	0.000	A	
	C	Entry	1	1	D,A,E	180	611	0.294	180	0.0	0.4	6.866	A
			2	2	A,B,C	139	611	0.228	139	0.0	0.3	6.379	A
		2	1	(A,B,C,D,E)	319			319	0.0	0.0	0.000	A	
		Exit	1	1		163			163	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	247	888	0.279	248	0.0	0.3	4.828	A
			2	2	A,B,C,D	267	888	0.300	267	0.0	0.4	4.849	A
	Exit	1	1		545			545	0.0	0.0	0.000	A	
	E	Entry	1	1	B,A	298	583	0.511	301	0.0	1.3	14.452	B
			2	2	C,D,E	120	583	0.206	120	0.0	0.3	7.650	A
		2	1	(A,B,C,D,E)	418			418	0.0	0.0	0.021	A	
		Exit	1	1		538			538	0.0	0.0	0.000	A

07:30 - 07:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	679	1258	0.540	677	0.6	0.9	4.413	A
				2	A,C	681	1258	0.541	681	0.5	0.9	4.405	A
	Exit	1	1			1029			1029	0.0	0.0	0.000	A
	B	Exit	1	1		201			201	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1245	1355	0.919	1230	4.3	10.8	25.652	D
					Exit	1	1		1922			1922	0.0
	D	Entry	1	1	B,A	7	967	0.008	7	0.0	0.0	3.688	A
				2	C,D	558	967	0.577	557	1.0	1.7	9.670	A
		2	1	(A,B,C,D)	565			565	0.0	0.1	0.302	A	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	874	1026	0.851	874	2.0	3.9	15.358	C
				2	A,C,D,E	338	1026	0.329	338	0.4	0.5	5.608	A
		2	1	(A,B,C,D,E)	1213			1212	0.3	3.1	7.724	A	
		Exit	1	1		1894			1894	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	967	1210	0.800	967	1.4	2.5	8.921	A
				2	A,B,C,D,E	955	1210	0.789	956	1.3	2.4	8.970	A
	Exit	1	1		1245			1245	0.0	0.0	0.000	A	
	C	Entry	1	1	D,A,E	211	513	0.411	210	0.4	0.6	9.840	A
				2	A,B,C	170	513	0.333	171	0.3	0.4	9.029	A
		2	1	(A,B,C,D,E)	381			381	0.0	0.0	0.000	A	
		Exit	1	1		198			198	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	298	787	0.378	299	0.3	0.5	6.315	A
				2	A,B,C,D	318	787	0.404	319	0.4	0.6	6.455	A
	Exit	1	1		655			655	0.0	0.0	0.000	A	
E	Entry	1	1	B,A	357	503	0.709	356	1.3	3.4	29.048	D	
			2	C,D,E	148	503	0.294	149	0.3	0.4	10.296	B	
	2	1	(A,B,C,D,E)	505			504	0.0	0.2	0.500	A		
	Exit	1	1		647			647	0.0	0.0	0.000	A	

07:45 - 08:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	824	1211	0.680	822	0.9	1.6	6.125	A
				2	A,C	832	1211	0.687	832	0.9	1.6	6.148	A
	Exit	1	1			1123			1123	0.0	0.0	0.000	A
	B	Exit	1	1		213			213	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1404	1354	1.037	1332	10.8	30.0	57.187	F
					Exit	1	1		2347			2347	0.0
	D	Entry	1	1	B,A	9	935	0.010	9	0.0	0.0	3.866	A
				2	C,D	686	935	0.734	687	1.7	2.9	14.226	B
		2	1	(A,B,C,D)	695			696	0.1	0.5	2.174	A	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
A	Entry	1	1	B	987	1007	0.980	986	3.9	6.4	21.682	C	
			2	A,C,D,E	376	1007	0.374	375	0.5	0.7	6.707	A	
	2	1	(A,B,C,D,E)	1479			1363	3.1	33.6	51.100	F		
	Exit	1	1		2269			2269	0.0	0.0	0.000	A	
B	Entry	1	1	B,C,D,A,E	1175	1191	0.986	1147	2.5	13.1	29.131	D	
			2	A,B,C,D,E	1172	1191	0.984	1145	2.4	13.1	29.080	D	

2	C	Exit	1	1		1404			1404	0.0	0.0	0.004	A
		Entry	1	1	D,A,E	247	408	0.605	249	0.6	1.2	16.082	C
				2	A,B,C	211	408	0.516	211	0.4	0.9	14.194	B
		Exit	2	1	(A,B,C,D,E)	458			458	0.0	0.0	0.026	A
	D	Exit	1	1		230			230	0.0	0.0	0.000	A
		Entry	1	1	A,E	371	676	0.550	372	0.5	0.9	9.230	A
				2	A,B,C,D	388	676	0.574	386	0.6	1.2	9.385	A
	Exit	1	1		767			767	0.0	0.0	0.000	A	
	E	Entry	1	1	B,A	400	405	0.989	389	3.4	10.3	73.309	F
				2	C,D,E	168	405	0.414	166	0.4	1.0	17.372	C
Exit		2	1	(A,B,C,D,E)	617			568	0.2	9.4	28.038	D	
Exit		1	1		757			757	0.0	0.0	0.000	A	

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	820	1214	0.675	822	1.6	1.4	6.338	A
				2	A,C	823	1214	0.678	826	1.6	1.4	6.308	A
		Exit	1	1		1128			1128	0.0	0.0	0.000	A
	B	Exit	1	1		215			215	0.0	0.0	0.000	A
		C	Entry	1	1	B,C,D,A	1398	1355	1.032	1343	30.0	45.8	103.502
	Exit				1	1		2331			2331	0.0	0.0
	D	Entry	1	1	B,A	8	932	0.009	8	0.0	0.0	4.206	A
				2	C,D	674	932	0.724	674	2.9	2.9	14.777	B
				2	1	(A,B,C,D)	684			683	0.5	0.5	2.477
	Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	979	1010	0.970	978	6.4	6.7	23.959	C
				2	A,C,D,E	380	1010	0.376	380	0.7	0.7	7.248	A
		Exit	2	1	(A,B,C,D,E)	1494			1359	33.6	65.8	134.627	F
		Exit	1	1		2283			2283	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	1161	1193	0.973	1150	13.1	17.2	48.425	E
				2	A,B,C,D,E	1169	1193	0.980	1158	13.1	17.1	48.098	E
	Exit	1	1		1398			1398	0.0	0.0	0.056	A	
	C	Entry	1	1	D,A,E	248	405	0.612	247	1.2	1.4	19.192	C
				2	A,B,C	216	405	0.532	216	0.9	1.0	17.306	C
		Exit	2	1	(A,B,C,D,E)	463			463	0.0	0.0	0.021	A
		Exit	1	1		225			225	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	372	668	0.556	370	0.9	1.2	10.097	B
2				A,B,C,D	390	668	0.584	389	1.2	1.1	10.524	B	
Exit	1	1		759			759	0.0	0.0	0.000	A		
E	Entry	1	1	B,A	391	400	0.979	383	10.3	12.4	106.205	F	
			2	C,D,E	154	400	0.387	154	1.0	0.9	20.651	C	
	Exit	2	1	(A,B,C,D,E)	617			546	9.4	24.9	115.758	F	
Exit	1	1		760			760	0.0	0.0	0.000	A		

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	670	1250	0.536	669	1.4	0.9	4.559	A
				2	A,C	671	1250	0.537	670	1.4	0.9	4.613	A
		Exit	1	1		1137			1137	0.0	0.0	0.000	A
	B	Exit	1	1		216			216	0.0	0.0	0.000	A
		C	Entry	1	1	B,C,D,A	1338	1355	0.987	1355	45.8	47.6	128.000
	Exit				1	1		1915			1915	0.0	0.0
	D	Entry	1	1	B,A	7	928	0.007	7	0.0	0.0	3.760	A
				2	C,D	565	928	0.609	566	2.9	1.6	11.289	B
				2	1	(A,B,C,D)	571			572	0.5	0.0	0.575
	Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	931	1014	0.918	934	6.7	5.8	23.379	C
				2	A,C,D,E	363	1014	0.358	364	0.7	0.6	6.919	A
		Exit	2	1	(A,B,C,D,E)	1213			1294	65.8	39.6	139.580	F
		Exit	1	1		1931			1931	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	959	1198	0.800	968	17.2	3.1	23.707	C
				2	A,B,C,D,E	956	1198	0.798	967	17.1	3.1	23.674	C
	Exit	1	1		1337			1338	0.0	0.0	0.092	A	
	C	Entry	1	1	D,A,E	210	502	0.419	211	1.4	0.6	13.055	B
				2	A,B,C	169	502	0.336	169	1.0	0.5	12.195	B
		Exit	2	1	(A,B,C,D,E)	379			379	0.0	0.0	0.010	A
	Exit	1	1		208			208	0.0	0.0	0.000	A	
	D	Entry	1	1	A,E	302	781	0.387	304	1.2	0.6	7.370	A
2				A,B,C,D	315	781	0.404	315	1.1	0.6	7.780	A	
Exit	1	1		673			673	0.0	0.0	0.000	A		

E	Entry	1	1	B,A	395	502	0.787	417	12.4	7.4	85.881	F
			2	C,D,E	163	502	0.326	163	0.9	0.7	16.175	C
		2	1	(A,B,C,D,E)	500			558	24.9	9.1	100.106	F
	Exit	1	1		663			663	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	563	1288	0.437	563	0.9	0.6	3.773	A
				2	A,C	560	1288	0.435	561	0.9	0.6	3.805	A
		Exit	1	1		1026			1026	0.0	0.0	0.000	A
	B	Exit	1	1		194			194	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1108	1356	0.817	1223	47.6	20.8	98.400	F
						1608			1608	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	6	969	0.006	6	0.0	0.0	3.771	A
					C,D	477	969	0.492	475	1.6	1.4	8.841	A
			2	1	(A,B,C,D)	483			483	0.0	0.0	0.295	A
Exit		1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	787	1050	0.750	794	5.8	3.1	17.758	C
				2	A,C,D,E	304	1050	0.289	305	0.6	0.5	5.855	A
				1	(A,B,C,D,E)	1025			1091	39.6	6.7	50.014	F
		Exit	1	1		1605			1605	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	801	1228	0.652	802	3.1	1.3	6.390	A
					A,B,C,D,E	806	1228	0.657	808	3.1	1.3	6.427	A
		Exit	1	1		1108			1108	0.0	0.0	0.052	A
	C	Entry	1	1	D,A,E	179	603	0.297	179	0.6	0.4	8.378	A
					A,B,C	143	603	0.237	143	0.5	0.3	7.817	A
					(A,B,C,D,E)	322			322	0.0	0.0	0.000	A
		Exit	1	1		170			170	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	251	881	0.285	251	0.6	0.4	5.418	A
					A,B,C,D	270	881	0.307	270	0.6	0.4	5.610	A
		Exit	1	1		558			558	0.0	0.0	0.000	A
	E	Entry	1	1	B,A	305	579	0.527	312	7.4	1.8	35.321	E
					C,D,E	126	579	0.218	127	0.7	0.4	10.356	B
(A,B,C,D,E)					423			431	9.1	0.4	15.160	C	
Exit		1	1		549			549	0.0	0.0	0.000	A	

M20 Junction 6 - 2016, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 6 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Junction 1 - Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Linked junction	Junction 2 - Arm B	Linked arm: Junction 2 Arm B has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 6 North	Standard Roundabout	A,B,C,D	96.07	F
2	M20 Junction 6 South	Standard Roundabout	A,B,C,D,E	126.77	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2016	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	C	2	B	Simple (vertical queueing)	Normal	0	100.00	
2	B	1	C	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	1058	100.000
	B					
	C	✓				
	D		ONE HOUR	✓	645	100.000
2	A		ONE HOUR	✓	1223	100.000
	B	✓				
	C		ONE HOUR	✓	361	100.000
	D		ONE HOUR	✓	763	100.000
	E		ONE HOUR	✓	636	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	
Junction 1	From	A	26	0	1032	0
		B	Exit-only	Exit-only	Exit-only	Exit-only
		C	1157	329	2	0
		D				

	D	0	10	635	0
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Demand (PCU/hr)

		To					
		A	B	C	D	E	
Junction 2	From	A	3	821	102	133	164
		B	682	14	389	345	230
		C	131	131	0	48	51
		D	359	202	30	5	167
		E	111	320	110	95	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
Junction 1	From	A	4	0	5	0
		B	Exit-only	Exit-only	Exit-only	Exit-only
		C	5	4	0	0
		D	0	25	3	0

Heavy Vehicle Percentages

		To					
		A	B	C	D	E	
Junction 2	From	A	0	6	0	0	10
		B	3	0	1	3	19
		C	2	0	0	4	0
		D	5	4	0	0	4
		E	24	5	1	2	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	A	4.62	1.5	A	970	1455
	B					
	C	198.11	75.0	F	1329	1993
	D	16.98	3.3	C	592	889
2	A	402.37	121.5	F	1122	1683
	B	8.97	4.8	A	1532	2298
	C	10.07	1.2	B	333	499
	D	8.37	2.0	A	701	1051
	E	114.94	27.3	F	582	873

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	802	200	730	802	900	0.0	0.8	3.297	A
	B			0		252				
	C	1126	281	19	1127	1259	0.0	5.2	14.875	B
	D	483	121	1146	483	0	0.0	0.9	6.560	A
2	A	927	232	680	927	968	0.0	2.4	8.538	A
	B	1259	315	482	1259	1126	0.0	1.6	4.377	A
	C	271	68	1267	270	474	0.0	0.4	5.096	A
	D	577	144	1067	578	470	0.0	0.6	4.167	A
	E	474	118	1174	475	471	0.0	1.4	8.881	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	949	237	871	950	1031	0.8	1.0	3.817	A
	B			0		295				
	C	1330	333	22	1297	1504	5.2	18.4	37.760	E
	D	582	146	1320	583	0	0.9	1.7	9.609	A
2	A	1101	275	807	1102	1158	2.4	4.9	14.716	B
	B	1504	376	579	1502	1330	1.6	2.5	5.582	A
	C	327	82	1507	326	575	0.4	0.6	6.067	A
	D	676	169	1270	677	563	0.6	1.0	4.917	A
	E	567	142	1395	570	551	1.4	2.1	12.975	B

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1153	288	1010	1153	1085	1.0	1.5	4.486	A
	B			0		307				
	C	1500	375	28	1355	1828	18.4	63.7	113.732	F
	D	711	178	1383	712	0	1.7	3.2	16.018	C
2	A	1337	334	966	1175	1414	4.9	36.4	61.569	F
	B	1828	457	641	1830	1500	2.5	4.8	8.968	A
	C	399	100	1792	398	679	0.6	1.1	8.094	A
	D	847	212	1523	844	667	1.0	1.9	6.514	A
	E	701	175	1714	666	653	2.1	10.5	36.106	E

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1168	292	1004	1168	1079	1.5	1.5	4.619	A
	B			0		307				
	C	1366	342	29	1347	1835	63.7	75.0	188.772	F
	D	708	177	1376	707	0	3.2	3.3	16.984	C
2	A	1352	338	938	1003	1411	36.4	110.9	256.251	F
	B	1835	459	574	1840	1366	4.8	4.2	8.928	A
	C	398	99	1752	397	661	1.1	1.2	10.074	B
	D	842	211	1506	843	643	1.9	2.0	8.369	A
	E	697	174	1723	625	626	10.5	27.3	110.508	F

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	953	238	882	953	1075	1.5	1.1	3.891	A
	B			0		306				
	C	1347	337	24	1350	1504	75.0	73.9	198.111	F
	D	582	145	1374	583	0	3.3	1.6	11.086	B
2	A	1093	273	857	1074	1162	110.9	121.5	402.368	F
	B	1504	376	583	1503	1347	4.2	2.6	5.980	A
	C	327	82	1506	325	581	1.2	0.9	8.425	A
	D	680	170	1260	681	571	2.0	1.3	6.655	A
	E	574	143	1396	623	545	27.3	14.2	114.943	F

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	797	199	794	797	1062	1.1	0.7	3.521	A
	B			0		311				
	C	1303	326	20	1349	1261	73.9	63.9	186.256	F
	D	489	122	1368	489	0	1.6	1.2	8.329	A
2	A	921	230	699	1171	991	121.5	63.5	257.910	F
	B	1261	315	567	1260	1303	2.6	1.8	4.779	A
	C	275	69	1326	276	501	0.9	0.4	6.537	A
	D	581	145	1099	581	503	1.3	0.8	5.213	A
	E	479	120	1192	497	488	14.2	2.6	35.011	E

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	396	1274	0.311	396	0.0	0.4	3.264	A
				2	A,C	405	1274	0.318	405	0.0	0.4	3.329	A
		Exit	1	1		900			900	0.0	0.0	0.000	A
	B	Exit	1	1		252			252	0.0	0.0	0.000	A
						1126	1352	0.833	1127	0.0	5.2	14.875	B
	C	Exit	1	1		1259			1259	0.0	0.0	0.000	A
					D	Entry	1	1	B,A	8	995	0.008	8
	2	C,D	475	995				0.478	476	0.0	0.9	6.563	A
	2	(A,B,C,D)	483				483	0.0	0.0	0.023	A		
	D	Exit	1	1		0			0	0.0	0.0	0.000	A
2					A	Entry	1	1	B	624	993	0.628	622
	2	A,C,D,E	305	993				0.307	305	0.0	0.4	5.288	A
	2	1	(A,B,C,D,E)	927				928	0.0	0.1	0.528	A	
	A	Exit	1	1		968			968	0.0	0.0	0.000	A
					B	Entry	1	1	B,C,D,A,E	632	1223	0.517	631
	2	A,B,C,D,E	627	1223				0.513	628	0.0	0.8	4.393	A
	B	Exit	1	1		1126			1126	0.0	0.0	0.000	A
					C	Entry	1	1	D,A,E	124	770	0.161	124
	2	A,B,C	147	770				0.191	146	0.0	0.3	5.157	A
	2	1	(A,B,C,D,E)	271				271	0.0	0.0	0.000	A	
C	Exit	1	1		474			474	0.0	0.0	0.000	A	
				D	Entry	1	1	A,E	270	1065	0.254	271	0.0
2	A,B,C,D	306	1065				0.288	307	0.0	0.3	4.271	A	
D	Exit	1	1		470			470	0.0	0.0	0.000	A	
				E	Entry	1	1	B,A	323	694	0.465	323	0.0
2	C,D,E	151	694				0.218	151	0.0	0.3	6.405	A	
2	1	(A,B,C,D,E)	474				474	0.0	0.0	0.000	A		
E	Exit	1	1		471			471	0.0	0.0	0.000	A	

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	467	1227	0.380	467	0.4	0.5	3.818	A	
				2	A,C	483	1227	0.393	483	0.4	0.5	3.816	A	
		Exit	1	1		1031			1031	0.0	0.0	0.000	A	
	B	Exit	1	1		295			295	0.0	0.0	0.000	A	
					C	Entry	1	1	B,C,D,A	1330	1351	0.985	1297	5.2
	Exit	1	1						1504			1504	0.0	0.0
	D	Entry	1	1	1	B,A	8	943	0.009	8	0.0	0.0	4.530	A
					2	C,D	574	943	0.609	574	0.9	1.6	9.454	A
		2	1	(A,B,C,D)	582			582	0.0	0.0	0.211	A		
	D	Exit	1	1		0			0	0.0	0.0	0.000	A	
2					A	Entry	1	1	B	739	958	0.772	738	1.9
	2	A,C,D,E	365	958				0.381	364	0.4	0.7	6.530	A	
	2	1	(A,B,C,D,E)	1101				1104	0.1	1.1	3.160	A		
	A	Exit	1	1		1158			1158	0.0	0.0	0.000	A	
					B	Entry	1	1	B,C,D,A,E	755	1193	0.633	754	0.8
	2	A,B,C,D,E	749	1193				0.628	749	0.8	1.2	5.576	A	
	B	Exit	1	1		1330			1330	0.0	0.0	0.000	A	
					C	Entry	1	1	D,A,E	151	707	0.214	150	0.2
	2	A,B,C	176	707				0.248	176	0.3	0.3	6.165	A	
	2	1	(A,B,C,D,E)	327				327	0.0	0.0	0.000	A		
C	Exit	1	1		575			575	0.0	0.0	0.000	A		
				D	Entry	1	1	A,E	316	1003	0.315	316	0.3	0.5
2	A,B,C,D	360	1003				0.359	360	0.3	0.6	5.055	A		
D	Exit	1	1		563			563	0.0	0.0	0.000	A		
				E	Entry	1	1	B,A	383	639	0.600	385	1.0	1.7
2	C,D,E	184	639				0.288	184	0.3	0.4	7.915	A		
2	1	(A,B,C,D,E)	567				568	0.0	0.0	0.031	A			
E	Exit	1	1		551			551	0.0	0.0	0.000	A		

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
	A	Entry	1	1	B,C	572	1182	0.484	572	0.5	0.7	4.475	A
				2	A,C	581	1182	0.492	581	0.5	0.8	4.496	A
		Exit	1	1		1085			1085	0.0	0.0	0.000	A

1	B	Exit	1	1		307			307	0.0	0.0	0.000	A
		Entry	1	1	B,C,D,A	1500	1348	1.112	1355	18.4	63.7	113.732	F
	C	Exit	1	1		1828			1828	0.0	0.0	0.000	A
		D	Entry	1	1	B,A	11	923	0.012	11	0.0	0.0	5.072
2	C,D				700	923	0.759	701	1.6	2.8	14.265	B	
2	1		(A,B,C,D)	711			712	0.0	0.4	1.848	A		
	Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	793	914	0.868	787	3.1	6.1	23.447	C
				2	A,C,D,E	386	914	0.423	388	0.7	0.9	8.461	A
		2	1	(A,B,C,D,E)	1337			1179	1.1	29.4	42.397	E	
		Exit	1	1		1414			1414	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	913	1175	0.777	914	1.3	2.4	8.985	A
				2	A,B,C,D,E	915	1175	0.779	916	1.2	2.4	8.952	A
		Exit	1	1		1501			1500	0.0	0.1	0.119	A
	C	Entry	1	1	D,A,E	190	632	0.300	189	0.3	0.4	7.363	A
				2	A,B,C	209	632	0.331	209	0.3	0.6	8.735	A
		2	1	(A,B,C,D,E)	399			399	0.0	0.0	0.001	A	
		Exit	1	1		679			679	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	412	926	0.445	412	0.5	0.7	5.935	A
				2	A,B,C,D	435	926	0.470	432	0.6	1.1	7.042	A
		Exit	1	1		667			667	0.0	0.0	0.000	A
	E	Entry	1	1	B,A	465	560	0.830	450	1.7	6.9	39.549	E
				2	C,D,E	215	560	0.384	216	0.4	0.7	10.636	B
2		1	(A,B,C,D,E)	701			680	0.0	2.9	5.502	A		
Exit		1	1		653			653	0.0	0.0	0.000	A	

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	578	1184	0.488	578	0.7	0.7	4.596	A	
				2	A,C	590	1184	0.499	590	0.8	0.8	4.642	A	
		Exit	1	1		1079			1079	0.0	0.0	0.000	A	
	B	Exit	1	1		307			307	0.0	0.0	0.000	A	
					C	Entry	1	1	B,C,D,A	1366	1348	1.014	1347	63.7
	Exit	1	1						1835			1835	0.0	0.0
	D	Entry	1	1	1	B,A	11	925	0.012	11	0.0	0.0	4.907	A
					2	C,D	696	925	0.752	695	2.8	2.8	14.958	B
2				1	(A,B,C,D)	708			707	0.4	0.4	2.143	A	
		Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	673	921	0.730	673	6.1	6.8	33.659	D	
				2	A,C,D,E	330	921	0.358	330	0.9	0.7	8.488	A	
		2	1	(A,B,C,D,E)	1352			1002	29.4	103.3	230.817	F		
		Exit	1	1		1411			1411	0.0	0.0	0.000	A	
	B	Entry	1	1	B,C,D,A,E	918	1195	0.768	920	2.4	2.1	8.913	A	
				2	A,B,C,D,E	917	1195	0.768	920	2.4	2.1	8.943	A	
		Exit	1	1		1367			1366	0.1	0.3	0.595	A	
	C	Entry	1	1	D,A,E	192	643	0.299	193	0.4	0.4	7.610	A	
				2	A,B,C	205	643	0.319	203	0.6	0.9	12.335	B	
		2	1	(A,B,C,D,E)	398			398	0.0	0.0	0.005	A		
		Exit	1	1		661			661	0.0	0.0	0.000	A	
	D	Entry	1	1	A,E	420	931	0.451	423	0.7	0.6	6.402	A	
2				A,B,C,D	422	931	0.454	421	1.1	1.4	10.295	B		
	Exit	1	1		643			643	0.0	0.0	0.000	A		
E	Entry	1	1	B,A	433	558	0.777	421	6.9	11.2	79.403	F		
			2	C,D,E	205	558	0.368	205	0.7	0.7	12.183	B		
	2	1	(A,B,C,D,E)	697			639	2.9	15.4	52.390	F			
	Exit	1	1		626			626	0.0	0.0	0.000	A		

18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	471	1224	0.385	472	0.7	0.5	3.849	A	
				2	A,C	481	1224	0.393	481	0.8	0.6	3.933	A	
		Exit	1	1		1075			1075	0.0	0.0	0.000	A	
	B	Exit	1	1		306			306	0.0	0.0	0.000	A	
					C	Entry	1	1	B,C,D,A	1347	1350	0.998	1350	75.0
	Exit	1	1						1504			1504	0.0	0.0
	D	Entry	1	1	1	B,A	9	926	0.010	9	0.0	0.0	4.853	A
					2	C,D	572	926	0.618	573	2.8	1.6	10.686	B
2		1	(A,B,C,D)	582			581	0.4	0.0	0.527	A			
	Exit	1	1		0			0	0.0	0.0	0.000	A		

2	A	Entry	1	1	B	719	944	0.761	720	6.8	6.6	34.185	D
			2	2	A,C,D,E	353	944	0.374	354	0.7	0.8	8.248	A
		Exit	1	1	(A,B,C,D,E)	1093			1071	103.3	114.2	377.719	F
	B	Entry	1	1	B,C,D,A,E	752	1192	0.631	751	2.1	1.3	5.997	A
			2	2	A,B,C,D,E	753	1192	0.631	752	2.1	1.3	5.964	A
		Exit	1	1		1347			1347	0.3	0.3	0.682	A
	C	Entry	1	1	D,A,E	158	707	0.223	157	0.4	0.3	6.327	A
			2	2	A,B,C	169	707	0.239	168	0.9	0.5	10.346	B
		Exit	1	1	(A,B,C,D,E)	327			327	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	331	1006	0.329	331	0.6	0.5	5.103	A
			2	2	A,B,C,D	350	1006	0.348	350	1.4	0.8	8.134	A
		Exit	1	1		571			571	0.0	0.0	0.000	A
	E	Entry	1	1	B,A	411	639	0.643	426	11.2	6.9	74.705	F
			2	2	C,D,E	197	639	0.308	197	0.7	0.6	10.496	B
		Exit	1	1	(A,B,C,D,E)	574			608	15.4	6.7	63.985	F
Exit	1	1		545			545	0.0	0.0	0.000	A		

18:15 - 18:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	394	1253	0.314	394	0.5	0.3	3.492	A
			2	2	A,C	403	1253	0.322	403	0.6	0.3	3.550	A
		Exit	1	1		1062			1062	0.0	0.0	0.000	A
	B	Exit	1	1		311			311	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1303	1352	0.964	1349	73.9	63.9	186.256	F
		Exit	1	1		1261			1261	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	7	928	0.007	7	0.0	0.0	4.703	A
			2	2	C,D	482	928	0.520	482	1.6	1.2	8.284	A
		Exit	1	1	(A,B,C,D)	489			489	0.0	0.0	0.100	A
Exit	1	1		0			0	0.0	0.0	0.000	A		
2	A	Entry	1	1	B	782	988	0.792	789	6.6	5.4	28.194	D
			2	2	A,C,D,E	383	988	0.388	382	0.8	0.9	8.009	A
		Exit	1	1	(A,B,C,D,E)	921			1165	114.2	57.3	238.298	F
	B	Exit	1	1		991			991	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	630	1197	0.527	630	1.3	0.9	4.761	A
			2	2	A,B,C,D,E	630	1197	0.527	630	1.3	0.9	4.797	A
		Exit	1	1		1303			1303	0.3	0.1	0.445	A
	C	Entry	1	1	D,A,E	129	754	0.172	130	0.3	0.2	5.508	A
			2	2	A,B,C	145	754	0.193	146	0.5	0.3	7.443	A
		Exit	1	1	(A,B,C,D,E)	275			275	0.0	0.0	0.000	A
	Exit	1	1		501			501	0.0	0.0	0.000	A	
	D	Entry	1	1	A,E	275	1055	0.261	276	0.5	0.3	4.378	A
			2	2	A,B,C,D	305	1055	0.290	305	0.8	0.5	5.972	A
		Exit	1	1		503			503	0.0	0.0	0.000	A
	E	Entry	1	1	B,A	331	689	0.481	338	6.9	1.9	33.276	D
2			2	C,D,E	159	689	0.230	159	0.6	0.3	7.616	A	
Exit		1	1	(A,B,C,D,E)	479			490	6.7	0.4	12.985	B	
Exit	1	1		488			488	0.0	0.0	0.000	A		

M20 Junction 6 - 2031, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 6 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Junction 1 - Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm E - Lane Simulation	Arm E: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Linked junction	Junction 2 - Arm B	Linked arm: Junction 2 Arm B has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 6 North	Standard Roundabout	A,B,C,D	64.34	F
2	M20 Junction 6 South	Standard Roundabout	A,B,C,D,E	199.95	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2031	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	C	2	B	Simple (vertical queueing)	Normal	0	100.00	
2	B	1	C	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	1625	100.000
	B					
	C	✓				
	D		ONE HOUR	✓	686	100.000
2	A		ONE HOUR	✓	1465	100.000
	B	✓				
	C		ONE HOUR	✓	457	100.000
	D		ONE HOUR	✓	741	100.000
	E		ONE HOUR	✓	607	100.000

Origin-Destination Data

		Demand (PCU/hr)			
		To			
Junction 1		A	B	C	D
		A	13	0	1612

	B	Exit-only	Exit-only	Exit-only	Exit-only
From	C	1244	230	21	0
	D	0	9	677	0

Demand (PCU/hr)

		To					
		A	B	C	D	E	
Junction 2	From	A	4	1056	13	182	210
		B	1414	0	123	459	317
		C	243	71	0	24	119
		D	435	124	28	16	138
		E	186	244	73	104	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
Junction 1	From	A	0	0	3	0
		B	Exit-only	Exit-only	Exit-only	Exit-only
		C	8	14	13	0
		D	0	0	11	0

Heavy Vehicle Percentages

		To					
		A	B	C	D	E	
Junction 2	From	A	0	8	0	2	4
		B	3	0	5	6	19
		C	2	7	0	0	4
		D	6	5	4	0	7
		E	28	20	0	12	7

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	A	8.84	5.7	A	1494	2241
	B					
	C	146.34	55.6	F	1323	1985
	D	23.84	5.8	C	632	948
2	A	383.15	141.9	F	1346	2019
	B	116.87	96.1	F	2119	3179
	C	23.18	3.4	C	415	622
	D	12.70	3.1	B	682	1023
	E	434.84	72.9	F	556	834

Main Results for each time segment

07:15 - 07:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1226	307	705	1227	944	0.0	1.4	3.828	A
	B			0		178				
	C	1126	282	10	1120	1744	0.0	5.9	15.548	C
	D	519	130	1130	518	0	0.0	1.4	7.770	A
2	A	1106	277	505	1102	1725	0.0	4.7	12.638	B
	B	1744	436	482	1746	1126	0.0	3.4	6.376	A
	C	339	85	2049	339	178	0.0	0.7	7.189	A
	D	554	139	1798	553	590	0.0	1.0	5.236	A

	E	464	116	1762	468	589	0.0	2.3	15.241	C
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07:30 - 07:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1464	366	825	1462	1076	1.4	2.1	4.844	A
	B			0		206				
	C	1319	330	12	1278	2070	5.9	17.6	35.172	E
	D	615	154	1290	612	0	1.4	2.3	11.483	B
2	A	1326	332	586	1291	2049	4.7	14.9	30.832	D
	B	2070	518	558	2065	1319	3.4	7.6	12.015	B
	C	405	101	2409	407	214	0.7	1.2	11.018	B
	D	669	167	2117	667	699	1.0	1.5	7.240	A
	E	551	138	2096	539	688	2.3	7.0	34.525	D

07:45 - 08:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1790	447	992	1791	1134	2.1	3.8	7.510	A
	B			0		216				
	C	1412	353	15	1346	2551	17.6	37.3	77.870	F
	D	766	192	1361	765	0	2.3	5.1	21.060	C
2	A	1618	404	634	1381	2356	14.9	75.2	122.457	F
	B	2551	638	603	2370	1412	7.6	56.2	52.255	F
	C	498	125	2731	492	242	1.2	3.4	19.326	C
	D	815	204	2437	813	785	1.5	3.0	11.250	B
	E	671	168	2451	540	800	7.0	36.6	147.674	F

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1806	452	975	1786	1141	3.8	5.7	8.844	A
	B			0		215				
	C	1393	348	14	1353	2531	37.3	50.4	119.065	F
	D	760	190	1367	749	0	5.1	5.8	23.837	C
2	A	1607	402	619	1341	2366	75.2	141.9	294.299	F
	B	2531	633	568	2379	1393	56.2	96.1	116.867	F
	C	499	125	2715	501	232	3.4	3.1	23.176	C
	D	819	205	2442	820	774	3.0	3.1	12.704	B
	E	657	164	2475	511	787	36.6	72.9	379.114	F

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1457	364	853	1458	1129	5.7	2.3	6.519	A
	B			0		218				
	C	1365	341	11	1347	2082	50.4	55.6	141.853	F
	D	615	154	1358	623	0	5.8	2.6	19.919	C
2	A	1322	331	613	1331	2192	141.9	138.4	383.148	F
	B	2082	521	579	2266	1365	96.1	39.4	102.493	F
	C	402	101	2617	404	227	3.1	1.7	17.372	C
	D	679	170	2275	678	746	3.1	1.8	9.593	A
	E	537	134	2220	585	733	72.9	66.6	434.836	F

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1222	305	738	1223	1126	2.3	1.4	4.167	A
	B			0		212				
	C	1327	332	10	1341	1738	55.6	55.4	146.338	F
	D	515	129	1351	513	0	2.6	1.7	10.501	B
2	A	1098	275	605	1281	1793	138.4	89.5	295.356	F
	B	1738	434	559	1771	1327	39.4	4.4	23.401	C
	C	346	87	2136	347	195	1.7	0.9	10.691	B
	D	558	140	1846	559	636	1.8	0.9	6.675	A
	E	455	114	1785	613	620	66.6	23.7	216.304	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	609	1282	0.475	609	0.0	0.7	3.847	A
				2	A,C	617	1282	0.482	618	0.0	0.7	3.810	A
		Exit	1	1		944			944	0.0	0.0	0.000	A
	B	Exit	1	1		178			178	0.0	0.0	0.000	A
						1126	1356	0.831	1120	0.0	5.9	15.548	C
	C	Exit	1	1		1744			1744	0.0	0.0	0.000	A
						6	1000	0.006	6	0.0	0.0	3.301	A
	D	Entry	1	1	B,A	6	1000	0.006	6	0.0	0.0	3.301	A
				2	C,D	514	1000	0.514	512	0.0	1.4	7.705	A
			2	1	(A,B,C,D)	519			520	0.0	0.0	0.129	A
	Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	793	1041	0.761	792	0.0	3.1	12.085	B
				2	A,C,D,E	311	1041	0.299	310	0.0	0.5	5.070	A
				2	1	(A,B,C,D,E)	1106			1104	0.0	1.1	2.548
		Exit	1	1		1725			1725	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	877	1223	0.717	877	0.0	1.7	6.370	A
				2	A,B,C,D,E	867	1223	0.709	869	0.0	1.7	6.383	A
		Exit	1	1		1126			1126	0.0	0.0	0.000	A
	C	Entry	1	1	D,A,E	189	565	0.335	190	0.0	0.4	7.206	A
				2	A,B,C	150	565	0.265	149	0.0	0.3	7.166	A
			2	1	(A,B,C,D,E)	339			339	0.0	0.0	0.000	A
		Exit	1	1		178			178	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	267	842	0.318	267	0.0	0.5	5.280	A
				2	A,B,C,D	287	842	0.341	286	0.0	0.5	5.197	A
		Exit	1	1		590			590	0.0	0.0	0.000	A
	E	Entry	1	1	B,A	325	548	0.592	330	0.0	1.8	18.369	C
				2	C,D,E	139	548	0.254	138	0.0	0.4	8.301	A
2			1	(A,B,C,D,E)	464			464	0.0	0.0	0.151	A	
	Exit	1	1		589			589	0.0	0.0	0.000	A	

07:30 - 07:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	727	1242	0.585	726	0.7	1.1	4.829	A
				2	A,C	737	1242	0.593	737	0.7	1.1	4.859	A
		Exit	1	1		1076			1076	0.0	0.0	0.000	A
	B	Exit	1	1		206			206	0.0	0.0	0.000	A
						1319	1355	0.973	1278	5.9	17.6	35.172	E
	C	Exit	1	1		2070			2070	0.0	0.0	0.000	A
						9	952	0.009	9	0.0	0.0	3.965	A
	D	Entry	1	1	B,A	9	952	0.009	9	0.0	0.0	3.965	A
				2	C,D	605	952	0.636	603	1.4	2.1	10.998	B
			2	1	(A,B,C,D)	615			614	0.0	0.2	0.577	A
	Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	937	1019	0.920	933	3.1	5.2	18.183	C
				2	A,C,D,E	359	1019	0.352	358	0.5	0.6	6.118	A
				2	1	(A,B,C,D,E)	1326			1296	1.1	9.0	16.026
		Exit	1	1		2049			2049	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	1040	1200	0.866	1037	1.7	3.8	11.967	B
				2	A,B,C,D,E	1031	1200	0.859	1029	1.7	3.8	12.064	B
		Exit	1	1		1319			1319	0.0	0.0	0.000	A
	C	Entry	1	1	D,A,E	223	471	0.473	224	0.4	0.7	11.512	B
				2	A,B,C	182	471	0.386	183	0.3	0.5	10.409	B
			2	1	(A,B,C,D,E)	405			405	0.0	0.0	0.000	A
		Exit	1	1		214			214	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	330	744	0.444	330	0.5	0.7	7.091	A
				2	A,B,C,D	338	744	0.455	338	0.5	0.8	7.381	A
		Exit	1	1		699			699	0.0	0.0	0.000	A
	E	Entry	1	1	B,A	385	466	0.825	380	1.8	5.3	40.677	E
				2	C,D,E	160	466	0.344	159	0.4	0.8	12.342	B
2			1	(A,B,C,D,E)	551			545	0.0	1.0	2.715	A	
	Exit	1	1		688			688	0.0	0.0	0.000	A	

07:45 - 08:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	899	1187	0.757	899	1.1	1.9	7.496	A
				2	A,C	891	1187	0.750	892	1.1	1.9	7.524	A
	B	Exit	1	1		1134			1134	0.0	0.0	0.000	A
						216			216	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1412	1353	1.043	1346	17.6	37.3	77.870	F
						2551			2551	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	9	930	0.010	9	0.0	0.0	3.938	A
					C,D	753	930	0.810	755	2.1	3.6	16.622	C
		Exit	1	1	(A,B,C,D)	766			763	0.2	1.4	4.538	A
						0			0	0.0	0.0	0.000	A
2	A	Entry	1	1	B	992	1005	0.987	991	5.2	6.7	23.512	C
				2	A,C,D,E	388	1005	0.386	390	0.6	0.7	7.092	A
				2	(A,B,C,D,E)	1618			1380	9.0	67.8	103.508	F
	Exit	1	1		2356			2356	0.0	0.0	0.000	A	
					1278	1186	1.078	1187	3.8	28.2	52.351	F	
	B	Entry	1	2	B,C,D,A,E	1273	1186	1.073	1183	3.8	28.0	52.159	F
					A,B,C,D,E	1412			1412	0.0	0.0	0.016	A
	C	Entry	1	1	D,A,E	270	387	0.699	266	0.7	1.9	20.119	C
					A,B,C	227	387	0.588	226	0.5	1.4	17.840	C
		Exit	1	1	(A,B,C,D,E)	498			498	0.0	0.1	0.201	A
						242			242	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	403	647	0.622	402	0.7	1.4	10.992	B
					A,B,C,D	412	647	0.637	411	0.8	1.6	11.496	B
	Exit	1	1		785			785	0.0	0.0	0.000	A	
				387	378	1.024	376	5.3	12.7	95.471	F		
E	Entry	1	2	B,A	163	378	0.432	164	0.8	1.1	21.005	C	
				C,D,E	671			551	1.0	22.9	72.479	F	
	Exit	1	1	(A,B,C,D,E)	800			800	0.0	0.0	0.000	A	

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	904	1193	0.758	895	1.9	2.8	8.809	A
				2	A,C	902	1193	0.756	891	1.9	2.9	8.878	A
	B	Exit	1	1		1141			1141	0.0	0.0	0.000	A
						215			215	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1393	1354	1.028	1353	37.3	50.4	119.065	F
						2531			2531	0.0	0.0	0.017	A
	D	Entry	1	1	B,A	10	928	0.011	10	0.0	0.0	3.934	A
					C,D	741	928	0.799	739	3.6	3.8	17.653	C
		Exit	1	1	(A,B,C,D)	760			751	1.4	2.0	6.263	A
						0			0	0.0	0.0	0.000	A
2	A	Entry	1	1	B	968	1009	0.959	969	6.7	6.7	24.771	C
				2	A,C,D,E	373	1009	0.370	372	0.7	0.8	7.251	A
				2	(A,B,C,D,E)	1607			1342	67.8	134.4	274.487	F
	Exit	1	1		2366			2366	0.0	0.0	0.000	A	
					1269	1197	1.061	1193	28.2	48.0	117.018	F	
	B	Entry	1	2	B,C,D,A,E	1262	1197	1.054	1186	28.0	48.1	116.717	F
A,B,C,D,E					1392			1393	0.0	0.0	0.075	A	
C	Entry	1	1	D,A,E	267	391	0.682	266	1.9	1.8	24.035	C	
				A,B,C	232	391	0.595	235	1.4	1.3	21.513	C	
	Exit	1	1	(A,B,C,D,E)	499			499	0.1	0.0	0.349	A	
					232			232	0.0	0.0	0.000	A	
D	Entry	1	1	A,E	405	645	0.627	406	1.4	1.4	12.212	B	
				A,B,C,D	415	645	0.643	415	1.6	1.7	13.180	B	
Exit	1	1		774			774	0.0	0.0	0.000	A		
				364	372	0.978	365	12.7	13.5	129.714	F		
E	Entry	1	2	B,A	145	372	0.389	145	1.1	1.0	24.489	C	
				C,D,E	657			509	22.9	58.4	286.140	F	
	Exit	1	1	(A,B,C,D,E)	787			787	0.0	0.0	0.000	A	

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	725	1233	0.588	724	2.8	1.2	6.496	A
				2	A,C	733	1233	0.594	734	2.9	1.1	6.542	A
	B	Exit	1	1		1129			1129	0.0	0.0	0.000	A
						218			218	0.0	0.0	0.000	A
C	Entry	1	1	B,C,D,A	1365	1355	1.007	1347	50.4	55.6	141.853	F	

	Exit	1	1		2082			2082	0.0	0.0	0.026	A	
D	Entry	1	1	B,A	8	931	0.009	8	0.0	0.0	4.074	A	
			2	C,D	611	931	0.656	615	3.8	2.2	14.511	B	
	Exit	1	1	(A,B,C,D)	615			619	2.0	0.4	5.820	A	
					0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	961	1011	0.950	961	6.7	6.7	25.183	D
				2	A,C,D,E	372	1011	0.367	369	0.8	0.9	7.160	A
		Exit	1	1	(A,B,C,D,E)	1322			1333	134.4	130.8	363.052	F
						2192			2192	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	1040	1193	0.871	1133	48.0	19.7	102.495	F
				2	A,B,C,D,E	1043	1193	0.874	1133	48.1	19.7	102.492	F
	Exit	1	1		1364			1365	0.0	0.0	0.121	A	
					227			227	0.0	0.0	0.000	A	
	C	Entry	1	1	D,A,E	220	416	0.528	221	1.8	1.0	18.265	C
				2	A,B,C	182	416	0.438	183	1.3	0.8	16.239	C
		Exit	1	1	(A,B,C,D,E)	402			402	0.0	0.0	0.039	A
						227			227	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	337	696	0.484	337	1.4	0.8	9.061	A
				2	A,B,C,D	342	696	0.491	341	1.7	0.9	10.114	B
	Exit	1	1		746			746	0.0	0.0	0.000	A	
					412	435	0.946	415	13.5	12.9	116.333	F	
E	Entry	1	1	B,A	412	435	0.386	169	1.0	0.9	21.326	C	
			2	C,D,E	168	435	0.386	169	1.0	0.9	21.326	C	
	Exit	1	1	(A,B,C,D,E)	537			580	58.4	52.9	354.499	F	
					733			733	0.0	0.0	0.000	A	

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	612	1271	0.482	613	1.2	0.7	4.137	A
				2	A,C	610	1271	0.479	610	1.1	0.7	4.196	A
	Exit	1	1		1126			1126	0.0	0.0	0.000	A	
					212			212	0.0	0.0	0.000	A	
	C	Entry	1	1	B,C,D,A	1327	1356	0.979	1341	55.6	55.4	146.338	F
				Exit	1	1		1738			1738	0.0	0.0
	D	Entry	1	1	B,A	7	933	0.007	7	0.0	0.0	3.820	A
				2	C,D	508	933	0.544	506	2.2	1.6	9.941	A
Exit		1	1	(A,B,C,D)	515			514	0.4	0.0	0.708	A	
					0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	922	1013	0.909	924	6.7	6.4	25.150	D
				2	A,C,D,E	356	1013	0.352	357	0.9	0.7	7.027	A
		Exit	1	1	(A,B,C,D,E)	1098			1278	130.8	82.4	275.436	F
						1793			1793	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	863	1199	0.720	880	19.7	2.2	23.424	C
				2	A,B,C,D,E	875	1199	0.729	891	19.7	2.2	23.379	C
	Exit	1	1		1327			1327	0.0	0.0	0.133	A	
					193	542	0.355	193	1.0	0.5	11.068	B	
	C	Entry	1	1	D,A,E	193	542	0.283	153	0.8	0.4	10.213	B
				2	A,B,C	154	542	0.283	153	0.8	0.4	10.213	B
		Exit	1	1	(A,B,C,D,E)	346			346	0.0	0.0	0.000	A
						195			195	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	272	827	0.329	273	0.8	0.4	6.545	A
				2	A,B,C,D	286	827	0.346	286	0.9	0.5	6.798	A
	Exit	1	1		636			636	0.0	0.0	0.000	A	
					418	543	0.770	442	12.9	7.8	85.835	F	
E	Entry	1	1	B,A	418	543	0.316	171	0.9	0.6	16.177	C	
			2	C,D,E	171	543	0.316	171	0.9	0.6	16.177	C	
	Exit	1	1	(A,B,C,D,E)	455			589	52.9	15.2	161.206	F	
					620			620	0.0	0.0	0.000	A	

M20 Junction 6 - 2031, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 6 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Junction 1 - Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm E - Lane Simulation	Arm E: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Linked junction	Junction 2 - Arm B	Linked arm: Junction 2 Arm B has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 6 North	Standard Roundabout	A,B,C,D	95.82	F
2	M20 Junction 6 South	Standard Roundabout	A,B,C,D,E	269.38	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2031	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	C	2	B	Simple (vertical queueing)	Normal	0	100.00	
2	B	1	C	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	1145	100.000
	B					
	C	✓				
	D		ONE HOUR	✓	698	100.000
2	A		ONE HOUR	✓	1324	100.000
	B	✓				
	C		ONE HOUR	✓	391	100.000
	D		ONE HOUR	✓	825	100.000
	E		ONE HOUR	✓	688	100.000

Origin-Destination Data

		Demand (PCU/hr)			
		To			
Junction 1		A	B	C	D
		A	28	0	1117

	B	Exit-only	Exit-only	Exit-only	Exit-only
From	C	1256	356	2	0
	D	0	11	687	0

Demand (PCU/hr)

		To					
		A	B	C	D	E	
Junction 2	From	A	3	889	110	144	178
		B	739	15	421	374	249
		C	142	142	0	52	55
		D	388	219	32	5	181
		E	120	346	119	103	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
Junction 1	From	A	4	0	5	0
		B	Exit-only	Exit-only	Exit-only	Exit-only
		C	5	4	0	0
		D	0	25	3	0

Heavy Vehicle Percentages

		To					
		A	B	C	D	E	
Junction 2	From	A	0	6	0	0	10
		B	3	0	1	3	19
		C	2	0	0	4	0
		D	5	4	0	0	4
		E	24	5	1	2	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	A	5.01	1.9	A	1052	1578
	B					
	C	200.95	75.8	F	1353	2029
	D	22.70	4.8	C	639	958
2	A	805.49	255.3	F	1218	1828
	B	11.64	6.8	B	1655	2483
	C	12.06	1.5	B	359	538
	D	10.68	2.8	B	755	1132
	E	366.15	71.8	F	630	945

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	866	217	788	865	961	0.0	1.0	3.462	A
	B			0		268				
	C	1204	301	22	1200	1363	0.0	8.0	19.809	C
	D	529	132	1221	527	0	0.0	1.2	7.332	A
2	A	1000	250	733	995	1042	0.0	3.6	10.008	B
	B	1363	341	524	1361	1204	0.0	2.0	4.695	A
	C	296	74	1367	295	518	0.0	0.5	5.321	A
	D	616	154	1154	615	509	0.0	0.9	4.282	A

	E	514	128	1266	510	503	0.0	1.9	9.747	A
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17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1025	256	912	1027	1066	1.0	1.1	4.045	A
	B			0		304				
	C	1441	360	24	1338	1611	8.0	34.7	60.597	F
	D	618	155	1362	616	0	1.2	2.2	11.411	B
2	A	1193	298	874	1178	1252	3.6	9.3	21.583	C
	B	1611	403	611	1611	1441	2.0	3.1	6.386	A
	C	354	88	1608	354	614	0.5	0.7	6.570	A
	D	741	185	1359	741	603	0.9	1.1	5.354	A
	E	614	154	1512	614	588	1.9	3.1	16.189	C

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1251	313	1059	1251	1080	1.1	1.7	4.871	A
	B			0		312				
	C	1420	355	32	1350	1967	34.7	73.9	156.339	F
	D	759	190	1382	758	0	2.2	4.6	19.988	C
2	A	1459	365	962	1047	1496	9.3	86.2	147.947	F
	B	1967	492	588	1972	1420	3.1	6.8	11.516	B
	C	427	107	1871	426	689	0.7	1.5	9.923	A
	D	900	225	1608	898	690	1.1	2.5	8.228	A
	E	757	189	1840	618	666	3.1	28.0	85.315	F

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1276	319	1067	1275	1091	1.7	1.9	5.008	A
	B			0		307				
	C	1357	339	32	1356	2004	73.9	75.8	200.945	F
	D	771	193	1388	770	0	4.6	4.8	22.700	C
2	A	1463	366	939	970	1506	86.2	206.4	538.527	F
	B	2004	501	552	2001	1357	6.8	6.3	11.642	B
	C	433	108	1865	434	688	1.5	1.4	12.059	B
	D	903	226	1625	903	674	2.5	2.8	10.677	B
	E	756	189	1863	581	665	28.0	71.8	312.300	F

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1029	257	928	1027	1080	1.9	1.3	4.228	A
	B			0		309				
	C	1358	339	24	1357	1622	75.8	75.2	200.495	F
	D	629	157	1381	627	0	4.8	2.4	13.790	B
2	A	1203	301	930	1012	1264	206.4	255.3	805.486	F
	B	1622	405	584	1623	1358	6.3	3.0	6.995	A
	C	350	88	1592	348	616	1.4	1.1	9.647	A
	D	745	186	1343	745	597	2.8	1.5	7.731	A
	E	623	156	1522	672	566	71.8	62.8	366.146	F

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	863	216	824	864	1069	1.3	0.8	3.672	A
	B			0		302				
	C	1338	334	22	1342	1364	75.2	73.5	197.624	F
	D	526	131	1364	528	0	2.4	1.2	9.432	A
2	A	993	248	840	1077	1083	255.3	239.3	681.831	F
	B	1364	341	578	1365	1338	3.0	2.1	5.286	A
	C	292	73	1405	293	539	1.1	0.6	7.903	A
	D	624	156	1161	623	536	1.5	1.0	6.061	A
	E	515	129	1277	645	507	62.8	24.4	190.756	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	426	1255	0.340	426	0.0	0.4	3.450	A	
				2	A,C	440	1255	0.351	439	0.0	0.5	3.474	A	
		Exit	1	1		961			961	0.0	0.0	0.000	A	
	B	Exit	1	1		268			268	0.0	0.0	0.000	A	
						1204	1351	0.891	1200	0.0	8.0	19.809	C	
	C	Exit	1	1		1363			1363	0.0	0.0	0.000	A	
						8	973	0.009	8	0.0	0.0	4.332	A	
	D	Entry	1	1	1	B,A	8	973	0.009	8	0.0	0.0	4.332	A
					2	C,D	521	973	0.536	519	0.0	1.2	7.320	A
				2	1	(A,B,C,D)	529			529	0.0	0.0	0.051	A
	Exit	1	1		0			0	0.0	0.0	0.000	A		
2	A	Entry	1	1	B	666	978	0.681	664	0.0	2.5	10.648	B	
				2	A,C,D,E	333	978	0.340	331	0.0	0.6	5.539	A	
				2	1	(A,B,C,D,E)	1000			998	0.0	0.5	1.045	A
		Exit	1	1		1042			1042	0.0	0.0	0.000	A	
	B	Entry	1	1	1	B,C,D,A,E	685	1210	0.566	684	0.0	1.0	4.680	A
					2	A,B,C,D,E	678	1210	0.561	677	0.0	1.0	4.710	A
		Exit	1	1		1204			1204	0.0	0.0	0.000	A	
	C	Entry	1	1	1	D,A,E	134	743	0.181	134	0.0	0.3	5.315	A
					2	A,B,C	162	743	0.218	162	0.0	0.2	5.326	A
				2	1	(A,B,C,D,E)	296			296	0.0	0.0	0.000	A
		Exit	1	1		518			518	0.0	0.0	0.000	A	
	D	Entry	1	1	1	A,E	288	1038	0.278	288	0.0	0.4	4.144	A
					2	A,B,C,D	327	1038	0.315	327	0.0	0.5	4.401	A
		Exit	1	1		509			509	0.0	0.0	0.000	A	
	E	Entry	1	1	1	B,A	347	671	0.518	344	0.0	1.5	11.278	B
					2	C,D,E	166	671	0.248	166	0.0	0.4	6.772	A
2				1	(A,B,C,D,E)	514			514	0.0	0.0	0.001	A	
Exit		1	1		503			503	0.0	0.0	0.000	A		

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	507	1214	0.418	508	0.4	0.5	4.020	A	
				2	A,C	518	1214	0.427	519	0.5	0.6	4.069	A	
		Exit	1	1		1066			1066	0.0	0.0	0.000	A	
	B	Exit	1	1		304			304	0.0	0.0	0.000	A	
						1441	1350	1.068	1338	8.0	34.7	60.597	F	
	C	Exit	1	1		1611			1611	0.0	0.0	0.000	A	
						9	930	0.010	9	0.0	0.0	5.074	A	
	D	Entry	1	1	1	B,A	9	930	0.010	9	0.0	0.0	5.074	A
					2	C,D	609	930	0.655	607	1.2	2.1	11.017	B
				2	1	(A,B,C,D)	618			618	0.0	0.1	0.453	A
	Exit	1	1		0			0	0.0	0.0	0.000	A		
2	A	Entry	1	1	B	803	939	0.855	799	2.5	4.2	16.836	C	
				2	A,C,D,E	379	939	0.404	379	0.6	0.8	7.087	A	
				2	1	(A,B,C,D,E)	1193			1183	0.5	4.2	7.866	A
		Exit	1	1		1252			1252	0.0	0.0	0.000	A	
	B	Entry	1	1	1	B,C,D,A,E	804	1184	0.679	804	1.0	1.5	6.390	A
					2	A,B,C,D,E	807	1184	0.682	808	1.0	1.5	6.381	A
		Exit	1	1		1441			1441	0.0	0.0	0.000	A	
	C	Entry	1	1	1	D,A,E	166	680	0.244	166	0.3	0.3	6.451	A
					2	A,B,C	188	680	0.276	187	0.2	0.4	6.670	A
				2	1	(A,B,C,D,E)	354			354	0.0	0.0	0.000	A
		Exit	1	1		614			614	0.0	0.0	0.000	A	
	D	Entry	1	1	1	A,E	349	976	0.357	349	0.4	0.5	5.204	A
					2	A,B,C,D	393	976	0.402	393	0.5	0.6	5.486	A
		Exit	1	1		603			603	0.0	0.0	0.000	A	
	E	Entry	1	1	1	B,A	417	610	0.683	416	1.5	2.5	19.647	C
					2	C,D,E	197	610	0.323	197	0.4	0.5	8.762	A
2				1	(A,B,C,D,E)	614			614	0.0	0.1	0.167	A	
Exit		1	1		588			588	0.0	0.0	0.000	A		

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	619	1165	0.531	619	0.5	0.8	4.848	A	
		Exit	1	1	A,C	632	1165	0.542	632	0.6	0.8	4.894	A	
	B	Exit	1	1		1080			1080	0.0	0.0	0.000	A	
	C	Entry	1	1	B,C,D,A	1420	1347	1.054	1350	34.7	73.9	156.339	F	
		Exit	1	1		1967			1967	0.0	0.0	0.000	A	
	D	Entry	1	1	B,A	12	924	0.013	12	0.0	0.0	4.924	A	
			2	1	C,D	747	924	0.809	746	2.1	3.5	16.389	C	
		Exit	1	1	(A,B,C,D)	759			759	0.1	1.0	3.690	A	
			Exit	1	1		0			0	0.0	0.0	0.000	A
	2	A	Entry	1	1	B	705	915	0.771	704	4.2	6.8	29.056	D
2				1	A,C,D,E	340	915	0.372	344	0.8	0.8	8.902	A	
Exit			1	1	(A,B,C,D,E)	1459			1046	4.2	78.6	124.386	F	
			Exit	1	1		1496			1496	0.0	0.0	0.000	A
B		Entry	1	1	B,C,D,A,E	982	1191	0.825	984	1.5	3.4	11.540	B	
		Exit	1	1	A,B,C,D,E	985	1191	0.827	988	1.5	3.4	11.492	B	
C		Entry	1	1	D,A,E	207	612	0.338	206	0.3	0.6	7.980	A	
			2	1	A,B,C	220	612	0.360	220	0.4	0.9	11.661	B	
		Exit	1	1	(A,B,C,D,E)	427			427	0.0	0.0	0.010	A	
			1	1		689			689	0.0	0.0	0.000	A	
D		Entry	1	1	A,E	448	900	0.498	449	0.5	0.9	6.778	A	
		Exit	1	1	A,B,C,D	452	900	0.503	449	0.6	1.6	9.607	A	
E		Entry	1	1	B,A	439	529	0.830	413	2.5	11.6	65.113	F	
			2	1	C,D,E	205	529	0.387	205	0.5	0.9	12.908	B	
		Exit	1	1	(A,B,C,D,E)	757			644	0.1	15.5	34.182	D	
			1	1		666			666	0.0	0.0	0.000	A	

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	630	1163	0.542	629	0.8	0.9	4.995	A	
		Exit	1	1	A,C	646	1163	0.556	646	0.8	0.9	5.021	A	
	B	Exit	1	1		1091			1091	0.0	0.0	0.000	A	
	C	Entry	1	1	B,C,D,A	1357	1347	1.008	1356	73.9	75.8	200.945	F	
		Exit	1	1		2004			2004	0.0	0.0	0.000	A	
	D	Entry	1	1	B,A	12	922	0.013	12	0.0	0.0	4.691	A	
			2	1	C,D	758	922	0.822	758	3.5	3.6	17.499	C	
		Exit	1	1	(A,B,C,D)	771			770	1.0	1.2	5.335	A	
			Exit	1	1		0			0	0.0	0.0	0.000	A
	2	A	Entry	1	1	B	649	921	0.704	650	6.8	6.8	37.558	E
2				1	A,C,D,E	322	921	0.349	321	0.8	0.8	8.321	A	
Exit			1	1	(A,B,C,D,E)	1463			971	78.6	198.7	511.110	F	
			Exit	1	1		1506			1506	0.0	0.0	0.000	A
B		Entry	1	1	B,C,D,A,E	1004	1202	0.836	1003	3.4	3.2	11.673	B	
		Exit	1	1	A,B,C,D,E	999	1202	0.832	998	3.4	3.1	11.611	B	
C		Entry	1	1	D,A,E	210	613	0.343	212	0.6	0.4	8.456	A	
			2	1	A,B,C	223	613	0.364	222	0.9	1.0	15.493	C	
		Exit	1	1	(A,B,C,D,E)	433			433	0.0	0.0	0.011	A	
			1	1		688			688	0.0	0.0	0.000	A	
D		Entry	1	1	A,E	462	895	0.516	461	0.9	1.1	7.558	A	
		Exit	1	1	A,B,C,D	441	895	0.493	442	1.6	1.8	13.912	B	
E		Entry	1	1	B,A	393	523	0.750	389	11.6	13.6	119.705	F	
			2	1	C,D,E	193	523	0.369	192	0.9	0.9	15.405	C	
		Exit	1	1	(A,B,C,D,E)	756			586	15.5	57.3	230.068	F	
			1	1		665			665	0.0	0.0	0.000	A	

18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	510	1209	0.422	509	0.9	0.6	4.206	A
		Exit	1	1	A,C	519	1209	0.430	518	0.9	0.7	4.250	A
	B	Exit	1	1		1080			1080	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1358	1350	1.006	1357	75.8	75.2	200.495	F

	Exit	1	1		1622			1622	0.0	0.0	0.000	A	
D	Entry	1	1	B,A	10	924	0.011	10	0.0	0.0	4.717	A	
			2	C,D	618	924	0.669	617	3.6	2.2	12.501	B	
	Exit	1	1	(A,B,C,D)	629			628	1.2	0.2	1.522	A	
					0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	677	924	0.733	677	6.8	6.8	36.471	E
				2	A,C,D,E	335	924	0.363	335	0.8	0.8	8.363	A
		Exit	1	1	(A,B,C,D,E)	1203			1012	198.7	247.7	781.590	F
						1264			1264	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	809	1192	0.679	811	3.2	1.5	7.042	A
				2	A,B,C,D,E	813	1192	0.682	813	3.1	1.6	6.949	A
	Exit	1	1		1357			1358	0.4	0.3	0.769	A	
					168	685	0.246	168	0.4	0.3	6.899	A	
	C	Entry	1	1	D,A,E	168	685	0.246	168	0.4	0.3	6.899	A
				2	A,B,C	182	685	0.266	180	1.0	0.8	12.170	B
		Exit	1	1	(A,B,C,D,E)	350			350	0.0	0.0	0.000	A
						616			616	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	371	981	0.378	370	1.1	0.6	5.655	A
				2	A,B,C,D	374	981	0.382	375	1.8	0.9	9.793	A
	Exit	1	1		597			597	0.0	0.0	0.000	A	
					454	608	0.747	456	13.6	12.9	105.294	F	
E	Entry	1	1	B,A	454	608	0.747	456	13.6	12.9	105.294	F	
			2	C,D,E	215	608	0.354	217	0.9	0.7	14.317	B	
	Exit	1	1	(A,B,C,D,E)	623			669	57.3	49.3	294.992	F	
					566			566	0.0	0.0	0.000	A	

18:15 - 18:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	423	1243	0.341	425	0.6	0.4	3.661	A
				2	A,C	439	1243	0.353	439	0.7	0.5	3.683	A
		Exit	1	1		1069			1069	0.0	0.0	0.000	A
	B	Exit	1	1		302			302	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1338	1351	0.991	1342	75.2	73.5	197.624	F
					Exit	1	1		1364			1364	0.0
	D	Entry	1	1	B,A	8	929	0.009	8	0.0	0.0	4.868	A
				2	C,D	518	929	0.558	520	2.2	1.2	9.284	A
Exit		1	1	(A,B,C,D)	526			526	0.2	0.0	0.238	A	
					0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	725	949	0.764	724	6.8	6.8	34.299	D
				2	A,C,D,E	353	949	0.372	352	0.8	0.8	8.301	A
		Exit	1	1	(A,B,C,D,E)	993			1077	247.7	231.6	665.487	F
						1083			1083	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	682	1194	0.571	682	1.5	1.0	5.287	A
				2	A,B,C,D,E	682	1194	0.572	683	1.6	1.0	5.285	A
	Exit	1	1		1338			1338	0.3	0.3	0.679	A	
					135	734	0.184	135	0.3	0.2	6.023	A	
	C	Entry	1	1	D,A,E	135	734	0.184	135	0.3	0.2	6.023	A
				2	A,B,C	157	734	0.214	157	0.8	0.4	9.576	A
		Exit	1	1	(A,B,C,D,E)	292			292	0.0	0.0	0.000	A
						539			539	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	303	1036	0.293	303	0.6	0.4	4.723	A
				2	A,B,C,D	320	1036	0.309	320	0.9	0.6	7.318	A
	Exit	1	1		536			536	0.0	0.0	0.000	A	
					423	668	0.634	446	12.9	7.8	80.735	F	
E	Entry	1	1	B,A	423	668	0.634	446	12.9	7.8	80.735	F	
			2	C,D,E	199	668	0.297	199	0.7	0.5	10.556	B	
	Exit	1	1	(A,B,C,D,E)	515			622	49.3	16.1	141.557	F	
					507			507	0.0	0.0	0.000	A	

M20 Junction 6 - Dev Scenario 1, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 6 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Junction 1 - Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm E - Lane Simulation	Arm E: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Linked junction	Junction 2 - Arm B	Linked arm: Junction 2 Arm B has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 6 North	Standard Roundabout	A,B,C,D	66.65	F
2	M20 Junction 6 South	Standard Roundabout	A,B,C,D,E	228.30	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	Dev Scenario 1	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	C	2	B	Simple (vertical queueing)	Normal	0	100.00	
2	B	1	C	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	1650	100.000
	B					
	C	✓				
	D		ONE HOUR	✓	696	100.000
2	A		ONE HOUR	✓	1486	100.000
	B	✓				
	C		ONE HOUR	✓	464	100.000
	D		ONE HOUR	✓	753	100.000
	E		ONE HOUR	✓	616	100.000

Origin-Destination Data

		Demand (PCU/hr)			
		To			
Junction 1		A	B	C	D
		A	13	0	1637

	B	Exit-only	Exit-only	Exit-only	Exit-only
From	C	1262	233	22	0
	D	0	9	687	0

Demand (PCU/hr)

		To					
		A	B	C	D	E	
Junction 2	From	A	4	1072	13	184	213
		B	1435	0	125	466	322
		C	247	72	0	24	121
		D	441	126	29	17	140
		E	189	248	74	105	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
Junction 1	From	A	0	0	3	0
		B	Exit-only	Exit-only	Exit-only	Exit-only
		C	8	14	13	0
		D	0	0	11	0

Heavy Vehicle Percentages

		To					
		A	B	C	D	E	
Junction 2	From	A	0	8	0	2	4
		B	3	0	5	6	19
		C	2	7	0	0	4
		D	6	5	4	0	7
		E	28	20	0	12	7

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	A	11.14	8.4	B	1515	2272
	B					
	C	147.61	57.4	F	1336	2004
	D	29.09	7.6	D	640	960
2	A	429.05	157.2	F	1367	2050
	B	131.79	108.5	F	2147	3221
	C	23.25	3.3	C	427	641
	D	13.09	3.4	B	693	1040
	E	529.72	84.9	F	563	844

Main Results for each time segment

07:15 - 07:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1235	309	716	1234	962	0.0	1.4	3.872	A
	B			0		184				
	C	1153	288	10	1148	1756	0.0	5.9	15.544	C
	D	522	130	1158	520	0	0.0	1.4	7.747	A
2	A	1115	279	511	1115	1741	0.0	4.6	12.707	B
	B	1756	439	473	1762	1153	0.0	3.3	6.649	A
	C	355	89	2054	355	182	0.0	1.0	7.371	A
	D	573	143	1810	573	598	0.0	1.0	5.231	A

	E	473	118	1784	468	599	0.0	3.1	16.133	C
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07:30 - 07:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1492	373	839	1490	1085	1.4	2.2	5.058	A
	B			0		208				
	C	1342	336	12	1292	2109	5.9	19.5	37.697	E
	D	624	156	1305	620	0	1.4	2.4	12.235	B
2	A	1351	338	587	1319	2081	4.6	17.0	35.332	E
	B	2109	527	564	2108	1342	3.3	8.8	13.616	B
	C	417	104	2459	415	213	1.0	1.6	11.631	B
	D	677	169	2163	677	711	1.0	1.6	7.599	A
	E	552	138	2133	535	707	3.1	8.2	40.357	E

07:45 - 08:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1819	455	1002	1822	1131	2.2	4.1	8.007	A
	B			0		219				
	C	1410	353	14	1346	2591	19.5	38.2	79.989	F
	D	777	194	1360	773	0	2.4	6.0	23.486	C
2	A	1635	409	632	1368	2369	17.0	83.9	136.756	F
	B	2591	648	590	2365	1410	8.8	63.3	56.960	F
	C	511	128	2722	509	233	1.6	3.3	20.397	C
	D	837	209	2459	833	772	1.6	3.4	11.899	B
	E	676	169	2478	523	814	8.2	42.4	174.037	F

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1827	457	967	1800	1129	4.1	8.4	11.137	B
	B			0		216				
	C	1385	346	15	1340	2535	38.2	51.3	121.920	F
	D	758	190	1355	741	0	6.0	7.6	29.087	D
2	A	1636	409	621	1339	2379	83.9	156.8	325.095	F
	B	2535	634	573	2371	1385	63.3	108.5	131.792	F
	C	518	129	2718	521	227	3.3	3.3	23.251	C
	D	834	209	2467	835	772	3.4	3.2	13.091	B
	E	665	166	2495	505	807	42.4	83.3	445.629	F

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1480	370	870	1488	1141	8.4	2.8	9.733	A
	B			0		220				
	C	1376	344	11	1361	2127	51.3	55.4	141.033	F
	D	633	158	1373	639	0	7.6	3.7	26.574	D
2	A	1337	334	610	1343	2229	156.8	157.2	429.047	F
	B	2127	532	577	2331	1376	108.5	57.5	129.151	F
	C	418	105	2680	418	227	3.3	2.0	17.471	C
	D	679	170	2339	680	760	3.2	1.8	10.017	B
	E	558	140	2275	563	743	83.3	84.9	529.724	F

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1236	309	760	1236	1121	2.8	1.4	4.481	A
	B			0		220				
	C	1348	337	11	1343	1765	55.4	57.4	147.612	F
	D	524	131	1354	527	0	3.7	1.5	11.667	B
2	A	1128	282	625	1292	1837	157.2	110.1	339.357	F
	B	1765	441	570	1836	1348	57.5	6.1	36.838	E
	C	345	86	2197	346	208	2.0	0.9	11.751	B
	D	561	140	1883	562	661	1.8	1.1	7.214	A
	E	453	113	1817	645	627	84.9	42.5	314.389	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS			
1	A	Entry	1	1	B,C	618	1279	0.483	617	0.0	0.7	3.880	A			
				2	A,C	617	1279	0.483	617	0.0	0.7	3.865	A			
		Exit	1	1		962			962	0.0	0.0	0.000	A			
	B	Exit	1	1		184			184	0.0	0.0	0.000	A			
						1153	1356	0.851	1148	0.0	5.9	15.544	C			
	C	Exit	1	1		1756			1756	0.0	0.0	0.000	A			
						6	992	0.006	6	0.0	0.0	3.212	A			
	D	Entry	1	1	B,A	6	992	0.006	6	0.0	0.0	3.212	A			
				2	C,D	516	992	0.520	515	0.0	1.4	7.686	A			
				2	1	(A,B,C,D)	522			522	0.0	0.0	0.117	A		
D	Exit	1	1		0			0	0.0	0.0	0.000	A				
				A	Entry	1	1	B	811	1039	0.780	810	0.0	3.1	12.123	B
							2	A,C,D,E	305	1039	0.294	305	0.0	0.5	5.021	A
2	1	(A,B,C,D,E)	1115				1116	0.0	1.0	2.595	A					
A	Exit	1	1		1741			1741	0.0	0.0	0.000	A				
				B	Entry	1	1	B,C,D,A,E	883	1225	0.720	886	0.0	1.7	6.622	A
							2	A,B,C,D,E	873	1225	0.712	876	0.0	1.6	6.676	A
B	Exit	1	1		1153			1153	0.0	0.0	0.000	A				
				C	Entry	1	1	D,A,E	197	564	0.350	198	0.0	0.5	7.669	A
2	A,B,C	158	564				0.280	157	0.0	0.4	6.992	A				
2	1	(A,B,C,D,E)	355						355	0.0	0.0	0.000	A			
C	Exit	1	1		182			182	0.0	0.0	0.000	A				
				D	Entry	1	1	A,E	281	838	0.335	281	0.0	0.5	5.118	A
							2	A,B,C,D	292	838	0.349	292	0.0	0.5	5.338	A
D	Exit	1	1		598			598	0.0	0.0	0.000	A				
				E	Entry	1	1	B,A	336	543	0.619	334	0.0	2.5	19.238	C
2	C,D,E	135	543				0.248	135	0.0	0.4	8.680	A				
2	1	(A,B,C,D,E)	473						471	0.0	0.1	0.211	A			
E	Exit	1	1		599			599	0.0	0.0	0.000	A				

07:30 - 07:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS			
1	A	Entry	1	1	B,C	750	1238	0.606	748	0.7	1.1	5.033	A			
				2	A,C	742	1238	0.600	742	0.7	1.1	5.083	A			
		Exit	1	1		1085			1085	0.0	0.0	0.000	A			
	B	Exit	1	1		208			208	0.0	0.0	0.000	A			
						1342	1355	0.991	1292	5.9	19.5	37.697	E			
	C	Exit	1	1		2109			2109	0.0	0.0	0.000	A			
					D	Entry	1	1	B,A	8	947	0.009	8	0.0	0.0	3.892
	2	C,D	615	947				0.649	611	1.4	2.2	11.534	B			
	2	1	(A,B,C,D)	624						624	0.0	0.2	0.786	A		
	D	Exit	1	1		0			0	0.0	0.0	0.000	A			
A					Entry	1	1	B	956	1018	0.939	955	3.1	5.3	18.807	C
							2	A,C,D,E	366	1018	0.359	364	0.5	0.8	6.210	A
	2	1	(A,B,C,D,E)	1351			1321	1.0	10.9	20.017	C					
A	Exit	1	1		2081			2081	0.0	0.0	0.000	A				
				B	Entry	1	1	B,C,D,A,E	1052	1198	0.878	1052	1.7	4.4	13.638	B
							2	A,B,C,D,E	1057	1198	0.883	1056	1.6	4.4	13.595	B
B	Exit	1	1		1342			1342	0.0	0.0	0.000	A				
				C	Entry	1	1	D,A,E	228	458	0.499	228	0.5	0.8	12.136	B
2	A,B,C	188	458				0.411	187	0.4	0.7	11.009	B				
2	1	(A,B,C,D,E)	417						417	0.0	0.0	0.000	A			
C	Exit	1	1		213			213	0.0	0.0	0.000	A				
				D	Entry	1	1	A,E	331	730	0.454	332	0.5	0.8	7.483	A
							2	A,B,C,D	345	730	0.473	345	0.5	0.8	7.707	A
D	Exit	1	1		711			711	0.0	0.0	0.000	A				
				E	Entry	1	1	B,A	388	457	0.848	377	2.5	5.9	44.342	E
2	C,D,E	159	457				0.349	158	0.4	0.7	13.235	B				
2	1	(A,B,C,D,E)	552						547	0.1	1.6	5.590	A			
E	Exit	1	1		707			707	0.0	0.0	0.000	A				

07:45 - 08:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	913	1184	0.771	916	1.1	2.0	7.981	A	
		Exit	1	1	A,C	906	1184	0.765	906	1.1	2.1	8.034	A	
	B	Exit	1	1		1131			1131	0.0	0.0	0.000	A	
	C	Entry	1	1	B,C,D,A	1410	1354	1.041	1346	19.5	38.2	79.989	F	
		Exit	1	1		2591			2591	0.0	0.0	0.000	A	
	D	Entry	1	1	B,A	9	930	0.010	9	0.0	0.0	3.796	A	
			2	1	C,D	765	930	0.822	764	2.2	4.0	17.598	C	
		Exit	1	1	(A,B,C,D)	777			774	0.2	2.0	5.986	A	
			Exit	1	1		0			0	0.0	0.0	0.000	A
	2	A	Entry	1	1	B	985	1006	0.979	984	5.3	6.8	23.702	C
2				1	A,C,D,E	382	1006	0.380	384	0.8	0.7	7.280	A	
Exit			1	1	(A,B,C,D,E)	1635			1367	10.9	76.5	117.658	F	
B		Exit	1	1		2369			2369	0.0	0.0	0.000	A	
B		Entry	1	1	B,C,D,A,E	1300	1190	1.093	1187	4.4	31.7	56.773	F	
			2	1	A,B,C,D,E	1291	1190	1.085	1178	4.4	31.6	57.148	F	
B		Exit	1	1		1410			1410	0.0	0.0	0.019	A	
C		Entry	1	1	D,A,E	274	389	0.705	273	0.8	1.8	21.554	C	
			2	1	A,B,C	237	389	0.610	235	0.7	1.4	18.631	C	
		Exit	1	1	(A,B,C,D,E)	511			511	0.0	0.0	0.177	A	
D		Exit	1	1		233			233	0.0	0.0	0.000	A	
D		Entry	1	1	A,E	410	640	0.641	409	0.8	1.6	11.774	B	
			2	1	A,B,C,D	427	640	0.667	424	0.8	1.8	12.017	B	
D		Exit	1	1		772			772	0.0	0.0	0.000	A	
E		Entry	1	1	B,A	377	372	1.015	369	5.9	12.9	102.643	F	
			2	1	C,D,E	151	372	0.406	154	0.7	0.9	21.911	C	
	Exit	1	1	(A,B,C,D,E)	676			528	1.6	28.6	93.446	F		
		Exit	1	1		814			814	0.0	0.0	0.000	A	

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	912	1196	0.763	898	2.0	4.2	11.154	B
		Exit	1	1	A,C	915	1196	0.766	902	2.1	4.2	11.120	B
	B	Exit	1	1		1129			1129	0.0	0.0	0.000	A
	B	Exit	1	1		216			216	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1385	1354	1.023	1340	38.2	51.3	121.920	F
		Exit	1	1		2536			2535	0.0	0.1	0.036	A
	D	Entry	1	1	B,A	9	932	0.010	9	0.0	0.0	3.879	A
			2	1	C,D	736	932	0.790	732	4.0	4.4	19.573	C
		Exit	1	1	(A,B,C,D)	758			745	2.0	3.2	9.485	A
			Exit	1	1		0			0	0.0	0.0	0.000
2	A	Entry	1	1	B	962	1009	0.953	961	6.8	6.8	25.046	D
			2	1	A,C,D,E	378	1009	0.375	378	0.7	0.8	7.323	A
		Exit	1	1	(A,B,C,D,E)	1636			1340	76.5	149.3	305.171	F
	B	Exit	1	1		2379			2379	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	1273	1195	1.065	1190	31.7	54.2	132.012	F
			2	1	A,B,C,D,E	1262	1195	1.056	1181	31.6	54.3	131.571	F
	B	Exit	1	1		1386			1385	0.0	0.0	0.085	A
	C	Entry	1	1	D,A,E	279	390	0.714	280	1.8	1.8	23.873	C
			2	1	A,B,C	239	390	0.613	240	1.4	1.5	22.143	C
		Exit	1	1	(A,B,C,D,E)	518			518	0.0	0.0	0.178	A
	D	Exit	1	1		227			227	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	412	638	0.646	414	1.6	1.5	12.781	B
			2	1	A,B,C,D	422	638	0.662	421	1.8	1.7	13.389	B
	D	Exit	1	1		772			772	0.0	0.0	0.000	A
	E	Entry	1	1	B,A	359	368	0.978	359	12.9	13.7	132.619	F
			2	1	C,D,E	146	368	0.398	146	0.9	1.1	24.844	C
Exit		1	1	(A,B,C,D,E)	665			506	28.6	68.6	350.037	F	
		Exit	1	1		807			807	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	740	1228	0.603	745	4.2	1.4	9.704	A
		Exit	1	1	A,C	739	1228	0.602	744	4.2	1.4	9.762	A
	B	Exit	1	1		1141			1141	0.0	0.0	0.000	A
	C	Exit	1	1		220			220	0.0	0.0	0.000	A
C	Entry	1	1	B,C,D,A	1376	1355	1.015	1361	51.3	55.4	141.033	F	

		Exit	1	1		2127			2127	0.1	0.0	0.056	A	
	D	Entry	1	1	B,A	8	927	0.009	9	0.0	0.0	3.847	A	
2				C,D	630	927	0.679	631	4.4	2.6	16.489	C		
2		1	(A,B,C,D)	633			638	3.2	1.2	10.615	B			
		Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	965	1012	0.954	966	6.8	6.7	25.142	D	
				2	A,C,D,E	375	1012	0.371	376	0.8	0.7	7.060	A	
		2	1	(A,B,C,D,E)	1337			1340	149.3	149.9	408.998	F		
			Exit	1	1		2229			2229	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	1064	1194	0.891	1166	54.2	28.7	129.124	F	
				2	A,B,C,D,E	1062	1194	0.890	1165	54.3	28.8	129.178	F	
			Exit	1	1		1376			1376	0.0	0.1	0.142	A
	C	Entry	1	1	D,A,E	231	400	0.577	230	1.8	1.2	18.051	C	
				2	A,B,C	188	400	0.470	188	1.5	0.8	16.725	C	
		2	1	(A,B,C,D,E)	418			418	0.0	0.0	0.020	A		
			Exit	1	1		227			227	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	336	677	0.497	336	1.5	0.9	9.564	A	
				2	A,B,C,D	342	677	0.506	344	1.7	0.9	10.454	B	
			Exit	1	1		760			760	0.0	0.0	0.000	A
	E	Entry	1	1	B,A	403	422	0.955	404	13.7	13.3	122.639	F	
2				C,D,E	162	422	0.384	159	1.1	1.1	23.191	C		
2		1	(A,B,C,D,E)	558			565	68.6	70.5	446.330	F			
		Exit	1	1		743			743	0.0	0.0	0.000	A	

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	616	1264	0.488	616	1.4	0.7	4.457	A	
				2	A,C	620	1264	0.490	620	1.4	0.7	4.504	A	
			Exit	1	1		1121			1121	0.0	0.0	0.000	A
	B	Exit	1	1		220			220	0.0	0.0	0.000	A	
	C	Entry	1	1	B,C,D,A	1348	1355	0.994	1343	55.4	57.4	147.612	F	
				1	1		1765			1765	0.0	0.0	0.006	A
	D	Entry	1	1	B,A	7	932	0.008	7	0.0	0.0	3.781	A	
2				C,D	518	932	0.556	520	2.6	1.4	10.419	B		
2		1	(A,B,C,D)	524			525	1.2	0.1	1.533	A			
		Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	933	1008	0.926	934	6.7	6.5	25.135	D	
				2	A,C,D,E	358	1008	0.355	358	0.7	0.7	7.119	A	
		2	1	(A,B,C,D,E)	1128			1291	149.9	102.9	319.864	F		
			Exit	1	1		1837			1837	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	878	1196	0.734	914	28.7	3.0	36.971	E	
				2	A,B,C,D,E	887	1196	0.742	921	28.8	3.1	36.706	E	
			Exit	1	1		1348			1348	0.1	0.1	0.151	A
	C	Entry	1	1	D,A,E	192	526	0.364	191	1.2	0.5	12.126	B	
				2	A,B,C	154	526	0.292	155	0.8	0.4	11.285	B	
		2	1	(A,B,C,D,E)	345			345	0.0	0.0	0.000	A		
			Exit	1	1		208			208	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	276	816	0.339	277	0.9	0.5	6.935	A	
				2	A,B,C,D	285	816	0.349	285	0.9	0.5	7.479	A	
		Exit	1	1		661			661	0.0	0.0	0.000	A	
E	Entry	1	1	B,A	443	535	0.829	468	13.3	10.1	97.404	F		
			2	C,D,E	175	535	0.328	177	1.1	0.6	17.541	C		
	2	1	(A,B,C,D,E)	453			619	70.5	31.8	253.842	F			
		Exit	1	1		627			627	0.0	0.0	0.000	A	

M20 Junction 6 - Dev Scenario 1, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 6 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Junction 1 - Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm E - Lane Simulation	Arm E: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Linked junction	Junction 2 - Arm B	Linked arm: Junction 2 Arm B has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 6 North	Standard Roundabout	A,B,C,D	95.84	F
2	M20 Junction 6 South	Standard Roundabout	A,B,C,D,E	300.59	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	Dev Scenario 1	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	C	2	B	Simple (vertical queueing)	Normal	0	100.00	
2	B	1	C	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	1165	100.000
	B					
	C	✓				
	D		ONE HOUR	✓	710	100.000
2	A		ONE HOUR	✓	1346	100.000
	B	✓				
	C		ONE HOUR	✓	397	100.000
	D		ONE HOUR	✓	841	100.000
	E		ONE HOUR	✓	700	100.000

Origin-Destination Data

		Demand (PCU/hr)			
		To			
Junction 1		A	B	C	D
		A	29	0	1136

	B	Exit-only	Exit-only	Exit-only	Exit-only
From	C	1277	362	2	0
	D	0	11	699	0

Demand (PCU/hr)

		To					
Junction 2	From	A	3	904	112	146	181
		B	751	15	428	380	253
		C	144	144	0	53	56
		D	395	223	33	6	184
		E	122	352	121	105	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
Junction 1	From	A	4	0	5	0
		B	Exit-only	Exit-only	Exit-only	Exit-only
		C	5	4	0	0
		D	0	25	3	0

Heavy Vehicle Percentages

		To					
Junction 2	From	A	0	6	0	0	10
		B	3	0	1	3	19
		C	2	0	0	4	0
		D	5	4	0	0	4
		E	24	5	1	2	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	A	5.12	2.1	A	1072	1608
	B					
	C	201.49	75.8	F	1358	2037
	D	25.02	5.4	D	653	980
2	A	885.06	282.7	F	1239	1859
	B	13.15	7.5	B	1690	2534
	C	12.49	1.6	B	366	550
	D	11.05	3.1	B	772	1158
	E	441.42	82.2	F	641	962

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	876	219	802	877	976	0.0	0.9	3.505	A
	B			0		279				
	C	1240	310	23	1226	1378	0.0	10.7	24.148	C
	D	531	133	1248	530	0	0.0	1.2	7.605	A
2	A	1012	253	752	1013	1072	0.0	3.3	10.433	B
	B	1378	344	524	1375	1240	0.0	2.0	4.754	A
	C	304	76	1383	303	517	0.0	0.5	5.381	A
	D	638	159	1167	638	519	0.0	0.8	4.453	A

	E	522	131	1304	521	502	0.0	1.8	10.126	B
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17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1054	263	940	1055	1072	0.9	1.4	4.083	A
	B			0		307				
	C	1455	364	25	1347	1663	10.7	39.8	70.633	F
	D	645	161	1371	641	0	1.2	2.4	12.135	B
2	A	1214	304	892	1193	1286	3.3	11.1	25.178	D
	B	1663	416	630	1658	1455	2.0	3.7	6.638	A
	C	349	87	1664	350	624	0.5	0.7	6.611	A
	D	753	188	1393	753	621	0.8	1.3	5.368	A
	E	636	159	1547	630	599	1.8	4.0	18.248	C

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1271	318	1086	1270	1086	1.4	2.0	5.056	A
	B			0		312				
	C	1405	351	31	1356	2013	39.8	73.5	163.193	F
	D	783	196	1387	785	0	2.4	5.4	23.432	C
2	A	1486	372	962	1030	1540	11.1	98.7	177.100	F
	B	2013	503	586	2021	1405	3.7	7.5	12.881	B
	C	443	111	1902	442	705	0.7	1.4	10.503	B
	D	924	231	1650	924	694	1.3	2.6	8.833	A
	E	762	190	1895	607	679	4.0	33.6	104.294	F

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1296	324	1083	1292	1078	2.0	2.1	5.125	A
	B			0		310				
	C	1349	337	33	1345	2033	73.5	75.8	200.925	F
	D	779	195	1377	783	0	5.4	5.2	25.017	D
2	A	1487	372	938	946	1535	98.7	227.1	609.313	F
	B	2033	508	536	2036	1349	7.5	7.4	13.146	B
	C	443	111	1879	443	692	1.4	1.6	12.485	B
	D	933	233	1648	929	674	2.6	3.1	11.045	B
	E	774	193	1904	569	673	33.6	82.2	362.886	F

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1053	263	939	1052	1081	2.1	1.2	4.266	A
	B			0		309				
	C	1353	338	26	1354	1656	75.8	75.0	201.494	F
	D	640	160	1380	640	0	5.2	2.3	13.963	B
2	A	1211	303	932	996	1278	227.1	282.7	885.058	F
	B	1656	414	575	1656	1353	7.4	3.5	7.364	A
	C	357	89	1609	358	621	1.6	0.9	9.793	A
	D	748	187	1371	748	596	3.1	1.5	7.887	A
	E	632	158	1540	671	579	82.2	77.6	441.424	F

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	881	220	845	881	1075	1.2	0.9	3.700	A
	B			0		309				
	C	1347	337	22	1354	1395	75.0	73.8	196.859	F
	D	543	136	1377	544	0	2.3	1.5	9.564	A
2	A	1026	256	882	1061	1105	282.7	274.5	736.660	F
	B	1395	349	596	1393	1347	3.5	2.1	5.344	A
	C	302	76	1435	303	554	0.9	0.6	7.900	A
	D	634	159	1186	634	551	1.5	1.1	6.158	A
	E	523	131	1302	685	518	77.6	34.8	243.347	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	433	1250	0.346	433	0.0	0.4	3.509	A	
				2	A,C	444	1250	0.355	444	0.0	0.4	3.501	A	
		Exit	1	1		976			976	0.0	0.0	0.000	A	
	B	Exit	1	1		279			279	0.0	0.0	0.000	A	
						1240	1350	0.919	1226	0.0	10.7	24.148	C	
	C	Entry	1	1	B,C,D,A	1240	1350	0.919	1226	0.0	10.7	24.148	C	
						1378			1378	0.0	0.0	0.000	A	
	D	Entry	1	1	1	B,A	9	964	0.009	8	0.0	0.0	4.224	A
					2	C,D	522	964	0.541	522	0.0	1.2	7.571	A
					2	1	(A,B,C,D)	531			531	0.0	0.0	0.075
Exit		1	1		0			0	0.0	0.0	0.000	A		
2	A	Entry	1	1	B	685	973	0.705	686	0.0	2.4	10.991	B	
				2	A,C,D,E	326	973	0.335	326	0.0	0.6	5.707	A	
				2	1	(A,B,C,D,E)	1012			1011	0.0	0.4	1.176	A
		Exit	1	1		1072			1072	0.0	0.0	0.000	A	
	B	Entry	1	1	B,C,D,A,E	687	1210	0.568	686	0.0	1.0	4.790	A	
					2	A,B,C,D,E	690	1210	0.571	689	0.0	1.0	4.718	A
	B	Exit	1	1		1240			1240	0.0	0.0	0.000	A	
						139	739	0.187	138	0.0	0.2	5.263	A	
	C	Entry	1	1	D,A,E	139	739	0.187	138	0.0	0.2	5.263	A	
					2	A,B,C	165	739	0.223	165	0.0	0.3	5.480	A
		Exit	1	1		304			304	0.0	0.0	0.000	A	
	C	Exit	1	1		517			517	0.0	0.0	0.000	A	
						298	1034	0.288	298	0.0	0.4	4.368	A	
	D	Entry	1	1	A,E	298	1034	0.288	298	0.0	0.4	4.368	A	
					2	A,B,C,D	340	1034	0.329	340	0.0	0.4	4.526	A
	D	Exit	1	1		519			519	0.0	0.0	0.000	A	
					354	662	0.535	352	0.0	1.5	11.801	B		
E	Entry	1	1	B,A	354	662	0.535	352	0.0	1.5	11.801	B		
				2	C,D,E	168	662	0.254	168	0.0	0.3	6.840	A	
	Exit	1	1		522			522	0.0	0.0	0.004	A		
E	Exit	1	1		502			502	0.0	0.0	0.000	A		

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	524	1205	0.435	525	0.4	0.7	4.053	A	
				2	A,C	529	1205	0.440	530	0.4	0.7	4.113	A	
		Exit	1	1		1072			1072	0.0	0.0	0.000	A	
	B	Exit	1	1		307			307	0.0	0.0	0.000	A	
						1455	1350	1.078	1347	10.7	39.8	70.633	F	
	C	Entry	1	1	B,C,D,A	1455	1350	1.078	1347	10.7	39.8	70.633	F	
					Exit	1	1		1663			1663	0.0	0.0
	D	Entry	1	1	1	B,A	10	927	0.011	10	0.0	0.0	4.941	A
					2	C,D	634	927	0.684	631	1.2	2.2	11.500	B
					2	1	(A,B,C,D)	645			644	0.0	0.2	0.690
Exit		1	1		0			0	0.0	0.0	0.000	A		
2	A	Entry	1	1	B	804	934	0.860	802	2.4	4.4	17.745	C	
				2	A,C,D,E	390	934	0.418	391	0.6	0.9	7.308	A	
				2	1	(A,B,C,D,E)	1214			1194	0.4	5.8	10.761	B
		Exit	1	1		1286			1286	0.0	0.0	0.000	A	
	B	Entry	1	1	B,C,D,A,E	833	1178	0.707	830	1.0	1.9	6.631	A	
					2	A,B,C,D,E	830	1178	0.705	828	1.0	1.9	6.645	A
	B	Exit	1	1		1455			1455	0.0	0.0	0.019	A	
						163	666	0.244	163	0.2	0.3	6.386	A	
	C	Entry	1	1	D,A,E	163	666	0.244	163	0.2	0.3	6.386	A	
					2	A,B,C	186	666	0.280	187	0.3	0.4	6.804	A
		Exit	1	1		349			349	0.0	0.0	0.000	A	
	C	Exit	1	1		624			624	0.0	0.0	0.000	A	
						354	965	0.366	354	0.4	0.5	5.143	A	
	D	Entry	1	1	A,E	354	965	0.366	354	0.4	0.5	5.143	A	
					2	A,B,C,D	400	965	0.414	399	0.4	0.7	5.565	A
	D	Exit	1	1		621			621	0.0	0.0	0.000	A	
					429	601	0.713	425	1.5	3.3	22.321	C		
E	Entry	1	1	B,A	429	601	0.713	425	1.5	3.3	22.321	C		
				2	C,D,E	206	601	0.342	206	0.3	0.5	8.828	A	
	Exit	1	1		636			635	0.0	0.2	0.428	A		
E	Exit	1	1		599			599	0.0	0.0	0.000	A		

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	630	1156	0.545	629	0.7	1.0	5.024	A
				2	A,C	641	1156	0.554	640	0.7	1.0	5.087	A
	B	Exit	1	1		1086			1086	0.0	0.0	0.000	A
						312			312	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1405	1347	1.043	1356	39.8	73.5	163.193	F
						2013			2013	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	12	922	0.013	12	0.0	0.0	4.806	A
					C,D	771	922	0.836	773	2.2	3.9	18.044	C
		Exit	1	1	(A,B,C,D)	783			783	0.2	1.4	5.483	A
						0			0	0.0	0.0	0.000	A
2	A	Entry	1	1	B	690	915	0.754	688	4.4	6.8	30.107	D
				2	A,C,D,E	341	915	0.373	342	0.9	0.8	8.930	A
				2	(A,B,C,D,E)	1486			1031	5.8	91.1	152.789	F
	Exit	1	1		1540			1540	0.0	0.0	0.000	A	
					1010	1191	0.848	1014	1.9	3.8	12.859	B	
	B	Entry	1	2	B,C,D,A,E	1003	1191	0.842	1007	1.9	3.7	12.902	B
					A,B,C,D,E	1406			1405	0.0	0.3	0.397	A
	C	Entry	1	1	D,A,E	220	604	0.365	220	0.3	0.5	8.273	A
					A,B,C	223	604	0.369	222	0.4	0.9	12.570	B
		Exit	1	1	(A,B,C,D,E)	443			443	0.0	0.0	0.000	A
						705			705	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	464	887	0.523	465	0.5	1.0	7.168	A
					A,B,C,D	460	887	0.519	459	0.7	1.6	10.439	B
	Exit	1	1		694			694	0.0	0.0	0.000	A	
					421	515	0.817	403	3.3	12.3	73.621	F	
	E	Entry	1	2	B,A	202	515	0.392	203	0.5	0.8	13.264	B
C,D,E					762			623	0.2	20.6	47.024	E	
Exit		1	1	(A,B,C,D,E)	679			679	0.0	0.0	0.000	A	

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	641	1158	0.553	640	1.0	1.0	5.117	A
				2	A,C	655	1158	0.566	653	1.0	1.1	5.133	A
	Exit	1	1		1078			1078	0.0	0.0	0.000	A	
					310			310	0.0	0.0	0.000	A	
	C	Entry	1	1	B,C,D,A	1349	1346	1.002	1345	73.5	75.8	200.925	F
						2033			2033	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	11	925	0.012	12	0.0	0.0	4.839	A
					C,D	771	925	0.833	771	3.9	3.9	18.211	C
		Exit	1	1	(A,B,C,D)	779			782	1.4	1.3	6.976	A
						0			0	0.0	0.0	0.000	A
2	A	Entry	1	1	B	637	921	0.691	636	6.8	6.9	38.003	E
				2	A,C,D,E	310	921	0.337	310	0.8	0.7	8.493	A
				2	(A,B,C,D,E)	1487			947	91.1	219.6	581.579	F
	Exit	1	1		1535			1535	0.0	0.0	0.000	A	
					1018	1206	0.844	1020	3.8	3.7	13.165	B	
	B	Entry	1	2	B,C,D,A,E	1015	1206	0.841	1016	3.7	3.7	13.126	B
A,B,C,D,E					1349			1349	0.3	0.3	0.811	A	
C	Entry	1	1	D,A,E	220	609	0.361	219	0.5	0.5	8.409	A	
				A,B,C	223	609	0.367	224	0.9	1.1	16.340	C	
	Exit	1	1	(A,B,C,D,E)	443			443	0.0	0.0	0.038	A	
					692			692	0.0	0.0	0.000	A	
D	Entry	1	1	A,E	481	888	0.542	478	1.0	1.2	7.822	A	
				A,B,C,D	452	888	0.510	451	1.6	1.9	14.435	B	
Exit	1	1		674			674	0.0	0.0	0.000	A		
				390	513	0.759	387	12.3	13.8	122.821	F		
E	Entry	1	2	B,A	183	513	0.357	183	0.8	0.8	15.306	C	
				C,D,E	774			573	20.6	67.6	279.318	F	
	Exit	1	1	(A,B,C,D,E)	673			673	0.0	0.0	0.000	A	

18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	522	1205	0.433	521	1.0	0.6	4.230	A
				2	A,C	531	1205	0.441	531	1.1	0.6	4.301	A
	Exit	1	1		1081			1081	0.0	0.0	0.000	A	
					309			309	0.0	0.0	0.000	A	
	C	Entry	1	1	B,C,D,A	1353	1349	1.003	1354	75.8	75.0	201.494	F

		Exit	1	1		1656			1656	0.0	0.0	0.000	A		
	D	Entry	1	1	B,A	11		924	0.011	11	0.0	0.0	4.929	A	
				2	C,D	629		924	0.681	629	3.9	2.1	12.979	B	
		2	1	(A,B,C,D)	640				640	1.3	0.2	1.218	A		
		Exit	1	1			0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	669		923	0.725	669	6.9	6.8	36.971	E	
				2	A,C,D,E	326		923	0.354	327	0.7	0.8	8.480	A	
			2	1	(A,B,C,D,E)	1211				995	219.6	275.1	862.433	F	
			Exit	1	1			1278			1278	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	827		1195	0.693	827	3.7	1.8	7.400	A	
				2	A,B,C,D,E	829		1195	0.694	829	3.7	1.7	7.327	A	
			Exit	1	1			1353			1353	0.3	0.3	0.792	A
		C	Entry	1	1	D,A,E	171		680	0.252	172	0.5	0.3	6.950	A
	2				A,B,C	186		680	0.274	187	1.1	0.5	12.438	B	
			2	1	(A,B,C,D,E)	357				357	0.0	0.0	0.001	A	
			Exit	1	1			621			621	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	372		972	0.382	371	1.2	0.6	5.700	A	
				2	A,B,C,D	376		972	0.387	376	1.9	1.0	10.064	B	
			Exit	1	1			596			596	0.0	0.0	0.000	A
		E	Entry	1	1	B,A	454		603	0.753	456	13.8	13.2	109.565	F
	2				C,D,E	216		603	0.359	215	0.8	0.8	13.833	B	
	2		1	(A,B,C,D,E)	632				671	67.6	63.6	368.729	F		
	Exit		1	1			579			579	0.0	0.0	0.000	A	

18:15 - 18:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	434	1236	0.352	434	0.6	0.5	3.696	A
				2	A,C	447	1236	0.361	447	0.6	0.5	3.703	A
			Exit	1	1		1075			1075	0.0	0.0	0.000
	B	Exit	1	1		309			309	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1347	1351	0.998	1354	75.0	73.8	196.859	F
			Exit	1	1		1395			1395	0.0	0.0	0.000
	D	Entry	1	1	B,A	9	925	0.010	9	0.0	0.0	5.218	A
				2	C,D	534	925	0.577	535	2.1	1.5	9.434	A
		2	1	(A,B,C,D)	543			544	0.2	0.0	0.211	A	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	710	937	0.758	710	6.8	6.8	34.525	D
				2	A,C,D,E	350	937	0.374	351	0.8	0.8	8.452	A
			2	1	(A,B,C,D,E)	1026			1060	275.1	267.0	722.623	F
			Exit	1	1		1105			1105	0.0	0.0	0.000
	B	Entry	1	1	B,C,D,A,E	694	1188	0.584	693	1.8	1.0	5.369	A
				2	A,B,C,D,E	701	1188	0.590	700	1.7	1.1	5.320	A
		Exit	1	1		1347			1347	0.3	0.3	0.679	A
	C	Entry	1	1	D,A,E	146	726	0.201	146	0.3	0.2	6.058	A
				2	A,B,C	156	726	0.215	157	0.5	0.4	9.586	A
			2	1	(A,B,C,D,E)	302			302	0.0	0.0	0.000	A
			Exit	1	1		554			554	0.0	0.0	0.000
	D	Entry	1	1	A,E	306	1028	0.298	306	0.6	0.4	4.786	A
2				A,B,C,D	328	1028	0.319	328	1.0	0.6	7.442	A	
	Exit	1	1		551			551	0.0	0.0	0.000	A	
E	Entry	1	1	B,A	449	662	0.678	470	13.2	9.1	85.780	F	
			2	C,D,E	214	662	0.323	215	0.8	0.6	11.707	B	
		2	1	(A,B,C,D,E)	523			663	63.6	25.0	191.873	F	
	Exit	1	1		518			518	0.0	0.0	0.000	A	

M20 Junction 6 - Dev Scenario 2, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 6 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Junction 1 - Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm B - Lane Simulation	Arm B: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm E - Lane Simulation	Arm E: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Linked junction	Junction 2 - Arm B	Linked arm: Junction 2 Arm B has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 6 North	Standard Roundabout	A,B,C,D	74.34	F
2	M20 Junction 6 South	Standard Roundabout	A,B,C,D,E	282.43	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	Dev Scenario 2	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	C	2	B	Simple (vertical queueing)	Normal	0	100.00	
2	B	1	C	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	1697	100.000
	B					
	C	✓				
	D		ONE HOUR	✓	716	100.000
2	A		ONE HOUR	✓	1530	100.000
	B	✓				
	C		ONE HOUR	✓	477	100.000
	D		ONE HOUR	✓	774	100.000
	E		ONE HOUR	✓	633	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	D

Junction 1	From	A	14	0	1683	0
		B	Exit-only	Exit-only	Exit-only	Exit-only
		C	1298	240	22	0
		D	0	9	707	0

Demand (PCU/hr)

Junction 2	From	To					
			A	B	C	D	E
		A	5	1102	14	190	219
		B	1476	0	128	479	331
		C	254	74	0	25	124
		D	454	130	29	17	144
E	194	255	76	108	0		

Vehicle Mix**Heavy Vehicle Percentages**

Junction 1	From	To				
		A	B	C	D	
		A	0	0	3	0
		B	Exit-only	Exit-only	Exit-only	Exit-only
		C	8	14	13	0
D	0	0	11	0		

Heavy Vehicle Percentages

Junction 2	From	To					
		A	B	C	D	E	
		A	0	8	0	2	4
		B	3	0	5	6	19
		C	2	7	0	0	4
		D	6	5	4	0	7
E	28	20	0	12	7		

Results**Results Summary for whole modelled period**

Junction	Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	A	18.43	15.6	C	1557	2335
	B					
	C	150.83	58.6	F	1343	2014
	D	50.45	13.6	F	656	984
2	A	511.97	193.4	F	1404	2105
	B	167.67	126.8	F	2196	3294
	C	24.74	3.5	C	437	656
	D	14.31	3.4	B	711	1066
	E	683.54	110.5	F	581	872

Main Results for each time segment**07:15 - 07:30**

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1275	319	733	1275	985	0.0	1.6	3.991	A
	B			0		187				
	C	1176	294	11	1172	1811	0.0	7.2	18.313	C
	D	537	134	1182	537	0	0.0	1.4	7.995	A
2	A	1154	289	519	1151	1796	0.0	5.7	14.824	B
	B	1811	453	493	1810	1176	0.0	4.0	7.056	A
	C	361	90	2119	361	184	0.0	0.9	7.741	A

	D	585	146	1866	585	614	0.0	1.0	5.477	A
	E	475	119	1840	474	610	0.0	2.8	16.556	C

07:30 - 07:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1525	381	864	1524	1100	1.6	2.3	5.240	A
	B			0		212				
	C	1361	340	13	1309	2164	7.2	22.3	43.630	E
	D	643	161	1322	642	0	1.4	2.5	12.969	B
2	A	1372	343	603	1333	2128	5.7	20.6	41.190	E
	B	2164	541	575	2158	1361	4.0	11.2	15.853	C
	C	427	107	2513	426	219	0.9	1.7	12.501	B
	D	695	174	2213	693	726	1.0	1.7	7.953	A
	E	567	142	2183	549	724	2.8	9.8	45.638	E

07:45 - 08:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1870	467	1009	1865	1134	2.3	5.1	8.681	A
	B			0		218				
	C	1416	354	15	1346	2640	22.3	42.9	90.462	F
	D	790	197	1361	781	0	2.5	6.3	24.952	C
2	A	1682	421	632	1366	2398	20.6	97.2	157.418	F
	B	2640	660	582	2371	1416	11.2	79.0	70.291	F
	C	525	131	2720	527	234	1.7	3.5	21.654	C
	D	850	213	2474	852	773	1.7	3.1	12.543	B
	E	698	175	2516	514	809	9.8	51.3	213.745	F

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1865	466	967	1800	1135	5.1	15.6	18.251	C
	B			0		217				
	C	1382	345	14	1346	2534	42.9	55.1	132.982	F
	D	788	197	1360	741	0	6.3	13.6	45.038	E
2	A	1684	421	611	1335	2398	97.2	181.0	375.810	F
	B	2534	634	564	2383	1382	79.0	126.8	158.312	F
	C	524	131	2719	526	228	3.5	3.5	24.736	C
	D	853	213	2480	853	766	3.1	3.4	14.309	B
	E	698	175	2525	484	808	51.3	102.6	557.599	F

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1527	382	890	1543	1136	15.6	5.0	18.432	C
	B			0		216				
	C	1358	340	13	1350	2205	55.1	58.1	150.835	F
	D	644	161	1363	663	0	13.6	7.2	50.451	F
2	A	1374	344	613	1315	2269	181.0	193.4	511.970	F
	B	2205	551	569	2374	1358	126.8	89.3	167.674	F
	C	430	107	2713	431	231	3.5	2.2	18.904	C
	D	696	174	2377	696	766	3.4	2.0	10.425	B
	E	572	143	2324	558	750	102.6	110.5	683.536	F

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1278	320	768	1280	1136	5.0	1.6	5.656	A
	B			0		216				
	C	1364	341	10	1354	1823	58.1	58.6	150.633	F
	D	536	134	1364	540	0	7.2	1.8	17.500	C
2	A	1155	289	638	1321	1967	193.4	150.5	435.038	F
	B	1823	456	595	2007	1364	89.3	14.2	71.144	F
	C	356	89	2383	358	219	2.2	1.2	13.784	B
	D	588	147	2035	589	706	2.0	1.2	7.841	A
	E	477	119	1957	648	667	110.5	75.9	455.984	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	635	1273	0.499	635	0.0	0.8	3.989	A	
				2	A,C	640	1273	0.503	640	0.0	0.8	3.992	A	
		Exit	1	1		985			985	0.0	0.0	0.000	A	
	B	Exit	1	1		187			187	0.0	0.0	0.000	A	
						1176	1355	0.868	1172	0.0	7.2	18.313	C	
	C	Entry	1	1	B,C,D,A	1176	1355	0.868	1172	0.0	7.2	18.313	C	
						1811			1811	0.0	0.0	0.000	A	
	D	Entry	1	1	1	B,A	7	985	0.007	7	0.0	0.0	3.518	A
					2	C,D	530	985	0.538	530	0.0	1.4	7.926	A
				2	1	(A,B,C,D)	537			537	0.0	0.0	0.128	A
Exit		1	1		0			0	0.0	0.0	0.000	A		
2	A	Entry	1	1	B	831	1037	0.801	830	0.0	3.4	13.187	B	
				2	A,C,D,E	321	1037	0.309	321	0.0	0.5	5.219	A	
				2	1	(A,B,C,D,E)	1154			1151	0.0	1.8	3.892	A
		Exit	1	1		1796			1796	0.0	0.0	0.000	A	
	B	Entry	1	1	B,C,D,A,E	905	1219	0.742	905	0.0	2.0	7.051	A	
					2	A,B,C,D,E	906	1219	0.743	905	0.0	2.0	7.061	A
	Exit	1	1		1176			1176	0.0	0.0	0.000	A		
					200	547	0.366	200	0.0	0.5	7.994	A		
	C	Entry	1	1	D,A,E	200	547	0.366	200	0.0	0.5	7.994	A	
					2	A,B,C	161	547	0.294	161	0.0	0.4	7.416	A
				2	1	(A,B,C,D,E)	361			361	0.0	0.0	0.000	A
		Exit	1	1		184			184	0.0	0.0	0.000	A	
	D	Entry	1	1	A,E	283	821	0.345	283	0.0	0.5	5.406	A	
					2	A,B,C,D	302	821	0.368	302	0.0	0.5	5.543	A
	Exit	1	1		614			614	0.0	0.0	0.000	A		
					337	529	0.637	337	0.0	2.4	19.935	C		
E	Entry	1	1	B,A	337	529	0.637	337	0.0	2.4	19.935	C		
				2	C,D,E	138	529	0.260	137	0.0	0.4	8.945	A	
			2	1	(A,B,C,D,E)	475			475	0.0	0.0	0.138	A	
	Exit	1	1		610			610	0.0	0.0	0.000	A		

07:30 - 07:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	761	1230	0.619	760	0.8	1.1	5.238	A
				2	A,C	764	1230	0.621	764	0.8	1.2	5.242	A
		Exit	1	1		1100			1100	0.0	0.0	0.000	A
	B	Exit	1	1		212			212	0.0	0.0	0.000	A
						1361	1355	1.005	1309	7.2	22.3	43.630	E
	C	Entry	1	1	B,C,D,A	1361	1355	1.005	1309	7.2	22.3	43.630	E
						2164			2164	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	8	942	0.008	8	0.0	0.0	3.661	A
					2	C,D	635	942	0.674	634	1.4	2.3	12.000
				2	1	(A,B,C,D)	643			643	0.0	0.2	1.061
Exit		1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	962	1014	0.948	960	3.4	5.6	19.524	C
				2	A,C,D,E	373	1014	0.368	373	0.5	0.7	6.395	A
				2	1	(A,B,C,D,E)	1372			1334	1.8	14.3	25.331
		Exit	1	1		2128			2128	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	1080	1195	0.904	1077	2.0	5.6	15.849	C
					2	A,B,C,D,E	1084	1195	0.907	1080	2.0	5.6	15.857
	Exit	1	1		1361			1361	0.0	0.0	0.001	A	
					234	444	0.528	234	0.5	1.0	13.028	B	
	C	Entry	1	1	D,A,E	234	444	0.528	234	0.5	1.0	13.028	B
					2	A,B,C	193	444	0.434	192	0.4	0.7	11.846
				2	1	(A,B,C,D,E)	427			427	0.0	0.0	0.004
		Exit	1	1		219			219	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	338	715	0.473	337	0.5	0.8	7.856	A
					2	A,B,C,D	357	715	0.499	356	0.5	0.9	8.043
	Exit	1	1		726			726	0.0	0.0	0.000	A	
					394	445	0.887	388	2.4	6.8	49.610	E	
E	Entry	1	1	B,A	394	445	0.887	388	2.4	6.8	49.610	E	
				2	C,D,E	162	445	0.363	160	0.4	0.7	13.725	B
			2	1	(A,B,C,D,E)	567			556	0.0	2.3	6.682	A
	Exit	1	1		724			724	0.0	0.0	0.000	A	

07:45 - 08:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	934	1182	0.790	932	1.1	2.5	8.655	A	
			1	2	A,C	935	1182	0.791	933	1.2	2.5	8.706	A	
		Exit	1	1		1134			1134	0.0	0.0	0.000	A	
	B	Exit	1	1		218			218	0.0	0.0	0.000	A	
	C	Entry	1	1	B,C,D,A	1416	1353	1.047	1346	22.3	42.9	90.462	F	
		Exit	1	1		2640			2640	0.0	0.0	0.002	A	
	D	Entry		1	1	B,A	10	930	0.011	10	0.0	0.0	3.915	A
				1	2	C,D	773	930	0.831	772	2.3	4.2	18.301	C
			2	1	(A,B,C,D)	790			783	0.2	2.1	6.723	A	
		Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	989	1006	0.983	988	5.6	6.7	23.924	C	
			1	2	A,C,D,E	379	1006	0.376	378	0.7	0.8	7.325	A	
			2	1	(A,B,C,D,E)	1682			1367	14.3	89.6	138.175	F	
		Exit	1	1		2398			2398	0.0	0.0	0.000	A	
	B	Entry	1	1	B,C,D,A,E	1321	1192	1.107	1186	5.6	39.5	70.206	F	
			2	1	A,B,C,D,E	1320	1192	1.107	1186	5.6	39.5	70.375	F	
		Exit	1	1		1417			1416	0.0	0.0	0.028	A	
	C	Entry	1	1	D,A,E	281	390	0.722	282	1.0	1.9	22.637	C	
			1	2	A,B,C	244	390	0.626	245	0.7	1.5	20.033	C	
			2	1	(A,B,C,D,E)	525			525	0.0	0.1	0.202	A	
		Exit	1	1		234			234	0.0	0.0	0.000	A	
	D	Entry	1	1	A,E	420	635	0.661	421	0.8	1.5	12.287	B	
			2	1	A,B,C,D	430	635	0.677	431	0.9	1.6	12.787	B	
		Exit	1	1		773			773	0.0	0.0	0.000	A	
	E	Entry	1	1	B,A	368	362	1.016	360	6.8	13.5	110.166	F	
			1	2	C,D,E	153	362	0.421	153	0.7	1.1	22.732	C	
		2	1	(A,B,C,D,E)	698			521	2.3	36.8	126.839	F		
	Exit	1	1		809			809	0.0	0.0	0.000	A		

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	930	1196	0.777	897	2.5	7.8	18.295	C	
			1	2	A,C	935	1196	0.782	903	2.5	7.8	18.206	C	
		Exit	1	1		1135			1135	0.0	0.0	0.000	A	
	B	Exit	1	1		217			217	0.0	0.0	0.000	A	
	C	Entry	1	1	B,C,D,A	1382	1354	1.020	1346	42.9	55.1	132.982	F	
		Exit	1	1		2535			2534	0.0	0.2	0.088	A	
	D	Entry		1	1	B,A	10	930	0.011	10	0.0	0.0	3.949	A
				1	2	C,D	739	930	0.794	731	4.2	5.6	22.952	C
			2	1	(A,B,C,D)	788			749	2.1	8.0	21.764	C	
		Exit	1	1		0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	961	1012	0.950	961	6.7	6.7	24.991	C	
			1	2	A,C,D,E	373	1012	0.368	374	0.8	0.7	7.195	A	
			2	1	(A,B,C,D,E)	1684			1334	89.6	173.5	355.861	F	
		Exit	1	1		2398			2398	0.0	0.0	0.000	A	
	B	Entry	1	1	B,C,D,A,E	1266	1198	1.057	1190	39.5	63.4	158.338	F	
			2	1	A,B,C,D,E	1269	1198	1.059	1193	39.5	63.4	158.285	F	
		Exit	1	1		1382			1382	0.0	0.1	0.115	A	
	C	Entry	1	1	D,A,E	281	390	0.721	282	1.9	2.0	25.592	D	
			1	2	A,B,C	243	390	0.625	244	1.5	1.5	22.858	C	
			2	1	(A,B,C,D,E)	524			524	0.1	0.1	0.406	A	
		Exit	1	1		228			228	0.0	0.0	0.000	A	
	D	Entry	1	1	A,E	423	634	0.668	423	1.5	1.6	13.817	B	
			2	1	A,B,C,D	430	634	0.678	430	1.6	1.8	14.785	B	
		Exit	1	1		766			766	0.0	0.0	0.000	A	
	E	Entry	1	1	B,A	345	360	0.958	345	13.5	13.8	141.230	F	
			1	2	C,D,E	139	360	0.385	139	1.1	1.0	26.070	D	
		2	1	(A,B,C,D,E)	698			484	36.8	87.9	458.253	F		
	Exit	1	1		808			808	0.0	0.0	0.000	A		

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	760	1221	0.622	768	7.8	2.5	18.490	C
			1	2	A,C	767	1221	0.628	776	7.8	2.5	18.375	C
		Exit	1	1		1136			1136	0.0	0.0	0.000	A
	B	Exit	1	1		216			216	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1358	1355	1.003	1350	55.1	58.1	150.835	F

	Exit	1	1		2205			2205	0.2	0.0	0.129	A		
D	Entry	1	1	B,A	8		929	0.009	8	0.0	0.0	3.928	A	
			2	C,D	650		929	0.699	655	5.6	3.3	21.452	C	
	Exit	1	1	(A,B,C,D)	644				658	8.0	3.8	29.808	D	
					0			0	0.0	0.0	0.000	A		
2	A	Entry	1	1	B	948	1011	0.938	948	6.7	6.8	25.422	D	
				2	A,C,D,E	366	1011	0.362	366	0.7	0.7	7.136	A	
		Exit	1	1	(A,B,C,D,E)	1374				1314	173.5	186.0	491.860	F
						2269			2269	0.0	0.0	0.000	A	
	B	Entry	1	1	B,C,D,A,E	1100	1196	0.919	1185	63.4	44.6	167.790	F	
				2	A,B,C,D,E	1105	1196	0.924	1189	63.4	44.7	167.558	F	
	Exit	1	1		1358				1358	0.1	0.1	0.167	A	
					234	391	0.598	235	2.0	1.2	19.491	C		
	C	Entry	1	1	D,A,E	234	391	0.598	235	2.0	1.2	19.491	C	
				2	A,B,C	196	391	0.500	196	1.5	1.0	18.094	C	
		Exit	1	1	(A,B,C,D,E)	430				430	0.1	0.0	0.071	A
						231			231	0.0	0.0	0.000	A	
	D	Entry	1	1	A,E	344	665	0.518	344	1.6	0.9	9.973	A	
				2	A,B,C,D	352	665	0.529	352	1.8	1.0	10.862	B	
	Exit	1	1		766				766	0.0	0.0	0.000	A	
				Entry	1	1	B,A	396	410	0.967	396	13.8	13.7	127.151
Exit	1	1	C,D,E			161	410	0.394	161	1.0	1.0	23.541	C	
				572			558	87.9	95.8	599.989	F			
Exit	1	1	(A,B,C,D,E)	750				750	0.0	0.0	0.000	A		

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	636	1261	0.504	637	2.5	0.8	5.652	A
				2	A,C	643	1261	0.510	644	2.5	0.8	5.661	A
	Exit	1	1		1136			1136	0.0	0.0	0.000	A	
				B	Exit	1	1		216			216	0.0
	C	Entry	1	1	B,C,D,A	1364	1356	1.006	1354	58.1	58.6	150.633	F
				Exit	1	1		1823			1823	0.0	0.0
	D	Entry	1	1	B,A	7	929	0.007	7	0.0	0.0	3.798	A
				2	C,D	533	929	0.574	533	3.3	1.6	12.370	B
Exit		1	1	(A,B,C,D)	536			540	3.8	0.2	5.886	A	
					0			0	0.0	0.0	0.000	A	
2	A	Entry	1	1	B	949	1004	0.945	949	6.8	6.7	25.298	D
				2	A,C,D,E	370	1004	0.368	371	0.7	0.7	7.106	A
		Exit	1	1	(A,B,C,D,E)	1155			1319	186.0	143.1	416.092	F
						1967			1967	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	913	1189	0.768	1006	44.6	7.1	71.008	F
				2	A,B,C,D,E	909	1189	0.765	1002	44.7	7.1	71.282	F
	Exit	1	1		1364			1364	0.1	0.1	0.165	A	
				C	Entry	1	1	D,A,E	197	478	0.413	198	1.2
	2	A,B,C	159				478	0.333	160	1.0	0.5	13.257	B
	D	Entry	1	1	(A,B,C,D,E)	356			356	0.0	0.0	0.006	A
				Exit	1	1		219			219	0.0	0.0
		Exit	1	1	A,E	288	769	0.374	288	0.9	0.6	7.554	A
					2	A,B,C,D	300	769	0.390	301	1.0	0.6	8.115
	E	Entry	1	1		706			706	0.0	0.0	0.000	A
				Exit	1	1	B,A	454	500	0.908	460	13.7	12.7
		2	C,D,E				187	500	0.373	188	1.0	0.9	19.331
Exit		1	1	(A,B,C,D,E)	477			641	95.8	62.2	393.319	F	
Exit	1	1		667			667	0.0	0.0	0.000	A		

M20 Junction 6 - Dev Scenario 2, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 6 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Junction 1 - Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm E - Lane Simulation	Arm E: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Linked junction	Junction 2 - Arm B	Linked arm: Junction 2 Arm B has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 6 North	Standard Roundabout	A,B,C,D	96.50	F
2	M20 Junction 6 South	Standard Roundabout	A,B,C,D,E	363.92	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	Dev Scenario 2	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	C	2	B	Simple (vertical queueing)	Normal	0	100.00	
2	B	1	C	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	1200	100.000
	B					
	C	✓				
	D		ONE HOUR	✓	731	100.000
2	A		ONE HOUR	✓	1388	100.000
	B	✓				
	C		ONE HOUR	✓	409	100.000
	D		ONE HOUR	✓	866	100.000
	E		ONE HOUR	✓	722	100.000

Origin-Destination Data

		Demand (PCU/hr)			
		To			
Junction 1		A	B	C	D
		A	29	0	1171

	B	Exit-only	Exit-only	Exit-only	Exit-only
From	C	1316	373	2	0
	D	0	11	720	0

Demand (PCU/hr)

		To					
		A	B	C	D	E	
Junction 2	From	A	3	932	116	151	186
		B	774	16	441	392	261
		C	148	149	0	54	58
		D	407	230	34	6	189
		E	126	363	125	108	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
Junction 1	From	A	4	0	5	0
		B	Exit-only	Exit-only	Exit-only	Exit-only
		C	5	4	0	0
		D	0	25	3	0

Heavy Vehicle Percentages

		To					
		A	B	C	D	E	
Junction 2	From	A	0	6	0	0	10
		B	3	0	1	3	19
		C	2	0	0	4	0
		D	5	4	0	0	4
		E	24	5	1	2	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	A	5.46	1.9	A	1100	1650
	B					
	C	203.71	75.9	F	1361	2042
	D	28.26	6.3	D	671	1007
2	A	1025.25	340.1	F	1273	1909
	B	14.71	9.1	B	1738	2607
	C	13.99	1.9	B	375	563
	D	12.41	3.3	B	795	1192
	E	630.20	116.0	F	661	992

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	908	227	824	908	983	0.0	0.9	3.555	A
	B			0		283				
	C	1267	317	21	1238	1428	0.0	11.9	24.855	C
	D	547	137	1259	548	0	0.0	1.3	7.675	A
2	A	1042	261	771	1042	1103	0.0	3.8	11.089	B
	B	1428	357	546	1431	1267	0.0	2.1	5.037	A
	C	308	77	1435	308	542	0.0	0.5	5.451	A
	D	649	162	1201	648	542	0.0	0.9	4.444	A

	E	541	135	1332	542	517	0.0	1.7	10.397	B
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17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1078	269	961	1078	1078	0.9	1.3	4.210	A
	B			0		309				
	C	1475	369	26	1354	1703	11.9	47.9	83.724	F
	D	662	166	1380	659	0	1.3	2.8	13.255	B
2	A	1247	312	922	1197	1312	3.8	15.0	29.806	D
	B	1703	426	644	1708	1475	2.1	3.4	7.102	A
	C	366	92	1706	366	646	0.5	0.8	6.994	A
	D	778	195	1432	777	640	0.9	1.4	5.627	A
	E	652	163	1592	642	616	1.7	4.9	20.946	C

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1320	330	1110	1319	1088	1.3	1.9	5.236	A
	B			0		313				
	C	1385	346	32	1360	2085	47.9	75.0	176.880	F
	D	804	201	1391	807	0	2.8	6.3	26.039	D
2	A	1531	383	954	986	1585	15.0	125.7	240.836	F
	B	2085	521	554	2087	1385	3.4	8.5	13.796	B
	C	460	115	1932	460	710	0.8	1.8	11.741	B
	D	959	240	1694	955	698	1.4	3.2	10.101	B
	E	789	197	1960	579	689	4.9	46.8	153.453	F

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1328	332	1108	1330	1073	1.9	1.9	5.463	A
	B			0		308				
	C	1337	334	33	1337	2098	75.0	75.9	203.706	F
	D	804	201	1369	811	0	6.3	5.8	28.263	D
2	A	1525	381	930	951	1564	125.7	270.8	744.281	F
	B	2098	524	544	2085	1337	8.5	9.1	14.710	B
	C	448	112	1927	446	701	1.8	1.9	13.986	B
	D	959	240	1682	961	692	3.2	3.3	12.414	B
	E	792	198	1952	543	691	46.8	111.5	518.940	F

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1069	267	956	1069	1078	1.9	1.3	4.355	A
	B			0		309				
	C	1347	337	25	1353	1691	75.9	74.8	201.239	F
	D	657	164	1379	655	0	5.8	2.6	15.714	C
2	A	1248	312	930	999	1307	270.8	335.3	1025.250	F
	B	1691	423	581	1686	1347	9.1	3.5	8.040	A
	C	365	91	1645	364	622	1.9	1.0	10.707	B
	D	776	194	1391	777	619	3.3	1.7	8.505	A
	E	646	161	1579	658	589	111.5	116.0	630.204	F

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	898	224	850	898	1074	1.3	1.0	3.742	A
	B			0		303				
	C	1355	339	22	1348	1423	74.8	75.0	197.749	F
	D	552	138	1371	553	0	2.6	1.4	9.885	A
2	A	1043	261	924	1023	1130	335.3	340.1	823.360	F
	B	1423	356	592	1424	1355	3.5	2.2	5.611	A
	C	306	77	1454	306	563	1.0	0.6	8.142	A
	D	649	162	1195	648	565	1.7	1.1	6.316	A
	E	546	137	1329	725	514	116.0	71.6	403.630	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	449	1243	0.361	449	0.0	0.5	3.533	A	
				2	A,C	459	1243	0.369	459	0.0	0.4	3.576	A	
		Exit	1	1		983			983	0.0	0.0	0.000	A	
	B	Exit	1	1		283			283	0.0	0.0	0.000	A	
						1267	1351	0.938	1238	0.0	11.9	24.855	C	
	C	Exit	1	1		1428			1428	0.0	0.0	0.000	A	
						8	961	0.009	8	0.0	0.0	4.711	A	
	D	Entry	1	1	1	B,A	8	961	0.009	8	0.0	0.0	4.711	A
					2	C,D	538	961	0.560	540	0.0	1.3	7.653	A
				2	1	(A,B,C,D)	547			547	0.0	0.0	0.054	A
	Exit	1	1		0			0	0.0	0.0	0.000	A		
2	A	Entry	1	1	B	700	968	0.723	700	0.0	2.5	11.475	B	
				2	A,C,D,E	344	968	0.356	343	0.0	0.7	5.956	A	
				2	1	(A,B,C,D,E)	1042			1044	0.0	0.6	1.445	A
		Exit	1	1		1103			1103	0.0	0.0	0.000	A	
	B	Entry	1	1	1	B,C,D,A,E	710	1203	0.590	712	0.0	1.0	5.059	A
					2	A,B,C,D,E	718	1203	0.597	719	0.0	1.1	5.015	A
		Exit	1	1		1267			1267	0.0	0.0	0.000	A	
	C	Entry	1	1	1	D,A,E	142	726	0.195	141	0.0	0.2	5.365	A
					2	A,B,C	166	726	0.229	167	0.0	0.2	5.525	A
				2	1	(A,B,C,D,E)	308			308	0.0	0.0	0.000	A
		Exit	1	1		542			542	0.0	0.0	0.000	A	
	D	Entry	1	1	1	A,E	302	1024	0.295	302	0.0	0.4	4.377	A
					2	A,B,C,D	347	1024	0.339	346	0.0	0.5	4.502	A
		Exit	1	1		542			542	0.0	0.0	0.000	A	
	E	Entry	1	1	1	B,A	368	655	0.562	368	0.0	1.4	12.083	B
					2	C,D,E	173	655	0.265	174	0.0	0.3	7.103	A
2				1	(A,B,C,D,E)	541			541	0.0	0.0	0.016	A	
Exit		1	1		517			517	0.0	0.0	0.000	A		

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	531	1198	0.444	532	0.5	0.6	4.208	A	
				2	A,C	546	1198	0.456	546	0.4	0.6	4.212	A	
		Exit	1	1		1078			1078	0.0	0.0	0.000	A	
	B	Exit	1	1		309			309	0.0	0.0	0.000	A	
						1475	1349	1.094	1354	11.9	47.9	83.724	F	
	C	Exit	1	1		1703			1703	0.0	0.0	0.000	A	
						10	924	0.010	10	0.0	0.0	4.947	A	
	D	Entry	1	1	1	B,A	10	924	0.010	10	0.0	0.0	4.947	A
					2	C,D	652	924	0.705	650	1.3	2.5	12.331	B
				2	1	(A,B,C,D)	662			661	0.0	0.3	0.989	A
	Exit	1	1		0			0	0.0	0.0	0.000	A		
2	A	Entry	1	1	B	802	926	0.867	798	2.5	4.8	18.699	C	
				2	A,C,D,E	398	926	0.430	399	0.7	0.9	7.761	A	
				2	1	(A,B,C,D,E)	1247			1201	0.6	9.3	14.525	B
		Exit	1	1		1312			1312	0.0	0.0	0.000	A	
	B	Entry	1	1	1	B,C,D,A,E	851	1174	0.725	853	1.0	1.7	7.115	A
					2	A,B,C,D,E	852	1174	0.726	854	1.1	1.7	7.089	A
		Exit	1	1		1476			1475	0.0	0.0	0.030	A	
	C	Entry	1	1	1	D,A,E	172	655	0.263	172	0.2	0.3	6.880	A
					2	A,B,C	194	655	0.296	193	0.2	0.4	7.092	A
				2	1	(A,B,C,D,E)	366			366	0.0	0.0	0.000	A
		Exit	1	1		646			646	0.0	0.0	0.000	A	
	D	Entry	1	1	1	A,E	367	954	0.384	366	0.4	0.6	5.335	A
					2	A,B,C,D	411	954	0.432	411	0.5	0.8	5.884	A
		Exit	1	1		640			640	0.0	0.0	0.000	A	
	E	Entry	1	1	1	B,A	441	590	0.747	435	1.4	3.9	25.512	D
					2	C,D,E	208	590	0.352	207	0.3	0.6	9.565	A
2				1	(A,B,C,D,E)	652			649	0.0	0.4	0.725	A	
Exit		1	1		616			616	0.0	0.0	0.000	A		

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	655	1149	0.570	655	0.6	0.9	5.202	A	
		Exit	1	1	A,C	664	1149	0.578	664	0.6	1.0	5.268	A	
	B	Exit	1	1		1088			1088	0.0	0.0	0.000	A	
	C	Entry	1	1	B,C,D,A	1385	1347	1.029	1360	47.9	75.0	176.880	F	
		Exit	1	1		2085			2085	0.0	0.0	0.000	A	
	D	Entry	1	1	B,A	11	921	0.012	11	0.0	0.0	4.898	A	
			2	1	C,D	795	921	0.863	796	2.5	4.4	18.891	C	
		Exit	1	1	(A,B,C,D)	804			806	0.3	1.9	7.211	A	
			Exit	1	1		0			0	0.0	0.0	0.000	A
	2	A	Entry	1	1	B	665	917	0.725	665	4.8	6.8	32.701	D
2				1	A,C,D,E	319	917	0.348	321	0.9	0.7	8.783	A	
Exit			1	1	(A,B,C,D,E)	1531			984	9.3	118.2	214.757	F	
			Exit	1	1		1585			1585	0.0	0.0	0.000	A
B		Entry	1	1	B,C,D,A,E	1048	1201	0.873	1050	1.7	4.2	13.739	B	
		Exit	1	1	A,B,C,D,E	1036	1201	0.863	1037	1.7	4.3	13.852	B	
			Exit	1	1		1385			1385	0.0	0.3	0.512	A
C		Entry	1	1	D,A,E	226	596	0.379	226	0.3	0.6	8.740	A	
			2	1	A,B,C	235	596	0.394	234	0.4	1.2	14.444	B	
		Exit	1	1	(A,B,C,D,E)	460			460	0.0	0.0	0.040	A	
			Exit	1	1		710			710	0.0	0.0	0.000	A
D		Entry	1	1	A,E	492	874	0.563	490	0.6	1.2	7.764	A	
		Exit	1	1	A,B,C,D	467	874	0.535	465	0.8	1.9	12.415	B	
			Exit	1	1		698			698	0.0	0.0	0.000	A
E		Entry	1	1	B,A	401	500	0.803	389	3.9	13.3	88.332	F	
			2	1	C,D,E	189	500	0.378	191	0.6	0.8	14.954	B	
	Exit	1	1	(A,B,C,D,E)	789			590	0.4	32.8	84.271	F		
		Exit	1	1		689			689	0.0	0.0	0.000	A	

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	661	1149	0.575	663	0.9	0.9	5.380	A	
		Exit	1	1	A,C	667	1149	0.580	668	1.0	1.0	5.545	A	
	B	Exit	1	1		1073			1073	0.0	0.0	0.000	A	
	C	Entry	1	1	B,C,D,A	1337	1346	0.993	1337	75.0	75.9	203.706	F	
		Exit	1	1		2098			2098	0.0	0.0	0.000	A	
	D	Entry	1	1	B,A	13	927	0.014	13	0.0	0.0	5.199	A	
			2	1	C,D	798	927	0.860	798	4.4	4.2	19.403	C	
		Exit	1	1	(A,B,C,D)	804			811	1.9	1.7	9.047	A	
			Exit	1	1		0			0	0.0	0.0	0.000	A
	2	A	Entry	1	1	B	631	924	0.683	630	6.8	6.9	39.021	E
2				1	A,C,D,E	320	924	0.347	321	0.7	0.8	8.353	A	
Exit			1	1	(A,B,C,D,E)	1525			951	118.2	263.1	716.663	F	
			Exit	1	1		1564			1564	0.0	0.0	0.000	A
B		Entry	1	1	B,C,D,A,E	1048	1204	0.870	1041	4.2	4.6	14.680	B	
		Exit	1	1	A,B,C,D,E	1050	1204	0.872	1043	4.3	4.5	14.741	B	
			Exit	1	1		1337			1337	0.3	0.3	0.882	A
C		Entry	1	1	D,A,E	224	597	0.375	223	0.6	0.6	8.943	A	
			2	1	A,B,C	224	597	0.376	223	1.2	1.3	18.721	C	
		Exit	1	1	(A,B,C,D,E)	448			448	0.0	0.0	0.090	A	
			Exit	1	1		701			701	0.0	0.0	0.000	A
D		Entry	1	1	A,E	499	877	0.569	500	1.2	1.2	8.603	A	
		Exit	1	1	A,B,C,D	460	877	0.524	461	1.9	2.1	16.509	C	
			Exit	1	1		692			692	0.0	0.0	0.000	A
E		Entry	1	1	B,A	365	502	0.728	364	13.3	13.9	135.467	F	
			2	1	C,D,E	177	502	0.354	179	0.8	0.8	15.817	C	
	Exit	1	1	(A,B,C,D,E)	792			542	32.8	96.8	430.419	F		
		Exit	1	1		691			691	0.0	0.0	0.000	A	

18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	530	1199	0.442	530	0.9	0.6	4.300	A
		Exit	1	1	A,C	539	1199	0.449	539	1.0	0.6	4.409	A
	B	Exit	1	1		1078			1078	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1347	1349	0.998	1353	75.9	74.8	201.239	F

		Exit	1	1		1691			1691	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	10	925	0.011	10	0.0	0.0	5.061	A
2				C,D	647	925	0.699	645	4.2	2.3	13.743	B	
2		1	(A,B,C,D)	657			656	1.7	0.2	2.236	A		
Exit		1	1		0		0	0.0	0.0	0.000	A		
2	A	Entry	1	1	B	664	924	0.719	665	6.9	6.8	36.974	E
				2	A,C,D,E	336	924	0.364	334	0.8	0.8	8.180	A
		2	1	(A,B,C,D,E)	1248			1000	263.1	327.7	1003.449	F	
		Exit	1	1		1307			1307	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	849	1193	0.712	847	4.6	1.8	8.054	A
				2	A,B,C,D,E	842	1193	0.706	839	4.5	1.8	8.026	A
	Exit	1	1		1347			1347	0.3	0.3	0.791	A	
	C	Entry	1	1	D,A,E	175	671	0.260	174	0.6	0.3	7.336	A
				2	A,B,C	190	671	0.283	190	1.3	0.7	13.681	B
		2	1	(A,B,C,D,E)	365			365	0.0	0.0	0.088	A	
		Exit	1	1		622			622	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	385	966	0.398	387	1.2	0.6	6.158	A
				2	A,B,C,D	391	966	0.404	390	2.1	1.2	10.831	B
	Exit	1	1		619			619	0.0	0.0	0.000	A	
	E	Entry	1	1	B,A	447	594	0.752	447	13.9	13.8	114.898	F
				2	C,D,E	212	594	0.357	211	0.8	0.9	14.201	B
		2	1	(A,B,C,D,E)	646			658	96.8	101.3	557.375	F	
		Exit	1	1		589			589	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	441	1234	0.357	441	0.6	0.5	3.721	A
				2	A,C	457	1234	0.370	457	0.6	0.5	3.762	A
		Exit	1	1		1074			1074	0.0	0.0	0.000	A
	B	Exit	1	1		303			303	0.0	0.0	0.000	A
	C	Entry	1	1	B,C,D,A	1355	1351	1.003	1348	74.8	75.0	197.749	F
				Exit	1	1		1423			1423	0.0	0.0
	D	Entry	1	1	B,A	8	927	0.008	8	0.0	0.0	4.959	A
				2	C,D	544	927	0.586	546	2.3	1.4	9.749	A
2		1	(A,B,C,D)	552			552	0.2	0.0	0.234	A		
Exit	1	1		0			0	0.0	0.0	0.000	A		
2	A	Entry	1	1	B	692	925	0.748	692	6.8	6.8	35.266	E
				2	A,C,D,E	333	925	0.360	331	0.8	0.8	8.360	A
		2	1	(A,B,C,D,E)	1043			1025	327.7	332.6	815.409	F	
		Exit	1	1		1130			1130	0.0	0.0	0.000	A
	B	Entry	1	1	B,C,D,A,E	712	1189	0.598	712	1.8	1.1	5.600	A
				2	A,B,C,D,E	711	1189	0.598	712	1.8	1.1	5.622	A
	Exit	1	1		1355			1355	0.3	0.3	0.701	A	
	C	Entry	1	1	D,A,E	145	721	0.201	145	0.3	0.3	6.109	A
				2	A,B,C	162	721	0.224	161	0.7	0.4	9.966	A
		2	1	(A,B,C,D,E)	306			306	0.0	0.0	0.000	A	
		Exit	1	1		563			563	0.0	0.0	0.000	A
	D	Entry	1	1	A,E	316	1026	0.308	317	0.6	0.4	4.845	A
				2	A,B,C,D	333	1026	0.324	332	1.2	0.8	7.714	A
	Exit	1	1		565			565	0.0	0.0	0.000	A	
E	Entry	1	1	B,A	485	655	0.741	493	13.8	12.4	96.232	F	
			2	C,D,E	228	655	0.348	231	0.9	0.8	12.451	B	
	2	1	(A,B,C,D,E)	546			714	101.3	58.5	346.883	F		
	Exit	1	1		514			514	0.0	0.0	0.000	A	

Junctions 9
ARCADY 9 - Roundabout Module
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Report generation date: 25/08/2016 17:11:47

«M20 Junction 7 - 2016, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	M20 Junction 7 [Lane Simulation] - 2016			
Arm A	4.5	18.13		C
Arm B	4.6	19.34		C
Arm C	419.2	780.47		F
Arm D	3.5	16.22		C

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. Arm and junction delays are averages for all movements, including movements with zero delay.

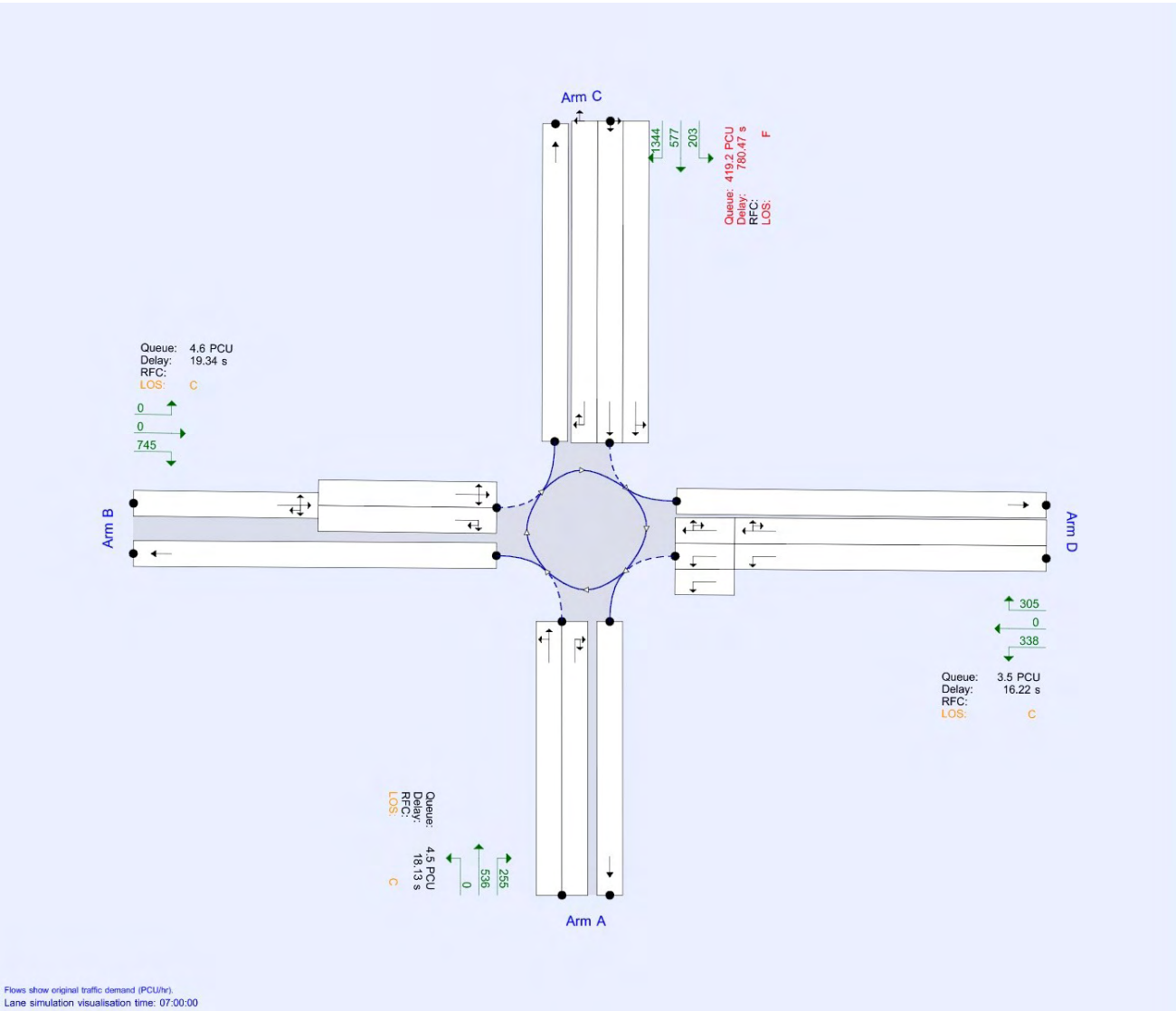
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	784246272	223	84.37

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 7	✓	✓	100.000	100.000

M20 Junction 7 - 2016, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 7 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 7	Large Roundabout	A,B,C,D	393.24	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A249 South	
B	M20 West	
C	A249 North	
D	M20 East	

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)	Exit only
A	6.10	7.00	18.5	50.7	180.0	12.0	
B	4.00	6.60	8.5	29.2	180.0	12.0	
C	10.50	12.05	4.9	25.0	180.0	12.3	
D	8.76	10.26	30.0	29.3	180.0	10.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1649	87.50
B	1096	132.00
C	1000	85.65
D	2666	112.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.822	2575
B	0.803	2064
C	1.286	4118
D	0.766	3313

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)	
A	1 [Give-way line]	1	B,C		Infinity	0	99999	
		2	D,A		Infinity	0	99999	
B	1 [Give-way line]	1	D,A,C	✓	12.00	0	99999	
		2	A,B	✓	12.00	0	99999	
	2	1	(D,A,B,C)		Infinity			
C	1 [Give-way line]	1	D,A	✓	22.00	0	99999	
		2	A	✓	22.00	0	99999	
		3	B,C	✓	22.00	0	99999	
	2	1	(D,A)		Infinity			
		2	(B,C)		Infinity			
D	1 [Give-way line]	1	A	✓	4.00	0	99999	
		2	A	✓	4.00	0	99999	
		3	D,B,C	✓	4.00	0	99999	
	2	1	(A)		Infinity			
		2	1	(D,B,C)		Infinity		
			2	(D,B,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.411	1287
		2	0.411	1287
B	1 [Give-way line]	1	0.402	1032
		2	0.402	1032
C	1 [Give-way line]	1	0.429	1373
		2	0.429	1373
		3	0.429	1373
D	1 [Give-way line]	1	0.255	1104
		2	0.255	1104
		3	0.255	1104

Lane Movements

Arm	Lane Level	Lane	Destination arm				
			D	A	B	C	
D	1 [Give-way line]	1		✓			
		2		✓			
		3	✓		✓	✓	
	2	1		✓			
		2	✓		✓	✓	
A	1 [Give-way line]	1			✓	✓	
		2	✓	✓			
B	1 [Give-way line]	1	✓	✓		✓	
		2		✓	✓		
	2	1	✓	✓	✓	✓	
C	1 [Give-way line]	1	✓	✓			
		2		✓			
		3			✓	✓	
	2	1	✓	✓			
		2	1			✓	✓
			2			✓	✓

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016	AM	ONE HOUR	07:00	08:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	791	100.000
B		ONE HOUR	✓	745	100.000
C		ONE HOUR	✓	2124	100.000
D		ONE HOUR	✓	643	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	0	536	255
	B	745	0	0	0
	C	577	1344	0	203
	D	338	0	305	0

Proportions

		To			
		A	B	C	D
From	A	0.00	0.00	0.68	0.32
	B	1.00	0.00	0.00	0.00
	C	0.27	0.63	0.00	0.10
	D	0.53	0.00	0.47	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	6	3
	B	4	0	0	0
	C	6	6	0	12
	D	3	0	10	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.060	1.030
	B	1.040	1.000	1.000	1.000
	C	1.060	1.060	1.000	1.120
	D	1.030	1.000	1.100	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:00-07:15	A	596	596
	B	561	561
	C	1599	1599
	D	484	484
07:15-07:30	A	711	711
	B	670	670
	C	1909	1909
	D	578	578
07:30-07:45	A	871	871
	B	820	820
	C	2339	2339
	D	708	708
07:45-08:00	A	871	871
	B	820	820
	C	2339	2339
	D	708	708
08:00-08:15	A	711	711
	B	670	670
	C	1909	1909
	D	578	578
08:15-08:30	A	596	596
	B	561	561
	C	1599	1599
	D	484	484

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	18.13	4.5	C	733	1099
B	19.34	4.6	C	685	1028
C	780.47	419.2	F	1944	2916
D	16.22	3.5	C	589	883

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	590	147	1218	589	1239	0.0	1.5	7.710	A
B	557	139	816	555	991	0.0	1.2	6.190	A
C	1595	399	745	1567	626	0.0	14.0	21.464	C
D	482	121	1973	483	339	0.0	1.2	7.398	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	715	179	1238	719	1487	1.5	2.2	11.784	B
B	668	167	982	666	975	1.2	1.8	8.915	A
C	1907	477	897	1674	752	14.0	69.2	97.788	F
D	569	142	2160	565	410	1.2	2.0	10.638	B

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	876	219	1242	874	1822	2.2	4.4	17.263	C
B	827	207	1212	816	904	1.8	4.6	15.806	C
C	2341	585	1096	1761	932	69.2	213.3	357.964	F
D	714	178	2350	713	507	2.0	3.5	15.783	C

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	877	219	1224	874	1828	4.4	4.5	18.129	C
B	827	207	1210	834	889	4.6	4.1	19.344	C
C	2313	578	1115	1741	928	213.3	358.0	701.055	F
D	698	174	2353	699	503	3.5	3.2	16.217	C

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	727	182	1254	730	1498	4.5	2.3	11.721	B
B	669	167	999	666	985	4.1	1.8	10.279	B
C	1905	476	899	1692	766	358.0	419.2	780.469	F
D	573	143	2179	573	411	3.2	2.0	11.226	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	612	153	1273	608	1253	2.3	1.8	9.541	A
B	563	141	842	564	1039	1.8	1.0	7.020	A
C	1604	401	763	1616	643	419.2	417.1	326.980	F
D	495	124	2029	496	349	2.0	1.3	9.225	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	401	787	0.509	399	0.0	1.2	8.723	A
			2	D,A	189	787	0.240	190	0.0	0.3	5.673	A
	Exit	1	1		1239			1239	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	281	705	0.398	280	0.0	0.6	6.169	A
			2	A,B	276	705	0.392	276	0.0	0.6	6.210	A
		2	1	(D,A,B,C)	557			557	0.0	0.0	0.000	A
	Exit	1	1		991			991	0.0	0.0	0.000	A
C	Entry	1	1	D,A	339	1053	0.322	339	0.0	0.5	4.348	A
			2	A	238	1053	0.226	238	0.0	0.3	3.895	A
			3	B,C	1007	1053	0.957	991	0.0	11.4	28.786	D
		2	1	(D,A)	576			576	0.0	0.0	0.000	A
			2	(B,C)	1019			1007	0.0	1.8	2.105	A
	Exit	1	1		626			626	0.0	0.0	0.000	A
D	Entry	1	1	A	129	601	0.214	128	0.0	0.3	6.010	A
			2	A	128	601	0.212	128	0.0	0.3	6.028	A
			3	D,B,C	226	601	0.377	227	0.0	0.7	8.724	A
		2	1	(A)	256			256	0.0	0.0	0.000	A
			2	(D,B,C)	226			226	0.0	0.0	0.333	A
	Exit	1	1		339			339	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	487	779	0.625	489	1.2	1.8	14.004	B
			2	D,A	228	779	0.293	230	0.3	0.4	7.129	A
	Exit	1	1		1487			1487	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	333	638	0.523	332	0.6	0.9	8.938	A
			2	A,B	335	638	0.525	334	0.6	0.9	8.892	A
		2	1	(D,A,B,C)	668			668	0.0	0.0	0.000	A
	Exit	1	1		975			975	0.0	0.0	0.000	A
C	Entry	1	1	D,A	405	988	0.410	405	0.5	0.7	5.330	A
			2	A	292	988	0.296	294	0.3	0.4	4.619	A
			3	B,C	981	988	0.993	975	11.4	21.8	69.754	F
		2	1	(D,A)	697			697	0.0	0.0	0.000	A
			2	(B,C)	1210			981	1.8	46.4	78.549	F
	Exit	1	1		752			752	0.0	0.0	0.000	A
D	Entry	1	1	A	152	553	0.274	151	0.3	0.4	7.619	A
			2	A	151	553	0.273	151	0.3	0.4	7.531	A
			3	D,B,C	265	553	0.479	263	0.7	1.1	12.847	B
		2	1	(A)	303			303	0.0	0.0	0.000	A
			2	(D,B,C)	266			265	0.0	0.2	1.356	A
	Exit	1	1		410			410	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	597	777	0.768	594	1.8	3.8	21.947	C
			2	D,A	280	777	0.360	280	0.4	0.6	7.598	A
	Exit	1	1		1822			1822	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	412	545	0.755	407	0.9	2.3	15.778	C
			2	A,B	415	545	0.761	409	0.9	2.3	15.790	C
		2	1	(D,A,B,C)	827			827	0.0	0.0	0.022	A
	Exit	1	1		904			904	0.0	0.0	0.000	A
C	Entry	1	1	D,A	486	903	0.539	485	0.7	1.0	6.689	A
			2	A	374	903	0.414	371	0.4	0.8	5.728	A
			3	B,C	904	903	1.002	904	21.8	21.9	86.420	F
		2	1	(D,A)	860			860	0.0	0.0	0.000	A
			2	(B,C)	1481			904	46.4	189.6	468.953	F
	Exit	1	1		932			932	0.0	0.0	0.000	A
D	Entry	1	1	A	185	504	0.367	186	0.4	0.4	8.789	A
			2	A	189	504	0.375	190	0.4	0.4	8.750	A
			3	D,B,C	341	504	0.676	338	1.1	2.0	17.586	C
		2	1	(A)	374			374	0.0	0.0	0.003	A
			2	(D,B,C)	339			341	0.2	0.7	6.396	A
	Exit	1	1		507			507	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	596	784	0.760	592	3.8	3.9	23.330	C
			2	D,A	281	784	0.358	281	0.6	0.6	7.474	A
	Exit	1	1		1828			1828	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	415	547	0.759	417	2.3	2.1	19.338	C
			2	A,B	412	547	0.754	417	2.3	2.0	19.177	C
		2	1	(D,A,B,C)	827			827	0.0	0.0	0.085	A
	Exit	1	1		889			889	0.0	0.0	0.000	A
C	Entry	1	1	D,A	481	895	0.538	481	1.0	1.0	7.185	A
			2	A	370	895	0.414	372	0.8	0.6	5.937	A
			3	B,C	888	895	0.993	889	21.9	21.9	87.957	F
		2	1	(D,A)	852			852	0.0	0.0	0.000	A
			2	(B,C)	1461			888	189.6	334.5	1015.643	F
	Exit	1	1		928			928	0.0	0.0	0.000	A
D	Entry	1	1	A	182	504	0.361	182	0.4	0.5	9.027	A
			2	A	180	504	0.358	182	0.4	0.4	9.137	A
			3	D,B,C	336	504	0.666	336	2.0	1.7	17.813	C
		2	1	(A)	362			362	0.0	0.0	0.007	A
			2	(D,B,C)	336			336	0.7	0.6	6.830	A
	Exit	1	1		503			503	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	493	772	0.639	496	3.9	1.8	14.070	B
			2	D,A	233	772	0.302	233	0.6	0.4	6.958	A
	Exit	1	1		1498			1498	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	335	631	0.531	333	2.1	0.9	10.227	B
			2	A,B	334	631	0.529	332	2.0	0.9	10.317	B
		2	1	(D,A,B,C)	669			669	0.0	0.0	0.011	A
	Exit	1	1		985			985	0.0	0.0	0.000	A
C	Entry	1	1	D,A	403	987	0.409	403	1.0	0.7	5.696	A
			2	A	304	987	0.308	304	0.6	0.3	4.801	A
			3	B,C	985	987	0.997	985	21.9	22.0	81.445	F
		2	1	(D,A)	707			707	0.0	0.0	0.000	A
			2	(B,C)	1198			985	334.5	396.2	1247.941	F
	Exit	1	1		766			766	0.0	0.0	0.000	A
D	Entry	1	1	A	150	548	0.273	150	0.5	0.4	7.734	A
			2	A	152	548	0.278	153	0.4	0.3	7.901	A
			3	D,B,C	270	548	0.493	270	1.7	1.2	13.360	B
		2	1	(A)	302			302	0.0	0.0	0.003	A
			2	(D,B,C)	271			270	0.6	0.2	1.922	A
	Exit	1	1		411			411	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	413	765	0.540	409	1.8	1.4	11.034	B
			2	D,A	199	765	0.261	199	0.4	0.4	6.502	A
	Exit	1	1		1253			1253	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	281	694	0.405	281	0.9	0.5	7.037	A
			2	A,B	283	694	0.407	283	0.9	0.5	7.003	A
		2	1	(D,A,B,C)	563			563	0.0	0.0	0.000	A
	Exit	1	1		1039			1039	0.0	0.0	0.000	A
C	Entry	1	1	D,A	341	1046	0.326	342	0.7	0.4	4.684	A
			2	A	236	1046	0.226	235	0.3	0.3	4.143	A
			3	B,C	1039	1046	0.993	1039	22.0	21.9	76.203	F
		2	1	(D,A)	577			577	0.0	0.0	0.000	A
			2	(B,C)	1027			1039	396.2	394.4	896.335	F
	Exit	1	1		643			643	0.0	0.0	0.000	A
D	Entry	1	1	A	131	586	0.223	131	0.4	0.3	6.987	A
			2	A	131	586	0.224	131	0.3	0.3	7.004	A
			3	D,B,C	234	586	0.399	234	1.2	0.7	11.186	B
		2	1	(A)	262			262	0.0	0.0	0.000	A
			2	(D,B,C)	233			234	0.2	0.0	0.735	A
	Exit	1	1		349			349	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
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Report generation date: 18/08/2016 10:21:00

«M20 Junction 7 - 2016, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	M20 Junction 7 [Lane Simulation] - 2016			
Arm A	51.0	141.36		F
Arm B	74.5	228.64		F
Arm C	93.8	209.25		F
Arm D	4.0	21.63		C

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. Arm and junction delays are averages for all movements, including movements with zero delay.

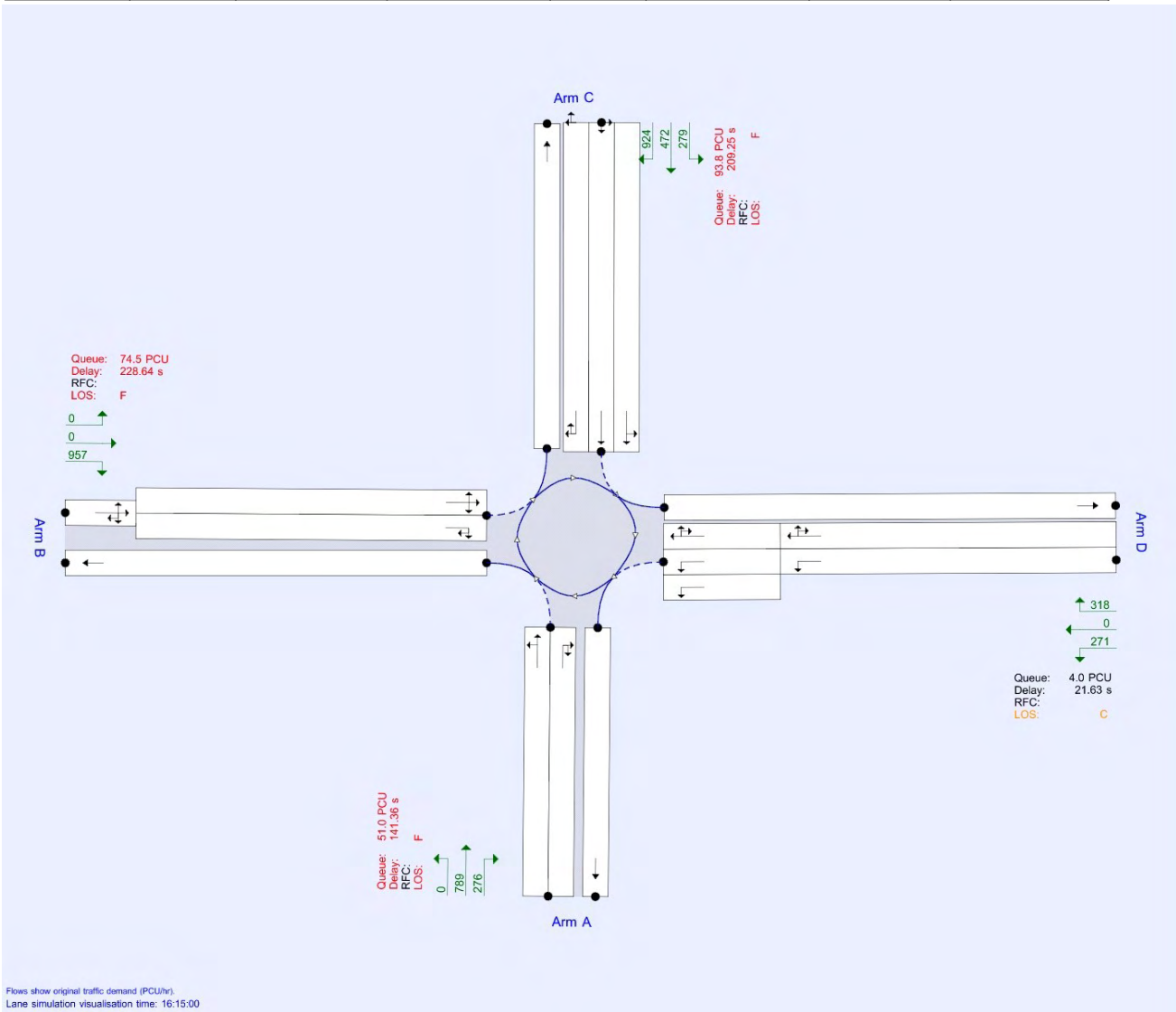
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1650212539	409	165.70

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 7	✓	✓	100.000	100.000

M20 Junction 7 - 2016, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 7 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 7	Large Roundabout	A,B,C,D	171.03	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A249 South	
B	M20 West	
C	A249 North	
D	M20 East	

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)	Exit only
A	6.10	7.00	18.5	50.7	180.0	12.0	
B	4.00	6.60	8.5	29.2	180.0	12.0	
C	10.50	12.05	4.9	25.0	180.0	12.3	
D	8.76	10.26	30.0	29.3	180.0	10.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1242	87.50
B	1383	132.00
C	1233	85.65
D	2353	112.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.907	2669
B	0.752	1997
C	1.221	4063
D	0.848	3386

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)	
A	1 [Give-way line]	1	B,C		Infinity	0	99999	
		2	D,A		Infinity	0	99999	
B	1 [Give-way line]	1	D,A,C	✓	12.00	0	99999	
		2	A,B	✓	12.00	0	99999	
	2	1	(D,A,B,C)		Infinity			
C	1 [Give-way line]	1	D,A	✓	22.00	0	99999	
		2	A	✓	22.00	0	99999	
		3	B,C	✓	22.00	0	99999	
	2	1	(D,A)		Infinity			
		2	(B,C)		Infinity			
D	1 [Give-way line]	1	A	✓	4.00	0	99999	
		2	A	✓	4.00	0	99999	
		3	D,B,C	✓	4.00	0	99999	
	2	1	(A)		Infinity			
		2	1	(D,B,C)		Infinity		
			2	(D,B,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.453	1335
		2	0.453	1335
B	1 [Give-way line]	1	0.376	999
		2	0.376	999
C	1 [Give-way line]	1	0.407	1354
		2	0.407	1354
		3	0.407	1354
D	1 [Give-way line]	1	0.283	1129
		2	0.283	1129
		3	0.283	1129

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓		
		3	✓		✓	✓
	2	1		✓		
		2	✓		✓	✓
A	1 [Give-way line]	1			✓	✓
		2	✓	✓		
B	1 [Give-way line]	1	✓	✓		✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
C	1 [Give-way line]	1	✓	✓		
		2		✓		
		3			✓	✓
	2	1	✓	✓		
		2			✓	✓

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2016	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1065	100.000
B		ONE HOUR	✓	957	100.000
C		ONE HOUR	✓	1675	100.000
D		ONE HOUR	✓	589	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	0	789	276
	B	957	0	0	0
	C	472	924	0	279
	D	271	0	318	0

Proportions

		To			
		A	B	C	D
From	A	0.00	0.00	0.74	0.26
	B	1.00	0.00	0.00	0.00
	C	0.28	0.55	0.00	0.17
	D	0.46	0.00	0.54	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	1
	B	3	0	0	0
	C	4	9	0	9
	D	1	0	7	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.020	1.010
	B	1.030	1.000	1.000	1.000
	C	1.040	1.090	1.000	1.090
	D	1.010	1.000	1.070	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:15-16:30	A	802	802
	B	720	720
	C	1261	1261
	D	443	443
16:30-16:45	A	957	957
	B	860	860
	C	1506	1506
	D	529	529
16:45-17:00	A	1173	1173
	B	1054	1054
	C	1844	1844
	D	649	649
17:00-17:15	A	1173	1173
	B	1054	1054
	C	1844	1844
	D	649	649
17:15-17:30	A	957	957
	B	860	860
	C	1506	1506
	D	529	529
17:30-17:45	A	802	802
	B	720	720
	C	1261	1261
	D	443	443

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	141.36	51.0	F	975	1463
B	228.64	74.5	F	880	1320
C	209.25	93.8	F	1538	2306
D	21.63	4.0	C	539	808

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	796	199	934	796	1280	0.0	2.2	8.747	A
B	725	181	1035	724	696	0.0	2.3	9.322	A
C	1264	316	929	1261	830	0.0	3.9	9.019	A
D	441	110	1773	442	417	0.0	1.0	7.230	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	965	241	1108	956	1519	2.2	6.5	20.366	C
B	852	213	1244	855	820	2.3	5.1	18.944	C
C	1493	373	1104	1491	995	3.9	10.5	21.301	C
D	532	133	2095	532	500	1.0	1.8	11.469	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1166	292	1207	1076	1727	6.5	30.0	66.343	F
B	1061	265	1425	909	858	5.1	40.8	92.574	F
C	1841	460	1213	1677	1122	10.5	52.3	74.783	F
D	648	162	2287	646	602	1.8	4.0	18.880	C

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1158	289	1210	1081	1737	30.0	51.0	141.362	F
B	1055	264	1437	918	854	40.8	74.5	228.643	F
C	1850	463	1218	1685	1137	52.3	93.8	168.377	F
D	653	163	2291	655	612	4.0	3.8	21.627	C

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	957	239	1132	1031	1641	51.0	31.0	138.456	F
B	863	216	1311	985	852	74.5	46.0	224.531	F
C	1499	375	1229	1520	1067	93.8	88.0	209.252	F
D	520	130	2255	518	495	3.8	2.2	14.826	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	810	202	1114	860	1374	31.0	7.8	56.471	F
B	727	182	1098	813	876	46.0	5.8	73.170	F
C	1278	320	1023	1444	888	88.0	45.0	131.464	F
D	440	110	2045	443	422	2.2	1.3	11.595	B

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	592	911	0.649	591	0.0	1.9	10.162	B
			2	D,A	205	911	0.225	205	0.0	0.3	4.776	A
	Exit	1	1		1280			1280	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	360	610	0.591	360	0.0	1.1	9.297	A
			2	A,B	364	610	0.597	364	0.0	1.1	9.345	A
	Exit	1	1	(D,A,B,C)	725			725	0.0	0.0	0.000	A
C	Entry	1	1	D,A	359	976	0.368	358	0.0	0.6	4.998	A
			2	A	208	976	0.213	207	0.0	0.3	4.064	A
			3	B,C	698	976	0.715	696	0.0	3.0	12.637	B
	Exit	1	1	(D,A)	566			566	0.0	0.0	0.000	A
			2	(B,C)	698			698	0.0	0.0	0.008	A
	Exit	1	1		830			830	0.0	0.0	0.000	A
D	Entry	1	1	A	101	628	0.161	102	0.0	0.1	5.491	A
			2	A	102	628	0.162	101	0.0	0.2	5.368	A
			3	D,B,C	238	628	0.379	239	0.0	0.7	8.561	A
	Exit	1	1	(A)	203			203	0.0	0.0	0.000	A
			2	(D,B,C)	238			238	0.0	0.0	0.291	A
	Exit	1	1		417			417	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	717	832	0.861	707	1.9	6.1	25.363	D
			2	D,A	249	832	0.299	249	0.3	0.4	6.089	A
	Exit	1	1		1519			1519	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	424	531	0.799	426	1.1	2.5	18.907	C
			2	A,B	428	531	0.805	429	1.1	2.5	18.665	C
	Exit	1	1	(D,A,B,C)	852			852	0.0	0.0	0.144	A
C	Entry	1	1	D,A	412	905	0.455	412	0.6	0.8	6.368	A
			2	A	258	905	0.285	258	0.3	0.4	4.852	A
			3	B,C	823	905	0.909	820	3.0	8.7	32.498	D
	Exit	1	1	(D,A)	670			670	0.0	0.0	0.000	A
			2	(B,C)	823			823	0.0	0.6	1.657	A
	Exit	1	1		995			995	0.0	0.0	0.000	A
D	Entry	1	1	A	121	537	0.226	122	0.1	0.2	7.117	A
			2	A	122	537	0.228	122	0.2	0.3	7.070	A
			3	D,B,C	288	537	0.537	288	0.7	1.2	13.396	B
	Exit	1	1	(A)	244			244	0.0	0.0	0.000	A
			2	(D,B,C)	288			288	0.0	0.2	1.998	A
	Exit	1	1		500			500	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	863	787	1.096	772	6.1	29.4	87.384	F
			2	D,A	304	787	0.386	304	0.4	0.6	7.308	A
	Exit	1	1		1727			1727	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	466	463	1.007	452	2.5	10.9	62.444	F
			2	A,B	470	463	1.015	457	2.5	10.8	62.690	F
		2	1	(D,A,B,C)	1061			936	0.0	19.1	27.765	D
	Exit	1	1		858			858	0.0	0.0	0.000	A
C	Entry	1	1	D,A	493	861	0.573	490	0.8	1.2	7.979	A
			2	A	329	861	0.383	329	0.4	0.6	5.942	A
			3	B,C	870	861	1.011	858	8.7	21.0	73.338	F
		2	1	(D,A)	822			822	0.0	0.0	0.000	A
			2	(B,C)	1018			870	0.6	29.5	55.816	F
	Exit	1	1		1122			1122	0.0	0.0	0.000	A
D	Entry	1	1	A	148	482	0.306	148	0.2	0.3	8.620	A
			2	A	149	482	0.308	149	0.3	0.4	8.498	A
			3	D,B,C	351	482	0.728	349	1.2	2.1	19.200	C
		2	1	(A)	296			296	0.0	0.0	0.001	A
			2	(D,B,C)	352			351	0.2	1.2	8.951	A
	Exit	1	1		602			602	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	859	786	1.092	781	29.4	50.3	188.590	F
			2	D,A	299	786	0.380	300	0.6	0.6	7.647	A
	Exit	1	1		1737			1737	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	463	459	1.009	461	10.9	11.7	89.147	F
			2	A,B	459	459	1.000	457	10.8	11.7	89.576	F
		2	1	(D,A,B,C)	1055			922	19.1	51.0	139.531	F
	Exit	1	1		854			854	0.0	0.0	0.000	A
C	Entry	1	1	D,A	500	859	0.582	499	1.2	1.3	8.140	A
			2	A	333	859	0.387	332	0.6	0.6	6.054	A
			3	B,C	854	859	0.995	854	21.0	21.9	90.957	F
		2	1	(D,A)	833			833	0.0	0.0	0.000	A
			2	(B,C)	1018			854	29.5	70.1	211.993	F
	Exit	1	1		1137			1137	0.0	0.0	0.000	A
D	Entry	1	1	A	150	481	0.312	150	0.3	0.4	9.003	A
			2	A	149	481	0.310	149	0.4	0.4	8.958	A
			3	D,B,C	355	481	0.739	356	2.1	2.0	20.908	C
		2	1	(A)	299			299	0.0	0.0	0.001	A
			2	(D,B,C)	353			355	1.2	1.1	12.242	B
	Exit	1	1		612			612	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	713	822	0.868	787	50.3	30.5	184.789	F
			2	D,A	244	822	0.297	244	0.6	0.5	6.641	A
	Exit	1	1		1641			1641	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	481	506	0.952	493	11.7	9.6	79.594	F
			2	A,B	481	506	0.951	492	11.7	9.6	80.214	F
		2	1	(D,A,B,C)	863			963	51.0	26.8	146.703	F
	Exit	1	1		852			852	0.0	0.0	0.000	A
C	Entry	1	1	D,A	411	854	0.481	411	1.3	0.8	7.079	A
			2	A	256	854	0.300	257	0.6	0.4	5.523	A
			3	B,C	851	854	0.996	852	21.9	21.5	90.924	F
		2	1	(D,A)	667			667	0.0	0.0	0.000	A
			2	(B,C)	832			851	70.1	65.3	287.281	F
	Exit	1	1		1067			1067	0.0	0.0	0.000	A
D	Entry	1	1	A	119	491	0.241	118	0.4	0.3	8.342	A
			2	A	120	491	0.244	120	0.4	0.3	8.272	A
			3	D,B,C	282	491	0.574	280	2.0	1.4	16.892	C
		2	1	(A)	238			238	0.0	0.0	0.000	A
			2	(D,B,C)	282			282	1.1	0.2	3.946	A
	Exit	1	1		495			495	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	601	830	0.724	651	30.5	7.5	74.711	F
			2	D,A	209	830	0.252	210	0.5	0.3	6.015	A
	Exit	1	1		1374			1374	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	389	586	0.663	409	9.6	2.2	43.467	E
			2	A,B	382	586	0.651	405	9.6	2.1	44.013	E
		2	1	(D,A,B,C)	727			770	26.8	1.5	34.928	D
	Exit	1	1		876			876	0.0	0.0	0.000	A
C	Entry	1	1	D,A	358	938	0.381	357	0.8	0.6	6.006	A
			2	A	210	938	0.224	211	0.4	0.3	4.810	A
			3	B,C	844	938	0.900	876	21.5	16.2	80.438	F
		2	1	(D,A)	568			568	0.0	0.0	0.000	A
			2	(B,C)	710			844	65.3	28.0	176.629	F
	Exit	1	1		888			888	0.0	0.0	0.000	A
D	Entry	1	1	A	103	551	0.188	104	0.3	0.2	7.311	A
			2	A	102	551	0.185	102	0.3	0.2	7.443	A
			3	D,B,C	236	551	0.429	238	1.4	0.8	13.912	B
		2	1	(A)	205			205	0.0	0.0	0.000	A
			2	(D,B,C)	235			236	0.2	0.0	1.592	A
	Exit	1	1		422			422	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
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Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 7\ARCADY
Report generation date: 18/08/2016 10:21:48

«M20 Junction 7 - 2031, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 7 [Lane Simulation] - 2031				
Arm A	6.5	21.90		C
Arm B	10.1	39.26		E
Arm C	591.7	950.44		F
Arm D	4.1	18.22		C

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. Arm and junction delays are averages for all movements, including movements with zero delay.

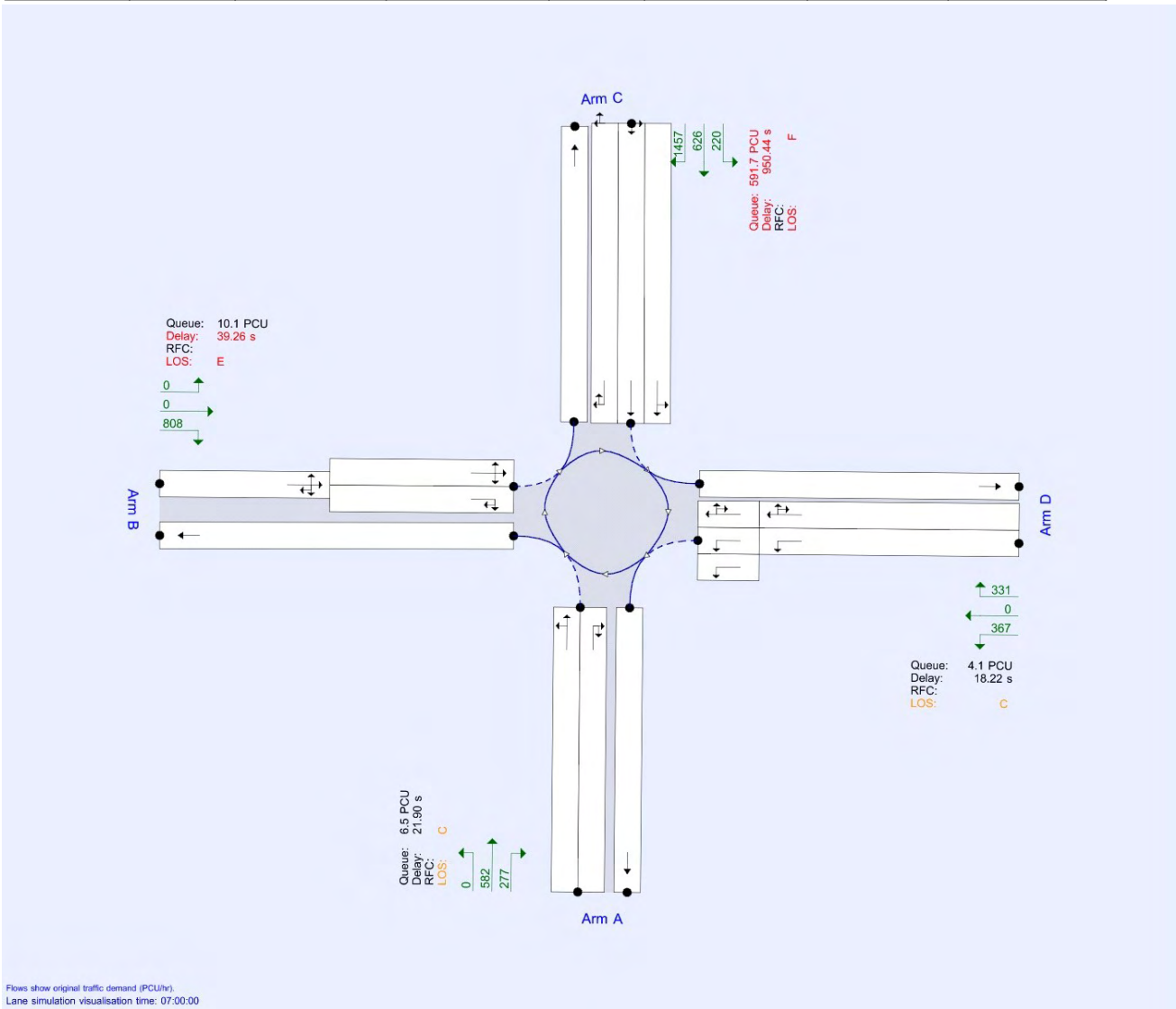
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	940310585	231	97.00

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 7	✓	✓	100.000	100.000

M20 Junction 7 - 2031, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 7 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 7	Large Roundabout	A,B,C,D	481.58	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A249 South	
B	M20 West	
C	A249 North	
D	M20 East	

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)	Exit only
A	6.10	7.00	18.5	50.7	180.0	12.0	
B	4.00	6.60	8.5	29.2	180.0	12.0	
C	10.50	12.05	4.9	25.0	180.0	12.3	
D	8.76	10.26	30.0	29.3	180.0	10.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1788	87.50
B	1190	132.00
C	1085	85.65
D	2891	112.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.793	2542
B	0.786	2042
C	1.262	4098
D	0.707	3261

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)	
A	1 [Give-way line]	1	B,C		Infinity	0	99999	
		2	D,A		Infinity	0	99999	
B	1 [Give-way line]	1	D,A,C	✓	12.00	0	99999	
		2	A,B	✓	12.00	0	99999	
	2	1	(D,A,B,C)		Infinity			
C	1 [Give-way line]	1	D,A	✓	22.00	0	99999	
		2	A	✓	22.00	0	99999	
		3	B,C	✓	22.00	0	99999	
	2	1	(D,A)		Infinity			
		2	(B,C)		Infinity			
D	1 [Give-way line]	1	A	✓	4.00	0	99999	
		2	A	✓	4.00	0	99999	
		3	D,B,C	✓	4.00	0	99999	
	2	1	(A)		Infinity			
		2	1	(D,B,C)		Infinity		
			2	(D,B,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.396	1271
		2	0.396	1271
B	1 [Give-way line]	1	0.393	1021
		2	0.393	1021
C	1 [Give-way line]	1	0.421	1366
		2	0.421	1366
		3	0.421	1366
D	1 [Give-way line]	1	0.236	1087
		2	0.236	1087
		3	0.236	1087

Lane Movements

Arm	Lane Level	Lane	Destination arm				
			D	A	B	C	
D	1 [Give-way line]	1		✓			
		2		✓			
		3	✓		✓	✓	
	2	1		✓			
		2	✓		✓	✓	
A	1 [Give-way line]	1			✓	✓	
		2	✓	✓			
B	1 [Give-way line]	1	✓	✓		✓	
		2		✓	✓		
	2	1	✓	✓	✓	✓	
C	1 [Give-way line]	1	✓	✓			
		2		✓			
		3			✓	✓	
	2	1	✓	✓			
		2	1			✓	✓
			2			✓	✓

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	2031	AM	ONE HOUR	07:00	08:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	859	100.000
B		ONE HOUR	✓	808	100.000
C		ONE HOUR	✓	2303	100.000
D		ONE HOUR	✓	698	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	
From	A	0	0	582	277	
	B	808	0	0	0	
	C	626	1457	0	220	
	D	367	0	331	0	

Proportions

		To				
		A	B	C	D	
From	A	0.00	0.00	0.68	0.32	
	B	1.00	0.00	0.00	0.00	
	C	0.27	0.63	0.00	0.10	
	D	0.53	0.00	0.47	0.00	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
From	A	0	0	6	3	
	B	4	0	0	0	
	C	6	6	0	12	
	D	3	0	10	0	

Average PCU Per Veh

		To				
		A	B	C	D	
From	A	1.000	1.000	1.060	1.030	
	B	1.040	1.000	1.000	1.000	
	C	1.060	1.060	1.000	1.120	
	D	1.030	1.000	1.100	1.000	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:00-07:15	A	647	647
	B	608	608
	C	1734	1734
	D	525	525
07:15-07:30	A	772	772
	B	726	726
	C	2070	2070
	D	627	627
07:30-07:45	A	946	946
	B	890	890
	C	2536	2536
	D	769	769
07:45-08:00	A	946	946
	B	890	890
	C	2536	2536
	D	769	769
08:00-08:15	A	772	772
	B	726	726
	C	2070	2070
	D	627	627
08:15-08:30	A	647	647
	B	608	608
	C	1734	1734
	D	525	525

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	21.90	6.5	C	792	1188
B	39.26	10.1	E	743	1115
C	950.44	591.7	F	2110	3165
D	18.22	4.1	C	640	960

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	648	162	1259	651	1343	0.0	1.7	8.798	A
B	606	151	902	607	1007	0.0	1.2	6.845	A
C	1733	433	814	1633	695	0.0	29.1	37.390	E
D	523	131	2079	523	368	0.0	1.4	8.206	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	773	193	1258	776	1639	1.7	2.7	12.918	B
B	733	183	1072	740	961	1.2	1.9	10.524	B
C	2061	515	992	1723	820	29.1	112.1	170.265	F
D	631	158	2266	631	450	1.4	2.2	11.413	B

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	952	238	1233	951	1965	2.7	6.5	21.896	C
B	903	226	1322	882	861	1.9	9.0	26.287	D
C	2508	627	1191	1781	1013	112.1	292.7	529.809	F
D	773	193	2423	775	549	2.2	3.7	16.954	C

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	960	240	1229	952	1976	6.5	6.1	21.713	C
B	895	224	1315	890	865	9.0	10.1	39.260	E
C	2523	631	1194	1793	1012	292.7	477.6	950.437	F
D	767	192	2437	766	549	3.7	4.1	18.216	C

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	773	193	1248	765	1626	6.1	3.3	13.893	B
B	722	180	1059	729	954	10.1	2.0	16.323	C
C	2087	522	978	1728	810	477.6	572.0	851.270	F
D	622	156	2256	619	450	4.1	2.3	11.982	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	645	161	1273	648	1353	3.3	1.8	10.565	B
B	600	150	899	600	1023	2.0	1.3	7.835	A
C	1749	437	800	1668	698	572.0	591.7	325.553	F
D	526	131	2099	526	369	2.3	1.5	9.681	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	442	772	0.572	444	0.0	1.4	10.155	B
			2	D,A	206	772	0.267	207	0.0	0.3	6.042	A
	Exit	1	1		1343			1343	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	308	666	0.463	308	0.0	0.6	6.778	A
			2	A,B	297	666	0.446	299	0.0	0.5	6.913	A
		2	1	(D,A,B,C)	606			606	0.0	0.0	0.000	A
	Exit	1	1		1007			1007	0.0	0.0	0.000	A
C	Entry	1	1	D,A	363	1023	0.355	364	0.0	0.5	4.555	A
			2	A	261	1023	0.255	262	0.0	0.3	4.098	A
			3	B,C	1030	1023	1.006	1007	0.0	17.4	41.800	E
		2	1	(D,A)	624			624	0.0	0.0	0.000	A
			2	(B,C)	1109			1030	0.0	10.9	12.763	B
	Exit	1	1		695			695	0.0	0.0	0.000	A
D	Entry	1	1	A	133	597	0.223	134	0.0	0.2	6.149	A
			2	A	136	597	0.228	137	0.0	0.2	5.937	A
			3	D,B,C	253	597	0.424	252	0.0	0.9	9.954	A
		2	1	(A)	269			269	0.0	0.0	0.000	A
			2	(D,B,C)	253			253	0.0	0.1	0.736	A
		Exit	1	1		368			368	0.0	0.0	0.000

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	523	773	0.677	524	1.4	2.3	15.643	C
			2	D,A	250	773	0.324	252	0.3	0.4	7.367	A
	Exit	1	1		1639			1639	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	368	600	0.614	372	0.6	1.0	10.647	B
			2	A,B	365	600	0.608	368	0.5	0.9	10.402	B
		2	1	(D,A,B,C)	733			733	0.0	0.0	0.000	A
	Exit	1	1		961			961	0.0	0.0	0.000	A
C	Entry	1	1	D,A	436	949	0.460	435	0.5	0.8	5.728	A
			2	A	327	949	0.345	327	0.3	0.5	4.979	A
			3	B,C	963	949	1.015	961	17.4	21.9	77.578	F
		2	1	(D,A)	763			763	0.0	0.0	0.000	A
			2	(B,C)	1298			963	10.9	88.9	184.235	F
	Exit	1	1		820			820	0.0	0.0	0.000	A
D	Entry	1	1	A	167	553	0.301	166	0.2	0.4	7.601	A
			2	A	169	553	0.306	169	0.2	0.4	7.533	A
			3	D,B,C	296	553	0.535	297	0.9	1.2	13.857	B
		2	1	(A)	336			336	0.0	0.0	0.003	A
			2	(D,B,C)	295			296	0.1	0.2	2.170	A
		Exit	1	1		450			450	0.0	0.0	0.000

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	643	783	0.822	641	2.3	5.9	28.722	D
			2	D,A	309	783	0.395	310	0.4	0.7	8.106	A
	Exit	1	1		1965			1965	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	447	501	0.891	438	1.0	4.4	25.694	D
			2	A,B	453	501	0.904	444	0.9	4.3	25.499	D
		2	1	(D,A,B,C)	903			900	0.0	0.4	0.586	A
	Exit	1	1		861			861	0.0	0.0	0.000	A
C	Entry	1	1	D,A	515	865	0.595	515	0.8	1.2	7.729	A
			2	A	403	865	0.466	405	0.5	0.8	6.484	A
			3	B,C	861	865	0.995	861	21.9	22.0	89.571	F
		2	1	(D,A)	918			918	0.0	0.0	0.000	A
			2	(B,C)	1590			861	88.9	268.8	738.341	F
	Exit	1	1		1013			1013	0.0	0.0	0.000	A
D	Entry	1	1	A	200	516	0.388	200	0.4	0.5	9.049	A
			2	A	203	516	0.393	203	0.4	0.5	8.934	A
			3	D,B,C	370	516	0.717	372	1.2	1.9	18.060	C
		2	1	(A)	403			403	0.0	0.0	0.007	A
			2	(D,B,C)	370			370	0.2	0.9	8.171	A
	Exit	1	1		549			549	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	656	784	0.836	648	5.9	5.4	28.501	D
			2	D,A	305	784	0.388	303	0.7	0.7	7.852	A
	Exit	1	1		1976			1976	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	450	504	0.892	448	4.4	4.6	35.999	E
			2	A,B	443	504	0.879	442	4.3	4.6	36.099	E
		2	1	(D,A,B,C)	895			893	0.4	1.0	3.064	A
	Exit	1	1		865			865	0.0	0.0	0.000	A
C	Entry	1	1	D,A	513	864	0.594	515	1.2	1.2	8.109	A
			2	A	413	864	0.478	414	0.8	0.8	6.774	A
			3	B,C	865	864	1.002	865	22.0	21.9	91.022	F
		2	1	(D,A)	926			926	0.0	0.0	0.000	A
			2	(B,C)	1597			865	268.8	453.6	1413.369	F
	Exit	1	1		1012			1012	0.0	0.0	0.000	A
D	Entry	1	1	A	204	513	0.399	203	0.5	0.6	9.305	A
			2	A	202	513	0.394	200	0.5	0.6	9.410	A
			3	D,B,C	363	513	0.708	364	1.9	1.9	18.535	C
		2	1	(A)	407			407	0.0	0.0	0.017	A
			2	(D,B,C)	360			363	0.9	1.0	10.283	B
	Exit	1	1		549			549	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	522	777	0.673	515	5.4	2.7	17.181	C
			2	D,A	250	777	0.322	249	0.7	0.6	7.249	A
	Exit	1	1		1626			1626	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	361	605	0.597	364	4.6	1.0	15.835	C
			2	A,B	361	605	0.596	365	4.6	1.0	15.818	C
		2	1	(D,A,B,C)	722			722	1.0	0.0	0.897	A
	Exit	1	1		954			954	0.0	0.0	0.000	A
C	Entry	1	1	D,A	445	955	0.466	446	1.2	0.7	6.066	A
			2	A	328	955	0.343	328	0.8	0.4	5.249	A
			3	B,C	954	955	1.000	954	21.9	21.9	84.314	F
		2	1	(D,A)	772			772	0.0	0.0	0.000	A
			2	(B,C)	1315			954	453.6	548.9	1593.016	F
	Exit	1	1		810			810	0.0	0.0	0.000	A
D	Entry	1	1	A	162	556	0.291	161	0.6	0.4	7.864	A
			2	A	163	556	0.294	163	0.6	0.4	7.696	A
			3	D,B,C	296	556	0.532	294	1.9	1.3	14.190	B
		2	1	(A)	325			325	0.0	0.0	0.000	A
			2	(D,B,C)	297			296	1.0	0.3	2.967	A
	Exit	1	1		450			450	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	444	767	0.579	448	2.7	1.4	12.463	B
			2	D,A	201	767	0.262	200	0.6	0.4	6.545	A
	Exit	1	1		1353			1353	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	301	668	0.451	302	1.0	0.6	7.708	A
			2	A,B	299	668	0.448	298	1.0	0.7	7.965	A
		2	1	(D,A,B,C)	600			600	0.0	0.0	0.000	A
	Exit	1	1		1023			1023	0.0	0.0	0.000	A
C	Entry	1	1	D,A	378	1029	0.367	379	0.7	0.5	4.999	A
			2	A	268	1029	0.260	267	0.4	0.4	4.342	A
			3	B,C	1023	1029	0.994	1023	21.9	21.9	77.134	F
		2	1	(D,A)	645			645	0.0	0.0	0.000	A
			2	(B,C)	1104			1023	548.9	568.9	899.462	F
	Exit	1	1		698			698	0.0	0.0	0.000	A
D	Entry	1	1	A	137	593	0.231	137	0.4	0.3	6.885	A
			2	A	139	593	0.235	139	0.4	0.3	6.928	A
			3	D,B,C	251	593	0.423	250	1.3	0.9	11.793	B
		2	1	(A)	276			276	0.0	0.0	0.001	A
			2	(D,B,C)	250			251	0.3	0.1	1.173	A
	Exit	1	1		369			369	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
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Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 7\ARCADY
Report generation date: 18/08/2016 10:27:01

«M20 Junction 7 - 2031, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 7 [Lane Simulation] - 2031				
Arm A	96.1	312.99		F
Arm B	134.6	506.10		F
Arm C	151.2	333.72		F
Arm D	4.8	22.99		C

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. Arm and junction delays are averages for all movements, including movements with zero delay.

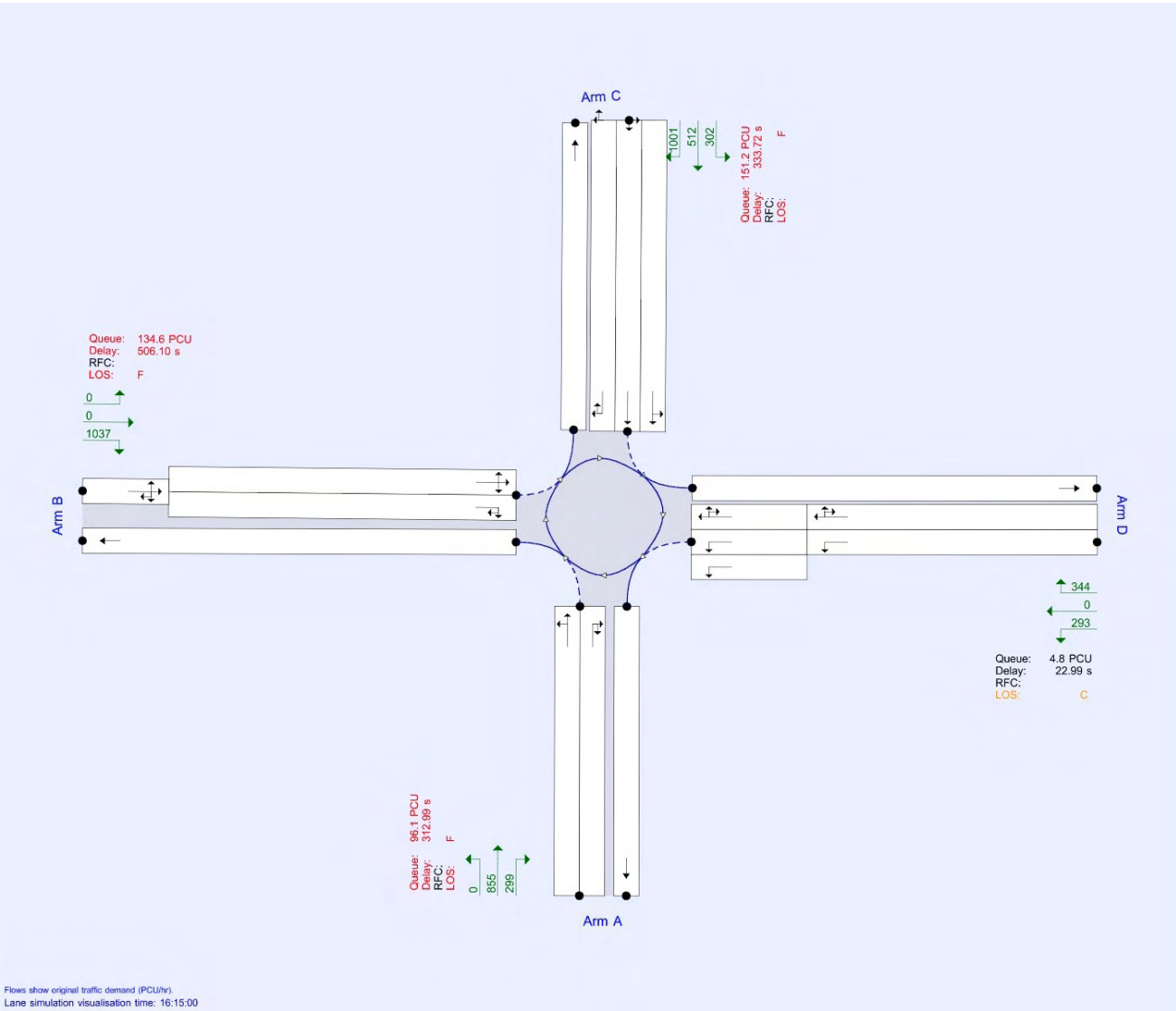
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	382245783	442	199.30

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 7	✓	✓	100.000	100.000

M20 Junction 7 - 2031, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 7 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Arm B - Lane Simulation	Arm B: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 7	Large Roundabout	A,B,C,D	324.44	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A249 South	
B	M20 West	
C	A249 North	
D	M20 East	

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)	Exit only
A	6.10	7.00	18.5	50.7	180.0	12.0	
B	4.00	6.60	8.5	29.2	180.0	12.0	
C	10.50	12.05	4.9	25.0	180.0	12.3	
D	8.76	10.26	30.0	29.3	180.0	10.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1345	87.50
B	1498	132.00
C	1336	85.65
D	2550	112.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.885	2645
B	0.731	1971
C	1.192	4039
D	0.796	3340

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B,C		Infinity	0	99999
		2	D,A		Infinity	0	99999
B	1 [Give-way line]	1	D,A,C	✓	12.00	0	99999
		2	A,B	✓	12.00	0	99999
	2	1	(D,A,B,C)		Infinity		
C	1 [Give-way line]	1	D,A	✓	22.00	0	99999
		2	A	✓	22.00	0	99999
		3	B,C	✓	22.00	0	99999
	2	1	(D,A)		Infinity		
		2	(B,C)		Infinity		
D	1 [Give-way line]	1	A	✓	4.00	0	99999
		2	A	✓	4.00	0	99999
		3	D,B,C	✓	4.00	0	99999
	2	1	(A)		Infinity		
		2	(D,B,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.443	1323
		2	0.443	1323
B	1 [Give-way line]	1	0.366	985
		2	0.366	985
C	1 [Give-way line]	1	0.397	1346
		2	0.397	1346
		3	0.397	1346
D	1 [Give-way line]	1	0.265	1113
		2	0.265	1113
		3	0.265	1113

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓		
	3	✓		✓	✓	
	2	1		✓		
2		✓		✓	✓	
A	1 [Give-way line]	1			✓	✓
		2	✓	✓		
B	1 [Give-way line]	1	✓	✓		✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
		2				
C	1 [Give-way line]	1	✓	✓		
		2		✓		
		3			✓	✓
	2	1	✓	✓		
		2			✓	✓
		2			✓	✓

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	2031	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1154	100.000
B		ONE HOUR	✓	1037	100.000
C		ONE HOUR	✓	1815	100.000
D		ONE HOUR	✓	637	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	0	855	299
	B	1037	0	0	0
	C	512	1001	0	302
	D	293	0	344	0

Proportions

		To			
		A	B	C	D
From	A	0.00	0.00	0.74	0.26
	B	1.00	0.00	0.00	0.00
	C	0.28	0.55	0.00	0.17
	D	0.46	0.00	0.54	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	1
	B	3	0	0	0
	C	4	9	0	9
	D	1	0	7	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.020	1.010
	B	1.030	1.000	1.000	1.000
	C	1.040	1.090	1.000	1.090
	D	1.010	1.000	1.070	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:15-16:30	A	869	869
	B	781	781
	C	1366	1366
	D	480	480
16:30-16:45	A	1037	1037
	B	932	932
	C	1632	1632
	D	573	573
16:45-17:00	A	1271	1271
	B	1142	1142
	C	1998	1998
	D	701	701
17:00-17:15	A	1271	1271
	B	1142	1142
	C	1998	1998
	D	701	701
17:15-17:30	A	1037	1037
	B	932	932
	C	1632	1632
	D	573	573
17:30-17:45	A	869	869
	B	781	781
	C	1366	1366
	D	480	480

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	312.99	96.1	F	1058	1588
B	506.10	134.6	F	952	1427
C	333.72	151.2	F	1668	2502
D	22.99	4.8	C	585	877

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	865	216	1010	862	1392	0.0	3.3	10.909	B
B	777	194	1123	779	749	0.0	2.7	10.810	B
C	1369	342	1003	1366	899	0.0	5.5	11.238	B
D	483	121	1919	482	449	0.0	1.4	7.904	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1037	259	1152	1019	1637	3.3	11.3	30.155	D
B	940	235	1325	913	846	2.7	12.3	34.049	D
C	1634	409	1178	1581	1060	5.5	21.4	33.964	D
D	567	142	2219	569	540	1.4	2.0	12.437	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1281	320	1239	1100	1777	11.3	54.0	113.184	F
B	1142	285	1477	886	862	12.3	71.4	167.410	F
C	1995	499	1218	1760	1144	21.4	82.7	120.005	F
D	705	176	2313	703	666	2.0	4.6	20.522	C

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1272	318	1240	1095	1782	54.0	96.1	259.358	F
B	1140	285	1470	891	865	71.4	134.6	417.310	F
C	1997	499	1221	1757	1141	82.7	142.3	255.582	F
D	706	176	2321	701	657	4.6	4.8	22.987	C

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1029	257	1169	1076	1695	96.1	88.5	312.985	F
B	939	235	1385	967	861	134.6	132.4	506.096	F
C	1642	410	1237	1597	1115	142.3	151.2	333.722	F
D	572	143	2293	571	541	4.8	2.3	16.234	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	866	216	1108	1031	1628	88.5	48.0	201.678	F
B	772	193	1285	1025	854	132.4	75.1	363.599	F
C	1371	343	1248	1467	1062	151.2	123.8	225.795	F
D	475	119	2260	476	454	2.3	1.6	12.059	B

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	641	876	0.732	639	0.0	2.9	12.947	B
			2	D,A	224	876	0.256	224	0.0	0.4	5.110	A
	Exit	1	1		1392			1392	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	388	575	0.675	389	0.0	1.4	10.802	B
			2	A,B	389	575	0.676	390	0.0	1.3	10.818	B
		2	1	(D,A,B,C)	777			777	0.0	0.0	0.000	A
	Exit	1	1		749			749	0.0	0.0	0.000	A
C	Entry	1	1	D,A	384	948	0.405	384	0.0	0.6	5.239	A
			2	A	232	948	0.245	232	0.0	0.3	4.274	A
			3	B,C	752	948	0.793	749	0.0	4.5	16.464	C
		2	1	(D,A)	617			617	0.0	0.0	0.000	A
			2	(B,C)	752			752	0.0	0.0	0.060	A
		Exit	1	1		899			899	0.0	0.0	0.000
	D	Entry	1	1	A	111	604	0.184	111	0.0	0.2	5.642
2				A	111	604	0.184	111	0.0	0.2	5.658	A
3				D,B,C	261	604	0.432	260	0.0	0.9	9.484	A
2			1	(A)	223			223	0.0	0.0	0.000	A
			2	(D,B,C)	261			261	0.0	0.0	0.434	A
Exit			1	1		449			449	0.0	0.0	0.000

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	773	813	0.950	754	2.9	10.8	38.486	E
			2	D,A	265	813	0.326	265	0.4	0.5	6.639	A
	Exit	1	1		1637			1637	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	469	501	0.937	461	1.4	5.5	31.755	D
			2	A,B	461	501	0.921	452	1.3	5.5	31.804	D
		2	1	(D,A,B,C)	940			930	0.0	1.3	1.938	A
	Exit	1	1		846			846	0.0	0.0	0.000	A
C	Entry	1	1	D,A	448	878	0.510	447	0.6	1.0	6.876	A
			2	A	288	878	0.328	288	0.3	0.4	5.287	A
			3	B,C	866	878	0.986	846	4.5	14.7	47.664	E
		2	1	(D,A)	736			736	0.0	0.0	0.000	A
			2	(B,C)	899			866	0.0	5.2	8.735	A
		Exit	1	1		1060			1060	0.0	0.0	0.000
	D	Entry	1	1	A	132	524	0.251	132	0.2	0.2	7.254
2				A	130	524	0.249	130	0.2	0.3	7.427	A
3				D,B,C	306	524	0.583	307	0.9	1.3	14.509	B
2			1	(A)	262			262	0.0	0.0	0.000	A
			2	(D,B,C)	305			306	0.0	0.2	2.552	A
Exit		1	1		540			540	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	949	774	1.225	767	10.8	53.2	150.138	F
			2	D,A	332	774	0.429	333	0.5	0.8	8.242	A
	Exit	1	1		1777			1777	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	449	446	1.008	445	5.5	11.9	80.992	F
			2	A,B	445	446	0.999	441	5.5	11.9	80.771	F
		2	1	(D,A,B,C)	1142			894	1.3	47.7	83.944	F
	Exit	1	1		862			862	0.0	0.0	0.000	A
C	Entry	1	1	D,A	532	862	0.616	532	1.0	1.4	8.665	A
			2	A	366	862	0.424	366	0.4	0.7	6.313	A
			3	B,C	863	862	1.001	862	14.7	21.8	85.080	F
		2	1	(D,A)	897			897	0.0	0.0	0.000	A
			2	(B,C)	1098			863	5.2	58.7	127.484	F
	Exit	1	1		1144			1144	0.0	0.0	0.000	A
D	Entry	1	1	A	163	500	0.326	162	0.2	0.4	8.584	A
			2	A	164	500	0.328	164	0.3	0.4	8.768	A
			3	D,B,C	377	500	0.754	377	1.3	2.3	19.976	C
		2	1	(A)	327			327	0.0	0.0	0.001	A
			2	(D,B,C)	379			377	0.2	1.5	11.212	B
	Exit	1	1		666			666	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	942	774	1.217	766	53.2	95.4	348.551	F
			2	D,A	330	774	0.427	329	0.8	0.8	8.460	A
	Exit	1	1		1782			1782	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	442	448	0.987	442	11.9	12.0	96.926	F
			2	A,B	449	448	1.002	449	11.9	12.0	95.726	F
		2	1	(D,A,B,C)	1140			891	47.7	110.6	322.580	F
	Exit	1	1		865			865	0.0	0.0	0.000	A
C	Entry	1	1	D,A	529	861	0.614	529	1.4	1.4	8.687	A
			2	A	363	861	0.421	363	0.7	0.6	6.468	A
			3	B,C	865	861	1.004	865	21.8	21.9	91.125	F
		2	1	(D,A)	892			892	0.0	0.0	0.000	A
			2	(B,C)	1105			865	58.7	118.3	371.959	F
	Exit	1	1		1141			1141	0.0	0.0	0.000	A
D	Entry	1	1	A	162	497	0.325	162	0.4	0.4	8.762	A
			2	A	164	497	0.330	164	0.4	0.3	8.734	A
			3	D,B,C	376	497	0.756	375	2.3	2.3	20.880	C
		2	1	(A)	326			326	0.0	0.0	0.001	A
			2	(D,B,C)	380			376	1.5	1.7	15.024	C
	Exit	1	1		657			657	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	760	805	0.944	806	95.4	88.1	421.716	F
			2	D,A	269	805	0.334	270	0.8	0.5	7.157	A
	Exit	1	1		1695			1695	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	484	479	1.010	484	12.0	12.0	90.750	F
			2	A,B	484	479	1.009	483	12.0	12.0	90.670	F
		2	1	(D,A,B,C)	939			968	110.6	108.4	418.283	F
	Exit	1	1		861			861	0.0	0.0	0.000	A
C	Entry	1	1	D,A	447	855	0.523	447	1.4	0.9	7.380	A
			2	A	289	855	0.338	290	0.6	0.4	5.604	A
			3	B,C	861	855	1.007	861	21.9	21.9	91.475	F
		2	1	(D,A)	736			736	0.0	0.0	0.000	A
			2	(B,C)	905			861	118.3	127.9	516.388	F
	Exit	1	1		1115			1115	0.0	0.0	0.000	A
D	Entry	1	1	A	130	505	0.258	130	0.4	0.3	8.018	A
			2	A	132	505	0.261	132	0.3	0.3	8.026	A
			3	D,B,C	309	505	0.612	309	2.3	1.4	17.424	C
		2	1	(A)	262			262	0.0	0.0	0.000	A
			2	(D,B,C)	309			309	1.7	0.4	6.433	A
	Exit	1	1		541			541	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	644	832	0.773	808	88.1	47.6	286.273	F
			2	D,A	222	832	0.267	223	0.5	0.4	6.213	A
	Exit	1	1		1628			1628	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	503	516	0.976	511	12.0	11.0	82.460	F
			2	A,B	505	516	0.980	514	12.0	10.9	83.040	F
		2	1	(D,A,B,C)	772			1008	108.4	53.2	280.636	F
	Exit	1	1		854			854	0.0	0.0	0.000	A
C	Entry	1	1	D,A	381	851	0.448	382	0.9	0.7	6.563	A
			2	A	230	851	0.271	231	0.4	0.3	5.261	A
			3	B,C	853	851	1.003	854	21.9	21.8	90.553	F
		2	1	(D,A)	612			612	0.0	0.0	0.000	A
			2	(B,C)	760			853	127.9	101.0	443.248	F
	Exit	1	1		1062			1062	0.0	0.0	0.000	A
D	Entry	1	1	A	111	514	0.216	111	0.3	0.2	7.554	A
			2	A	110	514	0.215	110	0.3	0.3	7.744	A
			3	D,B,C	254	514	0.494	254	1.4	1.0	14.113	B
		2	1	(A)	221			221	0.0	0.0	0.000	A
			2	(D,B,C)	253			254	0.4	0.1	2.027	A
	Exit	1	1		454			454	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
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«M20 Junction 7 - Dev Scenario 1, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 7 [Lane Simulation] - Dev Scenario 1				
Arm A	8.0	25.77		D
Arm B	19.9	68.14		F
Arm C	707.9	1110.14		F
Arm D	4.3	18.20		C

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. Arm and junction delays are averages for all movements, including movements with zero delay.

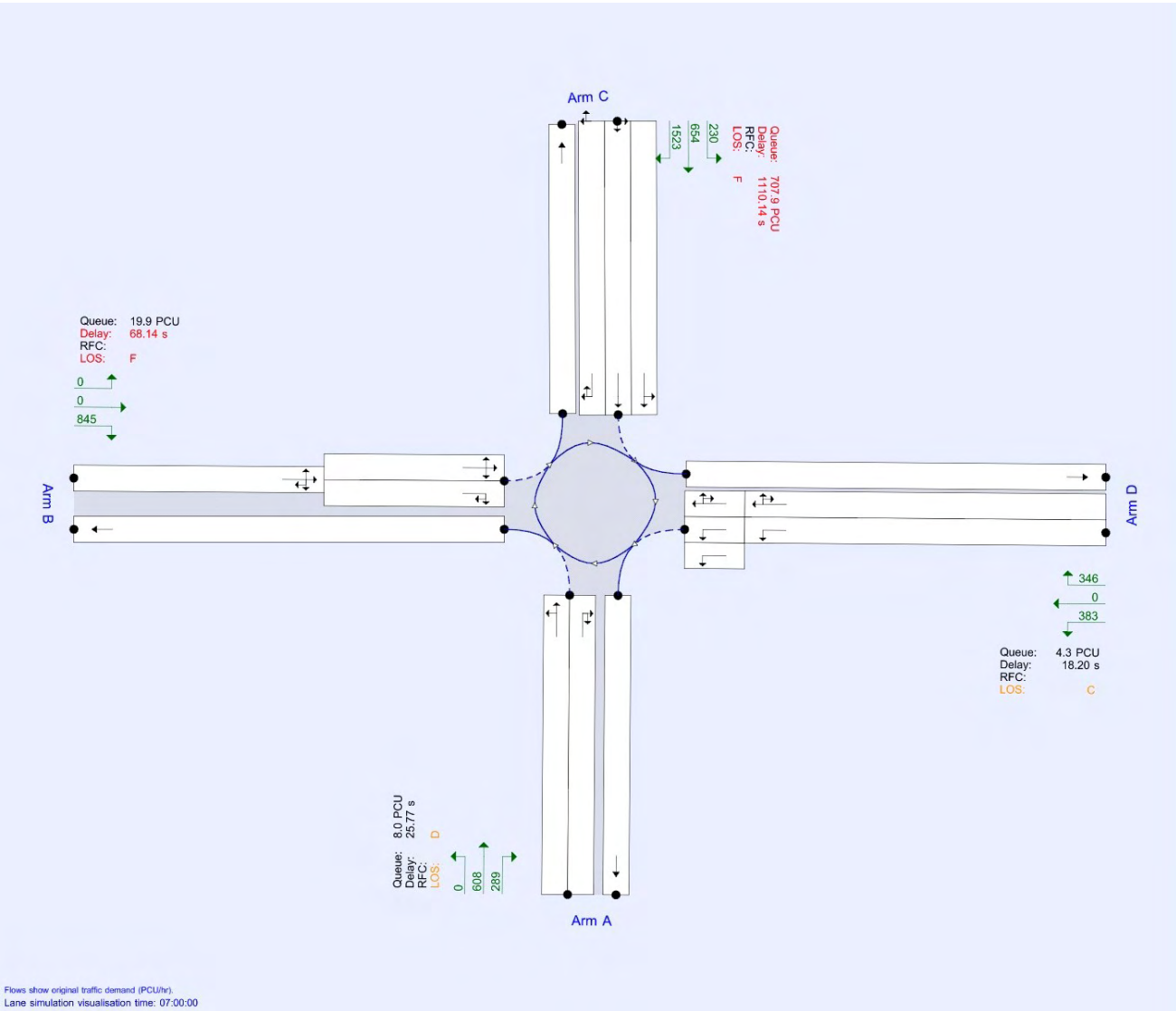
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1195163025	295	129.73

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 7	✓	✓	100.000	100.000

M20 Junction 7 - Dev Scenario 1, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 7 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 7	Large Roundabout	A,B,C,D	567.79	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A249 South	
B	M20 West	
C	A249 North	
D	M20 East	

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)	Exit only
A	6.10	7.00	18.5	50.7	180.0	12.0	
B	4.00	6.60	8.5	29.2	180.0	12.0	
C	10.50	12.05	4.9	25.0	180.0	12.3	
D	8.76	10.26	30.0	29.3	180.0	10.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1869	87.50
B	1243	132.00
C	1134	85.65
D	3022	112.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.776	2524
B	0.777	2030
C	1.249	4087
D	0.672	3231

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)	
A	1 [Give-way line]	1	B,C		Infinity	0	99999	
		2	D,A		Infinity	0	99999	
B	1 [Give-way line]	1	D,A,C	✓	12.00	0	99999	
		2	A,B	✓	12.00	0	99999	
	2	1	(D,A,B,C)		Infinity			
C	1 [Give-way line]	1	D,A	✓	22.00	0	99999	
		2	A	✓	22.00	0	99999	
		3	B,C	✓	22.00	0	99999	
	2	1	(D,A)		Infinity			
		2	(B,C)		Infinity			
D	1 [Give-way line]	1	A	✓	4.00	0	99999	
		2	A	✓	4.00	0	99999	
		3	D,B,C	✓	4.00	0	99999	
	2	1	(A)		Infinity			
		2	1	(D,B,C)		Infinity		
			2	(D,B,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.388	1262
		2	0.388	1262
B	1 [Give-way line]	1	0.388	1015
		2	0.388	1015
C	1 [Give-way line]	1	0.416	1362
		2	0.416	1362
		3	0.416	1362
D	1 [Give-way line]	1	0.224	1077
		2	0.224	1077
		3	0.224	1077

Lane Movements

Arm	Lane Level	Lane	Destination arm				
			D	A	B	C	
D	1 [Give-way line]	1		✓			
		2		✓			
		3	✓		✓	✓	
	2	1		✓			
		2	✓		✓	✓	
A	1 [Give-way line]	1			✓	✓	
		2	✓	✓			
B	1 [Give-way line]	1	✓	✓		✓	
		2		✓	✓		
	2	1	✓	✓	✓	✓	
C	1 [Give-way line]	1	✓	✓			
		2		✓			
		3			✓	✓	
	2	1	✓	✓			
		2	1			✓	✓
			2			✓	✓

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	Dev Scenario 1	AM	ONE HOUR	07:00	08:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	897	100.000
B		ONE HOUR	✓	845	100.000
C		ONE HOUR	✓	2407	100.000
D		ONE HOUR	✓	729	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	0	608	289
	B	845	0	0	0
	C	654	1523	0	230
	D	383	0	346	0

Proportions

		To			
		A	B	C	D
From	A	0.00	0.00	0.68	0.32
	B	1.00	0.00	0.00	0.00
	C	0.27	0.63	0.00	0.10
	D	0.53	0.00	0.47	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	6	3
	B	4	0	0	0
	C	6	6	0	12
	D	3	0	10	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.060	1.030
	B	1.040	1.000	1.000	1.000
	C	1.060	1.060	1.000	1.120
	D	1.030	1.000	1.100	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:00-07:15	A	675	675
	B	636	636
	C	1812	1812
	D	549	549
07:15-07:30	A	806	806
	B	760	760
	C	2164	2164
	D	655	655
07:30-07:45	A	988	988
	B	930	930
	C	2650	2650
	D	803	803
07:45-08:00	A	988	988
	B	930	930
	C	2650	2650
	D	803	803
08:00-08:15	A	806	806
	B	760	760
	C	2164	2164
	D	655	655
08:15-08:30	A	675	675
	B	636	636
	C	1812	1812
	D	549	549

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	25.77	8.0	D	820	1230
B	68.14	19.9	F	777	1165
C	1110.14	707.9	F	2209	3313
D	18.20	4.3	C	665	997

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	672	168	1253	670	1405	0.0	2.1	9.385	A
B	634	158	930	633	994	0.0	1.6	7.346	A
C	1816	454	851	1654	712	0.0	40.3	47.882	E
D	540	135	2117	541	388	0.0	1.4	8.162	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	803	201	1250	807	1692	2.1	3.2	13.977	B
B	765	191	1123	760	934	1.6	3.0	11.952	B
C	2169	542	1018	1729	865	40.3	144.6	226.246	F
D	659	165	2282	660	465	1.4	2.3	11.428	B

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	991	248	1229	982	2041	3.2	6.8	21.886	C
B	936	234	1359	909	851	3.0	13.7	37.923	E
C	2654	663	1228	1826	1041	144.6	345.9	652.097	F
D	789	197	2480	791	574	2.3	4.3	17.433	C

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	987	247	1243	980	2048	6.8	8.0	25.770	D
B	934	234	1366	910	857	13.7	19.9	68.136	F
C	2642	660	1225	1822	1051	345.9	551.8	1110.144	F
D	804	201	2485	806	562	4.3	4.2	18.199	C

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	805	201	1217	806	1697	8.0	3.1	15.852	C
B	757	189	1113	771	910	19.9	2.8	30.178	D
C	2157	539	1030	1702	853	551.8	671.6	860.668	F
D	645	161	2268	645	464	4.2	2.2	12.772	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	664	166	1275	663	1414	3.1	1.8	10.674	B
B	634	159	928	634	1010	2.8	1.5	8.569	A
C	1816	454	848	1679	714	671.6	707.9	326.163	F
D	550	138	2136	553	391	2.2	1.3	9.459	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	455	776	0.586	453	0.0	1.7	11.023	B
			2	D,A	217	776	0.279	217	0.0	0.4	6.029	A
	Exit	1	1		1405			1405	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	312	654	0.477	312	0.0	0.8	7.372	A
			2	A,B	322	654	0.492	322	0.0	0.8	7.320	A
		2	1	(D,A,B,C)	634			634	0.0	0.0	0.000	A
	Exit	1	1		994			994	0.0	0.0	0.000	A
C	Entry	1	1	D,A	384	1008	0.381	384	0.0	0.6	4.756	A
			2	A	277	1008	0.275	277	0.0	0.3	4.161	A
			3	B,C	1026	1008	1.018	994	0.0	20.4	47.769	E
		2	1	(D,A)	661			661	0.0	0.0	0.000	A
			2	(B,C)	1155			1026	0.0	19.0	22.785	C
	Exit	1	1		712			712	0.0	0.0	0.000	A
D	Entry	1	1	A	141	603	0.234	142	0.0	0.2	6.080	A
			2	A	141	603	0.233	140	0.0	0.3	6.237	A
			3	D,B,C	258	603	0.429	259	0.0	0.8	9.788	A
		2	1	(A)	282			282	0.0	0.0	0.000	A
			2	(D,B,C)	259			258	0.0	0.1	0.703	A
		Exit	1	1		388			388	0.0	0.0	0.000

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	545	777	0.701	548	1.7	2.6	17.244	C
			2	D,A	258	777	0.332	258	0.4	0.5	7.198	A
	Exit	1	1		1692			1692	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	381	579	0.659	379	0.8	1.5	11.984	B
			2	A,B	383	579	0.662	381	0.8	1.5	11.912	B
		2	1	(D,A,B,C)	765			765	0.0	0.0	0.004	A
	Exit	1	1		934			934	0.0	0.0	0.000	A
C	Entry	1	1	D,A	450	939	0.479	449	0.6	0.8	6.093	A
			2	A	345	939	0.367	345	0.3	0.5	5.201	A
			3	B,C	934	939	0.995	934	20.4	21.9	82.474	F
		2	1	(D,A)	794			794	0.0	0.0	0.000	A
			2	(B,C)	1375			934	19.0	121.3	267.439	F
	Exit	1	1		865			865	0.0	0.0	0.000	A
D	Entry	1	1	A	173	566	0.306	174	0.2	0.4	7.455	A
			2	A	170	566	0.300	171	0.3	0.4	7.478	A
			3	D,B,C	316	566	0.559	316	0.8	1.3	13.755	B
		2	1	(A)	343			343	0.0	0.0	0.001	A
			2	(D,B,C)	316			316	0.1	0.3	2.249	A
		Exit	1	1		465			465	0.0	0.0	0.000

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	672	785	0.856	663	2.6	6.0	28.698	D
			2	D,A	319	785	0.407	318	0.5	0.8	8.086	A
	Exit	1	1		2041			2041	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	461	487	0.946	453	1.5	5.9	34.889	D
			2	A,B	465	487	0.954	456	1.5	6.0	34.980	D
		2	1	(D,A,B,C)	936			926	0.0	1.7	2.549	A
	Exit	1	1		851			851	0.0	0.0	0.000	A
C	Entry	1	1	D,A	538	851	0.632	538	0.8	1.4	8.316	A
			2	A	437	851	0.513	437	0.5	0.9	6.786	A
			3	B,C	851	851	1.000	851	21.9	21.9	90.917	F
		2	1	(D,A)	975			975	0.0	0.0	0.000	A
			2	(B,C)	1679			851	121.3	321.7	929.943	F
	Exit	1	1		1041			1041	0.0	0.0	0.000	A
D	Entry	1	1	A	205	521	0.393	206	0.4	0.5	9.085	A
			2	A	206	521	0.396	207	0.4	0.5	9.085	A
			3	D,B,C	377	521	0.723	378	1.3	2.1	18.351	C
		2	1	(A)	411			411	0.0	0.0	0.020	A
			2	(D,B,C)	378			377	0.3	1.2	8.880	A
	Exit	1	1		574			574	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	673	780	0.862	665	6.0	7.2	34.429	D
			2	D,A	314	780	0.403	315	0.8	0.8	8.015	A
	Exit	1	1		2048			2048	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	457	484	0.944	450	5.9	7.3	53.145	F
			2	A,B	468	484	0.966	460	6.0	7.4	53.074	F
		2	1	(D,A,B,C)	934			925	1.7	5.1	14.618	B
	Exit	1	1		857			857	0.0	0.0	0.000	A
C	Entry	1	1	D,A	539	852	0.633	538	1.4	1.3	8.442	A
			2	A	429	852	0.503	427	0.9	0.9	7.232	A
			3	B,C	857	852	1.005	857	21.9	21.9	93.006	F
		2	1	(D,A)	968			968	0.0	0.0	0.000	A
			2	(B,C)	1673			857	321.7	527.6	1673.698	F
	Exit	1	1		1051			1051	0.0	0.0	0.000	A
D	Entry	1	1	A	213	520	0.410	212	0.5	0.6	9.003	A
			2	A	208	520	0.400	208	0.5	0.5	8.949	A
			3	D,B,C	385	520	0.740	386	2.1	2.0	18.829	C
		2	1	(A)	421			421	0.0	0.0	0.007	A
			2	(D,B,C)	383			385	1.2	1.1	10.463	B
	Exit	1	1		562			562	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	545	790	0.689	547	7.2	2.5	20.135	C
			2	D,A	260	790	0.330	259	0.8	0.6	7.214	A
	Exit	1	1		1697			1697	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	382	583	0.655	387	7.3	1.4	26.910	D
			2	A,B	377	583	0.647	384	7.4	1.4	27.007	D
		2	1	(D,A,B,C)	757			759	5.1	0.0	4.800	A
	Exit	1	1		910			910	0.0	0.0	0.000	A
C	Entry	1	1	D,A	454	933	0.486	453	1.3	0.8	6.802	A
			2	A	338	933	0.362	338	0.9	0.5	5.764	A
			3	B,C	910	933	0.975	910	21.9	21.9	88.687	F
		2	1	(D,A)	792			792	0.0	0.0	0.000	A
			2	(B,C)	1365			910	527.6	648.3	1744.041	F
	Exit	1	1		853			853	0.0	0.0	0.000	A
D	Entry	1	1	A	169	569	0.298	169	0.6	0.4	7.831	A
			2	A	170	569	0.299	169	0.5	0.4	7.761	A
			3	D,B,C	307	569	0.539	307	2.0	1.3	14.862	B
		2	1	(A)	340			340	0.0	0.0	0.007	A
			2	(D,B,C)	306			307	1.1	0.2	3.890	A
	Exit	1	1		464			464	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	450	767	0.586	449	2.5	1.4	12.633	B
			2	D,A	214	767	0.279	214	0.6	0.4	6.692	A
	Exit	1	1		1414			1414	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	320	654	0.488	319	1.4	0.7	8.492	A
			2	A,B	315	654	0.481	315	1.4	0.7	8.646	A
		2	1	(D,A,B,C)	634			634	0.0	0.0	0.001	A
	Exit	1	1		1010			1010	0.0	0.0	0.000	A
C	Entry	1	1	D,A	391	1009	0.387	391	0.8	0.6	5.248	A
			2	A	277	1009	0.274	278	0.5	0.3	4.468	A
			3	B,C	1010	1009	1.001	1010	21.9	21.9	78.853	F
		2	1	(D,A)	668			668	0.0	0.0	0.000	A
			2	(B,C)	1149			1010	648.3	685.1	899.735	F
	Exit	1	1		714			714	0.0	0.0	0.000	A
D	Entry	1	1	A	142	598	0.238	142	0.4	0.3	6.990	A
			2	A	145	598	0.243	146	0.4	0.3	6.759	A
			3	D,B,C	262	598	0.439	265	1.3	0.7	11.451	B
		2	1	(A)	288			288	0.0	0.0	0.000	A
			2	(D,B,C)	263			262	0.2	0.1	1.059	A
	Exit	1	1		391			391	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Filename: M20 Junction 7 - Dev Scenario 1 PM.j9
Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 7\ARCADY
Report generation date: 18/08/2016 10:27:45

«M20 Junction 7 - Dev Scenario 1, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 7 [Lane Simulation] - Dev Scenario 1				
Arm A	127.3	425.85		F
Arm B	184.8	678.20		F
Arm C	191.8	411.76		F
Arm D	5.3	24.16		C

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. Arm and junction delays are averages for all movements, including movements with zero delay.

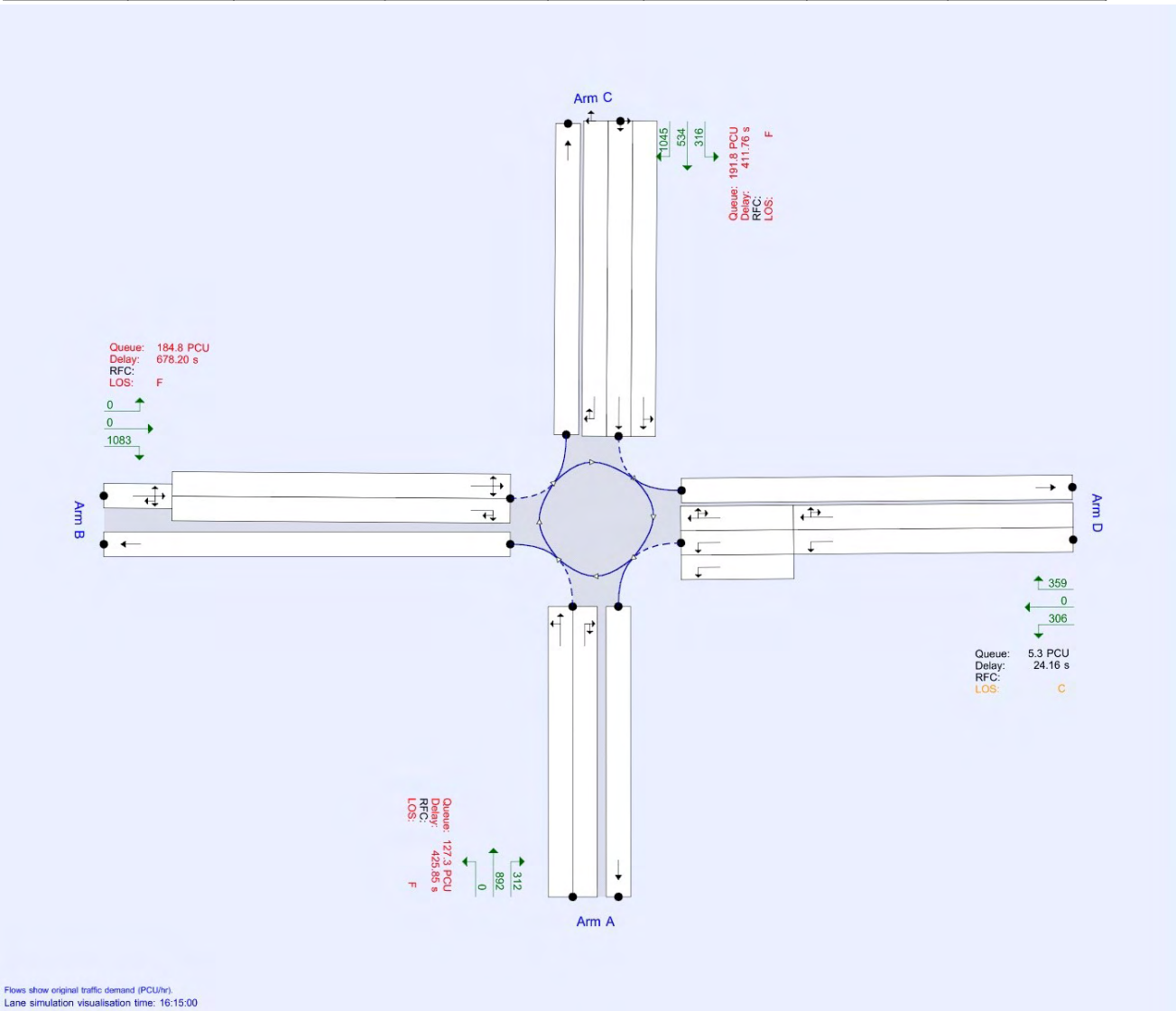
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1488772704	393	184.43

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 7	✓	✓	100.000	100.000

M20 Junction 7 - Dev Scenario 1, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 7 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Arm B - Lane Simulation	Arm B: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 7	Large Roundabout	A,B,C,D	421.83	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A249 South	
B	M20 West	
C	A249 North	
D	M20 East	

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)	Exit only
A	6.10	7.00	18.5	50.7	180.0	12.0	
B	4.00	6.60	8.5	29.2	180.0	12.0	
C	10.50	12.05	4.9	25.0	180.0	12.3	
D	8.76	10.26	30.0	29.3	180.0	10.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1404	87.50
B	1563	132.00
C	1395	85.65
D	2662	112.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.873	2632
B	0.719	1956
C	1.175	4025
D	0.767	3314

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B,C		Infinity	0	99999
		2	D,A		Infinity	0	99999
B	1 [Give-way line]	1	D,A,C	✓	12.00	0	99999
		2	A,B	✓	12.00	0	99999
	2	1	(D,A,B,C)		Infinity		
C	1 [Give-way line]	1	D,A	✓	22.00	0	99999
		2	A	✓	22.00	0	99999
		3	B,C	✓	22.00	0	99999
	2	1	(D,A)		Infinity		
		2	(B,C)		Infinity		
D	1 [Give-way line]	1	A	✓	4.00	0	99999
		2	A	✓	4.00	0	99999
		3	D,B,C	✓	4.00	0	99999
	2	1	(A)		Infinity		
		2	(D,B,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.436	1316
		2	0.436	1316
B	1 [Give-way line]	1	0.360	978
		2	0.360	978
C	1 [Give-way line]	1	0.392	1342
		2	0.392	1342
		3	0.392	1342
D	1 [Give-way line]	1	0.256	1105
		2	0.256	1105
		3	0.256	1105

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓		
		3	✓		✓	✓
	2	1		✓		
		2	✓		✓	✓
	A	1 [Give-way line]	1			✓
2			✓	✓		
B	1 [Give-way line]	1	✓	✓		✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
		2				
C	1 [Give-way line]	1	✓	✓		
		2		✓		
		3			✓	✓
	2	1	✓	✓		
		2			✓	✓
		2			✓	✓

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	Dev Scenario 1	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1204	100.000
B		ONE HOUR	✓	1083	100.000
C		ONE HOUR	✓	1895	100.000
D		ONE HOUR	✓	665	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	
From	A	0	0	892	312	
	B	1083	0	0	0	
	C	534	1045	0	316	
	D	306	0	359	0	

Proportions

		To				
		A	B	C	D	
From	A	0.00	0.00	0.74	0.26	
	B	1.00	0.00	0.00	0.00	
	C	0.28	0.55	0.00	0.17	
	D	0.46	0.00	0.54	0.00	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
From	A	0	0	2	1	
	B	3	0	0	0	
	C	4	9	0	9	
	D	1	0	7	0	

Average PCU Per Veh

		To				
		A	B	C	D	
From	A	1.000	1.000	1.020	1.010	
	B	1.030	1.000	1.000	1.000	
	C	1.040	1.090	1.000	1.090	
	D	1.010	1.000	1.070	1.000	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:15-16:30	A	906	906
	B	815	815
	C	1427	1427
	D	501	501
16:30-16:45	A	1082	1082
	B	974	974
	C	1704	1704
	D	598	598
16:45-17:00	A	1326	1326
	B	1192	1192
	C	2086	2086
	D	732	732
17:00-17:15	A	1326	1326
	B	1192	1192
	C	2086	2086
	D	732	732
17:15-17:30	A	1082	1082
	B	974	974
	C	1704	1704
	D	598	598
17:30-17:45	A	906	906
	B	815	815
	C	1427	1427
	D	501	501

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	425.85	127.3	F	1104	1656
B	678.20	184.8	F	999	1498
C	411.76	191.8	F	1736	2604
D	24.16	5.3	C	611	917

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	911	228	1044	910	1456	0.0	4.1	13.175	B
B	819	205	1177	822	777	0.0	3.8	13.258	B
C	1433	358	1059	1422	940	0.0	7.2	12.849	B
D	499	125	2003	498	479	0.0	1.4	8.435	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1075	269	1181	1032	1674	4.1	16.9	41.564	E
B	976	244	1362	925	852	3.8	17.7	45.861	E
C	1697	424	1199	1613	1088	7.2	29.8	44.460	E
D	605	151	2251	604	561	1.4	2.5	13.809	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1336	334	1256	1112	1798	16.9	70.1	151.467	F
B	1196	299	1503	880	865	17.7	93.1	225.718	F
C	2074	518	1229	1792	1153	29.8	102.8	153.610	F
D	727	182	2330	724	691	2.5	4.9	21.296	C

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1321	330	1255	1119	1798	70.1	124.1	339.594	F
B	1191	298	1515	868	859	93.1	172.6	545.013	F
C	2074	519	1215	1787	1168	102.8	173.8	313.254	F
D	740	185	2316	737	686	4.9	5.3	24.158	C

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1077	269	1183	1077	1706	124.1	127.3	425.854	F
B	986	246	1397	946	862	172.6	184.8	678.203	F
C	1714	429	1225	1632	1119	173.8	191.8	411.760	F
D	597	149	2293	597	565	5.3	2.8	16.850	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	903	226	1120	1064	1633	127.3	90.7	293.478	F
B	826	206	1332	999	852	184.8	141.8	561.008	F
C	1423	356	1235	1491	1096	191.8	174.2	256.170	F
D	499	125	2255	498	472	2.8	1.7	12.063	B

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	673	860	0.783	673	0.0	3.7	15.948	C
			2	D,A	238	860	0.276	237	0.0	0.4	5.267	A
	Exit	1	1		1456			1456	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	409	554	0.737	410	0.0	1.9	13.291	B
			2	A,B	410	554	0.740	412	0.0	1.9	13.197	B
		2	1	(D,A,B,C)	819			819	0.0	0.0	0.014	A
	Exit	1	1		777			777	0.0	0.0	0.000	A
C	Entry	1	1	D,A	404	927	0.436	403	0.0	0.7	5.533	A
			2	A	242	927	0.261	242	0.0	0.3	4.357	A
			3	B,C	786	927	0.848	777	0.0	6.0	19.254	C
		2	1	(D,A)	646			646	0.0	0.0	0.000	A
		2	2	(B,C)	787			786	0.0	0.1	0.107	A
	Exit	1	1		940			940	0.0	0.0	0.000	A
D	Entry	1	1	A	116	593	0.196	116	0.0	0.2	5.941	A
			2	A	115	593	0.194	114	0.0	0.2	5.884	A
			3	D,B,C	268	593	0.452	267	0.0	0.9	9.931	A
		2	1	(A)	231			231	0.0	0.0	0.000	A
		2	2	(D,B,C)	268			268	0.0	0.1	0.799	A
	Exit	1	1		479			479	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	801	800	1.001	758	3.7	16.3	53.768	F
			2	D,A	274	800	0.343	274	0.4	0.5	6.892	A
	Exit	1	1		1674			1674	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	473	488	0.969	460	1.9	7.2	40.812	E
			2	A,B	477	488	0.978	464	1.9	7.3	40.901	E
		2	1	(D,A,B,C)	976			950	0.0	3.2	4.340	A
	Exit	1	1		852			852	0.0	0.0	0.000	A
C	Entry	1	1	D,A	459	872	0.527	461	0.7	1.0	7.173	A
			2	A	300	872	0.344	300	0.3	0.4	5.449	A
			3	B,C	876	872	1.005	852	6.0	17.9	56.821	F
		2	1	(D,A)	760			760	0.0	0.0	0.000	A
		2	2	(B,C)	937			876	0.1	10.5	17.732	C
	Exit	1	1		1088			1088	0.0	0.0	0.000	A
D	Entry	1	1	A	138	529	0.260	137	0.2	0.3	7.452	A
			2	A	138	529	0.261	138	0.2	0.3	7.457	A
			3	D,B,C	328	529	0.620	329	0.9	1.4	15.407	C
		2	1	(A)	276			276	0.0	0.0	0.000	A
		2	2	(D,B,C)	329			328	0.1	0.5	4.055	A
	Exit	1	1		561			561	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	986	768	1.285	762	16.3	69.3	201.975	F
			2	D,A	349	768	0.455	349	0.5	0.8	8.343	A
	Exit	1	1		1798			1798	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	438	437	1.002	437	7.2	12.0	88.464	F
			2	A,B	444	437	1.015	443	7.3	12.0	88.538	F
		2	1	(D,A,B,C)	1196			882	3.2	69.2	134.777	F
	Exit	1	1		865			865	0.0	0.0	0.000	A
C	Entry	1	1	D,A	546	860	0.634	546	1.0	1.4	8.863	A
			2	A	380	860	0.442	381	0.4	0.6	6.592	A
			3	B,C	866	860	1.006	865	17.9	21.9	88.585	F
		2	1	(D,A)	926			926	0.0	0.0	0.000	A
			2	(B,C)	1148			866	10.5	78.8	185.967	F
	Exit	1	1		1153			1153	0.0	0.0	0.000	A
D	Entry	1	1	A	167	509	0.328	167	0.3	0.4	8.457	A
			2	A	167	509	0.328	166	0.3	0.4	8.527	A
			3	D,B,C	391	509	0.769	391	1.4	2.4	20.027	C
		2	1	(A)	334			334	0.0	0.0	0.001	A
			2	(D,B,C)	393			391	0.5	1.7	12.633	B
	Exit	1	1		691			691	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	973	768	1.266	772	69.3	123.2	457.069	F
			2	D,A	348	768	0.453	347	0.8	0.9	8.844	A
	Exit	1	1		1798			1798	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	431	433	0.995	431	12.0	12.0	99.343	F
			2	A,B	437	433	1.009	437	12.0	12.0	98.610	F
		2	1	(D,A,B,C)	1191			867	69.2	148.7	449.316	F
	Exit	1	1		859			859	0.0	0.0	0.000	A
C	Entry	1	1	D,A	551	866	0.637	549	1.4	1.5	8.929	A
			2	A	378	866	0.436	378	0.6	0.7	6.554	A
			3	B,C	859	866	0.992	859	21.9	21.9	91.151	F
		2	1	(D,A)	929			929	0.0	0.0	0.000	A
			2	(B,C)	1145			859	78.8	149.7	477.749	F
	Exit	1	1		1168			1168	0.0	0.0	0.000	A
D	Entry	1	1	A	171	513	0.334	170	0.4	0.4	8.764	A
			2	A	171	513	0.333	171	0.4	0.4	8.513	A
			3	D,B,C	396	513	0.773	396	2.4	2.3	20.628	C
		2	1	(A)	342			342	0.0	0.0	0.003	A
			2	(D,B,C)	398			396	1.7	2.1	17.634	C
	Exit	1	1		686			686	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	800	799	1.000	798	123.2	126.9	572.393	F
			2	D,A	277	799	0.347	279	0.9	0.4	7.391	A
	Exit	1	1		1706			1706	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	470	475	0.989	470	12.0	12.0	92.213	F
			2	A,B	477	475	1.004	477	12.0	12.0	91.593	F
		2	1	(D,A,B,C)	986			947	148.7	160.9	590.412	F
	Exit	1	1		862			862	0.0	0.0	0.000	A
C	Entry	1	1	D,A	465	862	0.540	466	1.5	1.1	7.624	A
			2	A	304	862	0.352	304	0.7	0.5	5.771	A
			3	B,C	862	862	1.001	862	21.9	21.9	91.024	F
		2	1	(D,A)	769			769	0.0	0.0	0.000	A
			2	(B,C)	945			862	149.7	168.3	663.874	F
	Exit	1	1		1119			1119	0.0	0.0	0.000	A
D	Entry	1	1	A	137	519	0.265	137	0.4	0.3	7.831	A
			2	A	139	519	0.267	138	0.4	0.3	7.857	A
			3	D,B,C	321	519	0.619	321	2.3	1.6	17.406	C
		2	1	(A)	276			276	0.0	0.0	0.000	A
			2	(D,B,C)	321			321	2.1	0.6	7.750	A
	Exit	1	1		565			565	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	668	827	0.808	828	126.9	90.4	449.638	F
			2	D,A	235	827	0.284	236	0.4	0.3	6.326	A
	Exit	1	1		1633			1633	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	496	499	0.995	497	12.0	11.9	86.023	F
			2	A,B	502	499	1.006	502	12.0	11.9	85.790	F
		2	1	(D,A,B,C)	826			998	160.9	118.0	482.028	F
	Exit	1	1		852			852	0.0	0.0	0.000	A
C	Entry	1	1	D,A	395	858	0.460	395	1.1	0.7	6.790	A
			2	A	243	858	0.284	244	0.5	0.3	5.271	A
			3	B,C	852	858	0.994	852	21.9	21.9	91.348	F
		2	1	(D,A)	638			638	0.0	0.0	0.000	A
			2	(B,C)	786			852	168.3	151.2	602.586	F
	Exit	1	1		1096			1096	0.0	0.0	0.000	A
D	Entry	1	1	A	116	528	0.219	116	0.3	0.2	7.565	A
			2	A	115	528	0.217	115	0.3	0.2	7.542	A
			3	D,B,C	269	528	0.508	268	1.6	1.1	14.353	B
		2	1	(A)	230			230	0.0	0.0	0.000	A
			2	(D,B,C)	268			269	0.6	0.1	1.918	A
	Exit	1	1		472			472	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Filename: M20 Junction 7 - Dev Scenario 2 AM.j9
Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 7\ARCADY
Report generation date: 18/08/2016 10:33:27

«M20 Junction 7 - Dev Scenario 2 , AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	M20 Junction 7 [Lane Simulation] - Dev Scenario 2			
Arm A	9.0	30.43		D
Arm B	28.2	95.86		F
Arm C	755.4	1154.10		F
Arm D	4.3	18.61		C

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. Arm and junction delays are averages for all movements, including movements with zero delay.

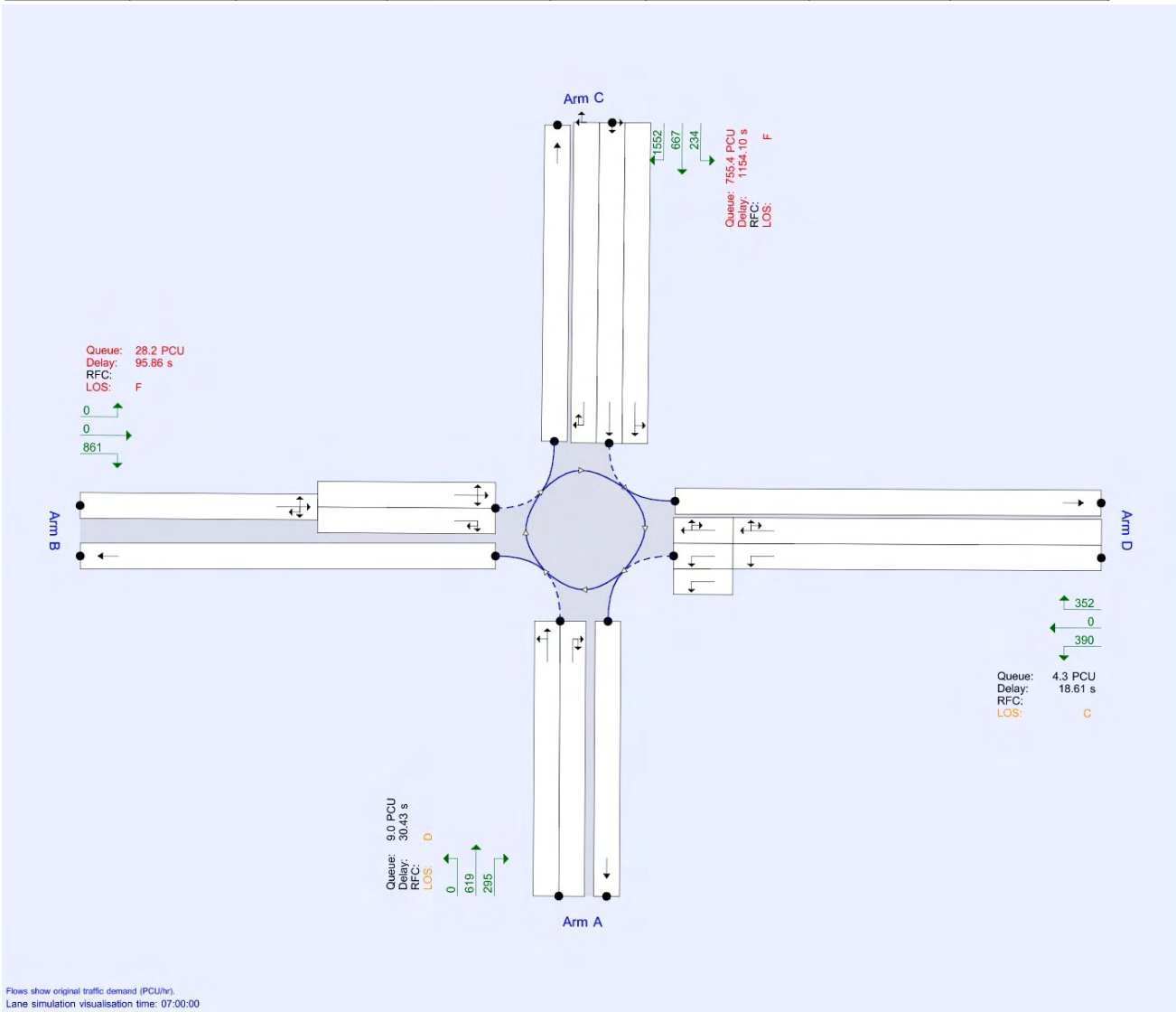
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1409978889	294	131.21

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 7	✓	✓	100.000	100.000

M20 Junction 7 - Dev Scenario 2 , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 7 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 7	Large Roundabout	A,B,C,D	595.27	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A249 South	
B	M20 West	
C	A249 North	
D	M20 East	

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)	Exit only
A	6.10	7.00	18.5	50.7	180.0	12.0	
B	4.00	6.60	8.5	29.2	180.0	12.0	
C	10.50	12.05	4.9	25.0	180.0	12.3	
D	8.76	10.26	30.0	29.3	180.0	10.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1904	87.50
B	1266	132.00
C	1156	85.65
D	3080	112.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.768	2516
B	0.773	2025
C	1.242	4082
D	0.657	3217

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)	
A	1 [Give-way line]	1	B,C		Infinity	0	99999	
		2	D,A		Infinity	0	99999	
B	1 [Give-way line]	1	D,A,C	✓	12.00	0	99999	
		2	A,B	✓	12.00	0	99999	
	2	1	(D,A,B,C)		Infinity			
C	1 [Give-way line]	1	D,A	✓	22.00	0	99999	
		2	A	✓	22.00	0	99999	
		3	B,C	✓	22.00	0	99999	
	2	1	(D,A)		Infinity			
		2	(B,C)		Infinity			
D	1 [Give-way line]	1	A	✓	4.00	0	99999	
		2	A	✓	4.00	0	99999	
		3	D,B,C	✓	4.00	0	99999	
	2	1	(A)		Infinity			
		2	1	(D,B,C)		Infinity		
			2	(D,B,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.384	1258
		2	0.384	1258
B	1 [Give-way line]	1	0.386	1012
		2	0.386	1012
C	1 [Give-way line]	1	0.414	1361
		2	0.414	1361
		3	0.414	1361
D	1 [Give-way line]	1	0.219	1072
		2	0.219	1072
		3	0.219	1072

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓		
		3	✓		✓	✓
	2	1		✓		
		2	✓		✓	✓
A	1 [Give-way line]	1			✓	✓
		2	✓	✓		
B	1 [Give-way line]	1	✓	✓		✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
C	1 [Give-way line]	1	✓	✓		
		2		✓		
		3			✓	✓
	2	1	✓	✓		
		2			✓	✓

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	Dev Scenario 2	AM	ONE HOUR	07:00	08:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	914	100.000
B		ONE HOUR	✓	861	100.000
C		ONE HOUR	✓	2453	100.000
D		ONE HOUR	✓	742	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	A	B	C	D	
From	A	0	0	619	295
	B	861	0	0	0
	C	667	1552	0	234
	D	390	0	352	0

Proportions

	To				
	A	B	C	D	
From	A	0.00	0.00	0.68	0.32
	B	1.00	0.00	0.00	0.00
	C	0.27	0.63	0.00	0.10
	D	0.53	0.00	0.47	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
	A	B	C	D	
From	A	0	0	6	3
	B	4	0	0	0
	C	6	6	0	12
	D	3	0	10	0

Average PCU Per Veh

	To				
	A	B	C	D	
From	A	1.000	1.000	1.060	1.030
	B	1.040	1.000	1.000	1.000
	C	1.060	1.060	1.000	1.120
	D	1.030	1.000	1.100	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:00-07:15	A	688	688
	B	648	648
	C	1847	1847
	D	559	559
07:15-07:30	A	822	822
	B	774	774
	C	2205	2205
	D	667	667
07:30-07:45	A	1006	1006
	B	948	948
	C	2701	2701
	D	817	817
07:45-08:00	A	1006	1006
	B	948	948
	C	2701	2701
	D	817	817
08:00-08:15	A	822	822
	B	774	774
	C	2205	2205
	D	667	667
08:15-08:30	A	688	688
	B	648	648
	C	1847	1847
	D	559	559

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	30.43	9.0	D	839	1258
B	95.86	28.2	F	790	1186
C	1154.10	755.4	F	2255	3382
D	18.61	4.3	C	679	1018

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	684	171	1262	690	1459	0.0	1.9	9.262	A
B	653	163	955	652	998	0.0	1.5	7.474	A
C	1845	461	876	1688	731	0.0	41.0	48.344	E
D	559	140	2164	558	401	0.0	1.6	8.267	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	819	205	1255	815	1718	1.9	3.5	14.776	B
B	774	194	1132	773	938	1.5	3.1	12.399	B
C	2207	552	1037	1742	868	41.0	152.9	237.443	F
D	664	166	2306	667	473	1.6	2.3	11.737	B

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1017	254	1243	1011	2053	3.5	9.0	28.435	D
B	953	238	1395	902	859	3.1	17.5	45.003	E
C	2682	670	1235	1838	1063	152.9	362.4	689.438	F
D	807	202	2487	809	586	2.3	4.1	17.265	C

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1007	252	1223	1013	2074	9.0	8.2	30.433	D
B	944	236	1400	916	836	17.5	28.2	95.865	F
C	2707	677	1248	1819	1068	362.4	578.1	1154.099	F
D	821	205	2478	818	588	4.1	4.3	18.613	C

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	825	206	1219	828	1764	8.2	3.0	16.256	C
B	772	193	1141	814	906	28.2	4.1	50.029	F
C	2222	556	1082	1721	873	578.1	707.5	858.869	F
D	664	166	2319	663	484	4.3	2.3	12.870	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	681	170	1258	678	1444	3.0	2.2	10.748	B
B	647	162	944	649	992	4.1	1.5	9.531	A
C	1866	467	866	1673	727	707.5	755.4	325.040	F
D	559	140	2143	559	396	2.3	1.5	9.433	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	461	773	0.597	467	0.0	1.6	10.813	B
			2	D,A	222	773	0.287	224	0.0	0.3	6.093	A
	Exit	1	1		1459			1459	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	327	644	0.508	327	0.0	0.7	7.456	A
			2	A,B	326	644	0.506	326	0.0	0.8	7.491	A
		2	1	(D,A,B,C)	653			653	0.0	0.0	0.000	A
	Exit	1	1		998			998	0.0	0.0	0.000	A
C	Entry	1	1	D,A	399	998	0.400	399	0.0	0.6	4.955	A
			2	A	291	998	0.292	291	0.0	0.4	4.192	A
			3	B,C	1020	998	1.023	998	0.0	20.3	48.405	E
		2	1	(D,A)	690			690	0.0	0.0	0.000	A
			2	(B,C)	1154			1020	0.0	19.7	23.165	C
	Exit	1	1		731			731	0.0	0.0	0.000	A
D	Entry	1	1	A	146	599	0.244	147	0.0	0.3	6.061	A
			2	A	148	599	0.247	148	0.0	0.3	6.117	A
			3	D,B,C	264	599	0.442	264	0.0	0.9	10.000	B
		2	1	(A)	294			294	0.0	0.0	0.000	A
			2	(D,B,C)	264			264	0.0	0.1	0.827	A
		Exit	1	1		401			401	0.0	0.0	0.000

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	555	776	0.715	551	1.6	3.0	18.359	C
			2	D,A	264	776	0.341	264	0.3	0.5	7.531	A
	Exit	1	1		1718			1718	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	387	575	0.673	385	0.7	1.6	12.494	B
			2	A,B	387	575	0.674	388	0.8	1.5	12.303	B
		2	1	(D,A,B,C)	774			774	0.0	0.0	0.001	A
	Exit	1	1		938			938	0.0	0.0	0.000	A
C	Entry	1	1	D,A	461	931	0.495	460	0.6	1.0	6.333	A
			2	A	344	931	0.369	344	0.4	0.6	5.438	A
			3	B,C	938	931	1.007	938	20.3	21.9	82.710	F
		2	1	(D,A)	805			805	0.0	0.0	0.000	A
			2	(B,C)	1402			938	19.7	129.4	285.434	F
	Exit	1	1		868			868	0.0	0.0	0.000	A
D	Entry	1	1	A	175	567	0.309	176	0.3	0.4	7.522	A
			2	A	174	567	0.308	174	0.3	0.4	7.517	A
			3	D,B,C	316	567	0.557	317	0.9	1.3	13.916	B
		2	1	(A)	350			350	0.0	0.0	0.001	A
			2	(D,B,C)	314			316	0.1	0.2	2.776	A
		Exit	1	1		473			473	0.0	0.0	0.000

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	684	780	0.877	678	3.0	8.2	38.150	E
			2	D,A	333	780	0.426	333	0.5	0.8	8.605	A
	Exit	1	1		2053			2053	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	463	473	0.979	451	1.6	7.0	39.587	E
			2	A,B	463	473	0.978	451	1.5	7.0	39.752	E
		2	1	(D,A,B,C)	953			926	0.0	3.5	4.528	A
	Exit	1	1		859			859	0.0	0.0	0.000	A
C	Entry	1	1	D,A	541	849	0.637	542	1.0	1.3	8.447	A
			2	A	437	849	0.514	437	0.6	0.9	7.010	A
			3	B,C	859	849	1.012	859	21.9	22.0	90.746	F
		2	1	(D,A)	977			977	0.0	0.0	0.000	A
			2	(B,C)	1705			859	129.4	338.2	983.904	F
	Exit	1	1		1063			1063	0.0	0.0	0.000	A
D	Entry	1	1	A	209	528	0.396	209	0.4	0.6	9.081	A
			2	A	216	528	0.409	216	0.4	0.5	8.991	A
			3	D,B,C	383	528	0.725	385	1.3	1.9	18.008	C
		2	1	(A)	425			425	0.0	0.0	0.016	A
			2	(D,B,C)	382			383	0.2	1.1	8.915	A
	Exit	1	1		586			586	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	675	788	0.857	681	8.2	7.4	41.437	E
			2	D,A	332	788	0.421	332	0.8	0.8	8.585	A
	Exit	1	1		2074			2074	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	457	472	0.969	454	7.0	8.7	64.775	F
			2	A,B	465	472	0.985	462	7.0	8.8	64.288	F
		2	1	(D,A,B,C)	944			922	3.5	10.7	30.735	D
	Exit	1	1		836			836	0.0	0.0	0.000	A
C	Entry	1	1	D,A	547	844	0.648	546	1.3	1.5	8.999	A
			2	A	438	844	0.519	437	0.9	1.0	7.613	A
			3	B,C	836	844	0.990	836	22.0	21.9	93.251	F
		2	1	(D,A)	985			985	0.0	0.0	0.000	A
			2	(B,C)	1721			836	338.2	553.7	1749.301	F
	Exit	1	1		1068			1068	0.0	0.0	0.000	A
D	Entry	1	1	A	217	530	0.410	217	0.6	0.5	9.189	A
			2	A	215	530	0.406	215	0.5	0.6	9.299	A
			3	D,B,C	386	530	0.730	387	1.9	2.0	18.889	C
		2	1	(A)	432			432	0.0	0.0	0.018	A
			2	(D,B,C)	389			386	1.1	1.3	10.765	B
	Exit	1	1		588			588	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	559	790	0.708	559	7.4	2.5	20.762	C
			2	D,A	266	790	0.337	268	0.8	0.5	7.219	A
	Exit	1	1		1764			1764	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	394	572	0.689	409	8.7	1.8	37.351	E
			2	A,B	390	572	0.683	405	8.8	1.8	37.987	E
		2	1	(D,A,B,C)	772			785	10.7	0.4	15.022	C
	Exit	1	1		906			906	0.0	0.0	0.000	A
C	Entry	1	1	D,A	464	912	0.508	463	1.5	0.9	7.173	A
			2	A	353	912	0.387	352	1.0	0.6	5.935	A
			3	B,C	905	912	0.992	906	21.9	21.9	90.104	F
		2	1	(D,A)	817			817	0.0	0.0	0.000	A
			2	(B,C)	1405			905	553.7	684.0	1771.000	F
	Exit	1	1		873			873	0.0	0.0	0.000	A
D	Entry	1	1	A	174	564	0.308	175	0.5	0.3	8.023	A
			2	A	175	564	0.310	175	0.6	0.3	7.840	A
			3	D,B,C	316	564	0.559	313	2.0	1.4	14.925	B
		2	1	(A)	349			349	0.0	0.0	0.005	A
			2	(D,B,C)	316			316	1.3	0.2	3.960	A
	Exit	1	1		484			484	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	462	774	0.597	460	2.5	1.6	12.721	B
			2	D,A	219	774	0.282	217	0.5	0.5	6.712	A
	Exit	1	1		1444			1444	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	321	648	0.496	322	1.8	0.7	9.564	A
			2	A,B	326	648	0.503	327	1.8	0.7	9.490	A
		2	1	(D,A,B,C)	647			647	0.4	0.0	0.191	A
	Exit	1	1		992			992	0.0	0.0	0.000	A
C	Entry	1	1	D,A	397	1002	0.396	396	0.9	0.7	5.271	A
			2	A	285	1002	0.285	285	0.6	0.4	4.693	A
			3	B,C	992	1002	0.990	992	21.9	21.9	79.836	F
		2	1	(D,A)	682			682	0.0	0.0	0.000	A
			2	(B,C)	1184			992	684.0	732.4	899.822	F
	Exit	1	1		727			727	0.0	0.0	0.000	A
D	Entry	1	1	A	147	603	0.244	148	0.3	0.2	7.107	A
			2	A	145	603	0.241	145	0.3	0.3	6.992	A
			3	D,B,C	266	603	0.441	267	1.4	0.9	11.319	B
		2	1	(A)	293			293	0.0	0.0	0.001	A
			2	(D,B,C)	266			266	0.2	0.1	1.003	A
	Exit	1	1		396			396	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 7\ARCADY
Report generation date: 18/08/2016 10:31:48

«M20 Junction 7 - Dev Scenario 2, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 7 [Lane Simulation] - Dev Scenario 2				
Arm A	148.0	489.94		F
Arm B	208.5	763.41		F
Arm C	216.0	458.05		F
Arm D	5.2	23.82		C

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. Arm and junction delays are averages for all movements, including movements with zero delay.

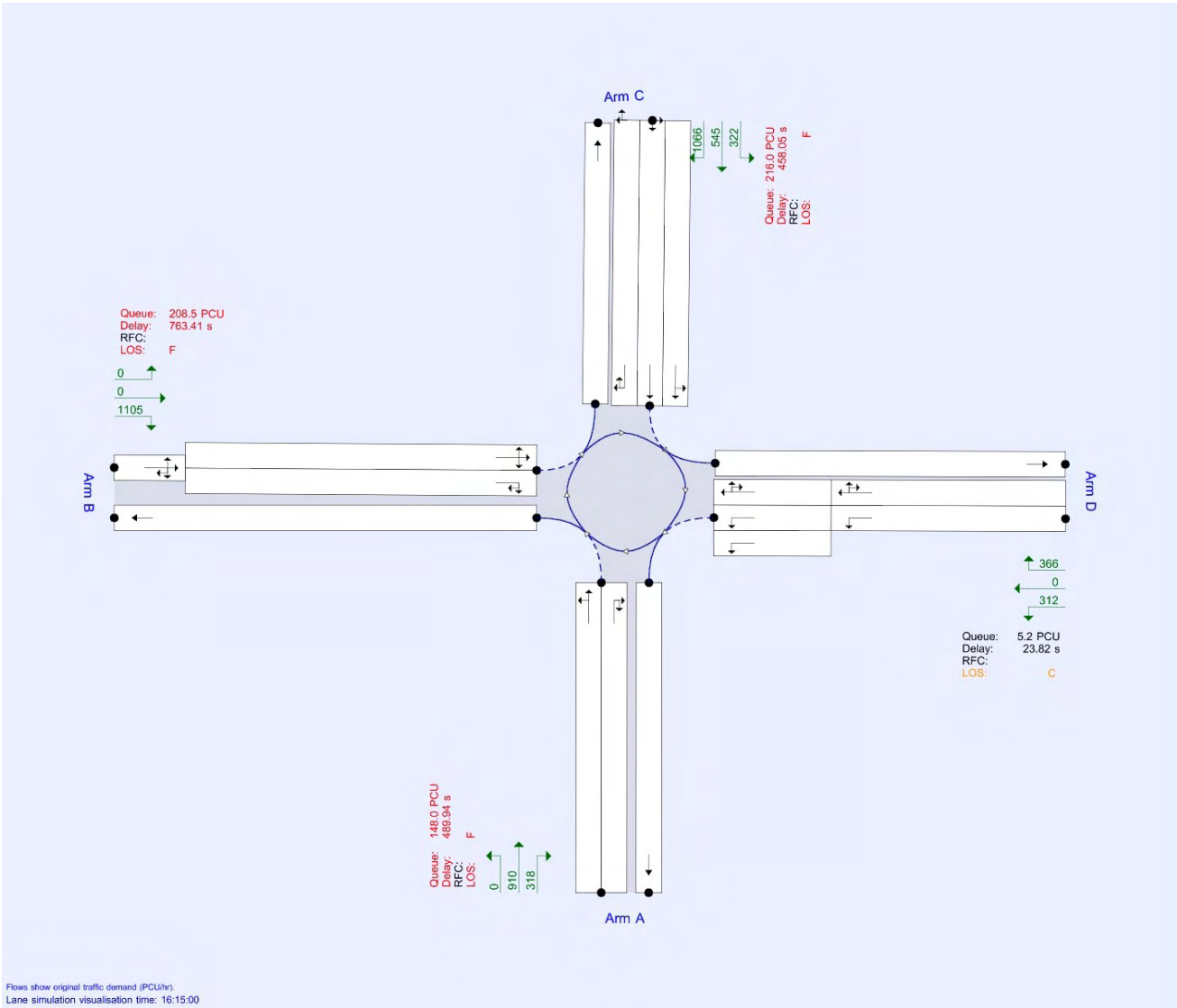
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	633249910	232	110.94

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 7	✓	✓	100.000	100.000

M20 Junction 7 - Dev Scenario 2, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 7 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Arm B - Lane Simulation	Arm B: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 7	Large Roundabout	A,B,C,D	474.71	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A249 South	
B	M20 West	
C	A249 North	
D	M20 East	

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)	Exit only
A	6.10	7.00	18.5	50.7	180.0	12.0	
B	4.00	6.60	8.5	29.2	180.0	12.0	
C	10.50	12.05	4.9	25.0	180.0	12.3	
D	8.76	10.26	30.0	29.3	180.0	10.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1432	87.50
B	1594	132.00
C	1423	85.65
D	2716	112.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.867	2625
B	0.714	1948
C	1.167	4019
D	0.753	3302

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B,C		Infinity	0	99999
		2	D,A		Infinity	0	99999
B	1 [Give-way line]	1	D,A,C	✓	12.00	0	99999
		2	A,B	✓	12.00	0	99999
	2	1	(D,A,B,C)		Infinity		
C	1 [Give-way line]	1	D,A	✓	22.00	0	99999
		2	A	✓	22.00	0	99999
		3	B,C	✓	22.00	0	99999
	2	1	(D,A)		Infinity		
		2	(B,C)		Infinity		
D	1 [Give-way line]	1	A	✓	4.00	0	99999
		2	A	✓	4.00	0	99999
		3	D,B,C	✓	4.00	0	99999
	2	1	(A)		Infinity		
		2	(D,B,C)		Infinity		

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.433	1313
		2	0.433	1313
B	1 [Give-way line]	1	0.357	974
		2	0.357	974
C	1 [Give-way line]	1	0.389	1340
		2	0.389	1340
		3	0.389	1340
D	1 [Give-way line]	1	0.251	1101
		2	0.251	1101
		3	0.251	1101

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓		
		2		✓		
		3	✓		✓	✓
	2	1		✓		
		2	✓		✓	✓
	A	1 [Give-way line]	1			✓
2			✓	✓		
B	1 [Give-way line]	1	✓	✓		✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
		2				
C	1 [Give-way line]	1	✓	✓		
		2		✓		
		3			✓	✓
	2	1	✓	✓		
		2			✓	✓
		2			✓	✓

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	Dev Scenario 2	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1228	100.000
B		ONE HOUR	✓	1105	100.000
C		ONE HOUR	✓	1933	100.000
D		ONE HOUR	✓	678	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	
From	A	0	0	910	318	
	B	1105	0	0	0	
	C	545	1066	0	322	
	D	312	0	366	0	

Proportions

		To				
		A	B	C	D	
From	A	0.00	0.00	0.74	0.26	
	B	1.00	0.00	0.00	0.00	
	C	0.28	0.55	0.00	0.17	
	D	0.46	0.00	0.54	0.00	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	
From	A	0	0	2	1	
	B	3	0	0	0	
	C	4	9	0	9	
	D	1	0	7	0	

Average PCU Per Veh

		To				
		A	B	C	D	
From	A	1.000	1.000	1.020	1.010	
	B	1.030	1.000	1.000	1.000	
	C	1.040	1.090	1.000	1.090	
	D	1.010	1.000	1.070	1.000	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:15-16:30	A	925	925
	B	832	832
	C	1455	1455
	D	510	510
16:30-16:45	A	1104	1104
	B	993	993
	C	1738	1738
	D	610	610
16:45-17:00	A	1352	1352
	B	1217	1217
	C	2128	2128
	D	746	746
17:00-17:15	A	1352	1352
	B	1217	1217
	C	2128	2128
	D	746	746
17:15-17:30	A	1104	1104
	B	993	993
	C	1738	1738
	D	610	610
17:30-17:45	A	925	925
	B	832	832
	C	1455	1455
	D	510	510

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	489.94	148.0	F	1126	1688
B	763.41	208.5	F	1014	1522
C	458.05	216.0	F	1773	2659
D	23.82	5.2	C	622	933

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	923	231	1075	915	1484	0.0	4.8	13.714	B
B	835	209	1199	832	790	0.0	4.2	14.035	B
C	1451	363	1065	1438	965	0.0	7.9	13.705	B
D	522	131	2038	520	465	0.0	1.3	8.604	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1101	275	1169	1054	1714	4.8	20.4	48.731	E
B	1000	250	1378	937	845	4.2	22.4	56.811	F
C	1745	436	1217	1631	1098	7.9	37.0	53.693	F
D	607	152	2278	604	571	1.3	2.4	13.606	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1362	341	1263	1108	1812	20.4	79.6	173.789	F
B	1222	305	1511	875	860	22.4	105.3	261.955	F
C	2117	529	1226	1808	1160	37.0	114.5	175.258	F
D	740	185	2333	743	702	2.4	4.6	21.423	C

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1356	339	1272	1100	1815	79.6	140.8	384.906	F
B	1212	303	1501	876	871	105.3	191.8	607.714	F
C	2141	535	1222	1827	1156	114.5	195.5	353.728	F
D	743	186	2345	741	703	4.6	5.2	23.825	C

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1094	274	1201	1079	1700	140.8	148.0	489.942	F
B	990	247	1418	935	862	191.8	208.5	763.409	F
C	1733	433	1218	1636	1135	195.5	216.0	458.045	F
D	615	154	2283	618	571	5.2	2.4	16.355	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	918	229	1126	1048	1653	148.0	115.5	333.027	F
B	827	207	1319	1010	854	208.5	169.3	641.438	F
C	1449	362	1244	1510	1085	216.0	199.6	261.604	F
D	505	126	2274	505	480	2.4	1.8	11.830	B

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	688	847	0.813	681	0.0	4.4	16.653	C
			2	D,A	234	847	0.277	234	0.0	0.4	5.434	A
	Exit	1	1		1484			1484	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	416	546	0.762	414	0.0	2.1	13.885	B
			2	A,B	419	546	0.767	417	0.0	2.1	14.184	B
		2	1	(D,A,B,C)	835			835	0.0	0.0	0.002	A
	Exit	1	1		790			790	0.0	0.0	0.000	A
C	Entry	1	1	D,A	400	925	0.433	399	0.0	0.8	5.638	A
			2	A	249	925	0.269	249	0.0	0.4	4.513	A
			3	B,C	799	925	0.863	790	0.0	6.4	20.300	C
		2	1	(D,A)	650			650	0.0	0.0	0.000	A
			2	(B,C)	801			799	0.0	0.3	0.444	A
	Exit	1	1		965			965	0.0	0.0	0.000	A
D	Entry	1	1	A	117	589	0.199	117	0.0	0.2	5.919	A
			2	A	119	589	0.202	119	0.0	0.2	5.812	A
			3	D,B,C	285	589	0.484	284	0.0	0.9	10.229	B
		2	1	(A)	236			236	0.0	0.0	0.000	A
			2	(D,B,C)	286			285	0.0	0.1	0.808	A
	Exit	1	1		465			465	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	821	806	1.018	774	4.4	19.8	63.157	F
			2	D,A	281	806	0.348	280	0.4	0.6	7.131	A
	Exit	1	1		1714			1714	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	488	482	1.011	473	2.1	8.3	46.721	E
			2	A,B	479	482	0.994	465	2.1	8.2	46.338	E
		2	1	(D,A,B,C)	1000			967	0.0	5.9	9.148	A
	Exit	1	1		845			845	0.0	0.0	0.000	A
C	Entry	1	1	D,A	476	866	0.549	477	0.8	1.1	7.395	A
			2	A	310	866	0.358	309	0.4	0.5	5.583	A
			3	B,C	869	866	1.003	845	6.4	19.3	62.163	F
		2	1	(D,A)	785			785	0.0	0.0	0.000	A
			2	(B,C)	959			869	0.3	16.2	28.969	D
	Exit	1	1		1098			1098	0.0	0.0	0.000	A
D	Entry	1	1	A	136	529	0.258	137	0.2	0.3	7.702	A
			2	A	143	529	0.271	143	0.2	0.3	7.489	A
			3	D,B,C	327	529	0.618	324	0.9	1.4	15.191	C
		2	1	(A)	280			280	0.0	0.0	0.000	A
			2	(D,B,C)	327			327	0.1	0.4	3.816	A
	Exit	1	1		571			571	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	1012	765	1.323	757	19.8	78.7	232.135	F
			2	D,A	350	765	0.457	351	0.6	0.9	8.895	A
	Exit	1	1		1812			1812	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	440	435	1.011	439	8.3	12.0	91.403	F
			2	A,B	436	435	1.003	435	8.2	12.0	92.771	F
		2	1	(D,A,B,C)	1222			876	5.9	81.3	167.861	F
	Exit	1	1		860			860	0.0	0.0	0.000	A
C	Entry	1	1	D,A	561	863	0.651	560	1.1	1.4	9.051	A
			2	A	388	863	0.450	388	0.5	0.8	6.711	A
			3	B,C	861	863	0.998	860	19.3	21.9	89.770	F
		2	1	(D,A)	950			950	0.0	0.0	0.000	A
			2	(B,C)	1167			861	16.2	90.4	224.906	F
	Exit	1	1		1160			1160	0.0	0.0	0.000	A
D	Entry	1	1	A	171	515	0.332	170	0.3	0.4	8.488	A
			2	A	169	515	0.328	169	0.3	0.4	8.410	A
			3	D,B,C	401	515	0.778	403	1.4	2.3	19.968	C
		2	1	(A)	340			340	0.0	0.0	0.001	A
			2	(D,B,C)	400			401	0.4	1.5	12.912	B
	Exit	1	1		702			702	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	1010	761	1.327	755	78.7	139.8	515.821	F
			2	D,A	346	761	0.454	345	0.9	1.0	8.904	A
	Exit	1	1		1815			1815	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	438	438	0.999	438	12.0	12.0	99.438	F
			2	A,B	438	438	0.999	438	12.0	12.0	98.642	F
		2	1	(D,A,B,C)	1212			876	81.3	167.9	512.127	F
	Exit	1	1		871			871	0.0	0.0	0.000	A
C	Entry	1	1	D,A	563	864	0.651	565	1.4	1.4	9.215	A
			2	A	390	864	0.451	391	0.8	0.7	6.753	A
			3	B,C	871	864	1.008	871	21.9	22.0	91.458	F
		2	1	(D,A)	952			952	0.0	0.0	0.000	A
			2	(B,C)	1189			871	90.4	171.5	549.128	F
	Exit	1	1		1156			1156	0.0	0.0	0.000	A
D	Entry	1	1	A	168	512	0.328	168	0.4	0.4	8.485	A
			2	A	173	512	0.338	173	0.4	0.4	8.399	A
			3	D,B,C	401	512	0.782	401	2.3	2.3	20.462	C
		2	1	(A)	341			341	0.0	0.0	0.001	A
			2	(D,B,C)	402			401	1.5	2.1	17.333	C
	Exit	1	1		703			703	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	812	792	1.025	796	139.8	147.4	659.421	F
			2	D,A	282	792	0.356	283	1.0	0.5	7.717	A
	Exit	1	1		1700			1700	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	472	468	1.007	471	12.0	12.0	91.900	F
			2	A,B	463	468	0.990	463	12.0	12.0	93.449	F
		2	1	(D,A,B,C)	990			935	167.9	184.5	676.372	F
	Exit	1	1		862			862	0.0	0.0	0.000	A
C	Entry	1	1	D,A	471	866	0.544	470	1.4	1.1	7.538	A
			2	A	303	866	0.350	303	0.7	0.5	5.719	A
			3	B,C	862	866	0.996	862	22.0	21.9	90.296	F
		2	1	(D,A)	773			773	0.0	0.0	0.000	A
			2	(B,C)	959			862	171.5	192.5	751.928	F
	Exit	1	1		1135			1135	0.0	0.0	0.000	A
D	Entry	1	1	A	139	528	0.263	138	0.4	0.3	7.940	A
			2	A	141	528	0.268	141	0.4	0.3	7.771	A
			3	D,B,C	337	528	0.639	339	2.3	1.5	17.076	C
		2	1	(A)	280			280	0.0	0.0	0.000	A
			2	(D,B,C)	335			337	2.1	0.3	7.159	A
	Exit	1	1		571			571	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B,C	683	824	0.829	813	147.4	114.9	539.161	F
			2	D,A	235	824	0.285	234	0.5	0.6	6.400	A
	Exit	1	1		1653			1653	0.0	0.0	0.000	A
B	Entry	1	1	D,A,C	506	503	1.006	507	12.0	11.9	85.839	F
			2	A,B	503	503	0.999	503	12.0	12.0	86.524	F
		2	1	(D,A,B,C)	827			1009	184.5	145.4	569.431	F
	Exit	1	1		854			854	0.0	0.0	0.000	A
C	Entry	1	1	D,A	409	856	0.478	408	1.1	0.9	6.914	A
			2	A	248	856	0.289	248	0.5	0.4	5.241	A
			3	B,C	854	856	0.998	854	21.9	21.9	91.114	F
		2	1	(D,A)	656			656	0.0	0.0	0.000	A
			2	(B,C)	793			854	192.5	176.5	665.964	F
	Exit	1	1		1085			1085	0.0	0.0	0.000	A
D	Entry	1	1	A	116	530	0.219	116	0.3	0.3	7.508	A
			2	A	116	530	0.220	117	0.3	0.3	7.343	A
			3	D,B,C	273	530	0.515	272	1.5	1.1	13.851	B
		2	1	(A)	233			233	0.0	0.0	0.000	A
			2	(D,B,C)	272			273	0.3	0.1	1.940	A
	Exit	1	1		480			480	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
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Report generation date: 19/08/2016 11:54:55

«M20 Junction 8 - 2016, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 8 [Lane Simulation] - 2016				
Arm A	1.9	4.61		A
Arm B	0.7	6.04		A
Arm C	1.8	11.41		B
Arm D	13.1	26.90		D

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. Arm and junction delays are averages for all movements, including movements with zero delay.

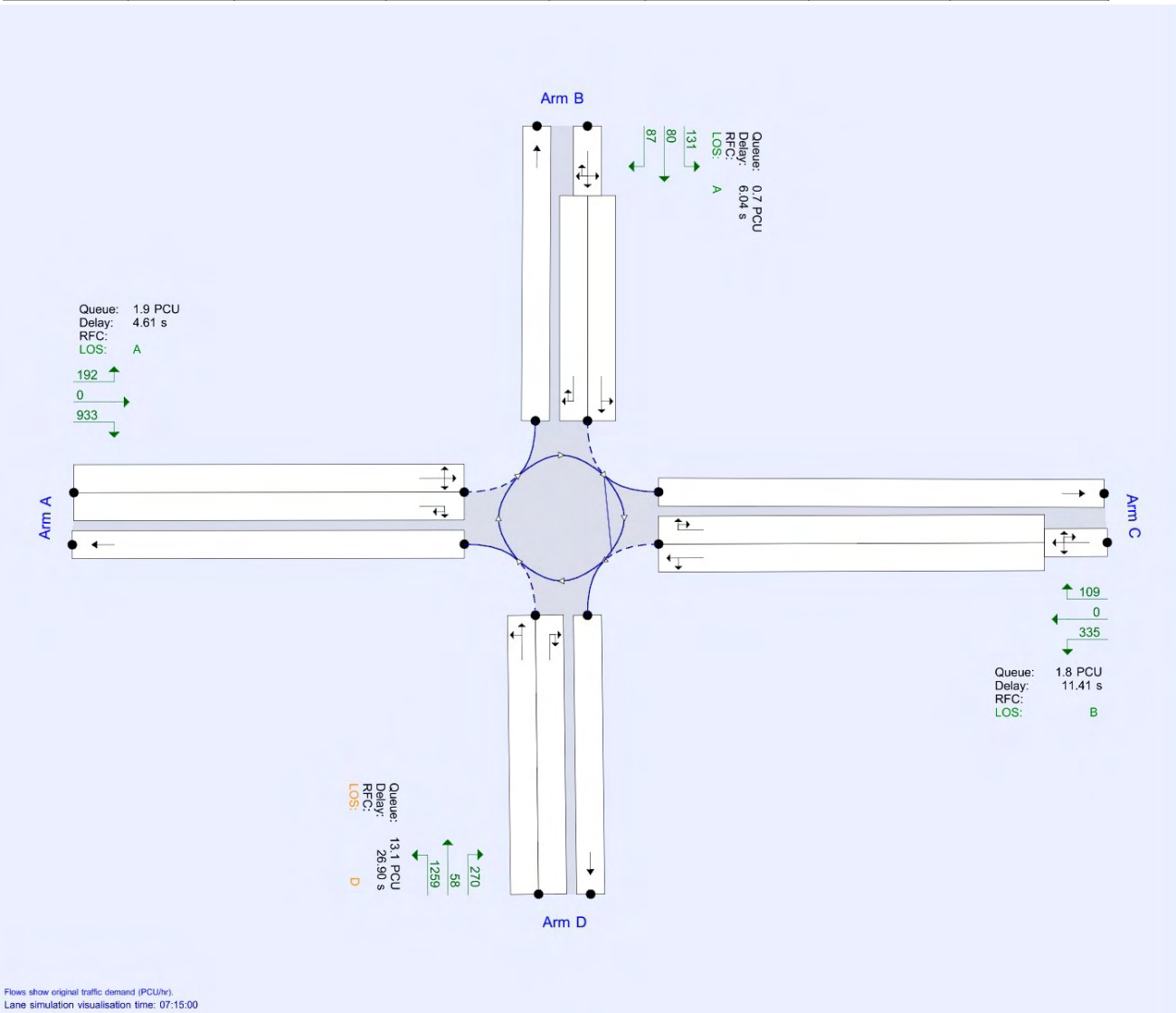
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	61179067	207	35.17

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 8	✓	✓	100.000	100.000

M20 Junction 8 - 2016, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 8 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 8	Large Roundabout	A,B,C,D	15.82	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	M20 West	
B	Service Station North	
C	M20 East	
D	A20 Link Road South	

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)	Exit only
A	7.80	7.90	2.0	45.0	170.0	12.0	
B	5.50	10.75	12.0	26.3	170.0	7.5	
C	6.00	6.50	22.0	41.4	170.0	14.0	
D	7.80	8.50	30.0	32.7	170.0	14.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	437	122.00
B	1203	0.00
C	1100	125.50
D	196	81.40

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.163	3110
B	0.975	3130
C	0.894	2461
D	1.251	3398

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	D,B,C		Infinity	0	99999
		2	D,A		Infinity	0	99999
B	1 [Give-way line]	1	D,C	✓	7.00	0	99999
		2	A,B	✓	7.00	0	99999
	2	1	(D,A,B,C)		Infinity		
C	1 [Give-way line]	1	D,A	✓	12.00	0	99999
		2	B,C	✓	12.00	0	99999
	2	1	(D,A,B,C)		Infinity		
D	1 [Give-way line]	1	A,B		Infinity	0	99999
		2	D,C		Infinity	0	99999

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.582	1555
		2	0.582	1555
B	1 [Give-way line]	1	0.487	1565
		2	0.487	1565
C	1 [Give-way line]	1	0.447	1230
		2	0.447	1230
D	1 [Give-way line]	1	0.626	1699
		2	0.626	1699

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1	✓			✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
C	1 [Give-way line]	1	✓	✓		
		2			✓	✓
	2	1	✓	✓	✓	✓

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1125	100.000
B		ONE HOUR	✓	298	100.000
C		ONE HOUR	✓	444	100.000
D		ONE HOUR	✓	1587	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	192	0	933
	B	87	0	131	80
	C	0	109	0	335
	D	1259	58	270	0

Proportions

		To			
		A	B	C	D
From	A	0.00	0.17	0.00	0.83
	B	0.29	0.00	0.44	0.27
	C	0.00	0.25	0.00	0.75
	D	0.79	0.04	0.17	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	20	0	8
	B	21	0	17	14
	C	0	20	0	5
	D	4	15	4	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.200	1.000	1.080
	B	1.210	1.000	1.170	1.140
	C	1.000	1.200	1.000	1.050
	D	1.040	1.150	1.040	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:15-07:30	A	847	847
	B	224	224
	C	334	334
	D	1195	1195
07:30-07:45	A	1011	1011
	B	268	268
	C	399	399
	D	1427	1427
07:45-08:00	A	1239	1239
	B	328	328
	C	489	489
	D	1747	1747
08:00-08:15	A	1239	1239
	B	328	328
	C	489	489
	D	1747	1747
08:15-08:30	A	1011	1011
	B	268	268
	C	399	399
	D	1427	1427
08:30-08:45	A	847	847
	B	224	224
	C	334	334
	D	1195	1195

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	4.61	1.9	A	1037	1556
B	6.04	0.7	A	276	415
C	11.41	1.8	B	408	612
D	26.90	13.1	D	1456	2184

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	854	214	330	854	1025	0.0	0.9	3.386	A
B	222	55	909	222	275	0.0	0.3	4.107	A
C	335	84	825	334	305	0.0	0.8	5.651	A
D	1208	302	148	1207	1011	0.0	2.0	5.575	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1018	255	396	1015	1197	0.9	1.4	3.857	A
B	270	67	1088	269	323	0.3	0.3	4.860	A
C	400	100	1000	400	357	0.8	0.7	7.660	A
D	1415	354	180	1413	1220	2.0	3.5	8.188	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1248	312	481	1245	1473	1.4	1.9	4.491	A
B	341	85	1331	340	394	0.3	0.7	5.901	A
C	493	123	1226	492	446	0.7	1.8	11.373	B
D	1742	435	219	1734	1499	3.5	11.4	19.853	C

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1238	310	477	1243	1485	1.9	1.5	4.612	A
B	330	83	1327	332	393	0.7	0.6	6.040	A
C	482	121	1216	481	444	1.8	1.7	11.414	B
D	1749	437	215	1746	1481	11.4	13.1	26.902	D

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1009	252	399	1008	1200	1.5	1.3	3.938	A
B	269	67	1078	270	329	0.6	0.4	5.035	A
C	400	100	984	400	364	1.7	0.7	8.033	A
D	1430	358	176	1423	1207	13.1	3.5	10.929	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	857	214	332	857	1012	1.3	0.9	3.494	A
B	226	57	908	226	281	0.4	0.2	4.278	A
C	338	84	834	339	300	0.7	0.5	6.337	A
D	1192	298	150	1194	1023	3.5	2.1	5.782	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	473	1363	0.347	473	0.0	0.5	3.530	A
			2	D,A	381	1363	0.279	381	0.0	0.4	3.211	A
	Exit	1	1		1025			1025	0.0	0.0	0.000	A
B	Entry	1	1	D,C	157	1122	0.140	157	0.0	0.2	4.191	A
			2	A,B	65	1122	0.058	65	0.0	0.1	3.881	A
	Exit	1	1	(D,A,B,C)	222			222	0.0	0.0	0.002	A
			1	1		275			275	0.0	0.0	0.000
C	Entry	1	1	D,A	251	861	0.291	251	0.0	0.6	5.743	A
			2	B,C	84	861	0.097	83	0.0	0.2	5.334	A
	Exit	1	1	(D,A,B,C)	335			335	0.0	0.0	0.000	A
			1	1		305			305	0.0	0.0	0.000
D	Entry	1	1	A,B	1003	1606	0.625	1002	0.0	1.9	6.181	A
			2	D,C	205	1606	0.128	205	0.0	0.1	2.632	A
	Exit	1	1		1011			1011	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	561	1325	0.423	559	0.5	0.8	4.042	A
			2	D,A	458	1325	0.346	456	0.4	0.6	3.639	A
	Exit	1	1		1197			1197	0.0	0.0	0.000	A
B	Entry	1	1	D,C	188	1035	0.181	188	0.2	0.2	5.006	A
			2	A,B	82	1035	0.079	81	0.1	0.1	4.480	A
	Exit	1	1	(D,A,B,C)	270			270	0.0	0.0	0.002	A
			1	1		323			323	0.0	0.0	0.000
C	Entry	1	1	D,A	301	783	0.384	301	0.6	0.6	8.104	A
			2	B,C	99	783	0.126	99	0.2	0.1	6.123	A
	Exit	1	1	(D,A,B,C)	400			400	0.0	0.0	0.000	A
			1	1		357			357	0.0	0.0	0.000
D	Entry	1	1	A,B	1173	1586	0.739	1171	1.9	3.3	9.314	A
			2	D,C	242	1586	0.153	242	0.1	0.2	2.800	A
	Exit	1	1		1220			1220	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	666	1276	0.522	663	0.8	1.1	4.725	A
			2	D,A	582	1276	0.456	582	0.6	0.8	4.226	A
	Exit	1	1		1473			1473	0.0	0.0	0.000	A
B	Entry	1	1	D,C	243	916	0.265	242	0.2	0.5	6.108	A
			2	A,B	99	916	0.108	98	0.1	0.2	5.340	A
	Exit	1	1	(D,A,B,C)	341			341	0.0	0.0	0.009	A
			1	1		394			394	0.0	0.0	0.000
C	Entry	1	1	D,A	373	682	0.546	371	0.6	1.5	12.413	B
			2	B,C	121	682	0.177	121	0.1	0.3	7.521	A
	Exit	1	1	(D,A,B,C)	493			493	0.0	0.0	0.030	A
			1	1		446			446	0.0	0.0	0.000
D	Entry	1	1	A,B	1443	1562	0.924	1437	3.3	11.1	23.356	C
			2	D,C	299	1562	0.191	298	0.2	0.3	2.936	A
	Exit	1	1		1499			1499	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	662	1278	0.518	665	1.1	0.9	4.887	A
			2	D,A	576	1278	0.451	578	0.8	0.6	4.304	A
	Exit	1	1		1485			1485	0.0	0.0	0.000	A
B	Entry	1	1	D,C	233	918	0.254	235	0.5	0.4	6.290	A
			2	A,B	98	918	0.106	98	0.2	0.1	5.375	A
	Exit	1	1	(D,A,B,C)	330			330	0.0	0.0	0.009	A
			1	1		393			393	0.0	0.0	0.000
C	Entry	1	1	D,A	363	687	0.529	363	1.5	1.3	12.452	B
			2	B,C	118	687	0.173	118	0.3	0.4	7.690	A
	Exit	1	1	(D,A,B,C)	482			482	0.0	0.0	0.021	A
			1	1		444			444	0.0	0.0	0.000
D	Entry	1	1	A,B	1454	1564	0.929	1450	11.1	12.9	31.832	D
			2	D,C	295	1564	0.189	296	0.3	0.2	2.893	A
	Exit	1	1		1481			1481	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	550	1323	0.415	550	0.9	0.7	4.117	A
			2	D,A	459	1323	0.347	458	0.6	0.6	3.730	A
	Exit	1	1		1200			1200	0.0	0.0	0.000	A
B	Entry	1	1	D,C	193	1040	0.185	193	0.4	0.3	5.131	A
			2	A,B	77	1040	0.074	77	0.1	0.1	4.777	A
	Exit	1	1	(D,A,B,C)	269			269	0.0	0.0	0.004	A
			1	1		329			329	0.0	0.0	0.000
C	Entry	1	1	D,A	301	790	0.380	301	1.3	0.5	8.426	A
			2	B,C	99	790	0.125	99	0.4	0.2	6.683	A
	Exit	1	1	(D,A,B,C)	400			400	0.0	0.0	0.002	A
			1	1		364			364	0.0	0.0	0.000
D	Entry	1	1	A,B	1183	1589	0.745	1177	12.9	3.3	12.618	B
			2	D,C	247	1589	0.156	247	0.2	0.2	2.813	A
	Exit	1	1		1207			1207	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	471	1362	0.346	470	0.7	0.5	3.659	A
			2	D,A	386	1362	0.283	387	0.6	0.4	3.297	A
	Exit	1	1		1012			1012	0.0	0.0	0.000	A
B	Entry	1	1	D,C	162	1123	0.144	161	0.3	0.2	4.357	A
			2	A,B	65	1123	0.058	65	0.1	0.1	4.071	A
		2	1	(D,A,B,C)	226			226	0.0	0.0	0.000	A
	Exit	1	1		281			281	0.0	0.0	0.000	A
C	Entry	1	1	D,A	252	857	0.294	254	0.5	0.4	6.461	A
			2	B,C	85	857	0.099	86	0.2	0.1	5.913	A
		2	1	(D,A,B,C)	338			338	0.0	0.0	0.000	A
	Exit	1	1		300			300	0.0	0.0	0.000	A
D	Entry	1	1	A,B	992	1605	0.618	994	3.3	1.9	6.420	A
			2	D,C	200	1605	0.124	199	0.2	0.2	2.688	A
	Exit	1	1		1023			1023	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Report generation date: 19/08/2016 11:55:38

«M20 Junction 8 - 2016, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	M20 Junction 8 [Lane Simulation] - 2016			
Arm A	2.1	4.81		A
Arm B	0.6	6.74		A
Arm C	1.1	12.82		B
Arm D	6.1	13.18		B

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. Arm and junction delays are averages for all movements, including movements with zero delay.

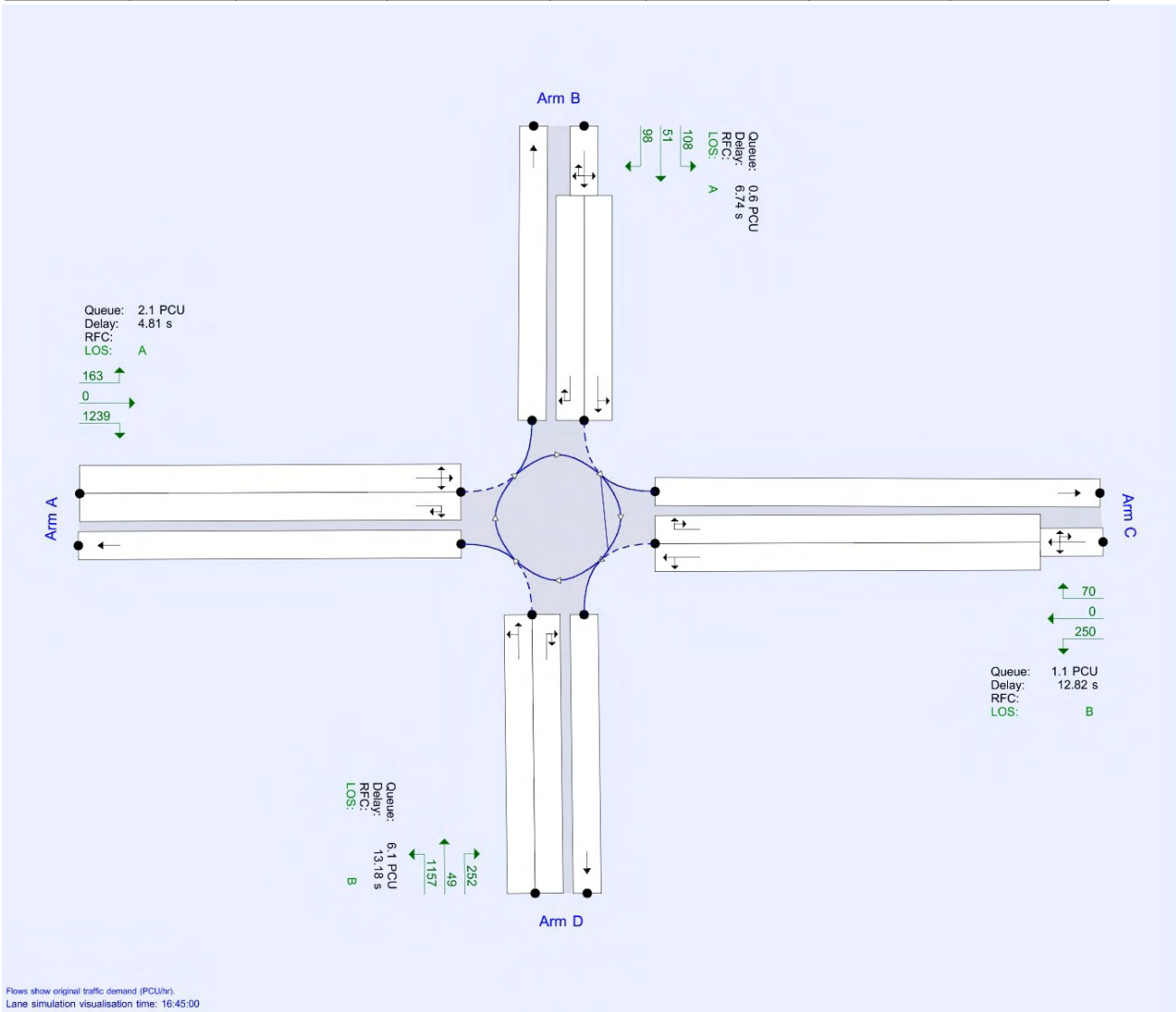
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	717459308	245	43.83

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 8	✓	✓	100.000	100.000

M20 Junction 8 - 2016, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 8 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 8	Large Roundabout	A,B,C,D	9.25	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	M20 West	
B	Service Station North	
C	M20 East	
D	A20 Link Road South	

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)	Exit only
A	7.80	7.90	2.0	45.0	170.0	12.0	
B	5.50	10.75	12.0	26.3	170.0	7.5	
C	6.00	6.50	22.0	41.4	170.0	14.0	
D	7.80	8.50	30.0	32.7	170.0	14.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	371	122.00
B	1491	0.00
C	1388	125.50
D	168	81.40

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.178	3126
B	0.911	3064
C	0.837	2394
D	1.258	3404

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	D,B,C		Infinity	0	99999
		2	D,A		Infinity	0	99999
B	1 [Give-way line]	1	D,C	✓	7.00	0	99999
		2	A,B	✓	7.00	0	99999
	2	1	(D,A,B,C)		Infinity		
C	1 [Give-way line]	1	D,A	✓	12.00	0	99999
		2	B,C	✓	12.00	0	99999
	2	1	(D,A,B,C)		Infinity		
D	1 [Give-way line]	1	A,B		Infinity	0	99999
		2	D,C		Infinity	0	99999

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.589	1563
		2	0.589	1563
B	1 [Give-way line]	1	0.455	1532
		2	0.455	1532
C	1 [Give-way line]	1	0.418	1197
		2	0.418	1197
D	1 [Give-way line]	1	0.629	1702
		2	0.629	1702

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1	✓			✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
C	1 [Give-way line]	1	✓	✓		
		2			✓	✓
	2	1	✓	✓	✓	✓

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2016	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1402	100.000
B		ONE HOUR	✓	257	100.000
C		ONE HOUR	✓	320	100.000
D		ONE HOUR	✓	1458	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	A	B	C	D	
From	A	0	163	0	1239
	B	98	0	108	51
	C	0	70	0	250
	D	1157	49	252	0

Proportions

	To				
	A	B	C	D	
From	A	0.00	0.12	0.00	0.88
	B	0.38	0.00	0.42	0.20
	C	0.00	0.22	0.00	0.78
	D	0.79	0.03	0.17	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
	A	B	C	D	
From	A	0	20	0	3
	B	6	0	18	15
	C	0	11	0	2
	D	4	2	4	0

Average PCU Per Veh

	To				
	A	B	C	D	
From	A	1.000	1.200	1.000	1.030
	B	1.060	1.000	1.180	1.150
	C	1.000	1.110	1.000	1.020
	D	1.040	1.020	1.040	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:45-17:00	A	1055	1055
	B	193	193
	C	241	241
	D	1098	1098
17:00-17:15	A	1260	1260
	B	231	231
	C	288	288
	D	1311	1311
17:15-17:30	A	1544	1544
	B	283	283
	C	352	352
	D	1605	1605
17:30-17:45	A	1544	1544
	B	283	283
	C	352	352
	D	1605	1605
17:45-18:00	A	1260	1260
	B	231	231
	C	288	288
	D	1311	1311
18:00-18:15	A	1055	1055
	B	193	193
	C	241	241
	D	1098	1098

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	4.81	2.1	A	1289	1934
B	6.74	0.6	A	234	351
C	12.82	1.1	B	295	442
D	13.18	6.1	B	1335	2003

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1062	265	281	1059	932	0.0	1.3	3.321	A
B	193	48	1125	194	215	0.0	0.2	4.185	A
C	243	61	1046	244	272	0.0	0.4	5.772	A
D	1086	272	128	1084	1162	0.0	1.6	4.668	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1274	318	332	1272	1132	1.3	1.6	3.806	A
B	230	57	1352	230	252	0.2	0.3	5.056	A
C	284	71	1264	284	318	0.4	0.7	7.775	A
D	1313	328	153	1311	1395	1.6	2.3	6.214	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1538	384	404	1540	1383	1.6	2.0	4.704	A
B	281	70	1636	280	308	0.3	0.5	6.359	A
C	349	87	1523	351	393	0.7	1.1	11.861	B
D	1606	402	183	1604	1691	2.3	6.1	12.231	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1529	382	404	1533	1381	2.0	2.1	4.812	A
B	279	70	1636	279	301	0.5	0.6	6.742	A
C	355	89	1523	355	391	1.1	1.1	12.824	B
D	1600	400	183	1602	1696	6.1	5.7	13.177	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1264	316	335	1266	1128	2.1	1.3	3.906	A
B	228	57	1347	227	254	0.6	0.4	5.277	A
C	287	72	1247	289	328	1.1	0.6	8.363	A
D	1319	330	146	1317	1390	5.7	2.4	6.869	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1069	267	279	1069	941	1.3	1.0	3.380	A
B	192	48	1132	192	215	0.4	0.2	4.628	A
C	249	62	1060	248	264	0.6	0.4	6.498	A
D	1089	272	127	1093	1181	2.4	1.3	4.922	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	561	1397	0.402	560	0.0	0.7	3.446	A
			2	D,A	500	1397	0.358	499	0.0	0.6	3.185	A
	Exit	1	1		932			932	0.0	0.0	0.000	A
B	Entry	1	1	D,C	120	1020	0.118	120	0.0	0.2	4.424	A
			2	A,B	73	1020	0.072	73	0.0	0.1	3.826	A
	Exit	1	1	(D,A,B,C)	193			193	0.0	0.0	0.000	A
			1	1		215			215	0.0	0.0	0.000
C	Entry	1	1	D,A	188	759	0.248	189	0.0	0.3	5.897	A
			2	B,C	55	759	0.073	55	0.0	0.1	5.281	A
	Exit	1	1	(D,A,B,C)	243			243	0.0	0.0	0.000	A
			1	1		272			272	0.0	0.0	0.000
D	Entry	1	1	A,B	895	1621	0.552	894	0.0	1.4	5.104	A
			2	D,C	191	1621	0.118	191	0.0	0.2	2.583	A
	Exit	1	1		1162			1162	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	667	1367	0.488	665	0.7	0.9	3.939	A
			2	D,A	607	1367	0.444	607	0.6	0.7	3.664	A
	Exit	1	1		1132			1132	0.0	0.0	0.000	A
B	Entry	1	1	D,C	139	916	0.151	139	0.2	0.2	5.459	A
			2	A,B	91	916	0.099	91	0.1	0.1	4.477	A
	Exit	1	1	(D,A,B,C)	230			230	0.0	0.0	0.000	A
			1	1		252			252	0.0	0.0	0.000
C	Entry	1	1	D,A	222	668	0.333	222	0.3	0.6	8.068	A
			2	B,C	62	668	0.092	62	0.1	0.1	6.639	A
	Exit	1	1	(D,A,B,C)	284			284	0.0	0.0	0.000	A
			1	1		318			318	0.0	0.0	0.000
D	Entry	1	1	A,B	1088	1606	0.678	1087	1.4	2.1	6.928	A
			2	D,C	224	1606	0.140	224	0.2	0.2	2.778	A
	Exit	1	1		1395			1395	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	800	1325	0.604	801	0.9	1.1	4.830	A
			2	D,A	738	1325	0.557	739	0.7	0.9	4.573	A
	Exit	1	1		1383			1383	0.0	0.0	0.000	A
B	Entry	1	1	D,C	175	787	0.223	174	0.2	0.4	6.965	A
			2	A,B	106	787	0.134	106	0.1	0.1	5.453	A
			1	(D,A,B,C)	281			281	0.0	0.0	0.004	A
	Exit	1	1		308			308	0.0	0.0	0.000	A
C	Entry	1	1	D,A	272	560	0.486	274	0.6	0.9	12.854	B
			2	B,C	77	560	0.137	77	0.1	0.2	8.029	A
			1	(D,A,B,C)	349			349	0.0	0.0	0.003	A
	Exit	1	1		393			393	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1332	1587	0.839	1331	2.1	5.8	14.181	B
			2	D,C	274	1587	0.173	273	0.2	0.3	2.805	A
	Exit	1	1		1691			1691	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	789	1325	0.595	790	1.1	1.1	4.978	A
			2	D,A	740	1325	0.559	743	0.9	1.0	4.640	A
	Exit	1	1		1381			1381	0.0	0.0	0.000	A
B	Entry	1	1	D,C	172	787	0.219	172	0.4	0.4	7.250	A
			2	A,B	107	787	0.136	107	0.1	0.2	5.990	A
			1	(D,A,B,C)	279			279	0.0	0.0	0.004	A
	Exit	1	1		301			301	0.0	0.0	0.000	A
C	Entry	1	1	D,A	278	559	0.497	279	0.9	0.9	13.929	B
			2	B,C	77	559	0.137	76	0.2	0.2	8.468	A
			1	(D,A,B,C)	355			355	0.0	0.0	0.000	A
	Exit	1	1		391			391	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1324	1587	0.835	1327	5.8	5.5	15.340	C
			2	D,C	275	1587	0.173	275	0.3	0.2	2.836	A
	Exit	1	1		1696			1696	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	664	1365	0.486	665	1.1	0.8	4.029	A
			2	D,A	600	1365	0.440	601	1.0	0.6	3.774	A
	Exit	1	1		1128			1128	0.0	0.0	0.000	A
B	Entry	1	1	D,C	144	918	0.157	144	0.4	0.3	5.667	A
			2	A,B	84	918	0.091	83	0.2	0.1	4.691	A
			1	(D,A,B,C)	228			228	0.0	0.0	0.000	A
	Exit	1	1		254			254	0.0	0.0	0.000	A
C	Entry	1	1	D,A	225	675	0.333	227	0.9	0.4	8.745	A
			2	B,C	62	675	0.092	62	0.2	0.1	6.866	A
			1	(D,A,B,C)	287			287	0.0	0.0	0.000	A
	Exit	1	1		328			328	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1089	1611	0.676	1088	5.5	2.2	7.747	A
			2	D,C	229	1611	0.142	229	0.2	0.2	2.712	A
	Exit	1	1		1390			1390	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	564	1399	0.404	563	0.8	0.6	3.470	A
			2	D,A	504	1399	0.361	505	0.6	0.5	3.281	A
	Exit	1	1		941			941	0.0	0.0	0.000	A
B	Entry	1	1	D,C	120	1016	0.118	120	0.3	0.1	4.921	A
			2	A,B	73	1016	0.072	72	0.1	0.1	4.200	A
		2	1	(D,A,B,C)	192			192	0.0	0.0	0.000	A
	Exit	1	1		215			215	0.0	0.0	0.000	A
C	Entry	1	1	D,A	194	753	0.257	193	0.4	0.3	6.672	A
			2	B,C	55	753	0.074	55	0.1	0.1	5.831	A
		2	1	(D,A,B,C)	249			249	0.0	0.0	0.000	A
	Exit	1	1		264			264	0.0	0.0	0.000	A
D	Entry	1	1	A,B	904	1622	0.557	908	2.2	1.1	5.418	A
			2	D,C	185	1622	0.114	185	0.2	0.2	2.556	A
	Exit	1	1		1181			1181	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Filename: M20 Junction 8 - 2031 AM.j9

Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 8\ARCADY

Report generation date: 19/08/2016 11:57:33

«M20 Junction 8 - 2031, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 8 [Lane Simulation] - 2031				
Arm A	2.2	5.17		A
Arm B	0.8	6.62		A
Arm C	2.6	15.21		C
Arm D	40.1	67.52		F

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. Arm and junction delays are averages for all movements, including movements with zero delay.

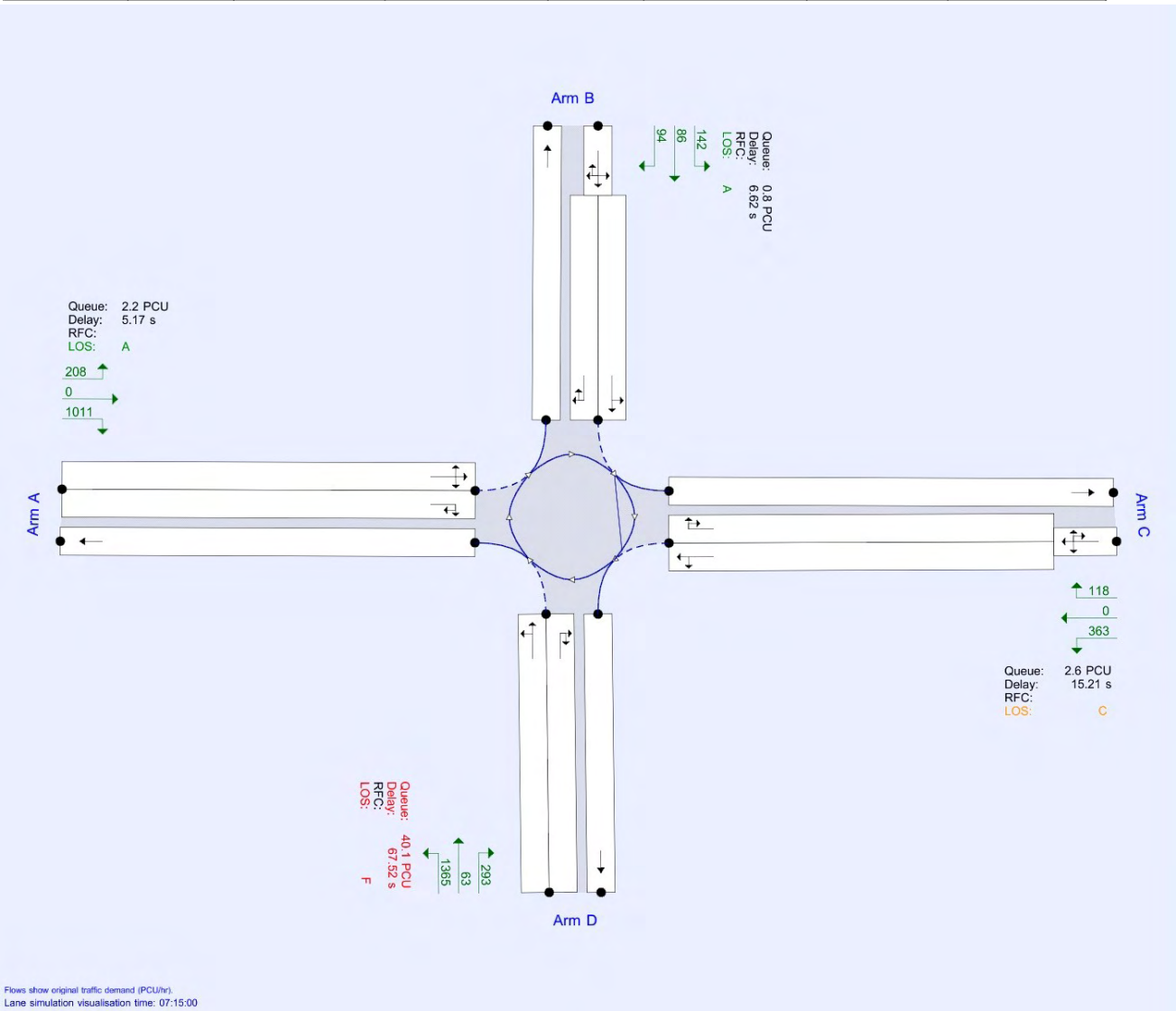
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1812291416	305	60.75

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 8	✓	✓	100.000	100.000

M20 Junction 8 - 2031, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 8 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 8	Large Roundabout	A,B,C,D	35.27	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	M20 West	
B	Service Station North	
C	M20 East	
D	A20 Link Road South	

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)	Exit only
A	7.80	7.90	2.0	45.0	170.0	12.0	
B	5.50	10.75	12.0	26.3	170.0	7.5	
C	6.00	6.50	22.0	41.4	170.0	14.0	
D	7.80	8.50	30.0	32.7	170.0	14.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	474	122.00
B	1304	0.00
C	1191	125.50
D	212	81.40

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.155	3102
B	0.952	3107
C	0.876	2440
D	1.248	3394

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	D,B,C		Infinity	0	99999
		2	D,A		Infinity	0	99999
B	1 [Give-way line]	1	D,C	✓	7.00	0	99999
		2	A,B	✓	7.00	0	99999
	2	1	(D,A,B,C)		Infinity		
C	1 [Give-way line]	1	D,A	✓	12.00	0	99999
		2	B,C	✓	12.00	0	99999
	2	1	(D,A,B,C)		Infinity		
D	1 [Give-way line]	1	A,B		Infinity	0	99999
		2	D,C		Infinity	0	99999

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.577	1551
		2	0.577	1551
B	1 [Give-way line]	1	0.476	1554
		2	0.476	1554
C	1 [Give-way line]	1	0.438	1220
		2	0.438	1220
D	1 [Give-way line]	1	0.624	1697
		2	0.624	1697

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1	✓			✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
C	1 [Give-way line]	1	✓	✓		
		2			✓	✓
	2	1	✓	✓	✓	✓

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	2031	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1219	100.000
B		ONE HOUR	✓	322	100.000
C		ONE HOUR	✓	481	100.000
D		ONE HOUR	✓	1721	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	A	B	C	D	
From	A	0	208	0	1011
	B	94	0	142	86
	C	0	118	0	363
	D	1365	63	293	0

Proportions

	To				
	A	B	C	D	
From	A	0.00	0.17	0.00	0.83
	B	0.29	0.00	0.44	0.27
	C	0.00	0.25	0.00	0.75
	D	0.79	0.04	0.17	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
	A	B	C	D	
From	A	0	20	0	8
	B	21	0	17	14
	C	0	20	0	5
	D	4	15	4	0

Average PCU Per Veh

	To				
	A	B	C	D	
From	A	1.000	1.200	1.000	1.080
	B	1.210	1.000	1.170	1.140
	C	1.000	1.200	1.000	1.050
	D	1.040	1.150	1.040	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:15-07:30	A	918	918
	B	242	242
	C	362	362
	D	1296	1296
07:30-07:45	A	1096	1096
	B	289	289
	C	432	432
	D	1547	1547
07:45-08:00	A	1342	1342
	B	355	355
	C	530	530
	D	1895	1895
08:00-08:15	A	1342	1342
	B	355	355
	C	530	530
	D	1895	1895
08:15-08:30	A	1096	1096
	B	289	289
	C	432	432
	D	1547	1547
08:30-08:45	A	918	918
	B	242	242
	C	362	362
	D	1296	1296

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	5.17	2.2	A	1119	1679
B	6.62	0.8	A	296	445
C	15.21	2.6	C	443	665
D	67.52	40.1	F	1583	2375

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	915	229	360	912	1096	0.0	1.2	3.509	A
B	245	61	981	244	292	0.0	0.4	4.236	A
C	355	89	898	355	327	0.0	0.7	6.095	A
D	1297	324	159	1298	1095	0.0	2.4	6.526	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1098	274	421	1096	1314	1.2	1.4	4.094	A
B	293	73	1169	292	348	0.4	0.5	5.112	A
C	425	106	1073	427	388	0.7	0.9	8.410	A
D	1543	386	191	1544	1309	2.4	5.3	11.067	B

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1348	337	518	1345	1547	1.4	2.1	4.885	A
B	352	88	1439	351	423	0.5	0.7	6.482	A
C	529	132	1310	527	481	0.9	2.2	13.538	B
D	1911	478	233	1831	1603	5.3	28.0	36.390	E

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1350	338	517	1349	1569	2.1	2.2	5.170	A
B	351	88	1438	350	428	0.7	0.8	6.617	A
C	538	135	1313	533	475	2.2	2.6	15.211	C
D	1899	475	232	1854	1615	28.0	40.1	67.516	F

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1097	274	437	1096	1372	2.2	1.4	4.183	A
B	291	73	1182	290	351	0.8	0.5	5.437	A
C	444	111	1079	445	393	2.6	1.1	9.306	A
D	1565	391	196	1614	1328	40.1	10.3	41.391	E

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	908	227	356	908	1095	1.4	1.0	3.632	A
B	247	62	973	247	290	0.5	0.4	4.661	A
C	367	92	893	365	328	1.1	0.8	6.978	A
D	1286	322	162	1289	1096	10.3	2.2	9.262	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	503	1343	0.375	501	0.0	0.7	3.696	A
			2	D,A	412	1343	0.306	411	0.0	0.5	3.288	A
	Exit	1	1		1096			1096	0.0	0.0	0.000	A
B	Entry	1	1	D,C	175	1086	0.161	175	0.0	0.3	4.254	A
			2	A,B	70	1086	0.064	69	0.0	0.1	4.187	A
	Exit	1	1	(D,A,B,C)	245			245	0.0	0.0	0.000	A
			1	1		292			292	0.0	0.0	0.000
C	Entry	1	1	D,A	266	826	0.322	266	0.0	0.6	6.211	A
			2	B,C	89	826	0.108	90	0.0	0.1	5.697	A
	Exit	1	1	(D,A,B,C)	355			355	0.0	0.0	0.000	A
			1	1		327			327	0.0	0.0	0.000
D	Entry	1	1	A,B	1077	1598	0.674	1078	0.0	2.2	7.305	A
			2	D,C	220	1598	0.138	220	0.0	0.2	2.703	A
	Exit	1	1		1095			1095	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	595	1308	0.455	594	0.7	0.8	4.279	A
			2	D,A	503	1308	0.384	502	0.5	0.6	3.881	A
	Exit	1	1		1314			1314	0.0	0.0	0.000	A
B	Entry	1	1	D,C	207	997	0.207	206	0.3	0.4	5.326	A
			2	A,B	86	997	0.086	86	0.1	0.1	4.560	A
	Exit	1	1	(D,A,B,C)	293			293	0.0	0.0	0.004	A
			1	1		348			348	0.0	0.0	0.000
C	Entry	1	1	D,A	320	750	0.427	322	0.6	0.7	8.840	A
			2	B,C	105	750	0.140	105	0.1	0.2	6.948	A
	Exit	1	1	(D,A,B,C)	425			425	0.0	0.0	0.000	A
			1	1		388			388	0.0	0.0	0.000
D	Entry	1	1	A,B	1283	1578	0.813	1285	2.2	5.1	12.758	B
			2	D,C	259	1578	0.164	260	0.2	0.2	2.855	A
	Exit	1	1		1309			1309	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	724	1252	0.579	722	0.8	1.2	5.114	A
			2	D,A	623	1252	0.498	623	0.6	0.9	4.629	A
	Exit	1	1		1547			1547	0.0	0.0	0.000	A
B	Entry	1	1	D,C	249	868	0.287	249	0.4	0.5	6.667	A
			2	A,B	103	868	0.119	103	0.1	0.2	5.949	A
			2	1	(D,A,B,C)	352			352	0.0	0.0	0.023
	Exit	1	1		423			423	0.0	0.0	0.000	A
C	Entry	1	1	D,A	399	646	0.617	397	0.7	1.9	14.904	B
			2	B,C	130	646	0.202	130	0.2	0.4	8.599	A
			2	1	(D,A,B,C)	529			529	0.0	0.0	0.039
	Exit	1	1		481			481	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1586	1551	1.022	1506	5.1	27.8	43.186	E
			2	D,C	325	1551	0.209	325	0.2	0.2	3.060	A
	Exit	1	1		1603			1603	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	722	1252	0.577	721	1.2	1.3	5.407	A
			2	D,A	628	1252	0.502	628	0.9	0.9	4.906	A
	Exit	1	1		1569			1569	0.0	0.0	0.000	A
B	Entry	1	1	D,C	250	869	0.288	248	0.5	0.6	6.871	A
			2	A,B	101	869	0.117	101	0.2	0.2	5.915	A
			2	1	(D,A,B,C)	351			351	0.0	0.0	0.015
	Exit	1	1		428			428	0.0	0.0	0.000	A
C	Entry	1	1	D,A	407	644	0.631	403	1.9	2.2	16.860	C
			2	B,C	132	644	0.205	131	0.4	0.4	8.671	A
			2	1	(D,A,B,C)	538			539	0.0	0.0	0.159
	Exit	1	1		475			475	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1580	1553	1.017	1535	27.8	39.8	80.744	F
			2	D,C	319	1553	0.206	319	0.2	0.3	3.049	A
	Exit	1	1		1615			1615	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	592	1298	0.456	592	1.3	0.8	4.391	A
			2	D,A	505	1298	0.389	505	0.9	0.6	3.943	A
	Exit	1	1		1372			1372	0.0	0.0	0.000	A
B	Entry	1	1	D,C	205	991	0.207	204	0.6	0.4	5.658	A
			2	A,B	86	991	0.087	86	0.2	0.1	4.860	A
			2	1	(D,A,B,C)	291			291	0.0	0.0	0.003
	Exit	1	1		351			351	0.0	0.0	0.000	A
C	Entry	1	1	D,A	335	747	0.448	335	2.2	0.8	9.986	A
			2	B,C	110	747	0.147	110	0.4	0.2	6.910	A
			2	1	(D,A,B,C)	444			444	0.0	0.0	0.011
	Exit	1	1		393			393	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1298	1575	0.824	1348	39.8	10.0	49.297	E
			2	D,C	267	1575	0.170	266	0.3	0.3	2.873	A
	Exit	1	1		1328			1328	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	500	1346	0.372	500	0.8	0.6	3.780	A
			2	D,A	408	1346	0.303	408	0.6	0.4	3.457	A
	Exit	1	1		1095			1095	0.0	0.0	0.000	A
B	Entry	1	1	D,C	175	1090	0.161	174	0.4	0.3	4.814	A
			2	A,B	72	1090	0.066	72	0.1	0.1	4.276	A
		2	1	(D,A,B,C)	247			247	0.0	0.0	0.001	A
	Exit	1	1		290			290	0.0	0.0	0.000	A
C	Entry	1	1	D,A	277	829	0.335	275	0.8	0.7	7.260	A
			2	B,C	90	829	0.108	90	0.2	0.1	6.007	A
		2	1	(D,A,B,C)	367			367	0.0	0.0	0.000	A
	Exit	1	1		328			328	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1067	1596	0.669	1069	10.0	2.1	10.615	B
			2	D,C	220	1596	0.138	220	0.3	0.2	2.751	A
	Exit	1	1		1096			1096	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Filename: M20 Junction 8 - 2031 PM.j9
Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 8\ARCADY
Report generation date: 19/08/2016 11:58:07

«M20 Junction 8 - 2031, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 8 [Lane Simulation] - 2031				
Arm A	2.6	5.58		A
Arm B	0.6	7.42		A
Arm C	1.9	16.16		C
Arm D	11.8	23.99		C

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. Arm and junction delays are averages for all movements, including movements with zero delay.

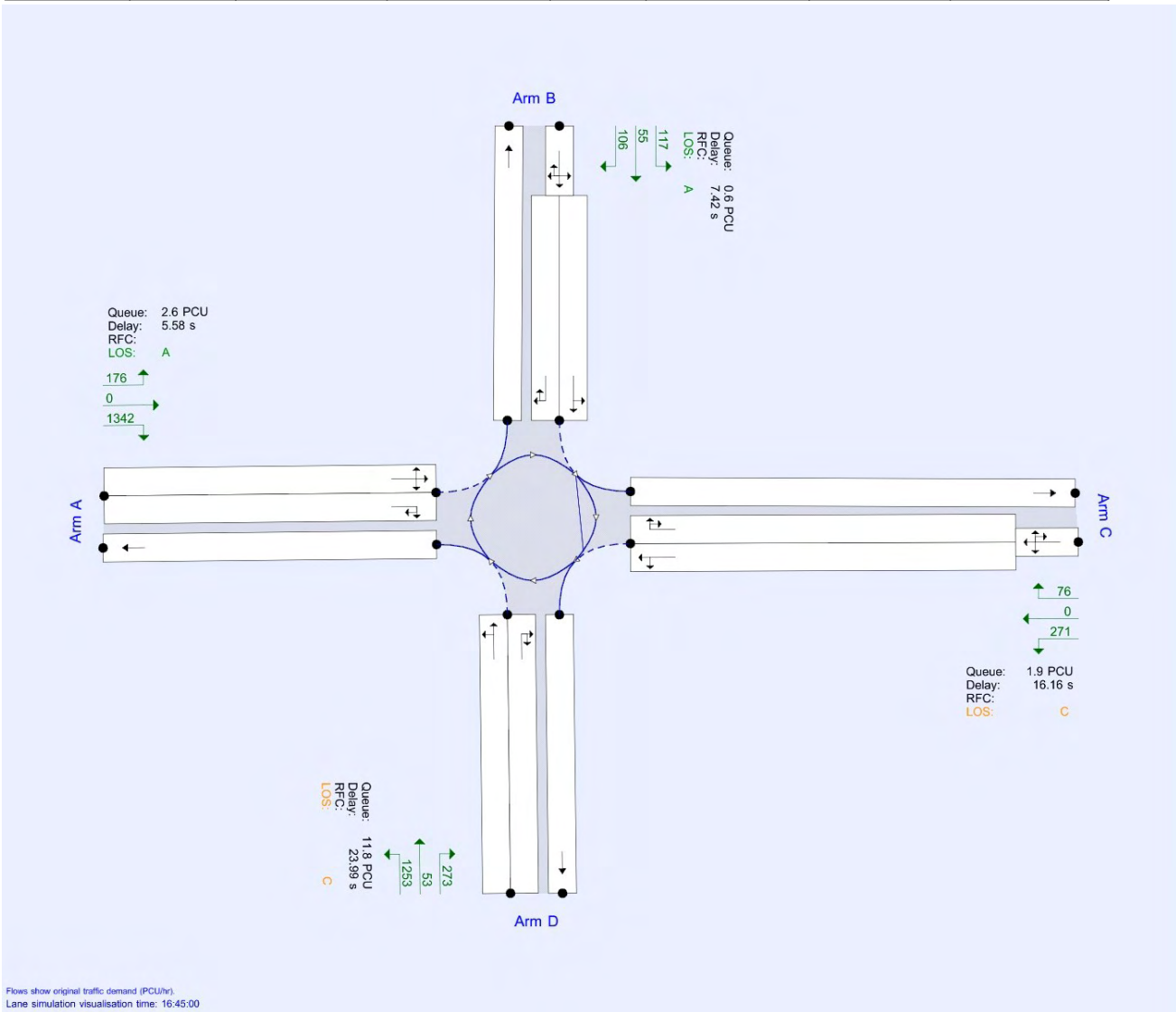
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	141425100	209	42.60

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 8	✓	✓	100.000	100.000

M20 Junction 8 - 2031, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 8 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 8	Large Roundabout	A,B,C,D	14.51	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	M20 West	
B	Service Station North	
C	M20 East	
D	A20 Link Road South	

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)	Exit only
A	7.80	7.90	2.0	45.0	170.0	12.0	
B	5.50	10.75	12.0	26.3	170.0	7.5	
C	6.00	6.50	22.0	41.4	170.0	14.0	
D	7.80	8.50	30.0	32.7	170.0	14.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	402	122.00
B	1615	0.00
C	1503	125.50
D	182	81.40

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.171	3118
B	0.883	3035
C	0.814	2367
D	1.255	3401

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	D,B,C		Infinity	0	99999
		2	D,A		Infinity	0	99999
B	1 [Give-way line]	1	D,C	✓	7.00	0	99999
		2	A,B	✓	7.00	0	99999
	2	1	(D,A,B,C)		Infinity		
C	1 [Give-way line]	1	D,A	✓	12.00	0	99999
		2	B,C	✓	12.00	0	99999
	2	1	(D,A,B,C)		Infinity		
D	1 [Give-way line]	1	A,B		Infinity	0	99999
		2	D,C		Infinity	0	99999

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.586	1559
		2	0.586	1559
B	1 [Give-way line]	1	0.442	1517
		2	0.442	1517
C	1 [Give-way line]	1	0.407	1184
		2	0.407	1184
D	1 [Give-way line]	1	0.627	1700
		2	0.627	1700

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1	✓			✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
C	1 [Give-way line]	1	✓	✓		
		2			✓	✓
	2	1	✓	✓	✓	✓

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	2031	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1518	100.000
B		ONE HOUR	✓	278	100.000
C		ONE HOUR	✓	347	100.000
D		ONE HOUR	✓	1579	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	A	B	C	D	
From	A	0	176	0	1342
	B	106	0	117	55
	C	0	76	0	271
	D	1253	53	273	0

Proportions

	To				
	A	B	C	D	
From	A	0.00	0.12	0.00	0.88
	B	0.38	0.00	0.42	0.20
	C	0.00	0.22	0.00	0.78
	D	0.79	0.03	0.17	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
	A	B	C	D	
From	A	0	20	0	3
	B	6	0	18	15
	C	0	11	0	2
	D	4	2	4	0

Average PCU Per Veh

	To				
	A	B	C	D	
From	A	1.000	1.200	1.000	1.030
	B	1.060	1.000	1.180	1.150
	C	1.000	1.110	1.000	1.020
	D	1.040	1.020	1.040	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:45-17:00	A	1143	1143
	B	209	209
	C	261	261
	D	1189	1189
17:00-17:15	A	1365	1365
	B	250	250
	C	312	312
	D	1419	1419
17:15-17:30	A	1671	1671
	B	306	306
	C	382	382
	D	1739	1739
17:30-17:45	A	1671	1671
	B	306	306
	C	382	382
	D	1739	1739
17:45-18:00	A	1365	1365
	B	250	250
	C	312	312
	D	1419	1419
18:00-18:15	A	1143	1143
	B	209	209
	C	261	261
	D	1189	1189

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	5.58	2.6	A	1394	2091
B	7.42	0.6	A	257	386
C	16.16	1.9	C	318	477
D	23.99	11.8	C	1450	2175

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1139	285	304	1140	1026	0.0	1.1	3.474	A
B	210	52	1219	210	225	0.0	0.3	4.399	A
C	261	65	1131	261	298	0.0	0.6	6.389	A
D	1193	298	137	1193	1255	0.0	1.9	5.645	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1364	341	361	1363	1226	1.1	1.5	4.133	A
B	254	64	1455	254	269	0.3	0.4	5.542	A
C	303	76	1349	304	360	0.6	0.7	8.751	A
D	1428	357	159	1428	1494	1.9	3.4	7.913	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1677	419	439	1679	1494	1.5	2.5	5.398	A
B	312	78	1783	313	336	0.4	0.6	7.089	A
C	385	96	1668	385	428	0.7	1.7	15.339	C
D	1738	434	203	1731	1850	3.4	10.1	17.948	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1676	419	441	1674	1501	2.5	2.6	5.579	A
B	312	78	1774	315	341	0.6	0.6	7.415	A
C	381	95	1654	380	435	1.7	1.9	16.163	C
D	1744	436	196	1747	1838	10.1	11.8	23.992	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1358	340	363	1360	1219	2.6	1.5	4.228	A
B	250	63	1454	248	269	0.6	0.5	5.827	A
C	317	79	1350	316	353	1.9	0.8	9.750	A
D	1422	356	159	1423	1506	11.8	3.3	10.184	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1151	288	303	1151	1012	1.5	1.1	3.628	A
B	204	51	1217	203	237	0.5	0.3	4.716	A
C	262	65	1134	261	286	0.8	0.5	7.173	A
D	1176	294	137	1177	1257	3.3	1.7	5.572	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	606	1381	0.439	607	0.0	0.7	3.593	A
			2	D,A	532	1381	0.385	533	0.0	0.5	3.346	A
	Exit	1	1		1026			1026	0.0	0.0	0.000	A
B	Entry	1	1	D,C	127	979	0.130	128	0.0	0.2	4.633	A
			2	A,B	82	979	0.084	82	0.0	0.1	4.050	A
	Exit	1	1	(D,A,B,C)	210			210	0.0	0.0	0.000	A
			1	1		225			225	0.0	0.0	0.000
C	Entry	1	1	D,A	206	723	0.284	206	0.0	0.4	6.545	A
			2	B,C	55	723	0.077	55	0.0	0.1	5.772	A
	Exit	1	1	(D,A,B,C)	261			261	0.0	0.0	0.000	A
			1	1		298			298	0.0	0.0	0.000
D	Entry	1	1	A,B	984	1614	0.609	983	0.0	1.8	6.276	A
			2	D,C	210	1614	0.130	210	0.0	0.1	2.635	A
	Exit	1	1		1255			1255	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	709	1348	0.526	708	0.7	0.9	4.267	A
			2	D,A	655	1348	0.486	655	0.5	0.6	3.991	A
	Exit	1	1		1226			1226	0.0	0.0	0.000	A
B	Entry	1	1	D,C	158	875	0.181	158	0.2	0.3	5.938	A
			2	A,B	96	875	0.110	95	0.1	0.2	4.952	A
	Exit	1	1	(D,A,B,C)	254			254	0.0	0.0	0.000	A
			1	1		269			269	0.0	0.0	0.000
C	Entry	1	1	D,A	239	635	0.377	240	0.4	0.6	9.232	A
			2	B,C	64	635	0.101	64	0.1	0.1	6.832	A
	Exit	1	1	(D,A,B,C)	303			303	0.0	0.0	0.001	A
			1	1		360			360	0.0	0.0	0.000
D	Entry	1	1	A,B	1178	1601	0.736	1178	1.8	3.2	8.993	A
			2	D,C	250	1601	0.156	249	0.1	0.2	2.732	A
	Exit	1	1		1494			1494	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	866	1302	0.665	868	0.9	1.3	5.538	A
			2	D,A	811	1302	0.623	812	0.6	1.2	5.253	A
	Exit	1	1		1494			1494	0.0	0.0	0.000	A
B	Entry	1	1	D,C	193	730	0.265	194	0.3	0.5	7.725	A
			2	A,B	119	730	0.164	120	0.2	0.2	6.133	A
			2	(D,A,B,C)	312			312	0.0	0.0	0.002	A
	Exit	1	1		336			336	0.0	0.0	0.000	A
C	Entry	1	1	D,A	301	505	0.597	301	0.6	1.4	16.812	C
			2	B,C	84	505	0.165	83	0.1	0.2	9.414	A
			2	(D,A,B,C)	385			385	0.0	0.0	0.035	A
	Exit	1	1		428			428	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1440	1573	0.915	1433	3.2	9.9	21.096	C
			2	D,C	297	1573	0.189	298	0.2	0.2	2.966	A
	Exit	1	1		1850			1850	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	867	1301	0.667	865	1.3	1.4	5.750	A
			2	D,A	809	1301	0.622	808	1.2	1.1	5.401	A
	Exit	1	1		1501			1501	0.0	0.0	0.000	A
B	Entry	1	1	D,C	197	734	0.268	199	0.5	0.4	8.141	A
			2	A,B	116	734	0.158	116	0.2	0.2	6.282	A
			2	(D,A,B,C)	312			312	0.0	0.0	0.020	A
	Exit	1	1		341			341	0.0	0.0	0.000	A
C	Entry	1	1	D,A	300	511	0.587	300	1.4	1.6	17.844	C
			2	B,C	81	511	0.159	80	0.2	0.3	9.456	A
			2	(D,A,B,C)	381			381	0.0	0.0	0.009	A
	Exit	1	1		435			435	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1442	1578	0.914	1446	9.9	11.5	28.389	D
			2	D,C	302	1578	0.191	301	0.2	0.3	2.990	A
	Exit	1	1		1838			1838	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	712	1346	0.529	713	1.4	0.8	4.374	A
			2	D,A	646	1346	0.480	647	1.1	0.7	4.073	A
	Exit	1	1		1219			1219	0.0	0.0	0.000	A
B	Entry	1	1	D,C	156	875	0.178	156	0.4	0.3	6.325	A
			2	A,B	94	875	0.108	93	0.2	0.2	5.086	A
			2	(D,A,B,C)	250			250	0.0	0.0	0.000	A
	Exit	1	1		269			269	0.0	0.0	0.000	A
C	Entry	1	1	D,A	250	634	0.394	249	1.6	0.7	10.298	B
			2	B,C	67	634	0.105	66	0.3	0.2	7.544	A
			2	(D,A,B,C)	317			317	0.0	0.0	0.000	A
	Exit	1	1		353			353	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1172	1601	0.732	1173	11.5	3.1	11.733	B
			2	D,C	250	1601	0.156	250	0.3	0.2	2.761	A
	Exit	1	1		1506			1506	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	607	1382	0.439	606	0.8	0.7	3.749	A
			2	D,A	544	1382	0.394	545	0.7	0.4	3.497	A
	Exit	1	1		1012			1012	0.0	0.0	0.000	A
B	Entry	1	1	D,C	126	980	0.128	125	0.3	0.2	5.019	A
			2	A,B	78	980	0.080	78	0.2	0.1	4.283	A
		2	1	(D,A,B,C)	204			204	0.0	0.0	0.000	A
	Exit	1	1		237			237	0.0	0.0	0.000	A
C	Entry	1	1	D,A	203	722	0.281	202	0.7	0.4	7.409	A
			2	B,C	58	722	0.081	58	0.2	0.1	6.244	A
		2	1	(D,A,B,C)	262			262	0.0	0.0	0.000	A
	Exit	1	1		286			286	0.0	0.0	0.000	A
D	Entry	1	1	A,B	973	1615	0.603	975	3.1	1.5	6.182	A
			2	D,C	203	1615	0.126	203	0.2	0.2	2.666	A
	Exit	1	1		1257			1257	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 8\ARCADY
Report generation date: 19/08/2016 12:00:37

«M20 Junction 8 - Dev Scenario 1, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

AM				
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 8 [Lane Simulation] - Dev Scenario 1				
Arm A	2.1	5.06		A
Arm B	0.7	6.77		A
Arm C	2.4	15.37		C
Arm D	44.1	75.93		F

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. Arm and junction delays are averages for all movements, including movements with zero delay.

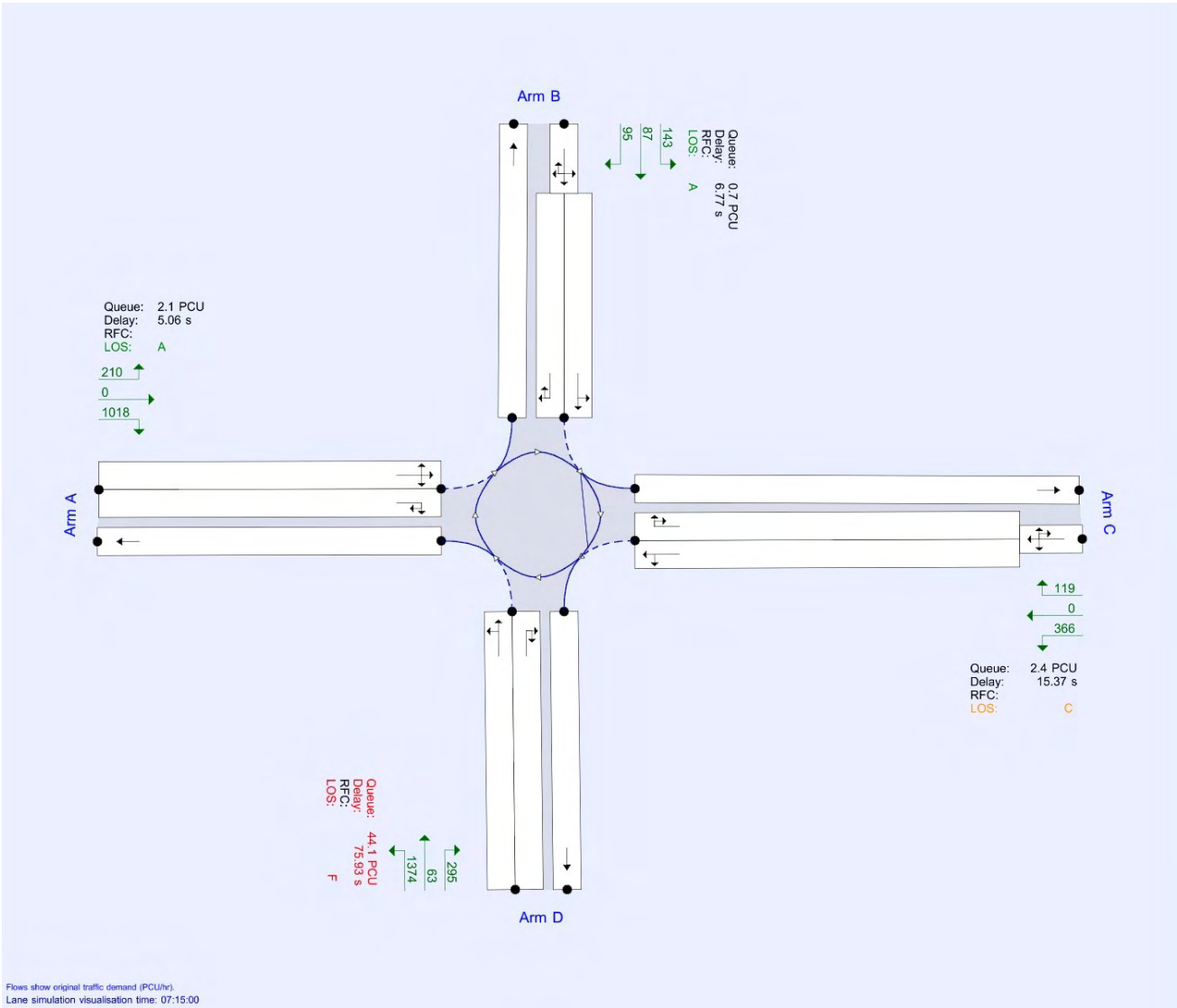
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1194816615	198	39.48

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 8	✓	✓	100.000	100.000

M20 Junction 8 - Dev Scenario 1, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 8 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 8	Large Roundabout	A,B,C,D	39.10	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	M20 West	
B	Service Station North	
C	M20 East	
D	A20 Link Road South	

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)	Exit only
A	7.80	7.90	2.0	45.0	170.0	12.0	
B	5.50	10.75	12.0	26.3	170.0	7.5	
C	6.00	6.50	22.0	41.4	170.0	14.0	
D	7.80	8.50	30.0	32.7	170.0	14.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	477	122.00
B	1313	0.00
C	1200	125.50
D	214	81.40

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.154	3101
B	0.950	3105
C	0.874	2438
D	1.247	3394

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	D,B,C		Infinity	0	99999
		2	D,A		Infinity	0	99999
B	1 [Give-way line]	1	D,C	✓	7.00	0	99999
		2	A,B	✓	7.00	0	99999
	2	1	(D,A,B,C)		Infinity		
C	1 [Give-way line]	1	D,A	✓	12.00	0	99999
		2	B,C	✓	12.00	0	99999
	2	1	(D,A,B,C)		Infinity		
D	1 [Give-way line]	1	A,B		Infinity	0	99999
		2	D,C		Infinity	0	99999

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.577	1550
		2	0.577	1550
B	1 [Give-way line]	1	0.475	1552
		2	0.475	1552
C	1 [Give-way line]	1	0.437	1219
		2	0.437	1219
D	1 [Give-way line]	1	0.624	1697
		2	0.624	1697

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1	✓			✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
C	1 [Give-way line]	1	✓	✓		
		2			✓	✓
	2	1	✓	✓	✓	✓

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	Dev Scenario 1	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1228	100.000
B		ONE HOUR	✓	325	100.000
C		ONE HOUR	✓	485	100.000
D		ONE HOUR	✓	1732	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	A	B	C	D	
From	A	0	210	0	1018
	B	95	0	143	87
	C	0	119	0	366
	D	1374	63	295	0

Proportions

	To				
	A	B	C	D	
From	A	0.00	0.17	0.00	0.83
	B	0.29	0.00	0.44	0.27
	C	0.00	0.25	0.00	0.75
	D	0.79	0.04	0.17	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
	A	B	C	D	
From	A	0	20	0	8
	B	21	0	17	14
	C	0	20	0	5
	D	4	15	4	0

Average PCU Per Veh

	To				
	A	B	C	D	
From	A	1.000	1.200	1.000	1.080
	B	1.210	1.000	1.170	1.140
	C	1.000	1.200	1.000	1.050
	D	1.040	1.150	1.040	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:15-07:30	A	925	925
	B	245	245
	C	365	365
	D	1304	1304
07:30-07:45	A	1104	1104
	B	292	292
	C	436	436
	D	1557	1557
07:45-08:00	A	1352	1352
	B	358	358
	C	534	534
	D	1907	1907
08:00-08:15	A	1352	1352
	B	358	358
	C	534	534
	D	1907	1907
08:15-08:30	A	1104	1104
	B	292	292
	C	436	436
	D	1557	1557
08:30-08:45	A	925	925
	B	245	245
	C	365	365
	D	1304	1304

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	5.06	2.1	A	1125	1688
B	6.77	0.7	A	299	448
C	15.37	2.4	C	441	662
D	75.93	44.1	F	1587	2380

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	919	230	365	918	1096	0.0	0.9	3.586	A
B	247	62	985	247	298	0.0	0.3	4.300	A
C	372	93	898	371	334	0.0	0.8	6.316	A
D	1298	325	163	1298	1107	0.0	2.3	6.408	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1106	276	421	1106	1326	0.9	1.4	4.099	A
B	295	74	1180	294	346	0.3	0.5	5.223	A
C	425	106	1082	426	393	0.8	1.1	8.714	A
D	1557	389	188	1559	1319	2.3	5.5	11.787	B

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1344	336	515	1343	1528	1.4	2.1	5.018	A
B	358	90	1447	359	411	0.5	0.7	6.772	A
C	524	131	1323	524	482	1.1	2.4	14.602	B
D	1906	476	231	1813	1616	5.5	31.4	40.201	E

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1354	338	519	1354	1573	2.1	2.1	5.064	A
B	357	89	1441	358	432	0.7	0.7	6.661	A
C	529	132	1318	532	482	2.4	2.2	15.371	C
D	1892	473	227	1865	1622	31.4	44.1	75.926	F

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1103	276	426	1101	1394	2.1	1.5	4.197	A
B	294	74	1170	294	357	0.7	0.5	5.457	A
C	432	108	1072	433	391	2.2	1.0	9.803	A
D	1562	390	184	1635	1320	44.1	10.5	46.442	E

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	927	232	357	928	1104	1.5	1.0	3.653	A
B	240	60	992	239	293	0.5	0.4	4.647	A
C	366	92	908	367	323	1.0	0.8	7.059	A
D	1307	327	163	1298	1112	10.5	2.8	9.298	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	507	1340	0.379	507	0.0	0.5	3.770	A
			2	D,A	412	1340	0.307	411	0.0	0.4	3.369	A
	Exit	1	1		1096			1096	0.0	0.0	0.000	A
B	Entry	1	1	D,C	176	1084	0.162	176	0.0	0.2	4.364	A
			2	A,B	71	1084	0.066	71	0.0	0.1	4.135	A
	Exit	1	1	(D,A,B,C)	247			247	0.0	0.0	0.000	A
			1	1		298			298	0.0	0.0	0.000
C	Entry	1	1	D,A	280	826	0.339	279	0.0	0.6	6.577	A
			2	B,C	92	826	0.112	92	0.0	0.2	5.416	A
	Exit	1	1	(D,A,B,C)	372			372	0.0	0.0	0.000	A
			1	1		334			334	0.0	0.0	0.000
D	Entry	1	1	A,B	1074	1595	0.674	1074	0.0	2.2	7.182	A
			2	D,C	224	1595	0.140	224	0.0	0.2	2.663	A
	Exit	1	1		1107			1107	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	601	1308	0.460	602	0.5	0.8	4.244	A
			2	D,A	504	1308	0.386	504	0.4	0.6	3.929	A
	Exit	1	1		1326			1326	0.0	0.0	0.000	A
B	Entry	1	1	D,C	208	992	0.210	207	0.2	0.4	5.411	A
			2	A,B	87	992	0.087	87	0.1	0.2	4.729	A
	Exit	1	1	(D,A,B,C)	295			295	0.0	0.0	0.002	A
			1	1		346			346	0.0	0.0	0.000
C	Entry	1	1	D,A	324	746	0.434	325	0.6	0.8	9.281	A
			2	B,C	102	746	0.136	101	0.2	0.3	6.672	A
	Exit	1	1	(D,A,B,C)	425			425	0.0	0.0	0.001	A
			1	1		393			393	0.0	0.0	0.000
D	Entry	1	1	A,B	1294	1579	0.819	1296	2.2	5.2	13.598	B
			2	D,C	263	1579	0.167	263	0.2	0.3	2.918	A
	Exit	1	1		1319			1319	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	719	1253	0.574	719	0.8	1.1	5.215	A
			2	D,A	626	1253	0.499	624	0.6	1.0	4.795	A
	Exit	1	1		1528			1528	0.0	0.0	0.000	A
B	Entry	1	1	D,C	256	865	0.296	256	0.4	0.6	7.090	A
			2	A,B	102	865	0.118	102	0.2	0.2	5.718	A
			2	1	(D,A,B,C)	358			358	0.0	0.0	0.067
	Exit	1	1		411			411	0.0	0.0	0.000	A
C	Entry	1	1	D,A	397	640	0.620	395	0.8	2.1	15.766	C
			2	B,C	128	640	0.200	128	0.3	0.3	8.445	A
			2	1	(D,A,B,C)	524			525	0.0	0.1	0.426
	Exit	1	1		482			482	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1578	1553	1.016	1486	5.2	31.1	47.941	E
			2	D,C	328	1553	0.211	327	0.3	0.3	3.151	A
	Exit	1	1		1616			1616	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	721	1251	0.576	722	1.1	1.3	5.353	A
			2	D,A	633	1251	0.506	633	1.0	0.9	4.744	A
	Exit	1	1		1573			1573	0.0	0.0	0.000	A
B	Entry	1	1	D,C	255	868	0.294	256	0.6	0.5	7.029	A
			2	A,B	102	868	0.118	101	0.2	0.2	5.626	A
			2	1	(D,A,B,C)	357			357	0.0	0.0	0.020
	Exit	1	1		432			432	0.0	0.0	0.000	A
C	Entry	1	1	D,A	403	643	0.627	406	2.1	1.8	17.060	C
			2	B,C	126	643	0.196	126	0.3	0.3	8.773	A
			2	1	(D,A,B,C)	529			529	0.1	0.0	0.173
	Exit	1	1		482			482	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1570	1555	1.010	1543	31.1	43.8	90.941	F
			2	D,C	321	1555	0.207	322	0.3	0.3	3.155	A
	Exit	1	1		1622			1622	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	597	1305	0.458	597	1.3	0.8	4.414	A
			2	D,A	506	1305	0.388	505	0.9	0.6	3.948	A
	Exit	1	1		1394			1394	0.0	0.0	0.000	A
B	Entry	1	1	D,C	214	997	0.215	213	0.5	0.3	5.587	A
			2	A,B	81	997	0.081	80	0.2	0.1	5.067	A
			2	1	(D,A,B,C)	294			294	0.0	0.0	0.025
	Exit	1	1		357			357	0.0	0.0	0.000	A
C	Entry	1	1	D,A	328	750	0.438	328	1.8	0.8	10.573	B
			2	B,C	104	750	0.138	104	0.3	0.2	7.027	A
			2	1	(D,A,B,C)	432			432	0.0	0.0	0.011
	Exit	1	1		391			391	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1300	1582	0.822	1373	43.8	10.3	55.326	F
			2	D,C	262	1582	0.166	262	0.3	0.2	2.851	A
	Exit	1	1		1320			1320	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	509	1345	0.378	510	0.8	0.5	3.835	A
			2	D,A	418	1345	0.311	418	0.6	0.5	3.439	A
	Exit	1	1		1104			1104	0.0	0.0	0.000	A
B	Entry	1	1	D,C	168	1081	0.155	167	0.3	0.3	4.767	A
			2	A,B	72	1081	0.066	72	0.1	0.1	4.347	A
		2	1	(D,A,B,C)	240			240	0.0	0.0	0.000	A
	Exit	1	1		293			293	0.0	0.0	0.000	A
C	Entry	1	1	D,A	276	822	0.336	276	0.8	0.6	7.268	A
			2	B,C	90	822	0.110	91	0.2	0.2	6.335	A
		2	1	(D,A,B,C)	366			366	0.0	0.0	0.000	A
	Exit	1	1		323			323	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1086	1595	0.681	1078	10.3	2.6	10.647	B
			2	D,C	221	1595	0.138	220	0.2	0.2	2.693	A
	Exit	1	1		1112			1112	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 8\ARCADY
Report generation date: 19/08/2016 12:01:16

«M20 Junction 8 - Dev Scenario 1, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 8 [Lane Simulation] - Dev Scenario 1				
Arm A	3.0	5.56		A
Arm B	0.9	8.21		A
Arm C	2.1	17.45		C
Arm D	11.3	23.04		C

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. Arm and junction delays are averages for all movements, including movements with zero delay.

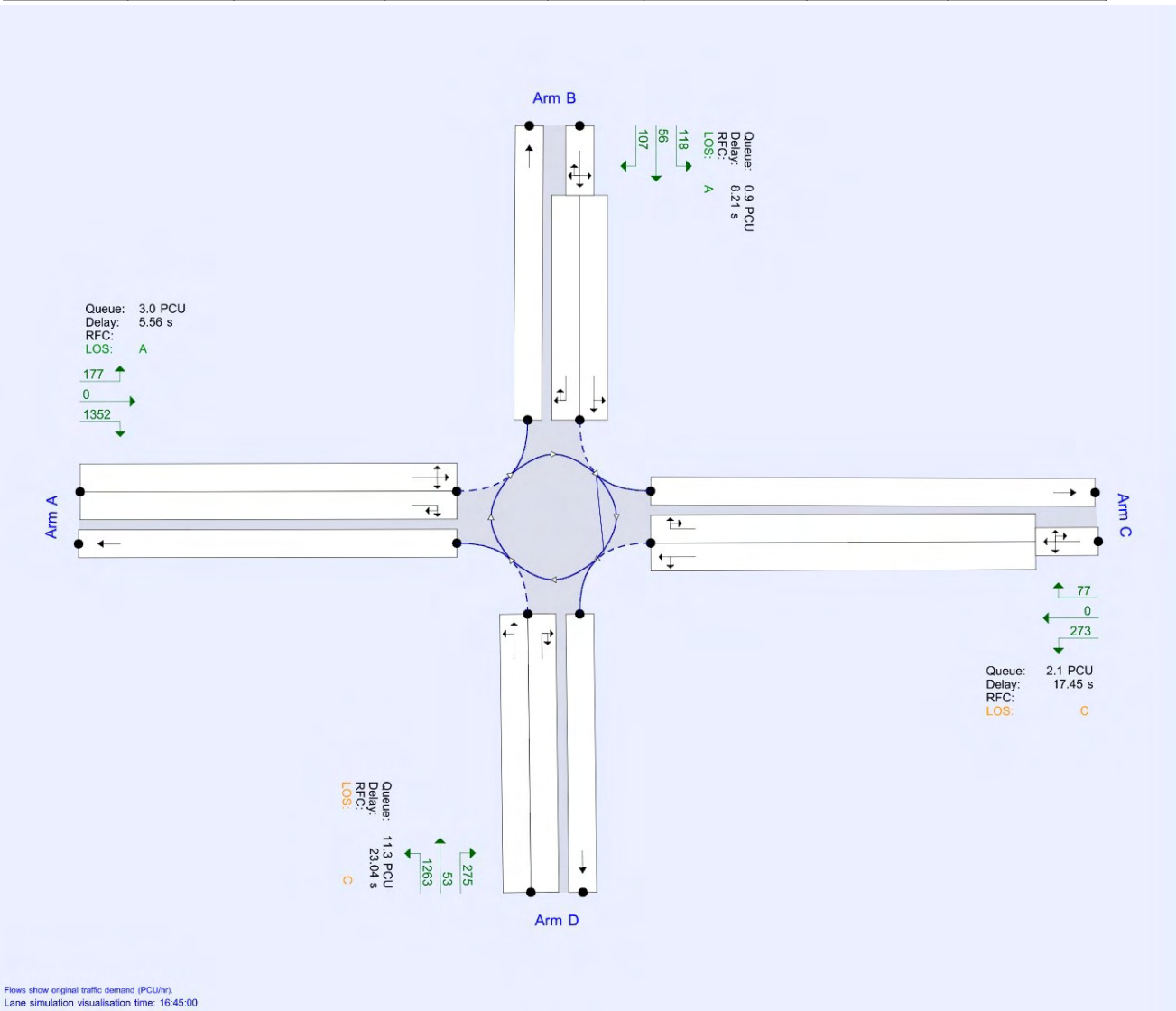
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1535658724	404	91.98

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 8	✓	✓	100.000	100.000

M20 Junction 8 - Dev Scenario 1, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 8 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 8	Large Roundabout	A,B,C,D	14.26	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	M20 West	
B	Service Station North	
C	M20 East	
D	A20 Link Road South	

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)	Exit only
A	7.80	7.90	2.0	45.0	170.0	12.0	
B	5.50	10.75	12.0	26.3	170.0	7.5	
C	6.00	6.50	22.0	41.4	170.0	14.0	
D	7.80	8.50	30.0	32.7	170.0	14.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	405	122.00
B	1627	36.50
C	1515	125.50
D	184	81.40

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.170	3118
B	0.881	2953
C	0.812	2364
D	1.254	3401

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	D,B,C		Infinity	0	99999
		2	D,A		Infinity	0	99999
B	1 [Give-way line]	1	D,C	✓	7.00	0	99999
		2	A,B	✓	7.00	0	99999
	2	1	(D,A,B,C)		Infinity		
C	1 [Give-way line]	1	D,A	✓	12.00	0	99999
		2	B,C	✓	12.00	0	99999
	2	1	(D,A,B,C)		Infinity		
D	1 [Give-way line]	1	A,B		Infinity	0	99999
		2	D,C		Infinity	0	99999

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.585	1559
		2	0.585	1559
B	1 [Give-way line]	1	0.440	1477
		2	0.440	1477
C	1 [Give-way line]	1	0.406	1182
		2	0.406	1182
D	1 [Give-way line]	1	0.627	1700
		2	0.627	1700

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1	✓			✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
C	1 [Give-way line]	1	✓	✓		
		2			✓	✓
	2	1	✓	✓	✓	✓

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	Dev Scenario 1	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1529	100.000
B		ONE HOUR	✓	281	100.000
C		ONE HOUR	✓	350	100.000
D		ONE HOUR	✓	1591	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	A	B	C	D	
From	A	0	177	0	1352
	B	107	0	118	56
	C	0	77	0	273
	D	1263	53	275	0

Proportions

	To				
	A	B	C	D	
From	A	0.00	0.12	0.00	0.88
	B	0.38	0.00	0.42	0.20
	C	0.00	0.22	0.00	0.78
	D	0.79	0.03	0.17	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
	A	B	C	D	
From	A	0	20	0	3
	B	6	0	18	15
	C	0	11	0	2
	D	4	2	4	0

Average PCU Per Veh

	To				
	A	B	C	D	
From	A	1.000	1.200	1.000	1.030
	B	1.060	1.000	1.180	1.150
	C	1.000	1.110	1.000	1.020
	D	1.040	1.020	1.040	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:45-17:00	A	1151	1151
	B	212	212
	C	263	263
	D	1198	1198
17:00-17:15	A	1375	1375
	B	253	253
	C	315	315
	D	1430	1430
17:15-17:30	A	1683	1683
	B	309	309
	C	385	385
	D	1752	1752
17:30-17:45	A	1683	1683
	B	309	309
	C	385	385
	D	1752	1752
17:45-18:00	A	1375	1375
	B	253	253
	C	315	315
	D	1430	1430
18:00-18:15	A	1151	1151
	B	212	212
	C	263	263
	D	1198	1198

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	5.56	3.0	A	1407	2111
B	8.21	0.9	A	257	386
C	17.45	2.1	C	320	480
D	23.04	11.3	C	1455	2182

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1152	288	300	1150	1025	0.0	1.2	3.461	A
B	211	53	1224	212	227	0.0	0.3	4.583	A
C	262	66	1144	263	291	0.0	0.5	6.305	A
D	1183	296	140	1185	1267	0.0	1.8	5.354	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1380	345	366	1378	1235	1.2	1.8	4.140	A
B	256	64	1470	257	274	0.3	0.4	5.875	A
C	309	77	1367	308	359	0.5	0.9	8.780	A
D	1439	360	165	1436	1511	1.8	3.6	8.037	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1685	421	446	1680	1502	1.8	3.0	5.544	A
B	309	77	1792	310	334	0.4	0.8	7.636	A
C	387	97	1668	385	434	0.9	2.1	15.898	C
D	1741	435	203	1745	1850	3.6	10.4	19.014	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1685	421	442	1684	1498	3.0	2.9	5.562	A
B	310	78	1788	308	339	0.8	0.9	8.205	A
C	386	97	1666	385	430	2.1	1.9	17.454	C
D	1738	434	202	1738	1849	10.4	11.3	23.040	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1380	345	369	1380	1232	2.9	1.7	4.301	A
B	249	62	1472	250	276	0.9	0.4	6.280	A
C	309	77	1365	309	357	1.9	0.8	10.395	B
D	1439	360	162	1439	1512	11.3	3.3	10.474	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1160	290	299	1158	1026	1.7	1.3	3.611	A
B	209	52	1227	210	230	0.4	0.3	5.092	A
C	266	66	1145	266	292	0.8	0.5	7.390	A
D	1188	297	138	1188	1273	3.3	1.9	5.601	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	605	1383	0.438	604	0.0	0.7	3.585	A
			2	D,A	546	1383	0.395	547	0.0	0.5	3.326	A
	Exit	1	1		1025			1025	0.0	0.0	0.000	A
B	Entry	1	1	D,C	128	938	0.137	129	0.0	0.2	4.945	A
			2	A,B	83	938	0.088	83	0.0	0.1	4.044	A
	Exit	1	1	(D,A,B,C)	211			211	0.0	0.0	0.000	A
			1	1		227			227	0.0	0.0	0.000
C	Entry	1	1	D,A	206	718	0.287	206	0.0	0.4	6.533	A
			2	B,C	57	718	0.079	57	0.0	0.1	5.423	A
	Exit	1	1	(D,A,B,C)	262			262	0.0	0.0	0.000	A
			1	1		291			291	0.0	0.0	0.000
D	Entry	1	1	A,B	980	1613	0.608	982	0.0	1.6	5.920	A
			2	D,C	203	1613	0.126	203	0.0	0.2	2.629	A
	Exit	1	1		1267			1267	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	721	1345	0.537	721	0.7	1.0	4.275	A
			2	D,A	658	1345	0.489	657	0.5	0.8	3.996	A
	Exit	1	1		1235			1235	0.0	0.0	0.000	A
B	Entry	1	1	D,C	159	830	0.192	160	0.2	0.3	6.350	A
			2	A,B	97	830	0.116	97	0.1	0.1	5.170	A
	Exit	1	1	(D,A,B,C)	256			256	0.0	0.0	0.002	A
			1	1		274			274	0.0	0.0	0.000
C	Entry	1	1	D,A	241	627	0.384	240	0.4	0.7	9.211	A
			2	B,C	68	627	0.109	68	0.1	0.1	7.128	A
	Exit	1	1	(D,A,B,C)	309			309	0.0	0.0	0.000	A
			1	1		359			359	0.0	0.0	0.000
D	Entry	1	1	A,B	1187	1597	0.744	1185	1.6	3.4	9.137	A
			2	D,C	251	1597	0.157	251	0.2	0.2	2.755	A
	Exit	1	1		1511			1511	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	867	1298	0.668	864	1.0	1.6	5.706	A
			2	D,A	818	1298	0.630	816	0.8	1.4	5.375	A
	Exit	1	1		1502			1502	0.0	0.0	0.000	A
B	Entry	1	1	D,C	190	688	0.277	191	0.3	0.5	8.301	A
			2	A,B	119	688	0.173	119	0.1	0.3	6.652	A
			2	(D,A,B,C)	309			309	0.0	0.0	0.011	A
	Exit	1	1		334			334	0.0	0.0	0.000	A
C	Entry	1	1	D,A	302	505	0.598	301	0.7	1.8	17.425	C
			2	B,C	85	505	0.168	84	0.1	0.3	9.487	A
			2	(D,A,B,C)	387			387	0.0	0.0	0.071	A
	Exit	1	1		434			434	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1438	1573	0.914	1442	3.4	10.2	22.389	C
			2	D,C	303	1573	0.193	303	0.2	0.3	2.973	A
	Exit	1	1		1850			1850	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	872	1300	0.671	872	1.6	1.5	5.701	A
			2	D,A	813	1300	0.625	813	1.4	1.4	5.417	A
	Exit	1	1		1498			1498	0.0	0.0	0.000	A
B	Entry	1	1	D,C	193	689	0.280	192	0.5	0.6	8.965	A
			2	A,B	117	689	0.170	116	0.3	0.3	6.965	A
			2	(D,A,B,C)	310			310	0.0	0.0	0.043	A
	Exit	1	1		339			339	0.0	0.0	0.000	A
C	Entry	1	1	D,A	300	506	0.592	299	1.8	1.6	19.061	C
			2	B,C	86	506	0.170	86	0.3	0.3	10.050	B
			2	(D,A,B,C)	386			386	0.0	0.0	0.263	A
	Exit	1	1		430			430	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1438	1573	0.914	1438	10.2	11.0	27.221	D
			2	D,C	300	1573	0.190	299	0.3	0.3	2.965	A
	Exit	1	1		1849			1849	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	716	1343	0.533	716	1.5	1.0	4.450	A
			2	D,A	664	1343	0.494	664	1.4	0.8	4.143	A
	Exit	1	1		1232			1232	0.0	0.0	0.000	A
B	Entry	1	1	D,C	154	828	0.186	155	0.6	0.2	6.773	A
			2	A,B	95	828	0.115	95	0.3	0.2	5.534	A
			2	(D,A,B,C)	249			249	0.0	0.0	0.006	A
	Exit	1	1		276			276	0.0	0.0	0.000	A
C	Entry	1	1	D,A	242	628	0.385	242	1.6	0.7	11.130	B
			2	B,C	66	628	0.106	67	0.3	0.1	7.643	A
			2	(D,A,B,C)	309			309	0.0	0.0	0.015	A
	Exit	1	1		357			357	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1187	1599	0.743	1186	11.0	3.1	12.074	B
			2	D,C	252	1599	0.158	253	0.3	0.2	2.850	A
	Exit	1	1		1512			1512	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	611	1384	0.442	610	1.0	0.8	3.726	A
			2	D,A	549	1384	0.397	548	0.8	0.6	3.487	A
	Exit	1	1		1026			1026	0.0	0.0	0.000	A
B	Entry	1	1	D,C	129	936	0.138	129	0.2	0.2	5.412	A
			2	A,B	81	936	0.086	80	0.2	0.1	4.617	A
		2	1	(D,A,B,C)	209			209	0.0	0.0	0.000	A
	Exit	1	1		230			230	0.0	0.0	0.000	A
C	Entry	1	1	D,A	208	718	0.290	209	0.7	0.4	7.711	A
			2	B,C	57	718	0.080	57	0.1	0.1	6.132	A
		2	1	(D,A,B,C)	266			266	0.0	0.0	0.000	A
	Exit	1	1		292			292	0.0	0.0	0.000	A
D	Entry	1	1	A,B	983	1614	0.609	984	3.1	1.7	6.214	A
			2	D,C	205	1614	0.127	204	0.2	0.2	2.693	A
	Exit	1	1		1273			1273	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Report generation date: 19/08/2016 12:04:07

«M20 Junction 8 - Dev Scenario 2, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	M20 Junction 8 [Lane Simulation] - Dev Scenario 2			
Arm A	2.1	5.23		A
Arm B	0.8	6.73		A
Arm C	2.6	16.19		C
Arm D	50.6	82.18		F

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. Arm and junction delays are averages for all movements, including movements with zero delay.

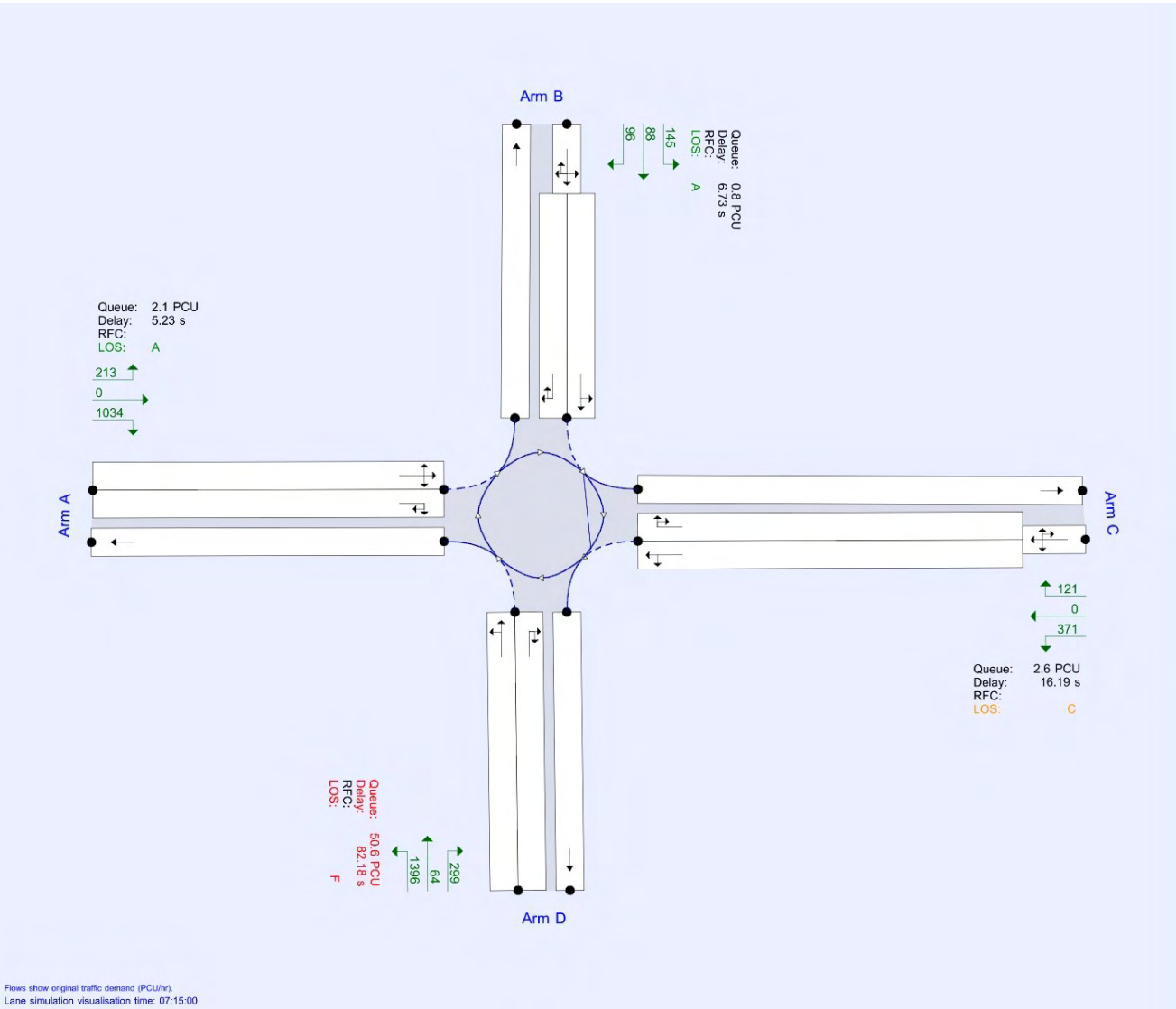
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	2039328096	493	114.59

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 8	✓	✓	100.000	100.000

M20 Junction 8 - Dev Scenario 2, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 8 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 8	Large Roundabout	A,B,C,D	42.08	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	M20 West	
B	Service Station North	
C	M20 East	
D	A20 Link Road South	

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)	Exit only
A	7.80	7.90	2.0	45.0	170.0	12.0	
B	5.50	10.75	12.0	26.3	170.0	7.5	
C	6.00	6.50	22.0	41.4	170.0	14.0	
D	7.80	8.50	30.0	32.7	170.0	14.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	484	122.00
B	1333	0.00
C	1218	125.50
D	217	77.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.153	3099
B	0.946	3100
C	0.871	2433
D	1.247	3402

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	D,B,C		Infinity	0	99999
		2	D,A		Infinity	0	99999
B	1 [Give-way line]	1	D,C	✓	7.00	0	99999
		2	A,B	✓	7.00	0	99999
	2	1	(D,A,B,C)		Infinity		
C	1 [Give-way line]	1	D,A	✓	12.00	0	99999
		2	B,C	✓	12.00	0	99999
	2	1	(D,A,B,C)		Infinity		
D	1 [Give-way line]	1	A,B		Infinity	0	99999
		2	D,C		Infinity	0	99999

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.576	1550
		2	0.576	1550
B	1 [Give-way line]	1	0.473	1550
		2	0.473	1550
C	1 [Give-way line]	1	0.435	1217
		2	0.435	1217
D	1 [Give-way line]	1	0.623	1701
		2	0.623	1701

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1	✓			✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
C	1 [Give-way line]	1	✓	✓		
		2			✓	✓
	2	1	✓	✓	✓	✓

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	Dev Scenario 2	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1247	100.000
B		ONE HOUR	✓	329	100.000
C		ONE HOUR	✓	492	100.000
D		ONE HOUR	✓	1759	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	A	B	C	D	
From	A	0	213	0	1034
	B	96	0	145	88
	C	0	121	0	371
	D	1396	64	299	0

Proportions

	To				
	A	B	C	D	
From	A	0.00	0.17	0.00	0.83
	B	0.29	0.00	0.44	0.27
	C	0.00	0.25	0.00	0.75
	D	0.79	0.04	0.17	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
	A	B	C	D	
From	A	0	20	0	8
	B	21	0	17	14
	C	0	20	0	5
	D	4	15	4	0

Average PCU Per Veh

	To				
	A	B	C	D	
From	A	1.000	1.200	1.000	1.080
	B	1.210	1.000	1.170	1.140
	C	1.000	1.200	1.000	1.050
	D	1.040	1.150	1.040	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:15-07:30	A	939	939
	B	248	248
	C	370	370
	D	1324	1324
07:30-07:45	A	1121	1121
	B	296	296
	C	442	442
	D	1581	1581
07:45-08:00	A	1373	1373
	B	362	362
	C	542	542
	D	1937	1937
08:00-08:15	A	1373	1373
	B	362	362
	C	542	542
	D	1937	1937
08:15-08:30	A	1121	1121
	B	296	296
	C	442	442
	D	1581	1581
08:30-08:45	A	939	939
	B	248	248
	C	370	370
	D	1324	1324

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	5.23	2.1	A	1145	1717
B	6.73	0.8	A	302	453
C	16.19	2.6	C	451	677
D	82.18	50.6	F	1610	2415

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	938	234	362	938	1115	0.0	1.0	3.561	A
B	247	62	1005	248	295	0.0	0.3	4.337	A
C	372	93	921	371	332	0.0	0.7	6.310	A
D	1316	329	164	1313	1128	0.0	2.6	6.421	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1123	281	436	1121	1337	1.0	1.5	4.137	A
B	298	74	1198	299	360	0.3	0.5	5.393	A
C	443	111	1094	441	402	0.7	1.3	8.753	A
D	1572	393	198	1576	1338	2.6	5.7	11.979	B

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1374	344	530	1374	1558	1.5	2.1	5.106	A
B	362	91	1465	362	439	0.5	0.7	6.587	A
C	545	136	1333	542	494	1.3	2.6	15.106	C
D	1937	484	236	1852	1639	5.7	32.7	42.485	E

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1375	344	536	1376	1565	2.1	2.0	5.234	A
B	359	90	1470	358	441	0.7	0.8	6.727	A
C	532	133	1337	537	492	2.6	2.1	16.189	C
D	1937	484	238	1862	1636	32.7	50.6	82.176	F

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1130	283	438	1131	1424	2.0	1.4	4.295	A
B	299	75	1204	298	364	0.8	0.5	5.599	A
C	446	112	1100	446	402	2.1	1.2	9.983	A
D	1569	392	194	1667	1352	50.6	13.8	56.741	F

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	929	232	369	927	1134	1.4	1.1	3.716	A
B	246	62	1003	246	293	0.5	0.4	4.772	A
C	369	92	911	370	339	1.2	0.8	7.258	A
D	1329	332	163	1340	1117	13.8	2.5	12.001	B

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	513	1341	0.383	513	0.0	0.6	3.722	A
			2	D,A	425	1341	0.317	425	0.0	0.4	3.371	A
	Exit	1	1		1115			1115	0.0	0.0	0.000	A
B	Entry	1	1	D,C	175	1075	0.163	175	0.0	0.3	4.398	A
			2	A,B	72	1075	0.067	72	0.0	0.1	4.179	A
	Exit	1	1	(D,A,B,C)	247			247	0.0	0.0	0.001	A
			1	1		295			295	0.0	0.0	0.000
C	Entry	1	1	D,A	280	816	0.343	279	0.0	0.5	6.479	A
			2	B,C	92	816	0.112	92	0.0	0.2	5.718	A
	Exit	1	1	(D,A,B,C)	372			372	0.0	0.0	0.000	A
			1	1		332			332	0.0	0.0	0.000
D	Entry	1	1	A,B	1092	1599	0.683	1090	0.0	2.4	7.198	A
			2	D,C	223	1599	0.140	223	0.0	0.2	2.676	A
	Exit	1	1		1128			1128	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	610	1298	0.470	609	0.6	0.9	4.347	A
			2	D,A	513	1298	0.395	512	0.4	0.6	3.897	A
	Exit	1	1		1337			1337	0.0	0.0	0.000	A
B	Entry	1	1	D,C	211	984	0.215	212	0.3	0.3	5.557	A
			2	A,B	86	984	0.088	87	0.1	0.1	4.963	A
	Exit	1	1	(D,A,B,C)	298			298	0.0	0.0	0.004	A
			1	1		360			360	0.0	0.0	0.000
C	Entry	1	1	D,A	333	740	0.450	331	0.5	1.1	9.301	A
			2	B,C	110	740	0.148	111	0.2	0.2	6.844	A
	Exit	1	1	(D,A,B,C)	443			443	0.0	0.0	0.001	A
			1	1		402			402	0.0	0.0	0.000
D	Entry	1	1	A,B	1303	1578	0.826	1307	2.4	5.4	13.854	B
			2	D,C	269	1578	0.170	269	0.2	0.2	2.858	A
	Exit	1	1		1338			1338	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	734	1244	0.590	734	0.9	1.2	5.368	A
			2	D,A	640	1244	0.515	639	0.6	0.9	4.816	A
	Exit	1	1		1558			1558	0.0	0.0	0.000	A
B	Entry	1	1	D,C	259	857	0.302	259	0.3	0.5	6.877	A
			2	A,B	103	857	0.121	103	0.1	0.2	5.791	A
			1	(D,A,B,C)	362			362	0.0	0.0	0.019	A
	Exit	1	1		439			439	0.0	0.0	0.000	A
C	Entry	1	1	D,A	411	636	0.647	409	1.1	2.2	16.619	C
			2	B,C	134	636	0.210	133	0.2	0.4	8.610	A
			1	(D,A,B,C)	545			545	0.0	0.0	0.274	A
	Exit	1	1		494			494	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1607	1554	1.034	1522	5.4	32.4	50.552	F
			2	D,C	330	1554	0.212	330	0.2	0.3	3.073	A
	Exit	1	1		1639			1639	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	734	1241	0.592	735	1.2	1.1	5.493	A
			2	D,A	641	1241	0.516	641	0.9	0.9	4.947	A
	Exit	1	1		1565			1565	0.0	0.0	0.000	A
B	Entry	1	1	D,C	255	855	0.298	254	0.5	0.6	7.074	A
			2	A,B	105	855	0.122	104	0.2	0.2	5.802	A
			1	(D,A,B,C)	359			359	0.0	0.0	0.010	A
	Exit	1	1		441			441	0.0	0.0	0.000	A
C	Entry	1	1	D,A	399	635	0.629	403	2.2	1.8	18.001	C
			2	B,C	134	635	0.210	134	0.4	0.3	9.166	A
			1	(D,A,B,C)	532			533	0.0	0.0	0.180	A
	Exit	1	1		492			492	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1604	1553	1.033	1529	32.4	50.3	98.523	F
			2	D,C	333	1553	0.214	333	0.3	0.3	3.101	A
	Exit	1	1		1636			1636	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	612	1297	0.472	613	1.1	0.8	4.496	A
			2	D,A	518	1297	0.399	518	0.9	0.6	4.065	A
	Exit	1	1		1424			1424	0.0	0.0	0.000	A
B	Entry	1	1	D,C	213	981	0.217	212	0.6	0.4	5.797	A
			2	A,B	86	981	0.088	86	0.2	0.2	5.079	A
			1	(D,A,B,C)	299			299	0.0	0.0	0.001	A
	Exit	1	1		364			364	0.0	0.0	0.000	A
C	Entry	1	1	D,A	338	738	0.459	338	1.8	1.0	10.756	B
			2	B,C	108	738	0.146	108	0.3	0.2	7.180	A
			1	(D,A,B,C)	446			446	0.0	0.0	0.015	A
	Exit	1	1		402			402	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1300	1580	0.823	1400	50.3	13.5	67.815	F
			2	D,C	268	1580	0.170	268	0.3	0.2	2.895	A
	Exit	1	1		1352			1352	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	505	1337	0.378	504	0.8	0.7	3.899	A
			2	D,A	424	1337	0.317	423	0.6	0.5	3.501	A
	Exit	1	1		1134			1134	0.0	0.0	0.000	A
B	Entry	1	1	D,C	174	1076	0.162	174	0.4	0.3	4.884	A
			2	A,B	72	1076	0.067	72	0.2	0.1	4.479	A
		2	1	(D,A,B,C)	246			246	0.0	0.0	0.003	A
	Exit	1	1		293			293	0.0	0.0	0.000	A
C	Entry	1	1	D,A	278	820	0.339	279	1.0	0.6	7.538	A
			2	B,C	91	820	0.111	91	0.2	0.2	6.274	A
		2	1	(D,A,B,C)	369			369	0.0	0.0	0.001	A
	Exit	1	1		339			339	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1099	1599	0.687	1110	13.5	2.3	13.944	B
			2	D,C	230	1599	0.144	230	0.2	0.2	2.755	A
	Exit	1	1		1117			1117	0.0	0.0	0.000	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Filename: M20 Junction 8 - Dev Scenario 2 PM.j9
Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 8\ARCADY
Report generation date: 19/08/2016 12:03:20

«M20 Junction 8 - Dev Scenario 2, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results
- »Lane Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 8 [Lane Simulation] - Dev Scenario 2				
Arm A	2.8	5.85		A
Arm B	0.7	8.22		A
Arm C	2.1	18.65		C
Arm D	14.2	27.55		D

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. Arm and junction delays are averages for all movements, including movements with zero delay.

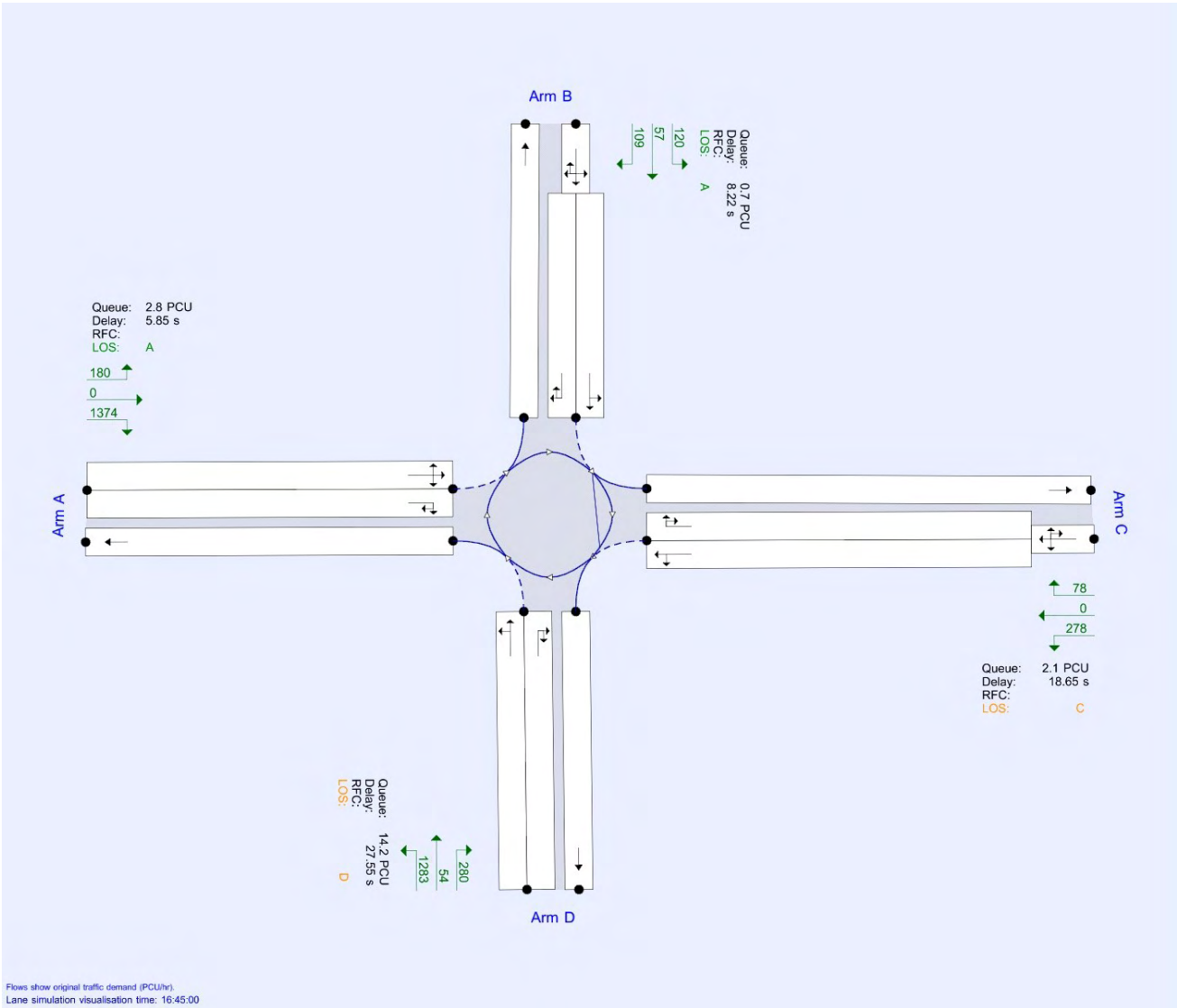
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1806816153	800	179.13

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 8	✓	✓	100.000	100.000

M20 Junction 8 - Dev Scenario 2, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 8 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 8	Large Roundabout	A,B,C,D	16.43	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	M20 West	
B	Service Station North	
C	M20 East	
D	A20 Link Road South	

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)	Exit only
A	7.80	7.90	2.0	45.0	170.0	12.0	
B	5.50	10.75	12.0	26.3	170.0	7.5	
C	6.00	6.50	22.0	41.4	170.0	14.0	
D	7.80	8.50	30.0	32.7	170.0	14.5	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	412	122.00
B	1654	36.50
C	1540	125.50
D	187	77.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	1.169	3116
B	0.875	2947
C	0.807	2359
D	1.254	3409

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

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	D,B,C		Infinity	0	99999
		2	D,A		Infinity	0	99999
B	1 [Give-way line]	1	D,C	✓	7.00	0	99999
		2	A,B	✓	7.00	0	99999
	2	1	(D,A,B,C)		Infinity		
C	1 [Give-way line]	1	D,A	✓	12.00	0	99999
		2	B,C	✓	12.00	0	99999
	2	1	(D,A,B,C)		Infinity		
D	1 [Give-way line]	1	A,B		Infinity	0	99999
		2	D,C		Infinity	0	99999

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.584	1558
		2	0.584	1558
B	1 [Give-way line]	1	0.437	1473
		2	0.437	1473
C	1 [Give-way line]	1	0.403	1179
		2	0.403	1179
D	1 [Give-way line]	1	0.627	1705
		2	0.627	1705

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			D	A	B	C
D	1 [Give-way line]	1		✓	✓	
		2	✓			✓
A	1 [Give-way line]	1	✓		✓	✓
		2	✓	✓		
B	1 [Give-way line]	1	✓			✓
		2		✓	✓	
	2	1	✓	✓	✓	✓
C	1 [Give-way line]	1	✓	✓		
		2			✓	✓
	2	1	✓	✓	✓	✓

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	Dev Scenario 2	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1554	100.000
B		ONE HOUR	✓	286	100.000
C		ONE HOUR	✓	356	100.000
D		ONE HOUR	✓	1617	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	A	B	C	D	
From	A	0	180	0	1374
	B	109	0	120	57
	C	0	78	0	278
	D	1283	54	280	0

Proportions

	To				
	A	B	C	D	
From	A	0.00	0.12	0.00	0.88
	B	0.38	0.00	0.42	0.20
	C	0.00	0.22	0.00	0.78
	D	0.79	0.03	0.17	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
	A	B	C	D	
From	A	0	20	0	3
	B	6	0	18	15
	C	0	11	0	2
	D	4	2	4	0

Average PCU Per Veh

	To				
	A	B	C	D	
From	A	1.000	1.200	1.000	1.030
	B	1.060	1.000	1.180	1.150
	C	1.000	1.110	1.000	1.020
	D	1.040	1.020	1.040	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:45-17:00	A	1170	1170
	B	215	215
	C	268	268
	D	1217	1217
17:00-17:15	A	1397	1397
	B	257	257
	C	320	320
	D	1454	1454
17:15-17:30	A	1711	1711
	B	315	315
	C	392	392
	D	1780	1780
17:30-17:45	A	1711	1711
	B	315	315
	C	392	392
	D	1780	1780
17:45-18:00	A	1397	1397
	B	257	257
	C	320	320
	D	1454	1454
18:00-18:15	A	1170	1170
	B	215	215
	C	268	268
	D	1217	1217

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	5.85	2.8	A	1424	2136
B	8.22	0.7	A	263	394
C	18.65	2.1	C	327	490
D	27.55	14.2	D	1482	2223

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1171	293	310	1172	1038	0.0	1.2	3.550	A
B	215	54	1248	215	234	0.0	0.3	4.655	A
C	266	67	1162	266	301	0.0	0.6	6.432	A
D	1208	302	140	1208	1288	0.0	1.9	5.492	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1393	348	368	1392	1256	1.2	1.8	4.231	A
B	256	64	1481	256	279	0.3	0.5	5.928	A
C	318	80	1382	318	355	0.6	0.9	9.279	A
D	1455	364	167	1456	1533	1.9	3.6	8.562	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1716	429	452	1716	1523	1.8	2.8	5.709	A
B	318	80	1821	318	347	0.5	0.7	7.931	A
C	396	99	1697	393	442	0.9	2.1	16.779	C
D	1777	444	206	1769	1884	3.6	12.6	21.009	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1702	425	452	1702	1538	2.8	2.8	5.846	A
B	315	79	1811	315	342	0.7	0.7	8.222	A
C	388	97	1689	390	438	2.1	1.9	18.654	C
D	1781	445	207	1783	1872	12.6	14.2	27.552	D

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1393	348	372	1390	1258	2.8	1.8	4.351	A
B	256	64	1479	256	283	0.7	0.5	6.336	A
C	323	81	1377	323	358	1.9	0.9	10.683	B
D	1457	364	170	1460	1530	14.2	3.4	12.177	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	1168	292	311	1167	1046	1.8	1.3	3.671	A
B	217	54	1240	217	238	0.5	0.3	5.158	A
C	269	67	1157	269	300	0.9	0.6	7.393	A
D	1215	304	143	1214	1283	3.4	2.0	5.783	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	619	1377	0.449	619	0.0	0.7	3.656	A
			2	D,A	553	1377	0.401	553	0.0	0.5	3.434	A
	Exit	1	1		1038			1038	0.0	0.0	0.000	A
B	Entry	1	1	D,C	133	928	0.144	133	0.0	0.2	4.968	A
			2	A,B	82	928	0.088	81	0.0	0.1	4.197	A
	Exit	1	1	(D,A,B,C)	215			215	0.0	0.0	0.001	A
			1	1		234			234	0.0	0.0	0.000
C	Entry	1	1	D,A	208	711	0.292	208	0.0	0.5	6.657	A
			2	B,C	59	711	0.082	58	0.0	0.1	5.558	A
	Exit	1	1	(D,A,B,C)	266			266	0.0	0.0	0.000	A
			1	1		301			301	0.0	0.0	0.000
D	Entry	1	1	A,B	997	1617	0.617	997	0.0	1.7	6.083	A
			2	D,C	211	1617	0.130	211	0.0	0.2	2.668	A
	Exit	1	1		1288			1288	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	728	1343	0.542	728	0.7	1.0	4.365	A
			2	D,A	665	1343	0.495	664	0.5	0.9	4.088	A
	Exit	1	1		1256			1256	0.0	0.0	0.000	A
B	Entry	1	1	D,C	158	826	0.191	158	0.2	0.3	6.438	A
			2	A,B	98	826	0.119	98	0.1	0.2	5.159	A
	Exit	1	1	(D,A,B,C)	256			256	0.0	0.0	0.008	A
			1	1		279			279	0.0	0.0	0.000
C	Entry	1	1	D,A	249	622	0.401	249	0.5	0.7	9.819	A
			2	B,C	69	622	0.111	69	0.1	0.1	7.185	A
	Exit	1	1	(D,A,B,C)	318			318	0.0	0.0	0.001	A
			1	1		355			355	0.0	0.0	0.000
D	Entry	1	1	A,B	1205	1600	0.753	1206	1.7	3.4	9.768	A
			2	D,C	250	1600	0.156	250	0.2	0.2	2.804	A
	Exit	1	1		1533			1533	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	885	1294	0.684	884	1.0	1.5	5.860	A
			2	D,A	832	1294	0.643	831	0.9	1.3	5.553	A
	Exit	1	1		1523			1523	0.0	0.0	0.000	A
B	Entry	1	1	D,C	198	677	0.292	198	0.3	0.5	8.675	A
			2	A,B	120	677	0.178	120	0.2	0.2	6.765	A
			1	(D,A,B,C)	318			318	0.0	0.0	0.025	A
	Exit	1	1		347			347	0.0	0.0	0.000	A
C	Entry	1	1	D,A	310	495	0.626	307	0.7	1.8	18.517	C
			2	B,C	86	495	0.174	85	0.1	0.3	9.745	A
			1	(D,A,B,C)	396			396	0.0	0.0	0.035	A
	Exit	1	1		442			442	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1471	1576	0.934	1463	3.4	12.4	24.783	C
			2	D,C	306	1576	0.194	306	0.2	0.3	2.964	A
	Exit	1	1		1884			1884	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	880	1294	0.680	879	1.5	1.5	6.014	A
			2	D,A	822	1294	0.635	822	1.3	1.3	5.672	A
	Exit	1	1		1538			1538	0.0	0.0	0.000	A
B	Entry	1	1	D,C	194	681	0.284	194	0.5	0.5	9.041	A
			2	A,B	121	681	0.177	122	0.2	0.2	6.940	A
			1	(D,A,B,C)	315			315	0.0	0.0	0.036	A
	Exit	1	1		342			342	0.0	0.0	0.000	A
C	Entry	1	1	D,A	303	498	0.608	305	1.8	1.7	20.729	C
			2	B,C	85	498	0.171	85	0.3	0.2	9.997	A
			1	(D,A,B,C)	388			388	0.0	0.0	0.134	A
	Exit	1	1		438			438	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1475	1575	0.936	1476	12.4	14.0	32.691	D
			2	D,C	307	1575	0.195	307	0.3	0.2	2.963	A
	Exit	1	1		1872			1872	0.0	0.0	0.000	A

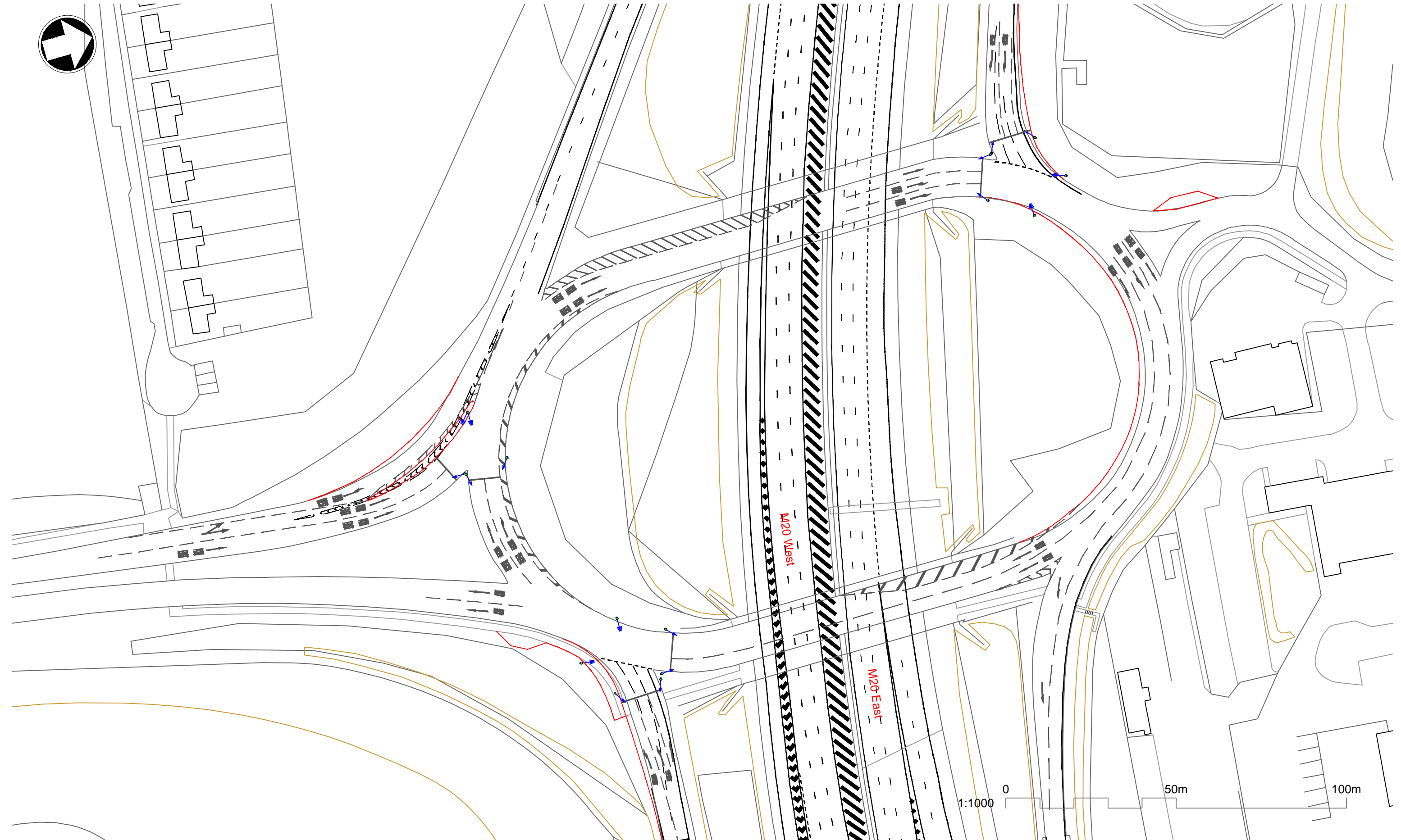
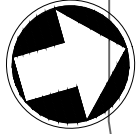
17:45 - 18:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	730	1340	0.545	729	1.5	1.0	4.491	A
			2	D,A	662	1340	0.494	661	1.3	0.8	4.202	A
	Exit	1	1		1258			1258	0.0	0.0	0.000	A
B	Entry	1	1	D,C	159	827	0.193	158	0.5	0.3	6.863	A
			2	A,B	97	827	0.118	98	0.2	0.1	5.557	A
			1	(D,A,B,C)	256			256	0.0	0.0	0.001	A
	Exit	1	1		283			283	0.0	0.0	0.000	A
C	Entry	1	1	D,A	251	624	0.402	250	1.7	0.7	11.459	B
			2	B,C	73	624	0.116	73	0.2	0.2	7.702	A
			1	(D,A,B,C)	323			323	0.0	0.0	0.027	A
	Exit	1	1		358			358	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1206	1598	0.755	1209	14.0	3.2	14.119	B
			2	D,C	251	1598	0.157	251	0.2	0.2	2.815	A
	Exit	1	1		1530			1530	0.0	0.0	0.000	A

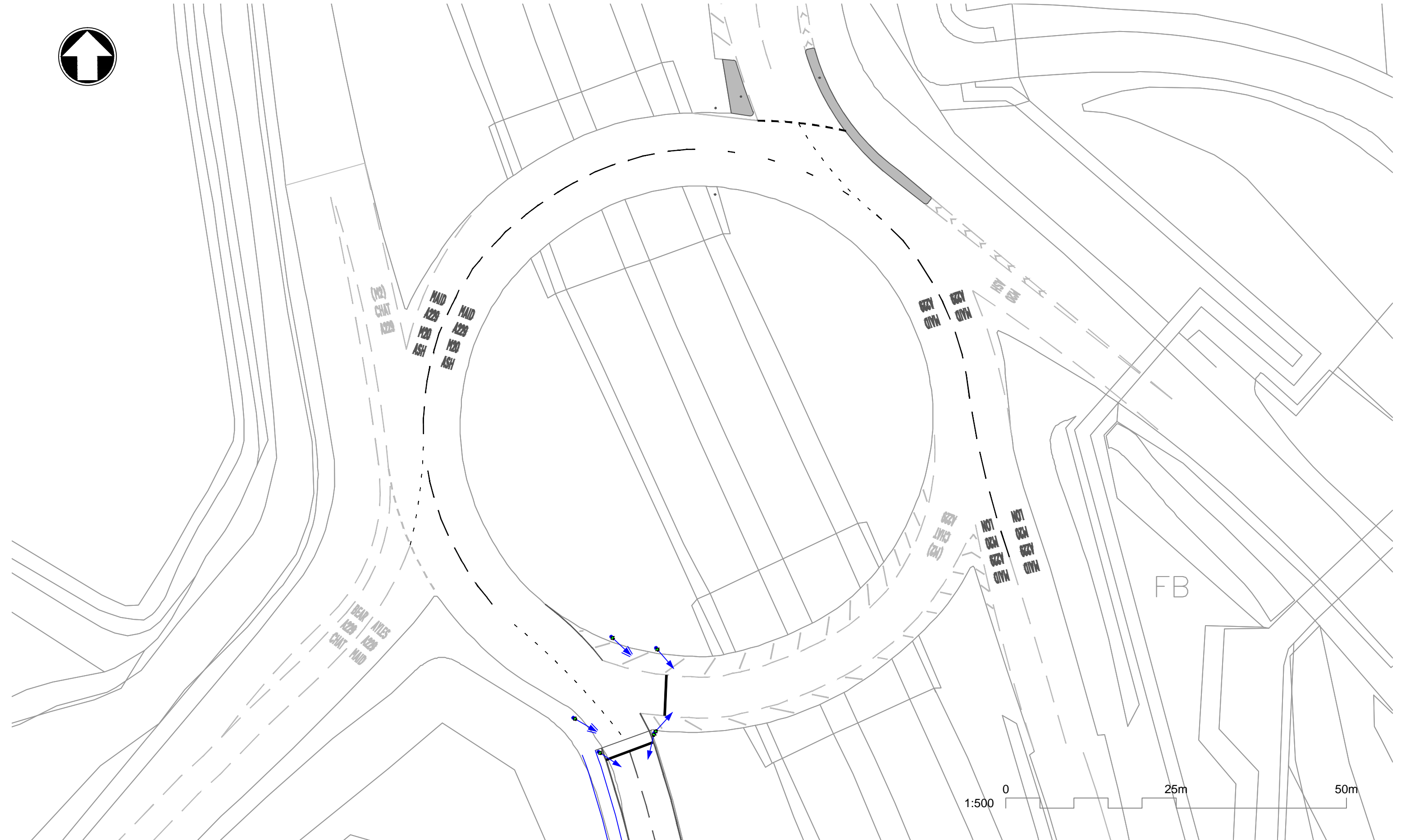
18:00 - 18:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	D,B,C	618	1376	0.449	617	1.0	0.7	3.778	A
			2	D,A	551	1376	0.400	550	0.8	0.6	3.555	A
	Exit	1	1		1046			1046	0.0	0.0	0.000	A
B	Entry	1	1	D,C	133	931	0.143	133	0.3	0.2	5.506	A
			2	A,B	84	931	0.090	84	0.1	0.1	4.660	A
		2	1	(D,A,B,C)	217			217	0.0	0.0	0.000	A
	Exit	1	1		238			238	0.0	0.0	0.000	A
C	Entry	1	1	D,A	209	713	0.294	209	0.7	0.4	7.627	A
			2	B,C	60	713	0.084	60	0.2	0.1	6.489	A
		2	1	(D,A,B,C)	269			269	0.0	0.0	0.000	A
	Exit	1	1		300			300	0.0	0.0	0.000	A
D	Entry	1	1	A,B	1004	1615	0.622	1003	3.2	1.9	6.431	A
			2	D,C	211	1615	0.131	211	0.2	0.2	2.690	A
	Exit	1	1		1283			1283	0.0	0.0	0.000	A

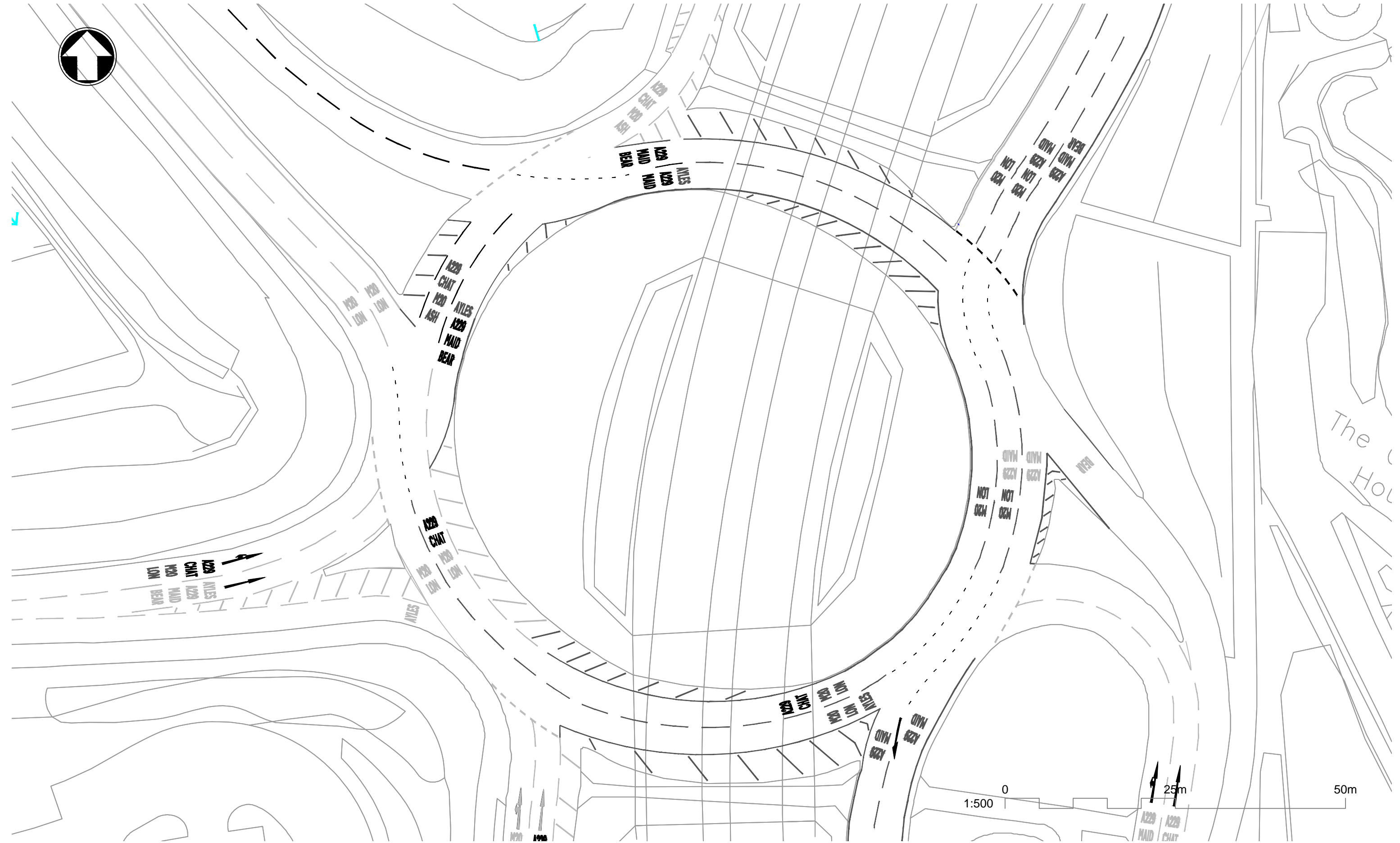
D. Improved Junction Layouts

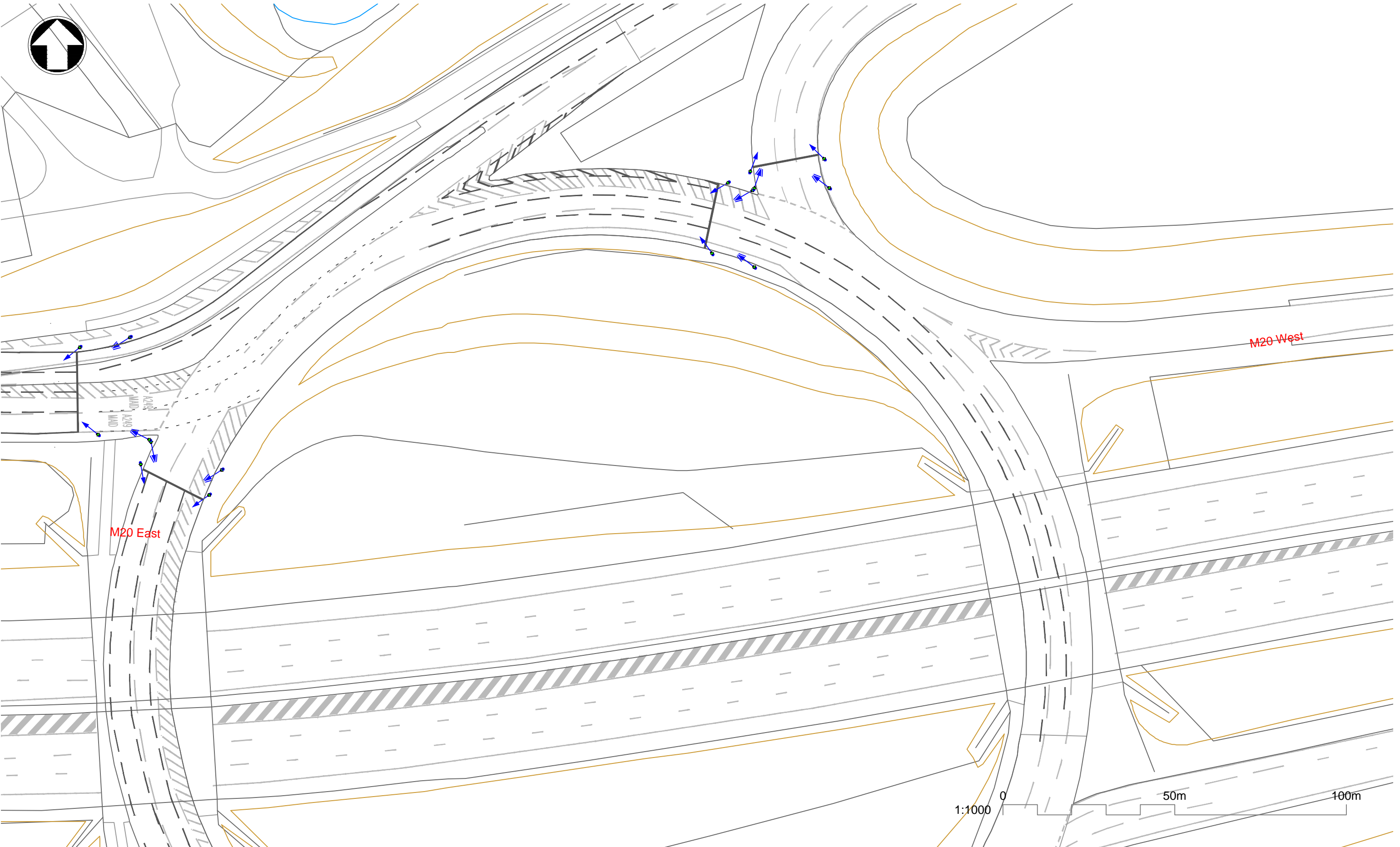


Appendix D2:
M20 Junction 6
Cobtree Roundabout

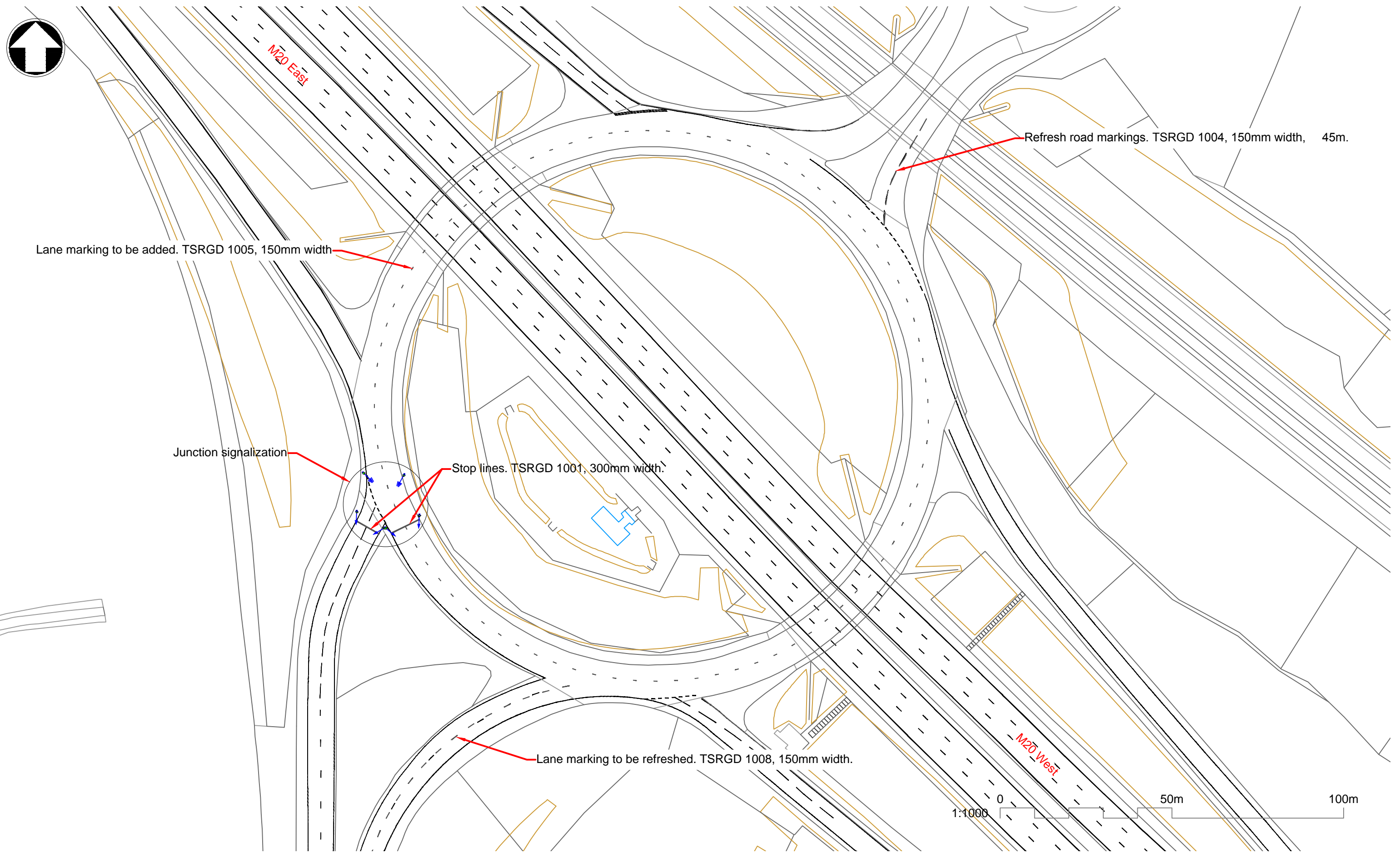


Appendix D2:
M20 Junction 6
Running Horse Roundabout





Appendix D4: M20 Junction 8



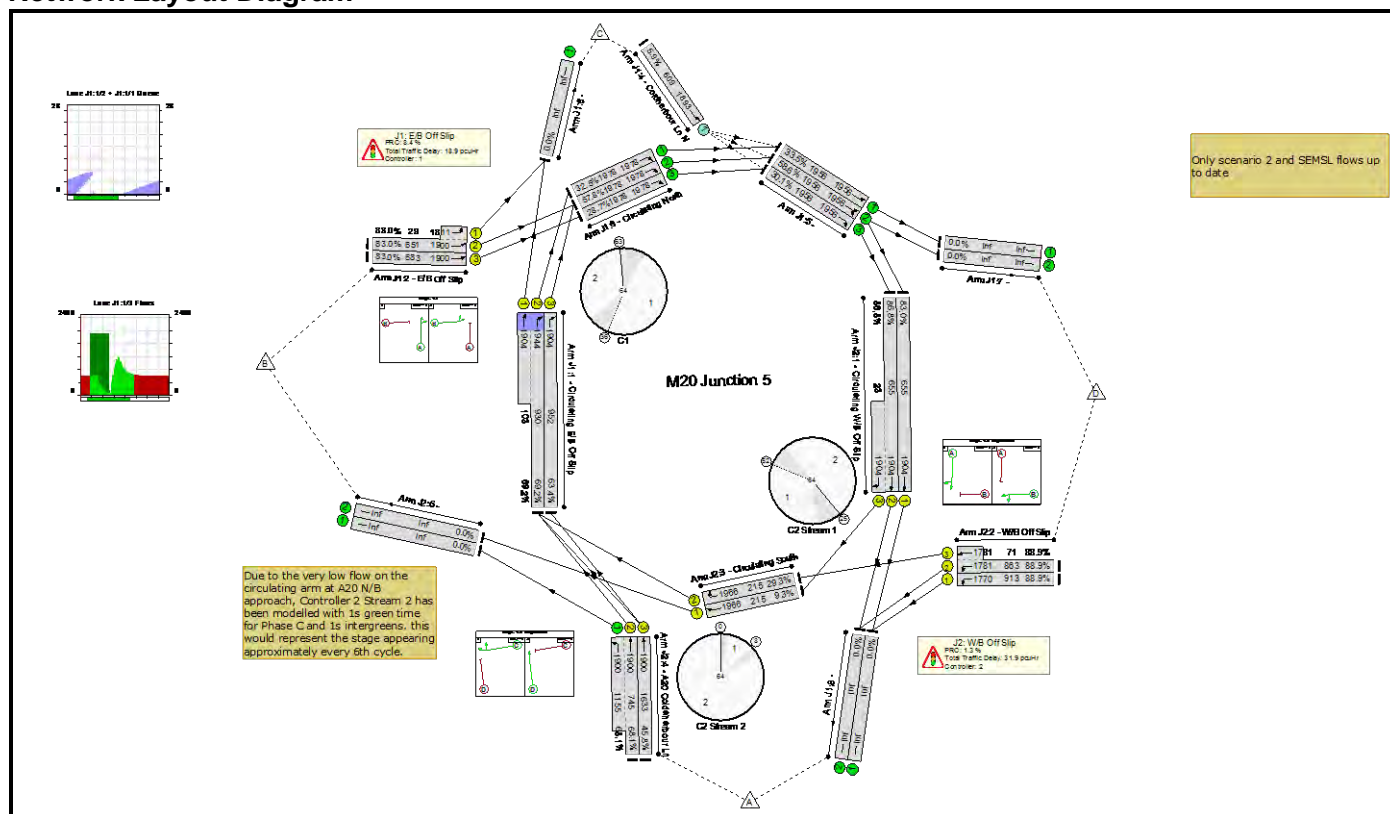
E. Junction Improvement Modelling

Basic Results Summary
Basic Results Summary

User and Project Details

Project:	M20 Junctions
Title:	M20 J5 - MM Option 1
Location:	Maidstone
File name:	M20 J5 - MM Option1.lsg3x
Author:	David Parkin
Company:	Mott MacDonald
Address:	Southampton
Notes:	Traffic signals on N/B A20 Approach as well as slip roads.

Scenario 7: 'All Dev 2031 AM' (FG7: 'All Dev 2031 AM ', Plan 1: 'Network Control Plan 1')
Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M20 J5 - MM Option 1	-	-	-		-	-	-	-	-	-	88.9%	36	0	0	50.8	-	-
J1: E/B Off Slip	-	-	-		-	-	-	-	-	-	83.0%	36	0	0	18.9	-	-
1/2+1/1	Circulating E/B Off Slip Right Ahead	U	C1:A		1	31	-	714	1944:1904	930+103	69.2 : 69.2%	-	-	-	3.2	16.3	11.5
1/3	Circulating E/B Off Slip Right	U	C1:A		1	31	-	604	1904	952	63.4%	-	-	-	2.8	16.8	7.8
2/2+2/1	E/B Off Slip Ahead Left	U	C1:B		1	22	-	564	1900:1811	651+29	83.0 : 83.0%	-	-	-	5.3	33.6	11.3
2/3	E/B Off Slip Ahead	U	C1:B		1	22	-	567	1900	683	83.0%	-	-	-	5.3	33.7	11.5
3/1	Circulating North Right	U	-		-	-	-	643	1978	1978	32.5%	-	-	-	0.2	1.3	0.2
3/2	Circulating North Right	U	-		-	-	-	1144	1978	1978	57.8%	-	-	-	0.7	2.2	0.7
3/3	Circulating North Right	U	-		-	-	-	567	1978	1978	28.7%	-	-	-	0.2	1.3	0.2
4/1	Coldharbour Ln N Ahead	O	-		-	-	-	36	1893	609	5.9%	36	0	0	0.0	4.7	0.1
5/1	Ahead	U	-		-	-	-	655	1956	1956	33.5%	-	-	-	0.3	1.4	0.3
5/2	Right Ahead	U	-		-	-	-	1147	1956	1956	58.6%	-	-	-	0.7	2.2	0.7
5/3	Right	U	-		-	-	-	588	1956	1956	30.1%	-	-	-	0.2	1.3	0.2
J2: W/B Off Slip	-	-	-		-	-	-	-	-	-	88.9%	0	0	0	31.9	-	-
1/1	Circulating W/B Off Slip Ahead	U	C2:A		1	21	-	543	1904	655	83.0%	-	-	-	7.1	47.3	12.0
1/2+1/3	Circulating W/B Off Slip Right Ahead	U	C2:A		1	21	-	588	1904:1904	655+23	86.8 : 86.8%	-	-	-	8.3	50.8	13.2

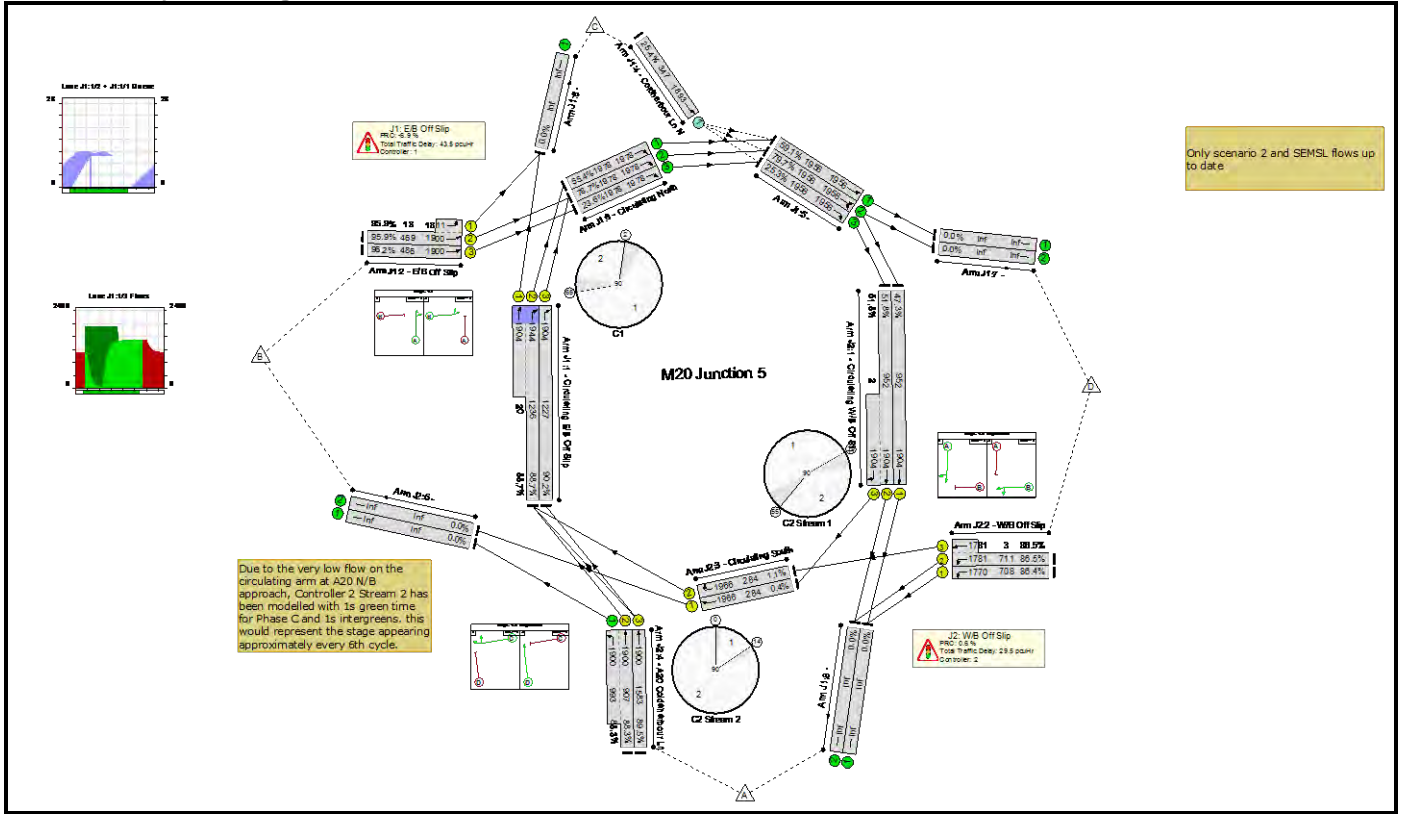
Basic Results Summary

2/1	W/B Off Slip Left	U	C2:B		1	32	-	811	1770	913	88.9%	-	-	-	6.8	30.4	16.6																												
2/2+2/3	W/B Off Slip Ahead Left	U	C2:B		1	32	-	830	1781:1781	863+71	88.9 : 88.9%	-	-	-	6.9	29.7	16.6																												
3/1	Circulating South Ahead	U	C2:C		1	6	-	20	1966	215	9.3%	-	-	-	0.2	33.2	0.4																												
3/2	Circulating South Right	U	C2:C		1	6	-	63	1966	215	29.3%	-	-	-	0.8	44.1	1.2																												
4/2+4/1	A20 Coldaharbour Ln Ahead Left	U	C2:D -		1	54	-	1293	1900:1900	745+1155	68.1 : 68.1%	-	-	-	1.2	3.3	2.8																												
4/3	A20 Coldaharbour Ln Ahead	U	C2:D		1	54	-	748	1900	1633	45.8%	-	-	-	0.6	3.1	3.3																												
<table> <tbody> <tr> <td>C1</td> <td>PRC for Signalled Lanes (%)</td> <td>8.4</td> <td>Total Delay for Signalled Lanes (pcuHr)</td> <td>16.60</td> <td>Cycle Time (s)</td> <td>64</td> </tr> <tr> <td>C2</td> <td>Stream: 1 PRC for Signalled Lanes (%)</td> <td>1.3</td> <td>Total Delay for Signalled Lanes (pcuHr)</td> <td>29.12</td> <td>Cycle Time (s)</td> <td>64</td> </tr> <tr> <td>C2</td> <td>Stream: 2 PRC for Signalled Lanes (%)</td> <td>32.3</td> <td>Total Delay for Signalled Lanes (pcuHr)</td> <td>2.78</td> <td>Cycle Time (s)</td> <td>64</td> </tr> <tr> <td></td> <td>PRC Over All Lanes (%)</td> <td>1.3</td> <td>Total Delay Over All Lanes(pcuHr)</td> <td>50.85</td> <td></td> <td></td> </tr> </tbody> </table>																		C1	PRC for Signalled Lanes (%)	8.4	Total Delay for Signalled Lanes (pcuHr)	16.60	Cycle Time (s)	64	C2	Stream: 1 PRC for Signalled Lanes (%)	1.3	Total Delay for Signalled Lanes (pcuHr)	29.12	Cycle Time (s)	64	C2	Stream: 2 PRC for Signalled Lanes (%)	32.3	Total Delay for Signalled Lanes (pcuHr)	2.78	Cycle Time (s)	64		PRC Over All Lanes (%)	1.3	Total Delay Over All Lanes(pcuHr)	50.85		
C1	PRC for Signalled Lanes (%)	8.4	Total Delay for Signalled Lanes (pcuHr)	16.60	Cycle Time (s)	64																																							
C2	Stream: 1 PRC for Signalled Lanes (%)	1.3	Total Delay for Signalled Lanes (pcuHr)	29.12	Cycle Time (s)	64																																							
C2	Stream: 2 PRC for Signalled Lanes (%)	32.3	Total Delay for Signalled Lanes (pcuHr)	2.78	Cycle Time (s)	64																																							
	PRC Over All Lanes (%)	1.3	Total Delay Over All Lanes(pcuHr)	50.85																																									

Basic Results Summary

Scenario 8: 'All Dev 2031PM' (FG8: 'All Dev 2031 PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M20 J5 - MM Option 1	-	-	-		-	-	-	-	-	-	96.2%	88	0	0	73.0	-	-
J1: E/B Off Slip	-	-	-		-	-	-	-	-	-	96.2%	88	0	0	43.5	-	-
1/2+1/1	Circulating E/B Off Slip Right Ahead	U	C1:A		1	57	-	1114	1944:1904	1236+20	88.7 : 88.7%	-	-	-	7.1	23.1	15.7
1/3	Circulating E/B Off Slip Right	U	C1:A		1	57	-	1107	1904	1227	90.2%	-	-	-	8.0	25.9	21.3
2/2+2/1	E/B Off Slip Ahead Left	U	C1:B		1	22	-	462	1900:1811	469+13	95.9 : 95.9%	-	-	-	11.1	86.9	18.1
2/3	E/B Off Slip Ahead	U	C1:B		1	22	-	467	1900	486	96.2%	-	-	-	11.4	88.0	18.5
3/1	Circulating North Right	U	-		-	-	-	1096	1978	1978	55.4%	-	-	-	0.6	2.0	0.6
3/2	Circulating North Right	U	-		-	-	-	1557	1978	1978	78.7%	-	-	-	1.8	4.2	1.8
3/3	Circulating North Right	U	-		-	-	-	467	1978	1978	23.6%	-	-	-	0.2	1.2	0.2
4/1	Coldharbour Ln N Ahead	O	-		-	-	-	88	1893	347	25.4%	88	0	0	0.4	16.0	1.1
5/1	Ahead	U	-		-	-	-	1156	1956	1956	59.1%	-	-	-	0.7	2.3	4.5
5/2	Right Ahead	U	-		-	-	-	1558	1956	1956	79.7%	-	-	-	1.9	4.5	1.9
5/3	Right	U	-		-	-	-	494	1956	1956	25.3%	-	-	-	0.2	1.2	0.2
J2: W/B Off Slip	-	-	-		-	-	-	-	-	-	89.5%	0	0	0	29.5	-	-
1/1	Circulating W/B Off Slip Ahead	U	C2:A		1	44	-	450	1904	952	47.3%	-	-	-	2.4	18.8	4.4
1/2+1/3	Circulating W/B Off Slip Right Ahead	U	C2:A		1	44	-	494	1904:1904	952+2	51.8 : 51.8%	-	-	-	2.5	18.4	4.6

Basic Results Summary

2/1	W/B Off Slip Left	U	C2:B		1	35	-	612	1770	708	86.4%	-	-	-	7.2	42.4	16.9
2/2+2/3	W/B Off Slip Ahead Left	U	C2:B		1	35	-	618	1781:1781	711+3	86.5 : 86.5%	-	-	-	7.3	42.3	17.1
3/1	Circulating South Ahead	U	C2:C		1	12	-	1	1966	284	0.4%	-	-	-	0.0	22.1	0.0
3/2	Circulating South Right	U	C2:C		1	12	-	3	1966	284	1.1%	-	-	-	0.0	56.9	0.1
4/2+4/1	A20 Coldaharbour Ln Ahead Left	U	C2:D -		1	74	-	1678	1900:1900	907+993	88.3 : 88.3%	-	-	-	4.1	8.9	9.2
4/3	A20 Coldaharbour Ln Ahead	U	C2:D		1	74	-	1417	1900	1583	89.5%	-	-	-	6.0	15.2	27.3

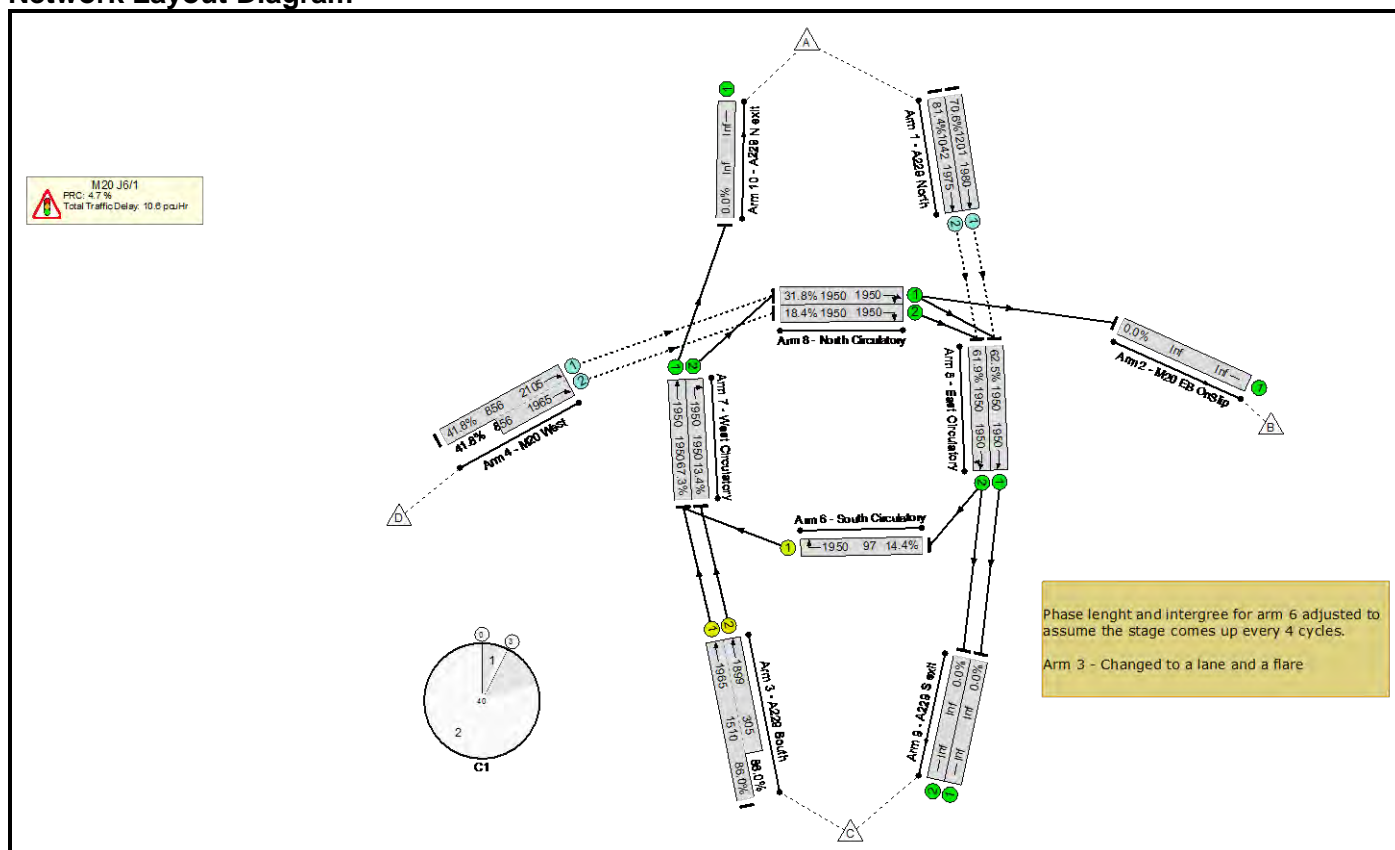
C1	PRC for Signalled Lanes (%)	-6.9	Total Delay for Signalled Lanes (pcuHr)	37.66	Cycle Time (s)	90
C2	Stream: 1 PRC for Signalled Lanes (%)	4.0	Total Delay for Signalled Lanes (pcuHr)	19.36	Cycle Time (s)	90
C2	Stream: 2 PRC for Signalled Lanes (%)	0.6	Total Delay for Signalled Lanes (pcuHr)	10.19	Cycle Time (s)	90
	PRC Over All Lanes (%)	-6.9	Total Delay Over All Lanes(pcuHr)	73.04		

Basic Results Summary
Basic Results Summary

User and Project Details

Project:	Maidstone BC Transport Planning
Title:	M20 J6/1
Location:	
File name:	Proposed_M20 J6_1_Option2.lsg3x
Author:	BR
Company:	MM
Address:	Soton
Notes:	

Scenario 3: 'All Dev 2031 AM' (FG3: 'All Dev 2031 AM', Plan 1: 'Network Control Plan 1')
Network Layout Diagram



Basic Results Summary

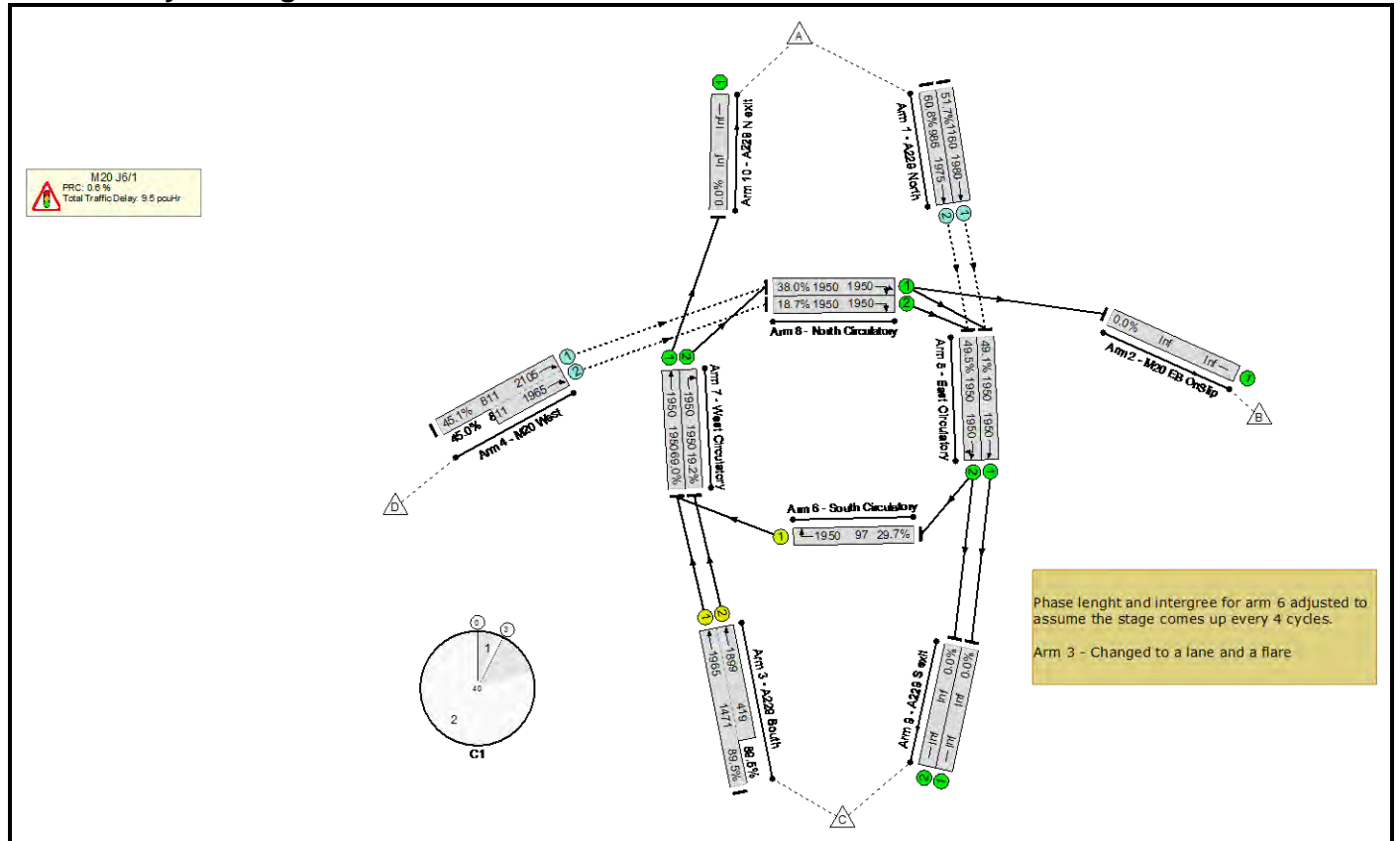
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M20 J6/1	-	-	-		-	-	-	-	-	-	86.0%	3129	0	0	10.6	-	-
M20 J6/1	-	-	-		-	-	-	-	-	-	86.0%	3129	0	0	10.6	-	-
1/1	A229 North Ahead	O	-		-	-	-	848	1980	1201	70.6%	848	0	0	1.2	5.1	1.2
1/2	A229 North Ahead	O	-		-	-	-	849	1975	1042	81.4%	849	0	0	2.1	9.1	2.1
3/1+3/2	A229 South Ahead	U	B		1	32	-	1560	1965:1899	1510+305	86.0 : 86.0%	-	-	-	3.7	8.5	10.2
4/1+4/2	M20 West Ahead	O	-		-	-	-	716	2105:1965	856+856	41.8 : 41.8%	1432	0	0	0.4	1.8	0.4
5/1	East Circulatory Ahead	U	-		-	-	-	1219	1950	1950	62.5%	-	-	-	0.8	2.5	0.8
5/2	East Circulatory Right Ahead	U	-		-	-	-	1207	1950	1950	61.9%	-	-	-	0.8	2.4	0.8
6/1	South Circulatory Right	U	A		1	1	-	14	1950	97	14.4%	-	-	-	0.2	40.0	0.2
7/1	West Circulatory Ahead	U	-		-	-	-	1312	1950	1950	67.3%	-	-	-	1.0	2.8	3.2
7/2	West Circulatory Right	U	-		-	-	-	262	1950	1950	13.4%	-	-	-	0.1	1.1	0.1
8/1	North Circulatory Ahead Right	U	-		-	-	-	620	1950	1950	31.8%	-	-	-	0.2	1.4	0.2
8/2	North Circulatory Right	U	-		-	-	-	358	1950	1950	18.4%	-	-	-	0.1	1.1	0.1
C1			PRC for Signalled Lanes (%):		4.7		Total Delay for Signalled Lanes (pcuHr):		3.86		Cycle Time (s):		40				
			PRC Over All Lanes (%):		4.7		Total Delay Over All Lanes(pcuHr):		10.65								

Basic Results Summary

Scenario 4: 'All Dev 2031 PM' (FG4: 'All Dev 2031 PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)	
Network: M20 J6/1	-	-	-		-	-	-	-	-	-	89.5%	2662	0	0	9.5	-	-	
M20 J6/1	-	-	-		-	-	-	-	-	-	89.5%	2662	0	0	9.5	-	-	
1/1	A229 North Ahead	O	-		-	-	-	600	1980	1160	51.7%	600	0	0	0.5	3.2	0.5	
1/2	A229 North Ahead	O	-		-	-	-	600	1975	986	60.8%	600	0	0	0.8	4.6	0.8	
3/1+3/2	A229 South Ahead	U	B		1	32	-	1691	1965:1899	1471+419	89.5 : 89.5%	-	-	-	4.8	10.3	11.8	
4/1+4/2	M20 West Ahead	O	-		-	-	-	731	2105:1965	811+811	45.1 : 45.0%	1462	0	0	0.4	2.0	0.4	
5/1	East Circulatory Ahead	U	-		-	-	-	957	1950	1950	49.1%	-	-	-	0.5	1.8	0.5	
5/2	East Circulatory Right Ahead	U	-		-	-	-	965	1950	1950	49.5%	-	-	-	0.5	1.8	0.5	
6/1	South Circulatory Right	U	A		1	1	-	29	1950	97	29.7%	-	-	-	0.4	44.6	0.5	
7/1	West Circulatory Ahead	U	-		-	-	-	1345	1950	1950	69.0%	-	-	-	1.1	3.0	4.4	
7/2	West Circulatory Right	U	-		-	-	-	375	1950	1950	19.2%	-	-	-	0.1	1.1	0.1	
8/1	North Circulatory Ahead Right	U	-		-	-	-	741	1950	1950	38.0%	-	-	-	0.3	1.5	0.3	
8/2	North Circulatory Right	U	-		-	-	-	365	1950	1950	18.7%	-	-	-	0.1	1.1	0.1	
C1					PRC for Signalled Lanes (%):			0.6	Total Delay for Signalled Lanes (pcuHr):				5.20	Cycle Time (s):		40		
					PRC Over All Lanes (%):			0.6	Total Delay Over All Lanes(pcuHr):				9.54					

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
For sales and distribution information, program advice and maintenance, contact TRL: Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk
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Filename: M20 Junction 6_v2.j9
Path: P:\Southampton\ITW\Projects\344395 Maidstone BC Transport Planning\M20 Junctions\Junction 6
 \ARCADY\Improvements
Report generation date: 07/09/2016 10:44:06

- »M20 Junction 6 - Dev Scenario 2, AM
- »M20 Junction 6 - Dev Scenario 2, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
M20 Junction 6 [Lane Simulation] - Dev Scenario 2								
Junction 1 - Arm A	83.7	148.82		F	2.2	5.66		A
Junction 1 - Arm C	33.4	80.14		F	60.4	137.90		F
Junction 1 - Arm D	67.1	383.00		F	13.8	56.59		F
Junction 2 - Arm A	114.9	255.20		F	85.5	216.25		F
Junction 2 - Arm B	90.5	137.08		F	9.6	16.03		C
Junction 2 - Arm C	3.3	21.39		C	1.2	10.35		B
Junction 2 - Arm D	3.3	12.66		B	2.5	8.52		A
Junction 2 - Arm E	97.2	580.01		F	45.4	175.85		F

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. Arm and junction delays are averages for all movements, including movements with zero delay.

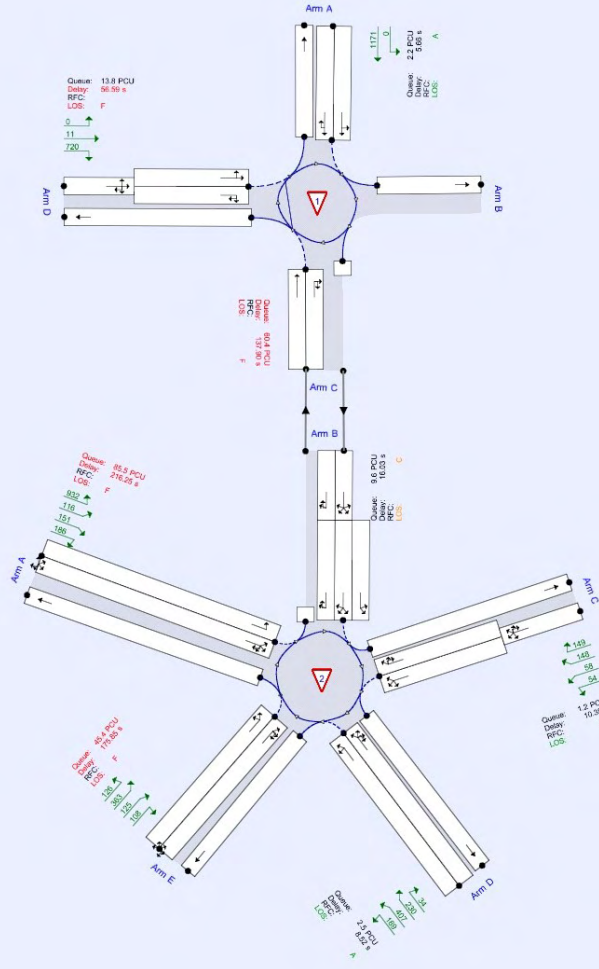
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	12/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\rap67683
Description	

Units

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



Flows show original traffic demand (PCU/hr)
Lane simulation visualisation time: 17:00:00

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1338237960	635	824.92

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
D7	Dev Scenario 2	AM	ONE HOUR	07:15	08:45	15	✓
D8	Dev Scenario 2	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	M20 Junction 6	✓	✓	100.000	100.000

M20 Junction 6 - Dev Scenario 2, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 6 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Junction 1 - Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 1 - Arm D - Lane Simulation	Arm D: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm B - Lane Simulation	Arm B: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm E - Lane Simulation	Arm E: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Linked junction	Junction 1 - Arm C	Linked arm: Junction 1 Arm C has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)
Warning	Linked junction	Junction 2 - Arm B	Linked arm: Junction 2 Arm B has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 6 North	Standard Roundabout	A,B,C,D	164.70	F
2	M20 Junction 6 South	Standard Roundabout	A,B,C,D,E	190.77	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Junction	Arm	Name	Description
1	A	A229 North	
	B	M20 East	
	C	A229 South	
	D	M20 West	
2	A	M20	
	B	A229	
	C	Sandling Lane	
	D	Chatham Road	
	E	Forstal Road	

Roundabout Geometry

Junction	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)	Exit only
1	A	8.80	9.60	4.7	33.0	91.0	14.6	
	B							✓
	C	7.70	7.80	0.4	19.0	91.0	12.5	
	D	5.30	9.80	30.0	29.2	91.0	16.0	
2	A	6.30	8.14	30.0	31.4	102.0	19.8	
	B	7.28	12.31	12.7	24.5	102.0	17.3	
	C	3.98	9.12	26.0	12.9	102.0	16.5	
	D	8.00	9.25	5.7	24.6	102.0	18.0	
	E	3.79	8.04	19.0	18.0	102.0	18.1	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1	A	0.659	3029
	B		
	C	0.579	2486
	D	0.609	2689
2	A	0.572	2501
	B	0.646	3030
	C	0.523	2202
	D	0.611	2782
	E	0.494	1967

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

Lane Simulation: Arm options

Junction	Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
1	A	Evenly split	10.00
	B	Evenly split	10.00
	C	Evenly split	10.00
	D	Evenly split	10.00
2	A	Evenly split	10.00
	B	Evenly split	10.00
	C	Evenly split	10.00
	D	Evenly split	10.00
	E	Evenly split	10.00

Lanes

Junction	Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
1	A	1 [Give-way line]	1	B,C		Infinity	0	99999
			2	A,C		Infinity	0	99999
	C	1 [Give-way line]	1	A	✓	78.00	0	99999
			2	B,C	✓	78.00	0	99999
	D	1 [Give-way line]	1	B,A	✓	8.00	0	99999
			2	C,D	✓	8.00	0	99999
2		1	(A,B,C,D)		Infinity			
2	A	1 [Give-way line]	1	B	✓	22.00	0	99999
			2	C,D,A,E	✓	22.00	0	99999
			2	2	(A,B,C,D,E)		Infinity	
	B	1 [Give-way line]	1	C,D	✓	7.00	0	99999
			2	A,D,E	✓	7.00	0	99999
			3	B,A	✓	7.00	0	99999
		2	1	(A,C,D,E)	✓	71.00		
			2	(A,B)	✓	71.00		
	C	1 [Give-way line]	1	D,A,E	✓	9.00	0	99999
			2	A,B,C	✓	9.00	0	99999
		2	1	(A,B,C,D,E)		Infinity		
	D	1 [Give-way line]	1	A,E		Infinity	0	99999
			2	A,B,C,D		Infinity	0	99999
	E	1 [Give-way line]	1	B,A	✓	14.00	0	99999
			2	C,D,E	✓	14.00	0	99999
		2	1	(A,B,C,D,E)		Infinity		

Entry Lane slope and intercept

Junction	Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1	A	1 [Give-way line]	1	0.329	1514
			2	0.329	1514
	C	1 [Give-way line]	1	0.290	1243
			2	0.290	1243
	D	1 [Give-way line]	1	0.305	1344
			2	0.305	1344
2	A	1 [Give-way line]	1	0.286	1251
			2	0.286	1251
	B	1 [Give-way line]	1	0.215	1010
			2	0.215	1010
			3	0.215	1010
	C	1 [Give-way line]	1	0.262	1101
			2	0.262	1101
	D	1 [Give-way line]	1	0.305	1391
			2	0.305	1391
	E	1 [Give-way line]	1	0.247	983
			2	0.247	983

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm			
				A	B	C	D
1	A	1 [Give-way line]	1		✓	✓	
			2	✓		✓	
	C	1 [Give-way line]	1	✓			
			2		✓	✓	
	D	1 [Give-way line]	1	✓	✓		
			2			✓	✓
		2	1	✓	✓	✓	✓

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm				
				A	B	C	D	E
2	A	1 [Give-way line]	1		✓			
			2	✓		✓	✓	✓
		2	2	✓	✓	✓	✓	✓
	B	1 [Give-way line]	1			✓	✓	
			2	✓			✓	✓
			3	✓	✓			
		2	1	✓		✓	✓	✓
		2	2	✓	✓			
	C	1 [Give-way line]	1	✓			✓	✓
			2	✓	✓	✓		
		2	1	✓	✓	✓	✓	✓
	D	1 [Give-way line]	1	✓				✓
			2	✓	✓	✓	✓	
	E	1 [Give-way line]	1	✓	✓			
2					✓	✓	✓	
1		✓	✓	✓	✓	✓		

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	Dev Scenario 2	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	C	2	B	Simple (vertical queueing)	Normal	0	100.00	
2	B	1	C	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	1697	100.000
	B					
	C	✓				
	D		ONE HOUR	✓	716	100.000
2	A		ONE HOUR	✓	1530	100.000
	B	✓				
	C		ONE HOUR	✓	477	100.000
	D		ONE HOUR	✓	774	100.000
	E		ONE HOUR	✓	633	100.000

Origin-Destination Data

Demand (PCU/hr)
Junction 1

		To			
		A	B	C	D
From	A	14	0	1683	0
	B	Exit-only	Exit-only	Exit-only	Exit-only
	C	1298	240	22	0
	D	0	9	707	0

Proportions

		To			
		A	B	C	D
From	A	0.01	0.00	0.99	0.00
	B	0.25	0.25	0.25	0.25
	C	0.83	0.15	0.01	0.00
	D	0.00	0.01	0.99	0.00

Demand (PCU/hr)
Junction 2

		To				
		A	B	C	D	E
From	A	5	1102	14	190	219
	B	1476	0	128	479	331
	C	254	74	0	25	124
	D	454	130	29	17	144
	E	194	255	76	108	0

Proportions

		To				
		A	B	C	D	E
From	A	0.00	0.72	0.01	0.12	0.14
	B	0.61	0.00	0.05	0.20	0.14
	C	0.53	0.16	0.00	0.05	0.26
	D	0.59	0.17	0.04	0.02	0.19
	E	0.31	0.40	0.12	0.17	0.00

Vehicle Mix

Heavy Vehicle Percentages
Junction 1

		To			
		A	B	C	D
From	A	0	0	3	0
	B	Exit-only	Exit-only	Exit-only	Exit-only
	C	8	14	13	0
	D	0	0	11	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.030	1.000
	B	Exit-only	Exit-only	Exit-only	Exit-only
	C	1.080	1.140	1.130	1.000
	D	1.000	1.000	1.110	1.000

Heavy Vehicle Percentages
Junction 2

		To				
		A	B	C	D	E
From	A	0	8	0	2	4
	B	3	0	5	6	19
	C	2	7	0	0	4
	D	6	5	4	0	7
	E	28	20	0	12	7

Average PCU Per Veh

		To				
		A	B	C	D	E
From	A	1.000	1.080	1.000	1.020	1.040
	B	1.030	1.000	1.050	1.060	1.190
	C	1.020	1.070	1.000	1.000	1.040
	D	1.060	1.050	1.040	1.000	1.070
	E	1.280	1.200	1.000	1.120	1.070

Detailed Demand Data

Demand for each time segment

Time Segment	Junction	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:15-07:30	1	A	1278	1278
		B	0	0
		C	1174	1174
		D	539	539
	2	A	1152	1152
		B	1817	1817
		C	359	359
		D	583	583
		E	477	477
	07:30-07:45	1	A	1526
B			0	0
C			1402	1402
D			644	644
2		A	1375	1375
		B	2170	2170
		C	429	429
		D	696	696
		E	569	569
07:45-08:00		1	A	1868
	B		0	0
	C		1718	1718
	D		788	788
	2	A	1685	1685
		B	2658	2658
		C	525	525
		D	852	852
		E	697	697
	08:00-08:15	1	A	1868
B			0	0
C			1718	1718
D			788	788
2		A	1685	1685
		B	2658	2658
		C	525	525
		D	852	852
		E	697	697
08:15-08:30		1	A	1526
	B		0	0
	C		1402	1402
	D		644	644
	2	A	1375	1375
		B	2170	2170
		C	429	429
		D	696	696
		E	569	569
	08:30-08:45	1	A	1278
B			0	0
C			1174	1174
D			539	539
2		A	1152	1152
		B	1817	1817
		C	359	359
		D	583	583
		E	477	477

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	A	148.82	83.7	F	1557	2336
	B					
	C	80.14	33.4	F	1400	2099
	D	383.00	67.1	F	655	983
2	A	255.20	114.9	F	1406	2109
	B	137.08	90.5	F	2160	3240
	C	21.39	3.3	C	438	657
	D	12.66	3.3	B	710	1065
	E	580.01	97.2	F	581	871

Main Results for each time segment

07:15 - 07:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1274	318	735	1272	986	0.0	1.7	4.002	A
	B			0		189				
	C	1180	295	10	1176	1809	0.0	4.7	12.533	B
	D	536	134	1186	535	0	0.0	1.6	8.211	A
2	A	1163	291	517	1159	1799	0.0	4.4	11.206	B
	B	1809	452	497	1813	1180	0.0	5.4	10.015	B
	C	358	90	2123	359	187	0.0	0.9	7.836	A
	D	586	146	1865	587	617	0.0	1.1	5.451	A
	E	478	120	1843	473	608	0.0	3.0	16.299	C

07:30 - 07:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1525	381	870	1526	1146	1.7	2.3	5.351	A
	B			0		218				
	C	1379	345	13	1363	2166	4.7	11.0	23.428	C
	D	644	161	1376	640	0	1.6	2.8	13.722	B
2	A	1378	345	606	1360	2130	4.4	12.7	25.430	D
	B	2166	541	587	2135	1379	5.4	20.5	26.199	D
	C	427	107	2508	423	214	0.9	1.8	12.322	B
	D	693	173	2208	693	723	1.1	1.7	7.793	A
	E	569	142	2184	552	717	3.0	10.0	46.664	E

07:45 - 08:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1867	467	903	1676	1204	2.3	33.4	30.417	D
	B			0		236				
	C	1492	373	14	1438	2328	11.0	24.6	46.934	E
	D	787	197	1452	655	0	2.8	24.3	63.564	F
2	A	1694	423	624	1483	2385	12.7	63.0	93.428	F
	B	2328	582	615	2229	1492	20.5	86.6	104.648	F
	C	526	131	2633	522	211	1.8	3.1	18.916	C
	D	849	212	2438	848	718	1.7	3.3	12.233	B
	E	699	175	2505	504	781	10.0	53.6	219.726	F

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1867	467	875	1681	1226	33.4	83.7	129.943	F
	B			0		239				
	C	1490	372	13	1465	2303	24.6	30.5	69.010	F
	D	787	197	1478	622	0	24.3	64.6	263.904	F
2	A	1690	422	638	1470	2351	63.0	114.9	217.675	F
	B	2303	576	617	2288	1490	86.6	90.5	137.083	F
	C	528	132	2674	526	231	3.1	3.3	21.386	C
	D	851	213	2424	851	776	3.3	3.0	12.662	B
	E	695	174	2463	526	812	53.6	97.2	513.550	F

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1533	383	896	1639	1222	83.7	53.7	148.816	F
	B			0		240				
	C	1470	368	13	1461	2282	30.5	33.4	80.136	F
	D	642	160	1474	643	0	64.6	67.1	382.997	F
2	A	1366	342	640	1442	2223	114.9	92.8	255.204	F
	B	2282	570	611	2293	1470	90.5	87.7	135.837	F
	C	428	107	2671	428	233	3.3	2.1	17.631	C
	D	699	175	2319	700	780	3.0	1.8	9.430	A
	E	571	143	2268	595	751	97.2	93.5	580.010	F

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1277	319	926	1383	1206	53.7	8.3	56.482	F
	B			0		225				
	C	1386	347	12	1429	2073	33.4	26.4	73.653	F
	D	537	134	1441	691	0	67.1	33.5	237.003	F
2	A	1145	286	631	1339	2038	92.8	32.4	141.820	F
	B	2073	518	584	2252	1386	87.7	50.7	100.955	F
	C	360	90	2597	362	239	2.1	1.3	14.526	B
	D	583	146	2173	583	786	1.8	1.2	7.630	A
	E	472	118	2028	641	729	93.5	53.8	354.839	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	635	1272	0.499	634	0.0	0.8	4.005	A	
				2	A,C	638	1272	0.502	638	0.0	0.8	3.999	A	
		Exit	1	1		986			986	0.0	0.0	0.000	A	
	B	Exit	1	1		189			189	0.0	0.0	0.000	A	
	C	Entry	1	1	A	979	1240	0.790	976	0.0	4.5	14.199	B	
				2	B,C	201	1240	0.162	201	0.0	0.2	3.954	A	
		Exit	1	1		1809			1809	0.0	0.0	0.000	A	
	D	Entry	1	1	B,A	6	983	0.006	6	0.0	0.0	3.381	A	
				2	C,D	530	983	0.539	528	0.0	1.5	8.121	A	
			2	1	(A,B,C,D)	536			536	0.0	0.1	0.149	A	
		Exit	1	1		0			0	0.0	0.0	0.000	A	
	2	A	Entry	1	1	B	840	1103	0.762	836	0.0	3.9	13.848	B
					2	C,D,A,E	323	1103	0.293	323	0.0	0.4	4.562	A
					2	(A,B,C,D,E)	1163			1163	0.0	0.0	0.039	A
Exit			1	1		1799			1799	0.0	0.0	0.000	A	
B		Entry	1	1	C,D	383	903	0.424	383	0.0	0.7	6.240	A	
				2	A,D,E	751	903	0.831	752	0.0	2.5	10.834	B	
				3	B,A	676	903	0.748	678	0.0	2.0	10.005	B	
			2	1	(A,C,D,E)	1233			1234	0.0	0.2	0.518	A	
				2	(A,B)	576			576	0.0	0.1	0.309	A	
				Exit	1	1		1180			1180	0.0	0.0	0.000
C		Entry	1	1	D,A,E	200	546	0.366	200	0.0	0.5	8.107	A	
				2	A,B,C	159	546	0.291	159	0.0	0.4	7.489	A	
		Exit	2	1	(A,B,C,D,E)	358			358	0.0	0.0	0.000	A	
D		Entry	1	1	A,E	283	821	0.344	283	0.0	0.5	5.376	A	
				2	A,B,C,D	303	821	0.369	304	0.0	0.5	5.521	A	
Exit		1	1		617			617	0.0	0.0	0.000	A		
E		Entry	1	1	B,A	340	528	0.643	335	0.0	2.6	19.630	C	
				2	C,D,E	138	528	0.262	138	0.0	0.4	8.757	A	
		Exit	2	1	(A,B,C,D,E)	478			478	0.0	0.1	0.168	A	
Exit		1	1		608			608	0.0	0.0	0.000	A		

07:30 - 07:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	761	1228	0.620	761	0.8	1.2	5.326	A
				2	A,C	764	1228	0.623	765	0.8	1.2	5.376	A
		Exit	1	1		1146			1146	0.0	0.0	0.000	A
	B	Exit	1	1		218			218	0.0	0.0	0.000	A
	C	Entry	1	1	A	1149	1240	0.927	1133	4.5	10.7	27.099	D
				2	B,C	230	1240	0.186	230	0.2	0.3	4.216	A
		Exit	1	1		2166			2166	0.0	0.0	0.002	A
	D	Entry	1	1	B,A	7	926	0.008	7	0.0	0.0	3.934	A
				2	C,D	636	926	0.687	633	1.5	2.5	12.623	B
		2	1	(A,B,C,D)	644			643	0.1	0.3	1.174	A	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
	2	A	Entry	1	1	B	986	1077	0.915	978	3.9	9.9	29.595
2					C,D,A,E	382	1077	0.355	382	0.4	0.6	5.398	A
2					2	(A,B,C,D,E)	1378			1368	0.0	2.1	2.616
Exit			1	1		2130			2130	0.0	0.0	0.000	A
B		Entry	1	1	C,D	476	884	0.539	475	0.7	1.4	9.400	A
				2	A,D,E	850	884	0.962	847	2.5	5.0	18.889	C
				3	B,A	815	884	0.923	813	2.0	4.5	17.678	C
		2	1	(A,C,D,E)	1250			1227	0.2	8.1	13.773	B	
		2	2	(A,B)	916			914	0.1	1.4	3.913	A	
Exit		1	1		1379			1379	0.0	0.0	0.000	A	
C		Entry	1	1	D,A,E	232	445	0.522	230	0.5	1.1	13.044	B
				2	A,B,C	195	445	0.437	193	0.4	0.7	11.411	B
		2	1	(A,B,C,D,E)	427			427	0.0	0.0	0.013	A	
		Exit	1	1		214			214	0.0	0.0	0.000	A
D		Entry	1	1	A,E	338	717	0.472	338	0.5	0.8	7.682	A
				2	A,B,C,D	355	717	0.495	354	0.5	0.8	7.898	A
		Exit	1	1		723			723	0.0	0.0	0.000	A
E		Entry	1	1	B,A	395	444	0.888	387	2.6	7.1	51.029	F
				2	C,D,E	164	444	0.369	165	0.4	0.6	13.687	B
		2	1	(A,B,C,D,E)	569			559	0.1	2.3	6.822	A	
Exit		1	1		717			717	0.0	0.0	0.000	A	

07:45 - 08:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	933	1217	0.767	837	1.2	16.7	30.413	D
				2	A,C	934	1217	0.768	839	1.2	16.7	30.421	D
		Exit	1	1		1204			1204	0.0	0.0	0.000	A
	B	Exit	1	1		236			236	0.0	0.0	0.000	A
	C	Entry	1	1	A	1244	1239	1.004	1190	10.7	24.2	54.924	F
				2	B,C	248	1239	0.200	248	0.3	0.4	4.941	A
		Exit	1	1		2329			2328	0.0	0.3	0.195	A
	D	Entry	1	1	B,A	9	902	0.010	9	0.0	0.0	4.268	A
				2	C,D	660	902	0.732	646	2.5	7.0	26.983	D
		Exit	1	1	(A,B,C,D)	787			669	0.3	17.2	35.376	E
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	A	Entry	1	1	B	1076	1072	1.004	1066	9.9	20.7	59.552
2					C,D,A,E	417	1072	0.389	417	0.6	0.8	6.614	A
2					(A,B,C,D,E)	1694			1494	2.1	41.5	48.316	E
Exit			1	1		2385			2385	0.0	0.0	0.000	A
B		Entry	1	1	C,D	482	878	0.549	477	1.4	2.2	13.358	B
				2	A,D,E	883	878	1.006	883	5.0	6.8	26.977	D
				3	B,A	869	878	0.990	869	4.5	6.6	26.250	D
		Entry	2	1	(A,C,D,E)	909			804	8.1	62.8	164.068	F
				2	(A,B)	1419			1430	1.4	8.3	20.315	C
Exit		1	1		1492			1492	0.0	0.0	0.002	A	
C		Entry	1	1	D,A,E	282	412	0.684	280	1.1	1.8	20.112	C
				2	A,B,C	243	412	0.590	242	0.7	1.3	17.343	C
			2	(A,B,C,D,E)	526			525	0.0	0.0	0.067	A	
		Exit	1	1		211			211	0.0	0.0	0.000	A
D		Entry	1	1	A,E	415	646	0.642	415	0.8	1.6	12.069	B
				2	A,B,C,D	435	646	0.672	433	0.8	1.7	12.390	B
		Exit	1	1		718			718	0.0	0.0	0.000	A
E		Entry	1	1	B,A	362	365	0.991	356	7.1	13.5	112.424	F
				2	C,D,E	147	365	0.401	148	0.6	1.1	23.872	C
			2	(A,B,C,D,E)	699			508	2.3	39.0	132.165	F	
		Exit	1	1		781			781	0.0	0.0	0.000	A

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	930	1226	0.758	837	16.7	41.8	129.977	F
				2	A,C	937	1226	0.764	843	16.7	41.9	129.909	F
		Exit	1	1		1226			1226	0.0	0.0	0.000	A
	B	Exit	1	1		239			239	0.0	0.0	0.000	A
	C	Entry	1	1	A	1238	1239	0.999	1212	24.2	30.2	81.277	F
				2	B,C	252	1239	0.203	253	0.4	0.4	5.516	A
		Exit	1	1		2303			2303	0.3	0.4	0.491	A
	D	Entry	1	1	B,A	7	894	0.008	7	0.0	0.0	3.991	A
				2	C,D	616	894	0.689	615	7.0	7.8	44.039	E
		2	1	(A,B,C,D)	787			623	17.2	56.7	219.889	F	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
	2	A	Entry	1	1	B	1058	1068	0.991	1055	20.7	21.7	71.991
2					C,D,A,E	415	1068	0.388	415	0.8	0.8	6.969	A
2					2	(A,B,C,D,E)	1690			1473	41.5	92.4	164.536
Exit			1	1		2351			2351	0.0	0.0	0.000	A
B		Entry	1	1	C,D	543	877	0.619	544	2.2	2.2	14.761	B
				2	A,D,E	878	877	1.002	878	6.8	6.8	27.976	D
				3	B,A	866	877	0.987	866	6.6	6.4	26.728	D
			2	1	(A,C,D,E)	890			885	62.8	67.3	269.178	F
		2	2	(A,B)	1413			1402	8.3	7.7	19.556	C	
Exit		1	1		1490			1490	0.0	0.0	0.014	A	
C		Entry	1	1	D,A,E	283	402	0.706	281	1.8	1.9	22.576	C
				2	A,B,C	245	402	0.610	244	1.3	1.4	19.697	C
			2	1	(A,B,C,D,E)	528			528	0.0	0.0	0.150	A
		Exit	1	1		231			231	0.0	0.0	0.000	A
D		Entry	1	1	A,E	418	651	0.643	418	1.6	1.5	12.461	B
				2	A,B,C,D	433	651	0.665	433	1.7	1.5	12.854	B
		Exit	1	1		776			776	0.0	0.0	0.000	A
E		Entry	1	1	B,A	376	375	1.001	375	13.5	13.8	131.637	F
				2	C,D,E	154	375	0.411	152	1.1	1.2	26.231	D
			2	1	(A,B,C,D,E)	695			530	39.0	82.2	420.552	F
		Exit	1	1		812			812	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	767	1219	0.629	819	41.8	26.8	148.400	F
				2	A,C	766	1219	0.629	819	41.9	26.9	149.234	F
		Exit	1	1		1222			1222	0.0	0.0	0.000	A
	B	Exit	1	1		240			240	0.0	0.0	0.000	A
	C	Entry	1	1	A	1218	1239	0.982	1208	30.2	33.0	94.638	F
				2	B,C	253	1239	0.204	252	0.4	0.4	5.352	A
		Exit	1	1		2281			2282	0.4	0.3	0.488	A
	D	Entry	1	1	B,A	8	896	0.009	8	0.0	0.0	4.175	A
				2	C,D	633	896	0.707	635	7.8	7.5	44.476	E
		2	1	(A,B,C,D)	642			641	56.7	59.6	340.181	F	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
	2	A	Entry	1	1	B	1042	1067	0.976	1046	21.7	20.5	71.858
2					C,D,A,E	393	1067	0.368	396	0.8	0.7	6.922	A
2					2	(A,B,C,D,E)	1366			1435	92.4	71.6	202.159
Exit			1	1		2223			2223	0.0	0.0	0.000	A
B		Entry	1	1	C,D	548	878	0.624	550	2.2	2.1	14.826	B
				2	A,D,E	870	878	0.991	870	6.8	6.8	27.962	D
				3	B,A	874	878	0.995	873	6.4	6.4	26.546	D
			2	1	(A,C,D,E)	881			896	67.3	65.2	268.175	F
		2	2	(A,B)	1401			1396	7.7	7.2	18.444	C	
Exit		1	1		1471			1470	0.0	0.0	0.023	A	
C		Entry	1	1	D,A,E	231	402	0.575	231	1.9	1.2	18.867	C
				2	A,B,C	197	402	0.489	198	1.4	0.8	16.118	C
			2	1	(A,B,C,D,E)	428			428	0.0	0.0	0.035	A
		Exit	1	1		233			233	0.0	0.0	0.000	A
D		Entry	1	1	A,E	341	683	0.499	341	1.5	0.8	9.202	A
				2	A,B,C,D	359	683	0.526	358	1.5	1.0	9.646	A
		Exit	1	1		780			780	0.0	0.0	0.000	A
E		Entry	1	1	B,A	423	424	0.998	422	13.8	13.6	117.381	F
				2	C,D,E	173	424	0.409	173	1.2	1.0	22.442	C
			2	1	(A,B,C,D,E)	571			596	82.2	78.8	498.803	F
		Exit	1	1		751			751	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	637	1209	0.527	691	26.8	4.2	56.597	F
				2	A,C	639	1209	0.529	693	26.9	4.1	56.368	F
		Exit	1	1		1206			1206	0.0	0.0	0.000	A
	B	Exit	1	1		225			225	0.0	0.0	0.000	A
	C	Entry	1	1	A	1152	1240	0.929	1194	33.0	26.2	87.732	F
				2	B,C	234	1240	0.189	235	0.4	0.2	4.759	A
		Exit	1	1		2073			2073	0.3	0.1	0.309	A
	D	Entry	1	1	B,A	8	906	0.009	8	0.0	0.0	4.139	A
				2	C,D	671	906	0.741	683	7.5	5.3	35.281	E
		2	1	(A,B,C,D)	537			679	59.6	28.2	207.420	F	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
	2	A	Entry	1	1	B	931	1070	0.870	973	20.5	12.2	60.258
2					C,D,A,E	365	1070	0.341	367	0.7	0.6	6.412	A
2					2	(A,B,C,D,E)	1145			1296	71.6	19.6	99.870
Exit			1	1		2038			2038	0.0	0.0	0.000	A
B		Entry	1	1	C,D	546	884	0.618	548	2.1	2.2	14.735	B
				2	A,D,E	858	884	0.970	865	6.8	5.6	26.092	D
				3	B,A	831	884	0.940	838	6.4	4.9	24.498	C
			2	1	(A,C,D,E)	916			1060	65.2	35.9	185.509	F
			2	2	(A,B)	1157			1175	7.2	2.1	12.428	B
		Exit	1	1		1386			1386	0.0	0.0	0.021	A
C		Entry	1	1	D,A,E	201	422	0.476	202	1.2	0.8	15.280	C
				2	A,B,C	159	422	0.377	160	0.8	0.5	13.592	B
			2	1	(A,B,C,D,E)	360			360	0.0	0.0	0.003	A
		Exit	1	1		239			239	0.0	0.0	0.000	A
D		Entry	1	1	A,E	284	727	0.390	283	0.8	0.6	7.514	A
				2	A,B,C,D	299	727	0.412	300	1.0	0.7	7.739	A
		Exit	1	1		786			786	0.0	0.0	0.000	A
E		Entry	1	1	B,A	443	483	0.918	458	13.6	11.2	100.735	F
				2	C,D,E	182	483	0.377	183	1.0	0.9	18.894	C
			2	1	(A,B,C,D,E)	472			626	78.8	41.6	292.712	F
		Exit	1	1		729			729	0.0	0.0	0.000	A

M20 Junction 6 - Dev Scenario 2, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - M20 Junction 6 [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	Junction 1 - Arm C - Lane Simulation	Arm C: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	Junction 2 - Arm A - Lane Simulation	Arm A: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Linked junction	Junction 1 - Arm C	Linked arm: Junction 1 Arm C has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)
Warning	Linked junction	Junction 2 - Arm B	Linked arm: Junction 2 Arm B has more than one lane at its upstream end. It is recommended that the upstream lane level for a linked arm should have only one lane (if necessary add a dummy lane level to do this)

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	M20 Junction 6 North	Standard Roundabout	A,B,C,D	77.12	F
2	M20 Junction 6 South	Standard Roundabout	A,B,C,D,E	88.78	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	Dev Scenario 2	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	C	2	B	Simple (vertical queueing)	Normal	0	100.00	
2	B	1	C	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	A		ONE HOUR	✓	1200	100.000
	B					
	C	✓				
	D		ONE HOUR	✓	731	100.000
2	A		ONE HOUR	✓	1388	100.000
	B	✓				
	C		ONE HOUR	✓	409	100.000
	D		ONE HOUR	✓	866	100.000
	E		ONE HOUR	✓	722	100.000

Origin-Destination Data

Demand (PCU/hr)

Junction 1

		To			
		A	B	C	D
From	A	29	0	1171	0
	B	Exit-only	Exit-only	Exit-only	Exit-only
	C	1316	373	2	0
	D	0	11	720	0

Proportions

		To			
		A	B	C	D
From	A	0.02	0.00	0.98	0.00
	B	0.25	0.25	0.25	0.25
	C	0.78	0.22	0.00	0.00
	D	0.00	0.02	0.98	0.00

Demand (PCU/hr)

Junction 2

		To				
		A	B	C	D	E
From	A	3	932	116	151	186
	B	774	16	441	392	261
	C	148	149	0	54	58
	D	407	230	34	6	189
	E	126	363	125	108	0

Proportions

		To				
		A	B	C	D	E
From	A	0.00	0.67	0.08	0.11	0.13
	B	0.41	0.01	0.23	0.21	0.14
	C	0.36	0.36	0.00	0.13	0.14
	D	0.47	0.27	0.04	0.01	0.22
	E	0.17	0.50	0.17	0.15	0.00

Vehicle Mix

Heavy Vehicle Percentages

Junction 1

		To			
		A	B	C	D
From	A	4	0	5	0
	B	Exit-only	Exit-only	Exit-only	Exit-only
	C	5	4	0	0
	D	0	25	3	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.040	1.000	1.050	1.000
	B	Exit-only	Exit-only	Exit-only	Exit-only
	C	1.050	1.040	1.000	1.000
	D	1.000	1.250	1.030	1.000

Heavy Vehicle Percentages

Junction 2

		To				
		A	B	C	D	E
From	A	0	6	0	0	10
	B	3	0	1	3	19
	C	2	0	0	4	0
	D	5	4	0	0	4
	E	24	5	1	2	0

Average PCU Per Veh

		To				
		A	B	C	D	E
From	A	1.000	1.060	1.000	1.000	1.100
	B	1.030	1.000	1.010	1.030	1.190
	C	1.020	1.000	1.000	1.040	1.000
	D	1.050	1.040	1.000	1.000	1.040
	E	1.240	1.050	1.010	1.020	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Junction	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	1	A	903	903
		B	0	0
		C	1273	1273
		D	550	550
	2	A	1045	1045
		B	1418	1418
		C	308	308
		D	652	652
		E	544	544
17:15-17:30	1	A	1079	1079
		B	0	0
		C	1520	1520
		D	657	657
	2	A	1248	1248
		B	1694	1694
		C	368	368
		D	779	779
		E	649	649
17:30-17:45	1	A	1321	1321
		B	0	0
		C	1862	1862
		D	805	805
	2	A	1528	1528
		B	2074	2074
		C	450	450
		D	953	953
		E	795	795
17:45-18:00	1	A	1321	1321
		B	0	0
		C	1862	1862
		D	805	805
	2	A	1528	1528
		B	2074	2074
		C	450	450
		D	953	953
		E	795	795
18:00-18:15	1	A	1079	1079
		B	0	0
		C	1520	1520
		D	657	657
	2	A	1248	1248
		B	1694	1694
		C	368	368
		D	779	779
		E	649	649
18:15-18:30	1	A	903	903
		B	0	0
		C	1273	1273
		D	550	550
	2	A	1045	1045
		B	1418	1418
		C	308	308
		D	652	652
		E	544	544

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	A	5.66	2.2	A	1106	1660
	B					
	C	137.90	60.4	F	1527	2290
	D	56.59	13.8	F	669	1003
2	A	216.25	85.5	F	1272	1908
	B	16.03	9.6	C	1739	2609
	C	10.35	1.2	B	375	562
	D	8.52	2.5	A	798	1197
	E	175.85	45.4	F	664	997

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	907	227	837	908	1011	0.0	0.9	3.538	A
	B			0		291				
	C	1270	318	22	1273	1432	0.0	4.6	12.109	B
	D	551	138	1295	553	0	0.0	1.4	8.255	A
2	A	1039	260	779	1037	1103	0.0	3.0	9.136	A
	B	1432	358	545	1433	1270	0.0	2.7	6.712	A
	C	304	76	1439	305	539	0.0	0.5	5.523	A
	D	658	164	1205	658	539	0.0	0.9	4.460	A
	E	543	136	1339	543	524	0.0	1.7	10.310	B

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1076	269	997	1078	1185	0.9	1.1	4.273	A
	B			0		343				
	C	1521	380	25	1496	1708	4.6	13.9	25.880	D
	D	660	165	1520	662	0	1.4	2.7	14.806	B
2	A	1249	312	934	1247	1306	3.0	7.0	17.987	C
	B	1708	427	659	1698	1521	2.7	5.0	9.031	A
	C	370	92	1704	371	653	0.5	0.7	6.922	A
	D	773	193	1431	775	645	0.9	1.1	5.517	A
	E	657	164	1582	658	623	1.7	3.9	18.827	C

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1323	331	1162	1321	1267	1.1	2.2	5.456	A
	B			0		388				
	C	1728	432	32	1614	2063	13.9	42.4	64.946	F
	D	797	199	1646	783	0	2.7	10.4	37.093	E
2	A	1520	380	1075	1404	1575	7.0	40.5	65.507	F
	B	2063	516	751	2062	1728	5.0	9.4	15.142	C
	C	445	111	2039	445	773	0.7	1.2	9.056	A
	D	957	239	1722	959	763	1.1	2.0	7.760	A
	E	793	198	1934	716	746	3.9	22.0	68.530	F

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1346	336	1166	1346	1272	2.2	2.1	5.658	A
	B			0		385				
	C	1666	417	32	1614	2095	42.4	60.4	117.449	F
	D	795	199	1646	792	0	10.4	13.8	56.588	F
2	A	1529	382	1051	1324	1601	40.5	85.5	171.830	F
	B	2095	524	707	2090	1666	9.4	9.6	16.026	C
	C	452	113	2045	453	752	1.2	1.2	10.348	B
	D	962	240	1735	959	763	2.0	2.5	8.517	A
	E	793	198	1958	694	737	22.0	45.4	175.850	F

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	1090	273	1016	1091	1265	2.1	1.3	4.564	A
	B			0		361				
	C	1576	394	28	1590	1719	60.4	60.3	137.900	F
	D	654	164	1618	663	0	13.8	4.0	32.325	D
2	A	1250	313	985	1282	1334	85.5	71.2	216.249	F
	B	1719	430	691	1721	1576	9.6	4.5	10.857	B
	C	369	92	1742	369	670	1.2	0.9	8.413	A
	D	787	197	1453	787	658	2.5	1.5	6.678	A
	E	648	162	1604	715	636	45.4	25.6	170.962	F

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	896	224	862	894	1215	1.3	1.1	3.787	A
	B			0		314				
	C	1398	350	22	1501	1420	60.3	41.1	118.772	F
	D	555	139	1524	554	0	4.0	1.9	13.036	B
2	A	1045	261	821	1180	1109	71.2	28.9	123.285	F
	B	1420	355	603	1417	1398	4.5	3.0	7.408	A
	C	308	77	1463	307	557	0.9	0.6	6.756	A
	D	652	163	1209	653	561	1.5	0.9	5.182	A
	E	553	138	1333	597	529	25.6	4.9	57.490	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS	
1	A	Entry	1	1	B,C	447	1239	0.361	447	0.0	0.4	3.526	A	
				2	A,C	460	1239	0.371	461	0.0	0.5	3.551	A	
		Exit	1	1		1011			1011	0.0	0.0	0.000	A	
	B	Exit	1	1		291			291	0.0	0.0	0.000	A	
	C	Entry	1	1	A	986	1237	0.797	989	0.0	4.2	14.473	B	
				2	B,C	285	1237	0.230	284	0.0	0.3	3.883	A	
		Exit	1	1		1432			1432	0.0	0.0	0.000	A	
	D	Entry	1	1	B,A	8	950	0.009	8	0.0	0.0	3.829	A	
				2	C,D	542	950	0.571	545	0.0	1.3	8.130	A	
		Exit	1	1	(A,B,C,D)	551			550	0.0	0.1	0.166	A	
				1	1		0			0	0.0	0.0	0.000	A
	2	A	Entry	1	1	B	700	1028	0.681	699	0.0	2.5	11.019	B
					2	C,D,A,E	339	1028	0.330	338	0.0	0.5	5.316	A
					2	(A,B,C,D,E)	1039			1039	0.0	0.0	0.000	A
Exit			1	1		1103			1103	0.0	0.0	0.000	A	
B		Entry	1	1	C,D	494	893	0.553	493	0.0	1.0	7.233	A	
				2	A,D,E	550	893	0.616	551	0.0	1.1	6.894	A	
				3	B,A	389	893	0.436	389	0.0	0.6	5.720	A	
			2	1	(A,C,D,E)	1125			1125	0.0	0.0	0.018	A	
				2	(A,B)	307			307	0.0	0.0	0.000	A	
				Exit	1	1		1270			1270	0.0	0.0	0.000
C		Entry	1	1	D,A,E	142	725	0.196	142	0.0	0.3	5.419	A	
				2	A,B,C	162	725	0.224	163	0.0	0.2	5.612	A	
		Exit	1	1	(A,B,C,D,E)	304			304	0.0	0.0	0.000	A	
D		Entry	1	1	A,E	307	1023	0.300	307	0.0	0.4	4.369	A	
				2	A,B,C,D	351	1023	0.343	350	0.0	0.5	4.539	A	
Exit		1	1		539			539	0.0	0.0	0.000	A		
E		Entry	1	1	B,A	366	653	0.561	366	0.0	1.4	12.076	B	
				2	C,D,E	177	653	0.271	177	0.0	0.3	6.836	A	
		Exit	1	1	(A,B,C,D,E)	543			543	0.0	0.0	0.007	A	
Exit		1	1		524			524	0.0	0.0	0.000	A		

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	533	1186	0.449	535	0.4	0.6	4.244	A
				2	A,C	543	1186	0.458	544	0.5	0.6	4.301	A
		Exit	1	1		1185			1185	0.0	0.0	0.000	A
	B	Exit	1	1		343			343	0.0	0.0	0.000	A
	C	Entry	1	1	A	1185	1236	0.959	1160	4.2	13.5	32.028	D
				2	B,C	336	1236	0.272	336	0.3	0.4	4.169	A
		Exit	1	1		1708			1708	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	9	882	0.010	9	0.0	0.0	5.069	A
				2	C,D	653	882	0.741	653	1.3	2.4	13.408	B
		2	1	(A,B,C,D)	660			662	0.1	0.2	1.476	A	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
	2	A	Entry	1	1	B	836	984	0.850	835	2.5	5.9	22.771
2					C,D,A,E	411	984	0.418	412	0.5	0.7	6.638	A
2					2	(A,B,C,D,E)	1249			1248	0.0	0.3	0.496
Exit			1	1		1306			1306	0.0	0.0	0.000	A
B		Entry	1	1	C,D	595	868	0.685	592	1.0	1.8	9.763	A
				2	A,D,E	634	868	0.730	630	1.1	1.9	9.185	A
				3	B,A	478	868	0.550	476	0.6	1.1	7.190	A
			2	1	(A,C,D,E)	1337			1336	0.0	0.2	0.255	A
		2	2	(A,B)	370			370	0.0	0.0	0.015	A	
Exit		1	1		1521			1521	0.0	0.0	0.000	A	
C		Entry	1	1	D,A,E	171	655	0.261	172	0.3	0.3	6.874	A
				2	A,B,C	199	655	0.303	199	0.2	0.4	6.962	A
			2	1	(A,B,C,D,E)	370			370	0.0	0.0	0.000	A
		Exit	1	1		653			653	0.0	0.0	0.000	A
D		Entry	1	1	A,E	365	954	0.383	366	0.4	0.5	5.316	A
				2	A,B,C,D	408	954	0.428	408	0.5	0.6	5.696	A
		Exit	1	1		645			645	0.0	0.0	0.000	A
E		Entry	1	1	B,A	445	593	0.751	447	1.4	3.2	23.145	C
				2	C,D,E	211	593	0.356	211	0.3	0.6	9.544	A
			2	1	(A,B,C,D,E)	657			656	0.0	0.1	0.317	A
		Exit	1	1		623			623	0.0	0.0	0.000	A

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	656	1131	0.580	655	0.6	1.1	5.385	A
				2	A,C	667	1131	0.590	667	0.6	1.1	5.527	A
		Exit	1	1		1267			1267	0.0	0.0	0.000	A
	B	Exit	1	1		388			388	0.0	0.0	0.000	A
	C	Entry	1	1	A	1350	1234	1.094	1235	13.5	41.9	82.290	F
				2	B,C	378	1234	0.306	380	0.4	0.4	4.440	A
		Exit	1	1		2063			2063	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	11	843	0.013	11	0.0	0.0	5.405	A
				2	C,D	775	843	0.919	772	2.4	5.6	23.527	C
		2	1	(A,B,C,D)	797			786	0.2	4.7	13.598	B	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
	2	A	Entry	1	1	B	953	943	1.010	934	5.9	18.5	56.195
2					C,D,A,E	471	943	0.499	470	0.7	1.3	8.515	A
2					2	(A,B,C,D,E)	1520			1424	0.3	20.7	24.131
Exit			1	1		1575			1575	0.0	0.0	0.000	A
B		Entry	1	1	C,D	700	848	0.825	703	1.8	3.0	14.682	B
				2	A,D,E	737	848	0.869	738	1.9	2.9	13.833	B
				3	B,A	621	848	0.731	621	1.1	1.8	10.644	B
			2	1	(A,C,D,E)	1537			1532	0.2	1.7	2.534	A
			2	2	(A,B)	526			526	0.0	0.0	0.169	A
		Exit	1	1		1728			1728	0.0	0.0	0.014	A
C		Entry	1	1	D,A,E	210	568	0.370	210	0.3	0.5	8.720	A
				2	A,B,C	235	568	0.414	235	0.4	0.7	9.345	A
			2	1	(A,B,C,D,E)	445			445	0.0	0.0	0.000	A
		Exit	1	1		773			773	0.0	0.0	0.000	A
D		Entry	1	1	A,E	456	865	0.527	455	0.5	0.9	7.377	A
				2	A,B,C,D	501	865	0.580	503	0.6	1.1	8.099	A
		Exit	1	1		763			763	0.0	0.0	0.000	A
E		Entry	1	1	B,A	497	506	0.983	480	3.2	10.8	61.105	F
				2	C,D,E	240	506	0.475	236	0.6	1.3	14.165	B
			2	1	(A,B,C,D,E)	793			738	0.1	9.8	21.969	C
		Exit	1	1		746			746	0.0	0.0	0.000	A

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	669	1130	0.592	670	1.1	1.0	5.612	A
				2	A,C	677	1130	0.599	676	1.1	1.1	5.704	A
		Exit	1	1		1272			1272	0.0	0.0	0.000	A
	B	Exit	1	1		385			385	0.0	0.0	0.000	A
	C	Entry	1	1	A	1294	1234	1.048	1240	41.9	60.0	150.325	F
				2	B,C	373	1234	0.302	374	0.4	0.4	4.460	A
		Exit	1	1		2095			2095	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	13	843	0.015	13	0.0	0.0	5.584	A
				2	C,D	782	843	0.927	779	5.6	6.1	26.590	D
		2	1	(A,B,C,D)	795			794	4.7	7.7	30.164	D	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
	2	A	Entry	1	1	B	887	950	0.933	885	18.5	20.8	80.827
2					C,D,A,E	439	950	0.462	438	1.3	1.3	9.811	A
2					2	(A,B,C,D,E)	1529			1325	20.7	63.3	114.028
Exit			1	1		1601			1601	0.0	0.0	0.000	A
B		Entry	1	1	C,D	718	858	0.837	716	3.0	3.2	15.205	C
				2	A,D,E	756	858	0.881	755	2.9	3.1	14.095	B
				3	B,A	619	858	0.721	618	1.8	1.9	11.117	B
			2	1	(A,C,D,E)	1573			1571	1.7	1.5	3.181	A
		2	2	(A,B)	522			521	0.0	0.1	0.251	A	
Exit		1	1		1667			1666	0.0	0.1	0.121	A	
C		Entry	1	1	D,A,E	214	566	0.379	214	0.5	0.5	9.397	A
				2	A,B,C	238	566	0.420	239	0.7	0.7	11.181	B
		2	1	(A,B,C,D,E)	452			452	0.0	0.0	0.000	A	
Exit		1	1		752			752	0.0	0.0	0.000	A	
D		Entry	1	1	A,E	465	861	0.540	465	0.9	1.1	7.663	A
				2	A,B,C,D	497	861	0.577	494	1.1	1.4	9.303	A
Exit		1	1		763			763	0.0	0.0	0.000	A	
E		Entry	1	1	B,A	476	500	0.951	468	10.8	12.7	90.184	F
				2	C,D,E	225	500	0.449	225	1.3	0.9	16.990	C
		2	1	(A,B,C,D,E)	793			700	9.8	31.9	109.942	F	
Exit		1	1		737			737	0.0	0.0	0.000	A	

18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	539	1179	0.457	539	1.0	0.7	4.565	A
				2	A,C	552	1179	0.468	553	1.1	0.6	4.564	A
		Exit	1	1		1265			1265	0.0	0.0	0.000	A
	B	Exit	1	1		361			361	0.0	0.0	0.000	A
	C	Entry	1	1	A	1222	1235	0.990	1237	60.0	59.8	176.916	F
				2	B,C	354	1235	0.287	353	0.4	0.4	4.407	A
		Exit	1	1		1719			1719	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	10	852	0.012	10	0.0	0.0	5.716	A
				2	C,D	652	852	0.765	653	6.1	3.2	20.068	C
		2	1	(A,B,C,D)	654			662	7.7	0.8	12.994	B	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
	2	A	Entry	1	1	B	845	969	0.872	858	20.8	18.1	80.302
2					C,D,A,E	423	969	0.436	424	1.3	1.1	9.217	A
2					2	(A,B,C,D,E)	1250			1267	63.3	52.1	160.364
Exit			1	1		1334			1334	0.0	0.0	0.000	A
B		Entry	1	1	C,D	593	861	0.688	594	3.2	1.6	11.245	B
				2	A,D,E	645	861	0.748	645	3.1	1.8	10.500	B
				3	B,A	481	861	0.559	482	1.9	1.1	8.507	A
			2	1	(A,C,D,E)	1342			1342	1.5	0.1	0.906	A
		2	2	(A,B)	376			376	0.1	0.0	0.048	A	
Exit		1	1		1576			1576	0.1	0.1	0.185	A	
C		Entry	1	1	D,A,E	173	645	0.268	172	0.5	0.4	7.504	A
				2	A,B,C	196	645	0.303	196	0.7	0.5	9.208	A
			2	1	(A,B,C,D,E)	369			369	0.0	0.0	0.000	A
		Exit	1	1		670			670	0.0	0.0	0.000	A
D		Entry	1	1	A,E	377	947	0.398	375	1.1	0.7	5.950	A
				2	A,B,C,D	410	947	0.433	412	1.4	0.8	7.342	A
		Exit	1	1		658			658	0.0	0.0	0.000	A
E		Entry	1	1	B,A	473	587	0.806	488	12.7	8.8	78.001	F
				2	C,D,E	226	587	0.385	227	0.9	0.7	14.168	B
			2	1	(A,B,C,D,E)	648			700	31.9	16.0	116.848	F
		Exit	1	1		636			636	0.0	0.0	0.000	A

18:15 - 18:30

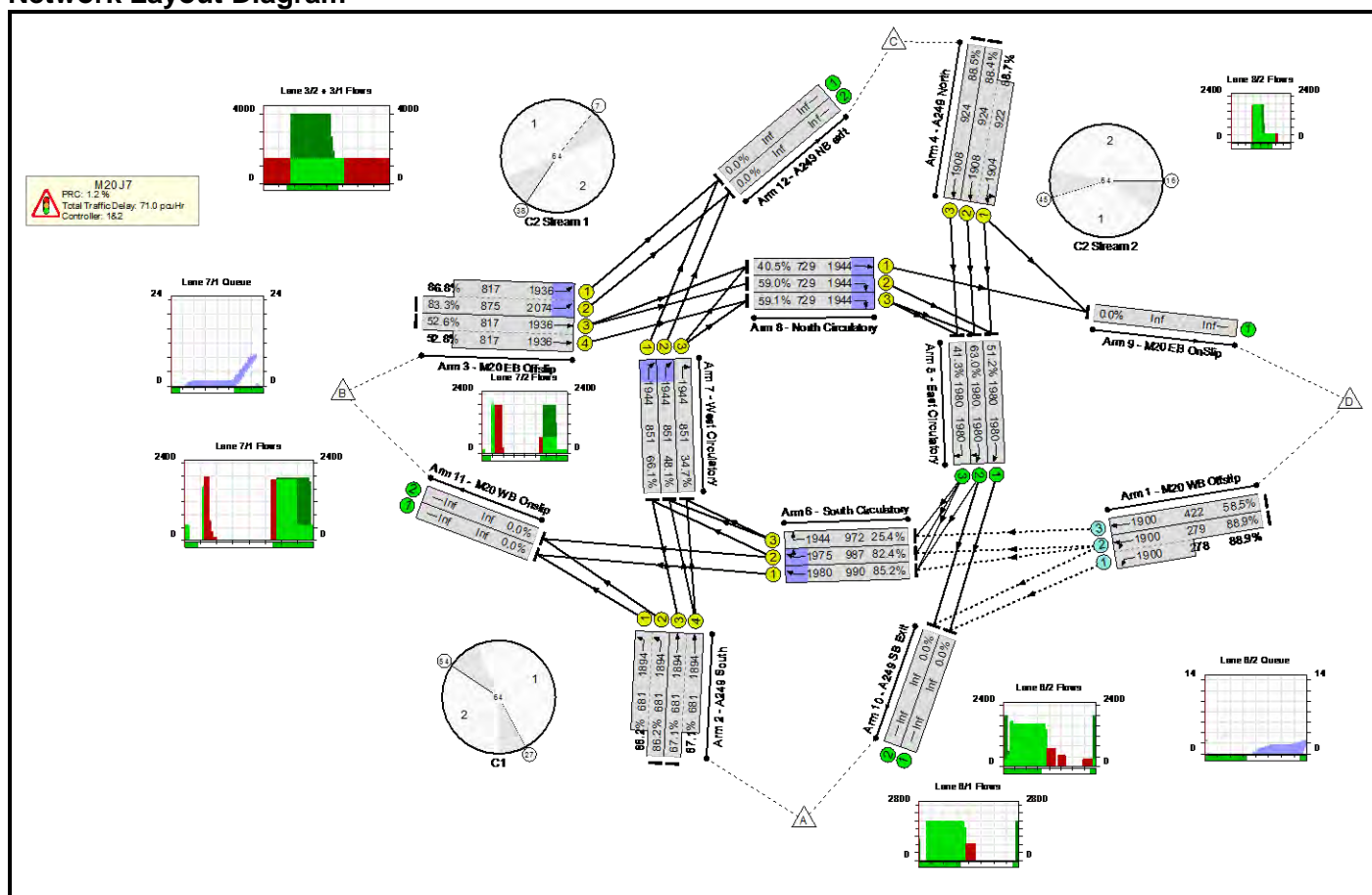
Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	A	Entry	1	1	B,C	442	1230	0.359	441	0.7	0.6	3.769	A
				2	A,C	454	1230	0.369	453	0.6	0.5	3.805	A
		Exit	1	1		1215			1215	0.0	0.0	0.000	A
	B	Exit	1	1		314			314	0.0	0.0	0.000	A
	C	Entry	1	1	A	1090	1237	0.881	1193	59.8	40.8	155.041	F
				2	B,C	309	1237	0.249	308	0.4	0.3	4.088	A
		Exit	1	1		1420			1420	0.0	0.0	0.000	A
	D	Entry	1	1	B,A	7	881	0.008	7	0.0	0.0	5.655	A
				2	C,D	548	881	0.622	546	3.2	1.7	11.902	B
		2	1	(A,B,C,D)	555			555	0.8	0.2	1.323	A	
	Exit	1	1		0			0	0.0	0.0	0.000	A	
	2	A	Entry	1	1	B	771	1016	0.759	796	18.1	9.9	59.382
2					C,D,A,E	382	1016	0.376	383	1.1	0.7	7.264	A
2					2	(A,B,C,D,E)	1045			1153	52.1	18.2	86.462
Exit			1	1		1109			1109	0.0	0.0	0.000	A
B		Entry	1	1	C,D	490	880	0.556	490	1.6	1.0	7.995	A
				2	A,D,E	546	880	0.620	544	1.8	1.3	7.616	A
				3	B,A	384	880	0.436	384	1.1	0.7	6.226	A
			2	1	(A,C,D,E)	1111			1111	0.1	0.0	0.054	A
		2	2	(A,B)	308			308	0.0	0.0	0.003	A	
Exit		1	1		1398			1398	0.1	0.0	0.150	A	
C		Entry	1	1	D,A,E	143	718	0.199	142	0.4	0.3	6.180	A
				2	A,B,C	165	718	0.230	165	0.5	0.4	7.243	A
		2	1	(A,B,C,D,E)	308			308	0.0	0.0	0.000	A	
		Exit	1	1		557			557	0.0	0.0	0.000	A
D		Entry	1	1	A,E	308	1022	0.301	308	0.7	0.4	4.710	A
				2	A,B,C,D	344	1022	0.337	345	0.8	0.5	5.596	A
		Exit	1	1		561			561	0.0	0.0	0.000	A
E		Entry	1	1	B,A	395	654	0.603	408	8.8	3.0	41.999	E
				2	C,D,E	188	654	0.287	189	0.7	0.4	9.908	A
		2	1	(A,B,C,D,E)	553			583	16.0	1.5	30.445	D	
		Exit	1	1		529			529	0.0	0.0	0.000	A

Basic Results Summary
Basic Results Summary

User and Project Details

Project:	Maidstone BC Transport Planning
Title:	M20 J7
Location:	
File name:	Proposed_M20 J7.lsg3x
Author:	BR
Company:	MM
Address:	Soton
Notes:	

Scenario 7: 'All Dev 2031 AM' (FG7: 'All Dev 2031 AM', Plan 1: 'Network Control Plan 1')
Network Layout Diagram



Basic Results Summary

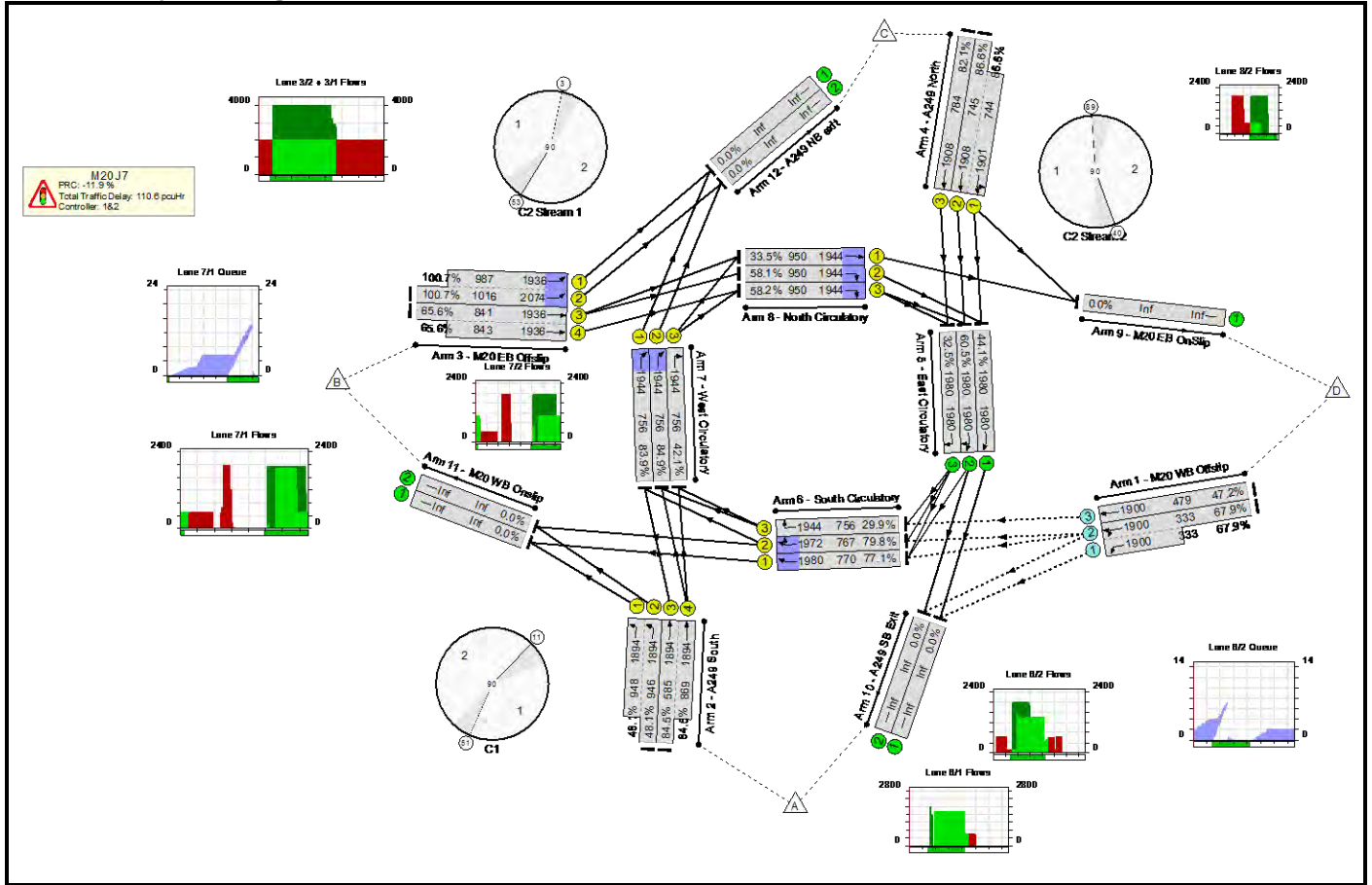
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M20 J7	-	-	-		-	-	-	-	-	-	88.9%	1237	0	0	71.0	-	-
M20 J7	-	-	-		-	-	-	-	-	-	88.9%	1237	0	0	71.0	-	-
1/2+1/1	M20 WB Offslip Ahead Left	O	-		-	-	-	495	1900:1900	279+278	88.9 : 88.9%	990	0	0	4.7	34.3	7.8
1/3	M20 WB Offslip Ahead	O	-		-	-	-	247	1900	422	58.5%	247	0	0	1.2	17.7	3.1
2/2+2/1	A249 South Left	U	C1:B		1	22	-	1174	1894:1894	681+681	86.2 : 86.2%	-	-	-	9.2	28.3	12.7
2/3+2/4	A249 South Ahead	U	C1:B		1	22	-	914	1894:1894	681+681	67.1 : 67.1%	-	-	-	5.4	21.3	7.9
3/2+3/1	M20 EB Offslip Ahead	U	C2:B		1	26	-	1438	2074:1936	875+817	83.3 : 86.8%	-	-	-	9.4	23.6	14.1
3/3+3/4	M20 EB Offslip Ahead	U	C2:B		1	26	-	861	1936:1936	817+817	52.6 : 52.8%	-	-	-	3.8	16.1	6.2
4/2+4/1	A249 North Ahead Left	U	C2:D		1	30	-	1635	1908:1904	924+922	88.4 : 88.7%	-	-	-	10.5	23.1	16.7
4/3	A249 North Ahead	U	C2:D		1	30	-	818	1908	924	88.5%	-	-	-	7.0	30.8	16.6
5/1	East Circulatory Ahead	U	-		-	-	-	1014	1980	1980	51.2%	-	-	-	0.5	1.9	0.5
5/2	East Circulatory Right Ahead	U	-		-	-	-	1248	1980	1980	63.0%	-	-	-	0.9	2.5	0.9
5/3	East Circulatory Right	U	-		-	-	-	818	1980	1980	41.3%	-	-	-	0.4	1.5	0.4
6/1	South Circulatory Ahead	U	C1:A		1	31	-	843	1980	990	85.2%	-	-	-	3.4	14.6	4.2
6/2	South Circulatory Right Ahead	U	C1:A		1	31	-	814	1975	987	82.4%	-	-	-	3.2	13.9	5.0

Basic Results Summary

6/3	South Circulatory Right	U	C1:A		1	31	-	247	1944	972	25.4%	-	-	-	1.5	22.0	4.5																												
7/1	West Circulatory Right	U	C2:A		1	27	-	562	1944	851	66.1%	-	-	-	2.4	15.2	9.7																												
7/2	West Circulatory Right	U	C2:A		1	27	-	409	1944	851	48.1%	-	-	-	2.2	19.1	4.7																												
7/3	West Circulatory Right	U	C2:A		1	27	-	295	1944	851	34.7%	-	-	-	0.3	4.0	3.0																												
8/1	North Circulatory Ahead	U	C2:C		1	23	-	295	1944	729	40.5%	-	-	-	2.9	35.9	5.6																												
8/2	North Circulatory Right	U	C2:C		1	23	-	430	1944	729	59.0%	-	-	-	1.0	8.3	1.5																												
8/3	North Circulatory Right	U	C2:C		1	23	-	431	1944	729	59.1%	-	-	-	1.0	8.3	1.5																												
<table> <tbody> <tr> <td>C1</td> <td>PRC for Signalled Lanes (%)</td> <td>4.4</td> <td>Total Delay for Signalled Lanes (pcuHr)</td> <td>22.75</td> <td>Cycle Time (s)</td> <td>64</td> </tr> <tr> <td>C2</td> <td>Stream: 1 PRC for Signalled Lanes (%)</td> <td>3.7</td> <td>Total Delay for Signalled Lanes (pcuHr)</td> <td>18.15</td> <td>Cycle Time (s)</td> <td>64</td> </tr> <tr> <td>C2</td> <td>Stream: 2 PRC for Signalled Lanes (%)</td> <td>1.5</td> <td>Total Delay for Signalled Lanes (pcuHr)</td> <td>22.42</td> <td>Cycle Time (s)</td> <td>64</td> </tr> <tr> <td></td> <td>PRC Over All Lanes (%)</td> <td>1.2</td> <td>Total Delay Over All Lanes (pcuHr)</td> <td>70.98</td> <td></td> <td></td> </tr> </tbody> </table>																		C1	PRC for Signalled Lanes (%)	4.4	Total Delay for Signalled Lanes (pcuHr)	22.75	Cycle Time (s)	64	C2	Stream: 1 PRC for Signalled Lanes (%)	3.7	Total Delay for Signalled Lanes (pcuHr)	18.15	Cycle Time (s)	64	C2	Stream: 2 PRC for Signalled Lanes (%)	1.5	Total Delay for Signalled Lanes (pcuHr)	22.42	Cycle Time (s)	64		PRC Over All Lanes (%)	1.2	Total Delay Over All Lanes (pcuHr)	70.98		
C1	PRC for Signalled Lanes (%)	4.4	Total Delay for Signalled Lanes (pcuHr)	22.75	Cycle Time (s)	64																																							
C2	Stream: 1 PRC for Signalled Lanes (%)	3.7	Total Delay for Signalled Lanes (pcuHr)	18.15	Cycle Time (s)	64																																							
C2	Stream: 2 PRC for Signalled Lanes (%)	1.5	Total Delay for Signalled Lanes (pcuHr)	22.42	Cycle Time (s)	64																																							
	PRC Over All Lanes (%)	1.2	Total Delay Over All Lanes (pcuHr)	70.98																																									

Basic Results Summary
Scenario 8: 'All Dev 2031 PM' (FG8: 'All Dev 2031 PM', Plan 1: 'Network Control Plan 1')
Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M20 J7	-	-	-		-	-	-	-	-	-	100.7%	1130	0	0	110.6	-	-
M20 J7	-	-	-		-	-	-	-	-	-	100.7%	1130	0	0	110.6	-	-
1/2+1/1	M20 WB Offslip Ahead Left	O	-		-	-	-	452	1900:1900	333+333	67.9 : 67.9%	904	0	0	2.1	16.7	5.9
1/3	M20 WB Offslip Ahead	O	-		-	-	-	226	1900	479	47.2%	226	0	0	0.8	12.1	2.8
2/2+2/1	A249 South Left	U	C1:B		1	45	-	911	1894:1894	946+948	48.1 : 48.1%	-	-	-	4.0	16.0	7.7
2/3+2/4	A249 South Ahead	U	C1:B		1	45	-	1228	1894:1894	585+869	84.5 : 84.5%	-	-	-	8.2	24.2	17.1
3/2+3/1	M20 EB Offslip Ahead	U	C2:B		1	45	-	2017	2074:1936	1016+987	100.7 : 100.7%	-	-	-	38.8	69.2	60.0
3/3+3/4	M20 EB Offslip Ahead	U	C2:B		1	45	-	1105	1936:1936	841+843	65.6 : 65.6%	-	-	-	5.6	18.2	10.3
4/2+4/1	A249 North Ahead Left	U	C2:D		1	36	-	1289	1908:1901	745+744	86.6 : 86.6%	-	-	-	11.6	32.3	17.5
4/3	A249 North Ahead	U	C2:D		1	36	-	644	1908	784	82.1%	-	-	-	6.4	36.0	16.5
5/1	East Circulatory Ahead	U	-		-	-	-	874	1980	1980	44.1%	-	-	-	0.4	1.6	0.4
5/2	East Circulatory Right Ahead	U	-		-	-	-	1198	1980	1980	60.5%	-	-	-	0.8	2.3	0.8
5/3	East Circulatory Right	U	-		-	-	-	644	1980	1980	32.5%	-	-	-	0.2	1.3	0.2
6/1	South Circulatory Ahead	U	C1:A		1	34	-	594	1980	770	77.1%	-	-	-	2.2	13.6	2.6
6/2	South Circulatory Right Ahead	U	C1:A		1	34	-	612	1972	767	79.8%	-	-	-	3.5	20.6	9.3

Basic Results Summary

6/3	South Circulatory Right	U	C1:A		1	34	-	226	1944	756	29.9%	-	-	-	2.2	35.0	5.3
7/1	West Circulatory Right	U	C2:A		1	34	-	634	1944	756	83.9%	-	-	-	5.6	31.7	16.8
7/2	West Circulatory Right	U	C2:A		1	34	-	642	1944	756	84.9%	-	-	-	6.2	34.5	13.6
7/3	West Circulatory Right	U	C2:A		1	34	-	318	1944	756	42.1%	-	-	-	1.2	13.2	1.9
8/1	North Circulatory Ahead	U	C2:C		1	43	-	318	1944	950	33.5%	-	-	-	1.6	17.8	3.1
8/2	North Circulatory Right	U	C2:C		1	43	-	552	1944	950	58.1%	-	-	-	4.6	30.2	14.5
8/3	North Circulatory Right	U	C2:C		1	43	-	553	1944	950	58.2%	-	-	-	4.6	30.3	14.5
				C1	PRC for Signalled Lanes (%)		6.5	Total Delay for Signalled Lanes (pcuHr)				20.23	Cycle Time (s)		90		
				C2	Stream: 1 PRC for Signalled Lanes (%)		-11.9	Total Delay for Signalled Lanes (pcuHr)				57.23	Cycle Time (s)		90		
				C2	Stream: 2 PRC for Signalled Lanes (%)		4.0	Total Delay for Signalled Lanes (pcuHr)				28.86	Cycle Time (s)		90		
				PRC Over All Lanes (%)			-11.9	Total Delay Over All Lanes (pcuHr)				110.58					

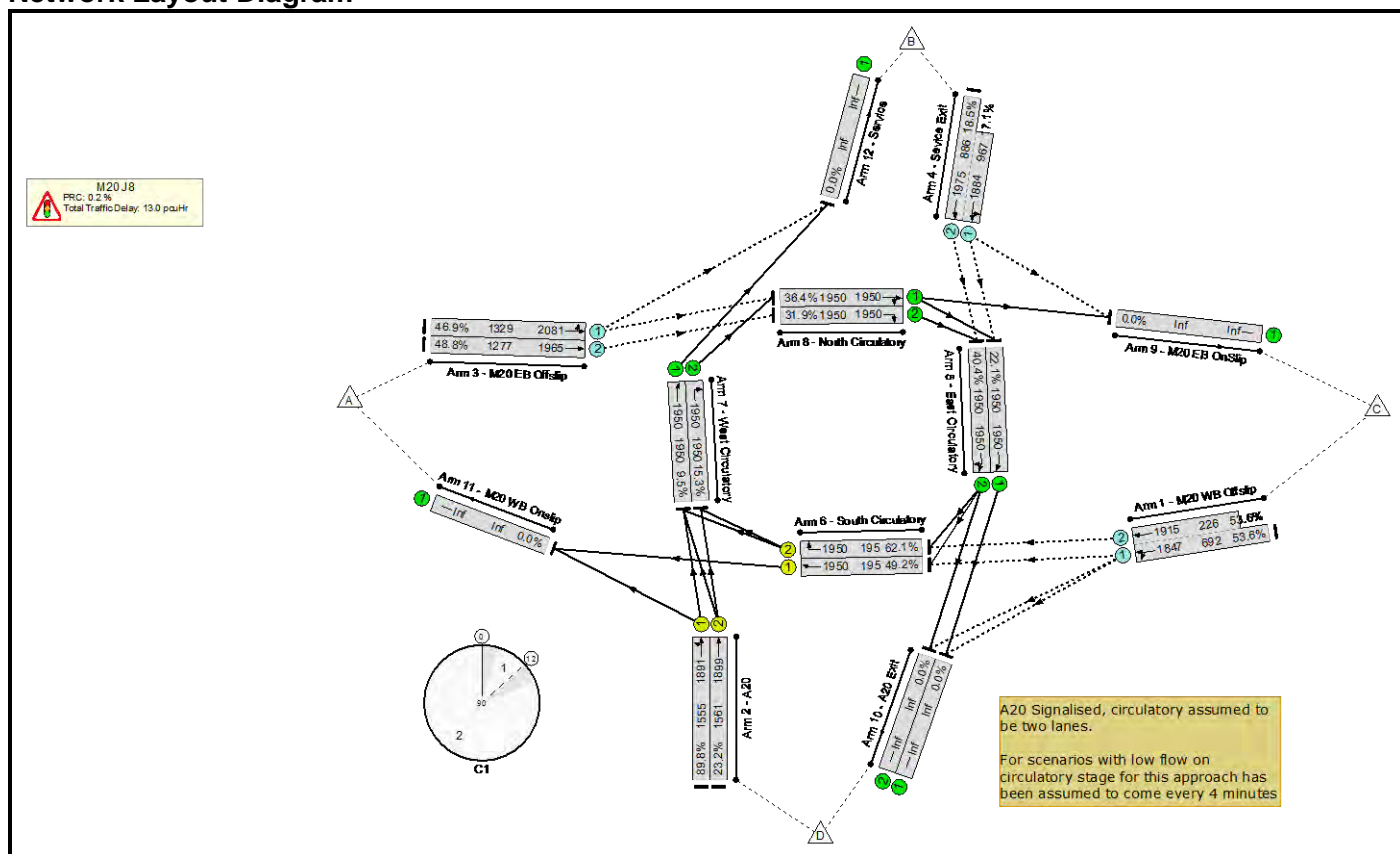
Basic Results Summary
Basic Results Summary

User and Project Details

Project:	M20 Junction Assessments
Title:	M20 J8
Location:	
File name:	Proposed_M20 J8.lsg3x
Author:	BR
Company:	MM
Address:	Soton
Notes:	

Scenario 3: 'All Dev 2031 AM' (FG3: 'All Dev 2031 AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M20 J8	-	-	-		-	-	-	-	-	-	89.8%	2889	0	0	13.0	-	-
M20 J8	-	-	-		-	-	-	-	-	-	89.8%	2889	0	0	13.0	-	-
1/1+1/2	M20 WB Offslip Ahead Left	O	-		-	-	-	492	1847:1915	692+226	53.6 : 53.6%	984	0	0	0.6	4.2	0.6
2/1	A20 Ahead Left	U	B		1	73	-	1396	1891	1555	89.8%	-	-	-	6.3	16.2	27.8
2/2	A20 Ahead	U	B		1	73	-	363	1899	1561	23.2%	-	-	-	0.3	3.3	2.1
3/1	M20 EB Offslip Ahead Left	O	-		-	-	-	624	2081	1329	46.9%	624	0	0	0.4	2.5	0.6
3/2	M20 EB Offslip Ahead	O	-		-	-	-	623	1965	1277	48.8%	623	0	0	0.5	2.7	0.6
4/2+4/1	Sevice Exit Ahead Left	O	-		-	-	-	329	1975:1884	886+967	18.5 : 17.1%	658	0	0	0.1	1.2	0.1
5/1	East Circulatory Ahead	U	-		-	-	-	431	1950	1950	22.1%	-	-	-	0.1	1.2	0.1
5/2	East Circulatory Right Ahead	U	-		-	-	-	787	1950	1950	40.4%	-	-	-	0.3	1.5	0.3
6/1	South Circulatory Ahead	U	A		1	8	-	96	1950	195	49.2%	-	-	-	1.5	56.4	2.7
6/2	South Circulatory Right	U	A		1	8	-	121	1950	195	62.1%	-	-	-	2.1	62.7	3.7
7/1	West Circulatory Ahead	U	-		-	-	-	185	1950	1950	9.5%	-	-	-	0.1	1.0	0.1
7/2	West Circulatory Right	U	-		-	-	-	299	1950	1950	15.3%	-	-	-	0.1	1.1	0.1

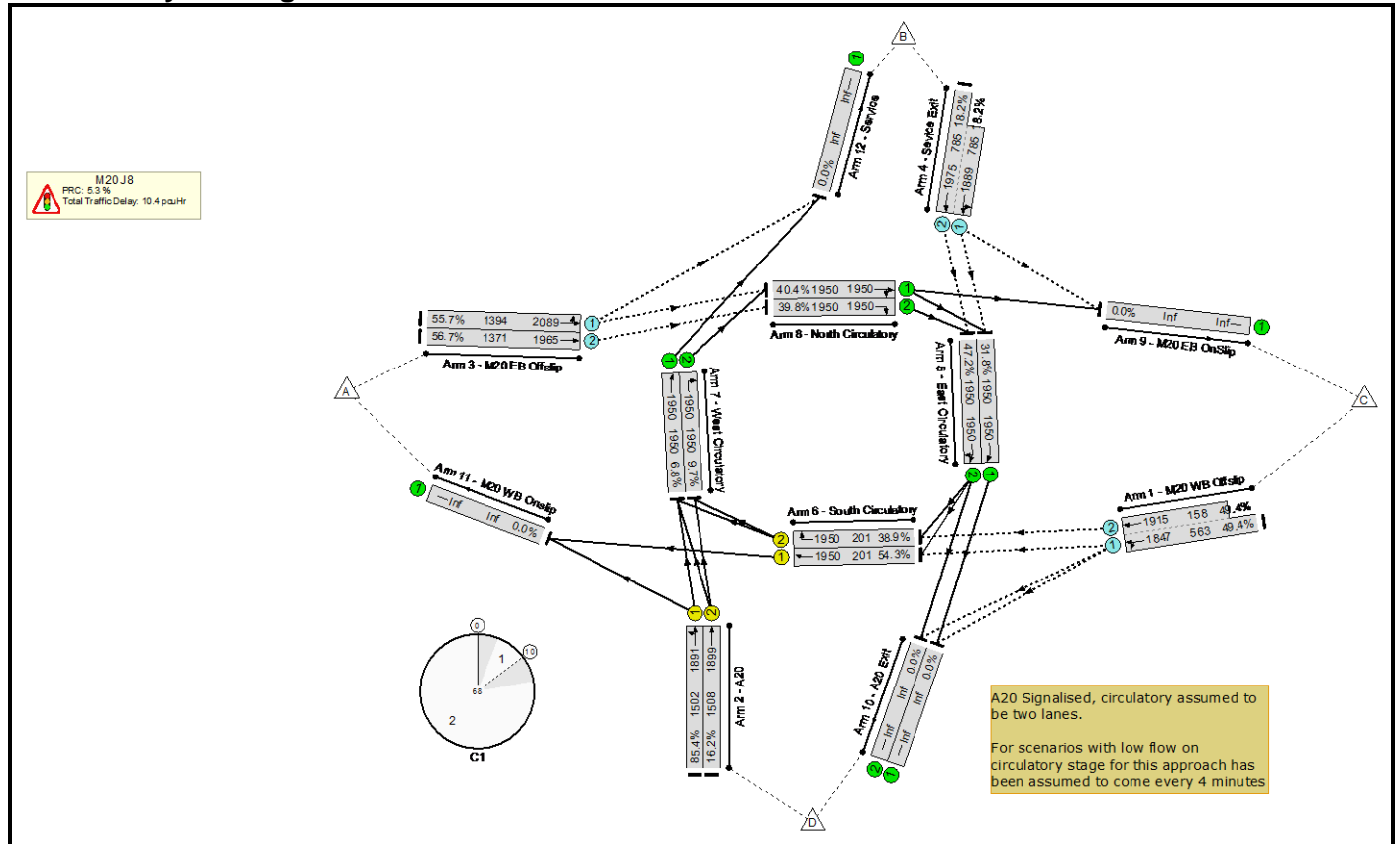
Basic Results Summary

8/1	North Circulatory Right Ahead	U	-	-	-	-	710	1950	1950	36.4%	-	-	-	0.3	1.5	0.3
8/2	North Circulatory Right	U	-	-	-	-	623	1950	1950	31.9%	-	-	-	0.2	1.4	0.2
C1			PRC for Signalled Lanes (%):		0.2		Total Delay for Signalled Lanes (pcuHr):		10.22		Cycle Time (s):		90			
			PRC Over All Lanes (%):		0.2		Total Delay Over All Lanes(pcuHr):		12.97							

Basic Results Summary

Scenario 4: 'All Dev 2031 PM' (FG4: 'All Dev 2031 PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M20 J8	-	-	-		-	-	-	-	-	-	85.4%	2838	0	0	10.4	-	-
M20 J8	-	-	-		-	-	-	-	-	-	85.4%	2838	0	0	10.4	-	-
1/1+1/2	M20 WB Offslip Ahead Left	O	-		-	-	-	356	1847:1915	563+158	49.4 : 49.4%	712	0	0	0.5	4.9	0.5
2/1	A20 Ahead Left	U	B		1	53	-	1283	1891	1502	85.4%	-	-	-	4.5	12.5	18.2
2/2	A20 Ahead	U	B		1	53	-	244	1899	1508	16.2%	-	-	-	0.2	3.1	1.2
3/1	M20 EB Offslip Ahead Left	O	-		-	-	-	777	2089	1394	55.7%	777	0	0	0.6	2.9	0.6
3/2	M20 EB Offslip Ahead	O	-		-	-	-	777	1965	1371	56.7%	777	0	0	0.7	3.0	0.7
4/2+4/1	Sevice Exit Ahead Left	O	-		-	-	-	286	1975:1889	785+785	18.2 : 18.2%	572	0	0	0.1	1.4	0.1
5/1	East Circulatory Ahead	U	-		-	-	-	620	1950	1950	31.8%	-	-	-	0.2	1.4	0.2
5/2	East Circulatory Right Ahead	U	-		-	-	-	920	1950	1950	47.2%	-	-	-	0.4	1.7	0.4
6/1	South Circulatory Ahead	U	A		1	6	-	109	1950	201	54.3%	-	-	-	1.5	48.4	2.5
6/2	South Circulatory Right	U	A		1	6	-	78	1950	201	38.9%	-	-	-	0.9	43.1	1.7
7/1	West Circulatory Ahead	U	-		-	-	-	132	1950	1950	6.8%	-	-	-	0.0	1.0	0.0
7/2	West Circulatory Right	U	-		-	-	-	190	1950	1950	9.7%	-	-	-	0.1	1.0	0.1

Basic Results Summary

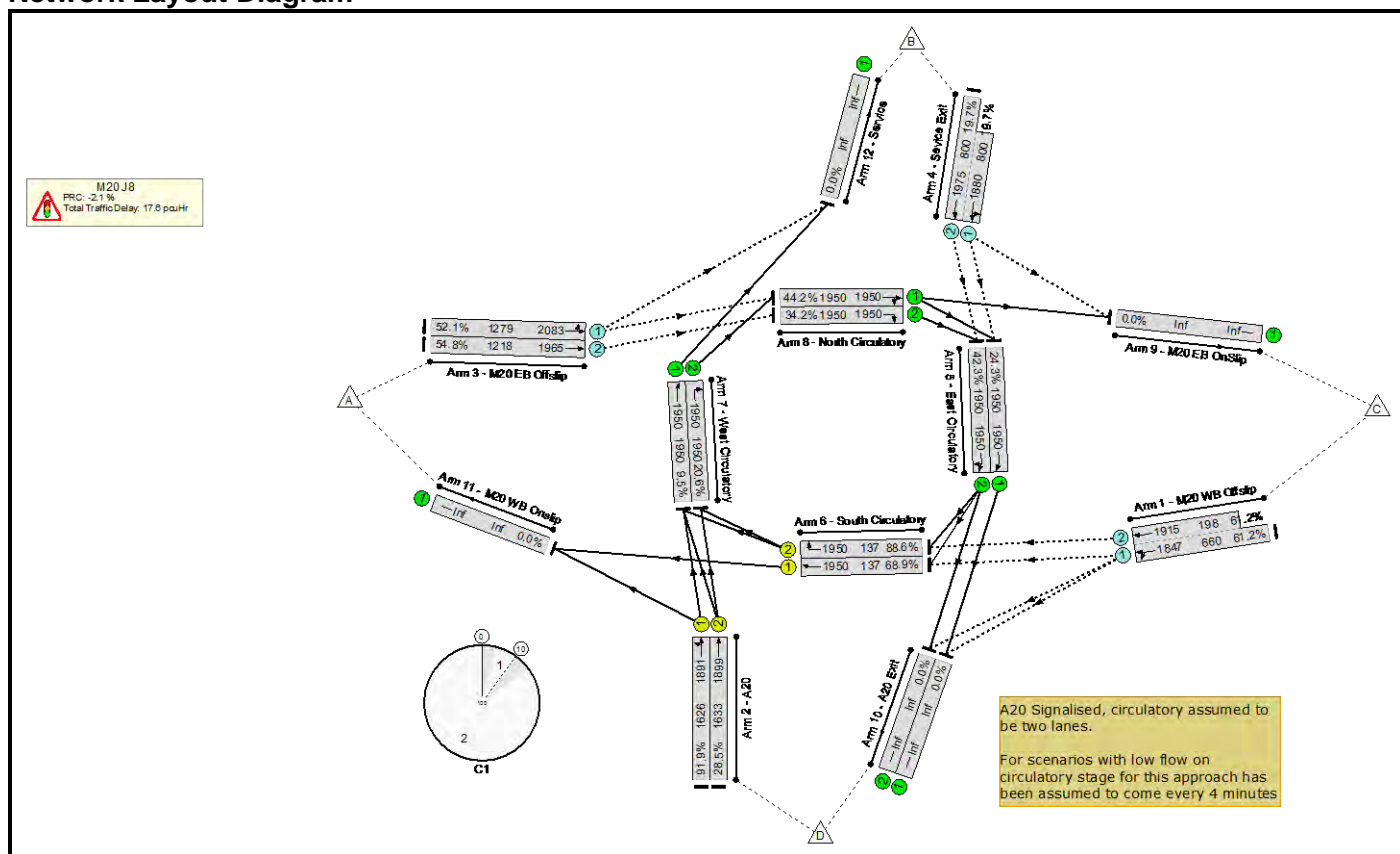
8/1	North Circulatory Right Ahead	U	-	-	-	-	787	1950	1950	40.4%	-	-	-	0.3	1.5	0.3
8/2	North Circulatory Right	U	-	-	-	-	777	1950	1950	39.8%	-	-	-	0.3	1.5	0.3
C1			PRC for Signalled Lanes (%):		5.3		Total Delay for Signalled Lanes (pcuHr):		7.06		Cycle Time (s):		68			
			PRC Over All Lanes (%):		5.3		Total Delay Over All Lanes(pcuHr):		10.38							

Basic Results Summary
Basic Results Summary

User and Project Details

Project:	M20 Junction Assessments
Title:	M20 J8
Location:	
File name:	Proposed_M20 J8.lsg3x
Author:	BR
Company:	MM
Address:	Soton
Notes:	

Scenario 9: 'SEMSL 2031 AM' (FG9: 'SEMSL 2031 AM', Plan 1: 'Network Control Plan 1')
Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M20 J8	-	-	-		-	-	-	-	-	-	91.9%	3016	0	0	17.6	-	-
M20 J8	-	-	-		-	-	-	-	-	-	91.9%	3016	0	0	17.6	-	-
1/1+1/2	M20 WB Offslip Ahead Left	O	-		-	-	-	525	1847:1915	660+198	61.2 : 61.2%	1050	0	0	0.8	5.4	0.8
2/1	A20 Ahead Left	U	B		1	85	-	1494	1891	1626	91.9%	-	-	-	7.2	17.3	32.6
2/2	A20 Ahead	U	B		1	85	-	465	1899	1633	28.5%	-	-	-	0.4	2.8	2.5
3/1	M20 EB Offslip Ahead Left	O	-		-	-	-	667	2083	1279	52.1%	667	0	0	0.5	2.9	1.1
3/2	M20 EB Offslip Ahead	O	-		-	-	-	667	1965	1218	54.8%	667	0	0	0.6	3.3	1.2
4/2+4/1	Sevice Exit Ahead Left	O	-		-	-	-	316	1975:1880	800+800	19.7 : 19.7%	632	0	0	0.1	1.4	0.1
5/1	East Circulatory Ahead	U	-		-	-	-	473	1950	1950	24.3%	-	-	-	0.2	1.2	0.2
5/2	East Circulatory Right Ahead	U	-		-	-	-	825	1950	1950	42.3%	-	-	-	0.4	1.6	0.4
6/1	South Circulatory Ahead	U	A		1	6	-	94	1950	137	68.9%	-	-	-	2.2	85.8	3.6
6/2	South Circulatory Right	U	A		1	6	-	121	1950	137	88.6%	-	-	-	4.4	131.0	6.2
7/1	West Circulatory Ahead	U	-		-	-	-	185	1950	1950	9.5%	-	-	-	0.1	1.0	0.1
7/2	West Circulatory Right	U	-		-	-	-	401	1950	1950	20.6%	-	-	-	0.1	1.2	0.1

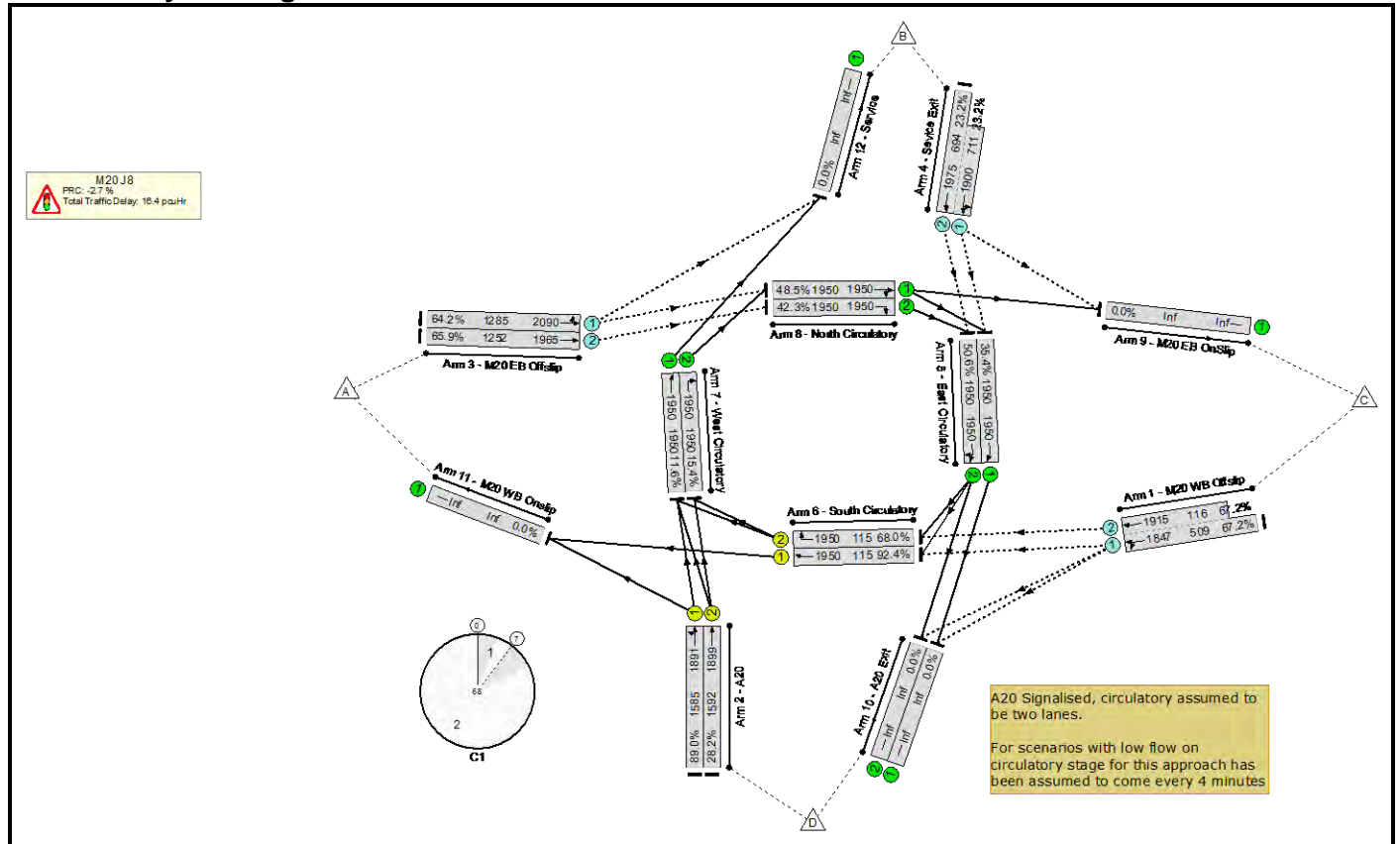
Basic Results Summary

8/1	North Circulatory Right Ahead	U	-	-	-	-	861	1950	1950	44.2%	-	-	-	0.4	1.7	0.4
8/2	North Circulatory Right	U	-	-	-	-	667	1950	1950	34.2%	-	-	-	0.3	1.4	0.3
C1			PRC for Signalled Lanes (%):		-2.1		Total Delay for Signalled Lanes (pcuHr):		14.18		Cycle Time (s): 100					
			PRC Over All Lanes (%):		-2.1		Total Delay Over All Lanes(pcuHr):		17.60							

Basic Results Summary

Scenario 10: 'SEMSL 2031 PM' (FG10: 'SEMSL 2031 PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M20 J8	-	-	-		-	-	-	-	-	-	92.4%	3142	0	0	16.4	-	-
M20 J8	-	-	-		-	-	-	-	-	-	92.4%	3142	0	0	16.4	-	-
1/1+1/2	M20 WB Offslip Ahead Left	O	-		-	-	-	420	1847:1915	509+116	67.2 : 67.2%	840	0	0	1.0	8.7	1.0
2/1	A20 Ahead Left	U	B		1	56	-	1411	1891	1585	89.0%	-	-	-	5.3	13.4	20.7
2/2	A20 Ahead	U	B		1	56	-	449	1899	1592	28.2%	-	-	-	0.3	2.7	1.9
3/1	M20 EB Offslip Ahead Left	O	-		-	-	-	825	2090	1285	64.2%	825	0	0	0.9	3.9	0.9
3/2	M20 EB Offslip Ahead	O	-		-	-	-	825	1965	1252	65.9%	825	0	0	1.0	4.2	1.2
4/2+4/1	Sevice Exit Ahead Left	O	-		-	-	-	326	1975:1900	694+711	23.2 : 23.2%	652	0	0	0.2	1.7	0.2
5/1	East Circulatory Ahead	U	-		-	-	-	690	1950	1950	35.4%	-	-	-	0.3	1.4	0.3
5/2	East Circulatory Right Ahead	U	-		-	-	-	986	1950	1950	50.6%	-	-	-	0.5	1.9	0.5
6/1	South Circulatory Ahead	U	A		1	3	-	106	1950	115	92.4%	-	-	-	4.4	147.8	5.4
6/2	South Circulatory Right	U	A		1	3	-	78	1950	115	68.0%	-	-	-	1.7	77.9	2.4
7/1	West Circulatory Ahead	U	-		-	-	-	227	1950	1950	11.6%	-	-	-	0.1	1.0	0.1
7/2	West Circulatory Right	U	-		-	-	-	300	1950	1950	15.4%	-	-	-	0.1	1.1	0.1

Basic Results Summary

8/1	North Circulatory Right Ahead	U	-	-	-	-	945	1950	1950	48.5%	-	-	-	0.5	1.8	0.5
8/2	North Circulatory Right	U	-	-	-	-	825	1950	1950	42.3%	-	-	-	0.4	1.6	0.4
C1			PRC for Signalled Lanes (%):		-2.7		Total Delay for Signalled Lanes (pcuHr):			11.63		Cycle Time (s):		68		
			PRC Over All Lanes (%):		-2.7		Total Delay Over All Lanes(pcuHr):			16.43						

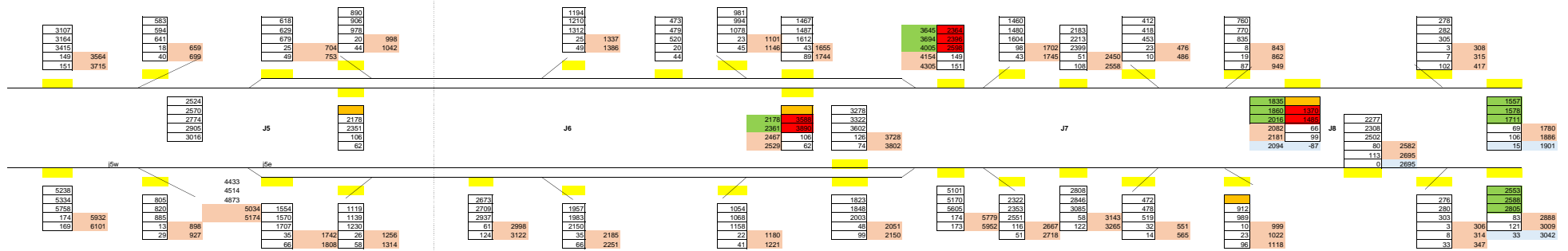
F. Merge Assessment Diagrams

TEMPro	T&M	M
2014-16	1.01827	1.013519
2016-31	1.07949	1.064134

Scenario
2014 B
2016 B
2031 B
S1-B
S2-S1
SEMSL

AM Peak 07:00-08:00 AAWT Flows

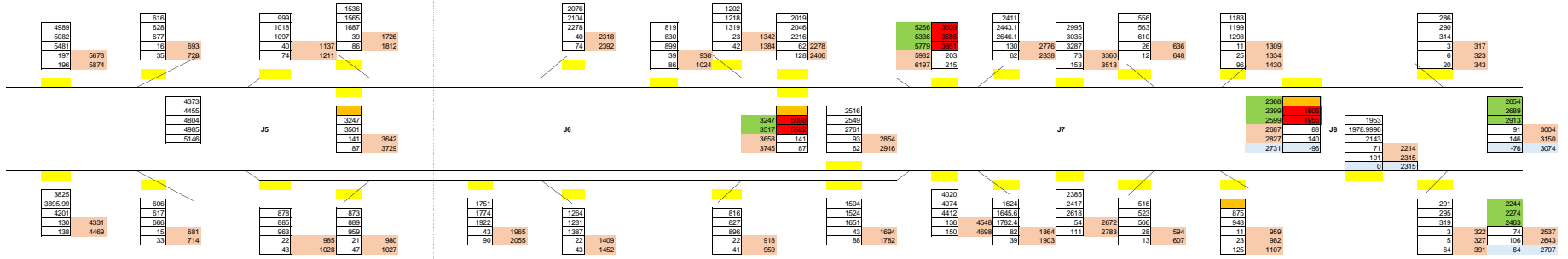
Count Location
 Flows have been calculated instead of using TRADs data (highlighted red)
 No 2014 data available
 2031 B + S1
 2031 B + S2
 2031 B + SEMSL



TEMPro	T&M	M
2014-16	1.01998	1.013313
2016-31	1.07641	1.083107

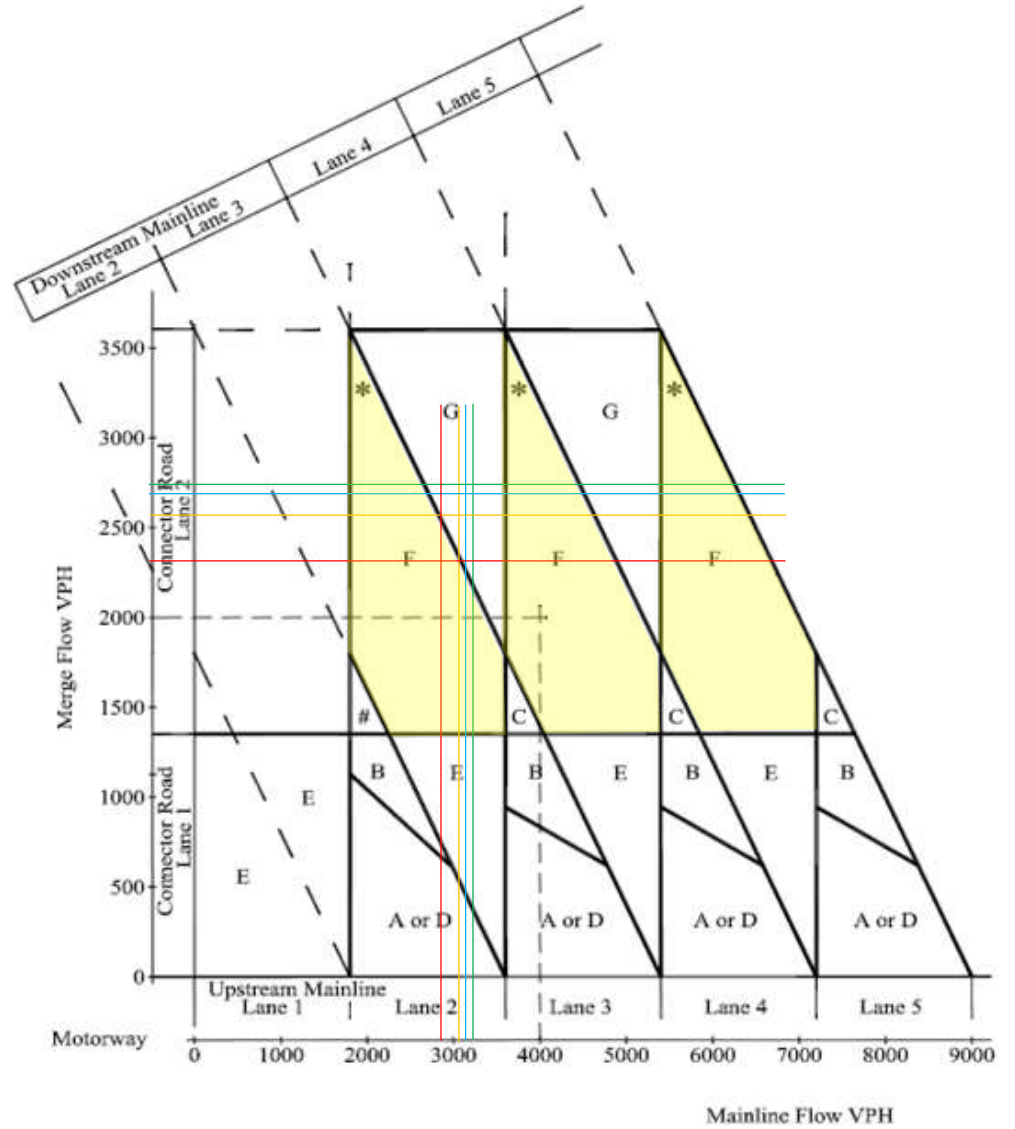
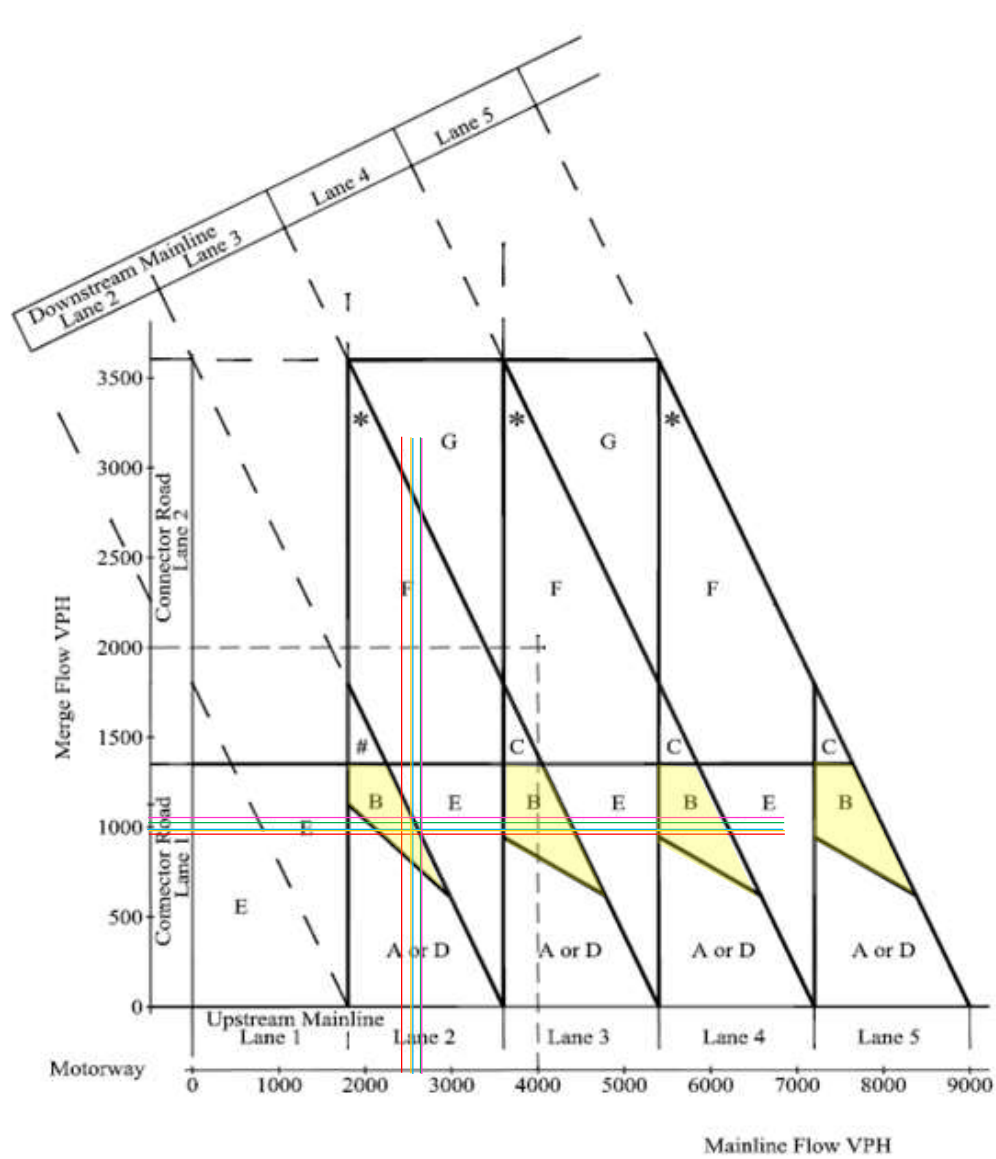
Scenario
2014 B
2016 B
2031 B
S1-B
S2-S1
SEMSL

PM Peak 17:00-18:00 AAWT Flows
 Count Location
 Flows have been calculated instead of using TRADS data (highlighted red)



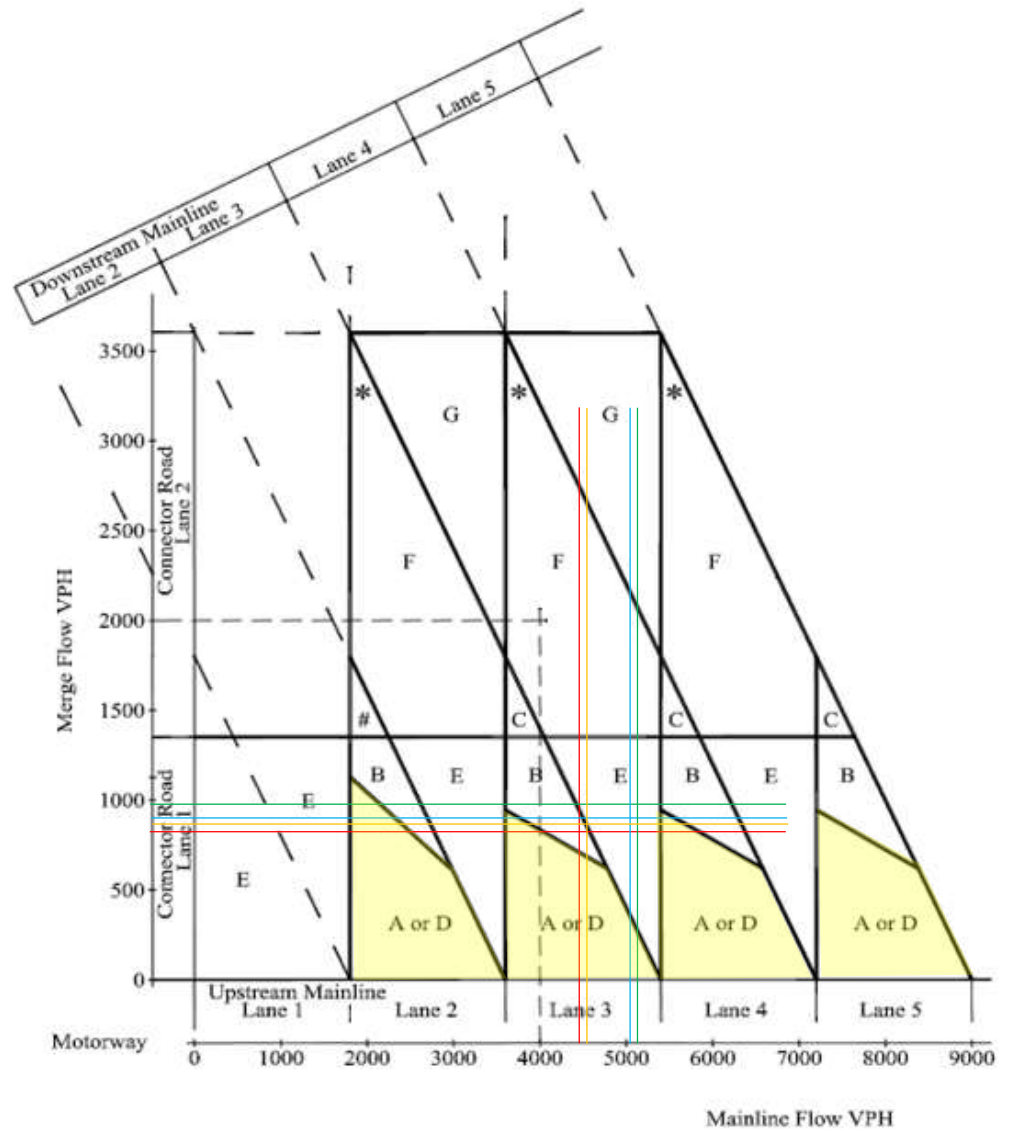
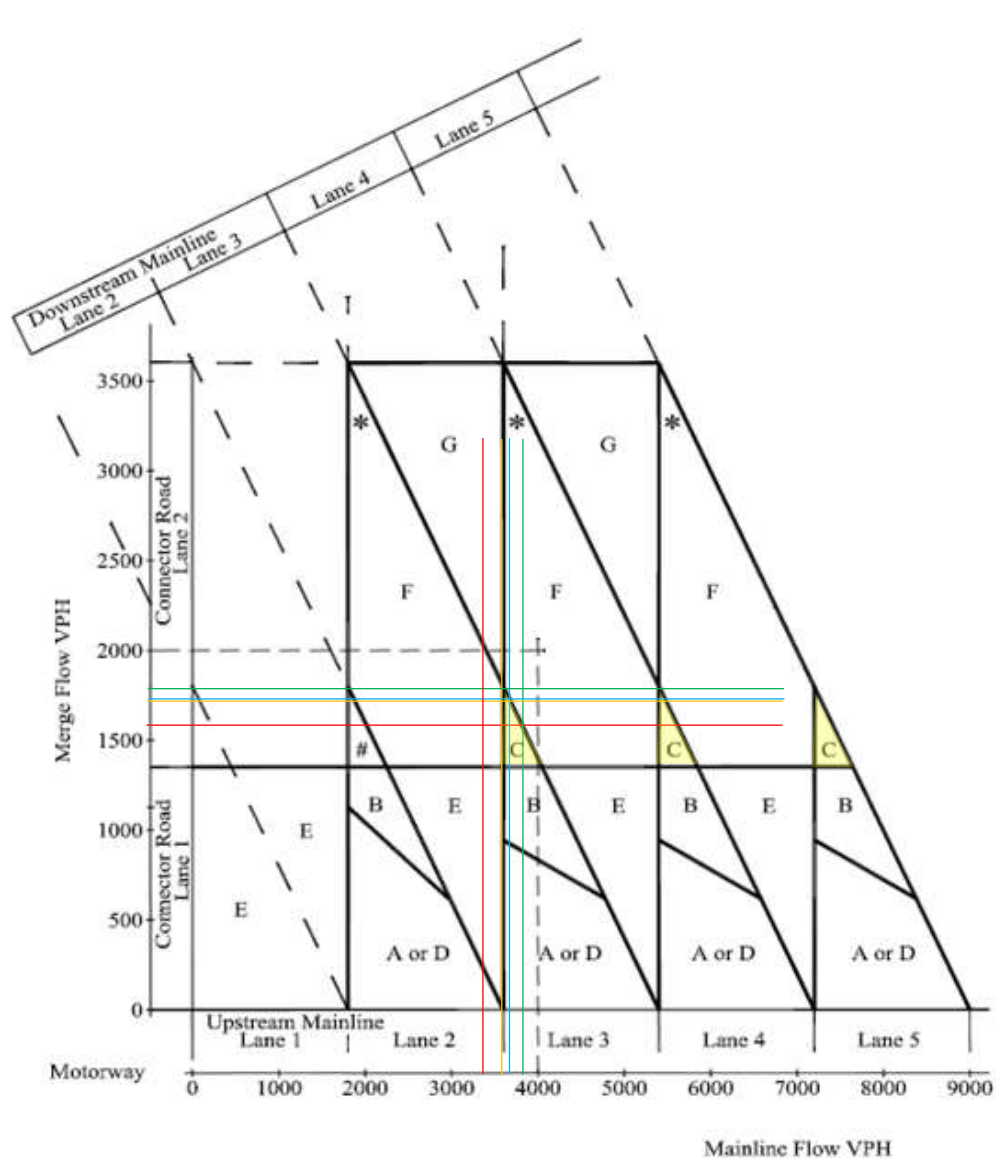
AM Peak Westbound J7

AM Peak Westbound -J8



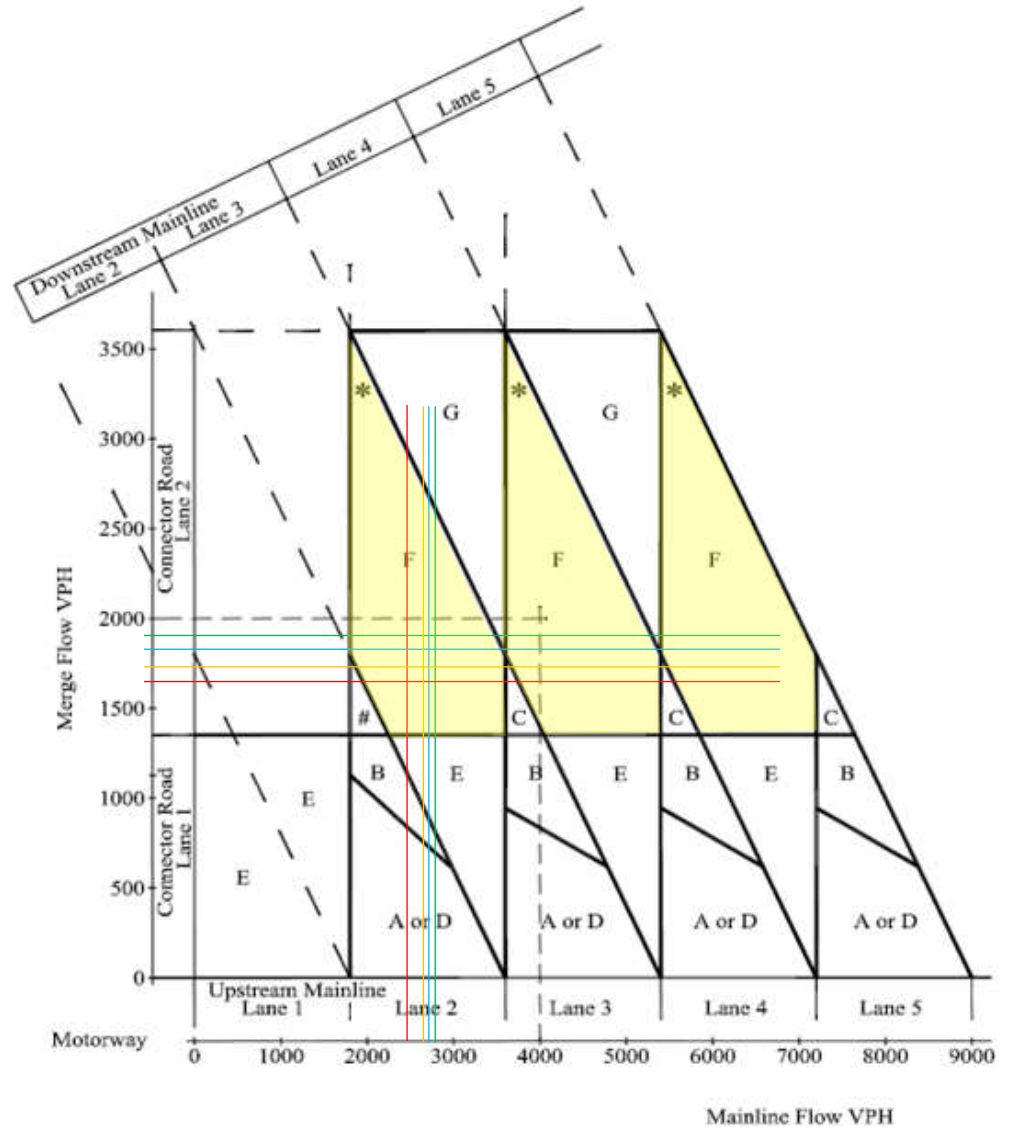
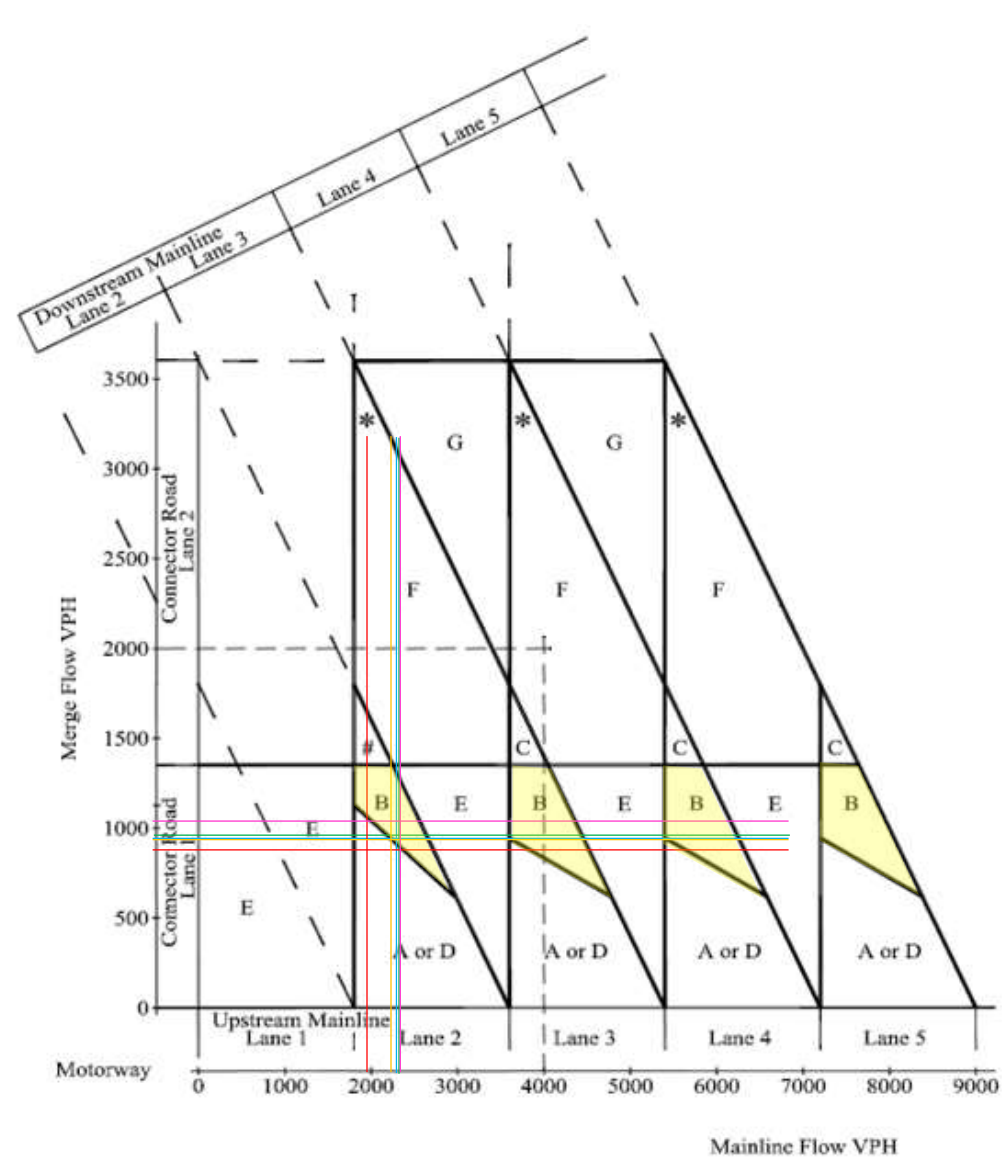
AM Peak Westbound -J5W

AM Peak Westbound -J5E



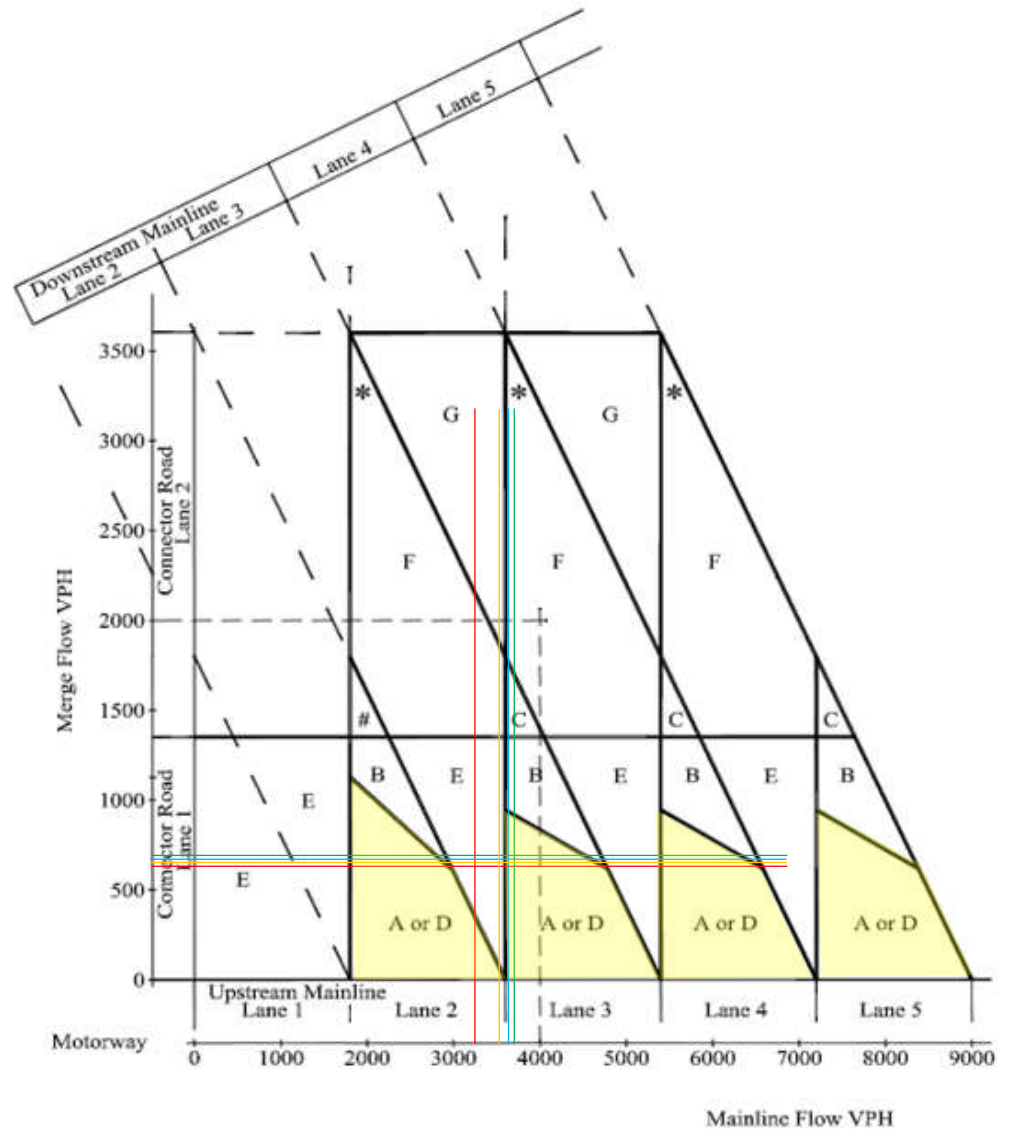
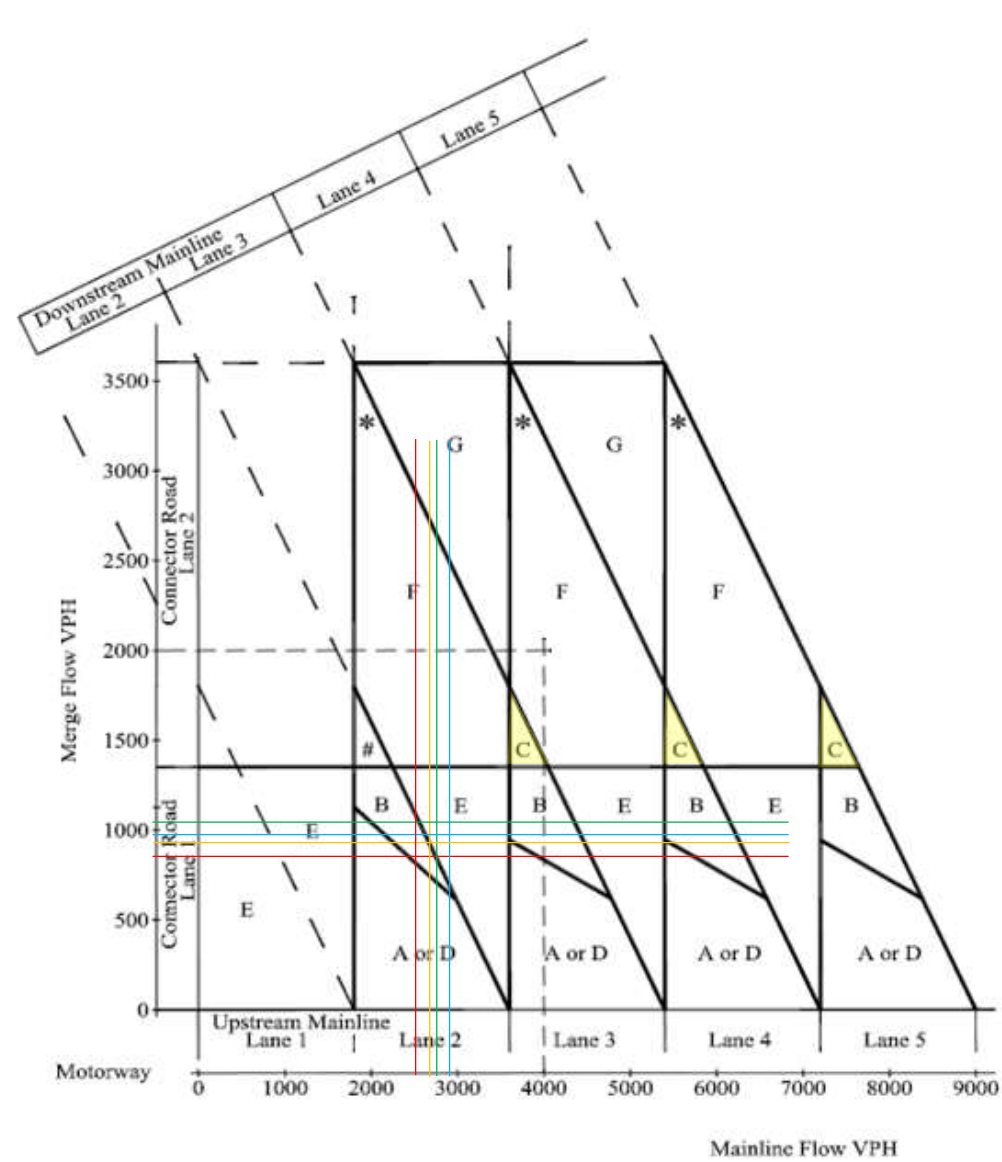
PM Peak Westbound J7

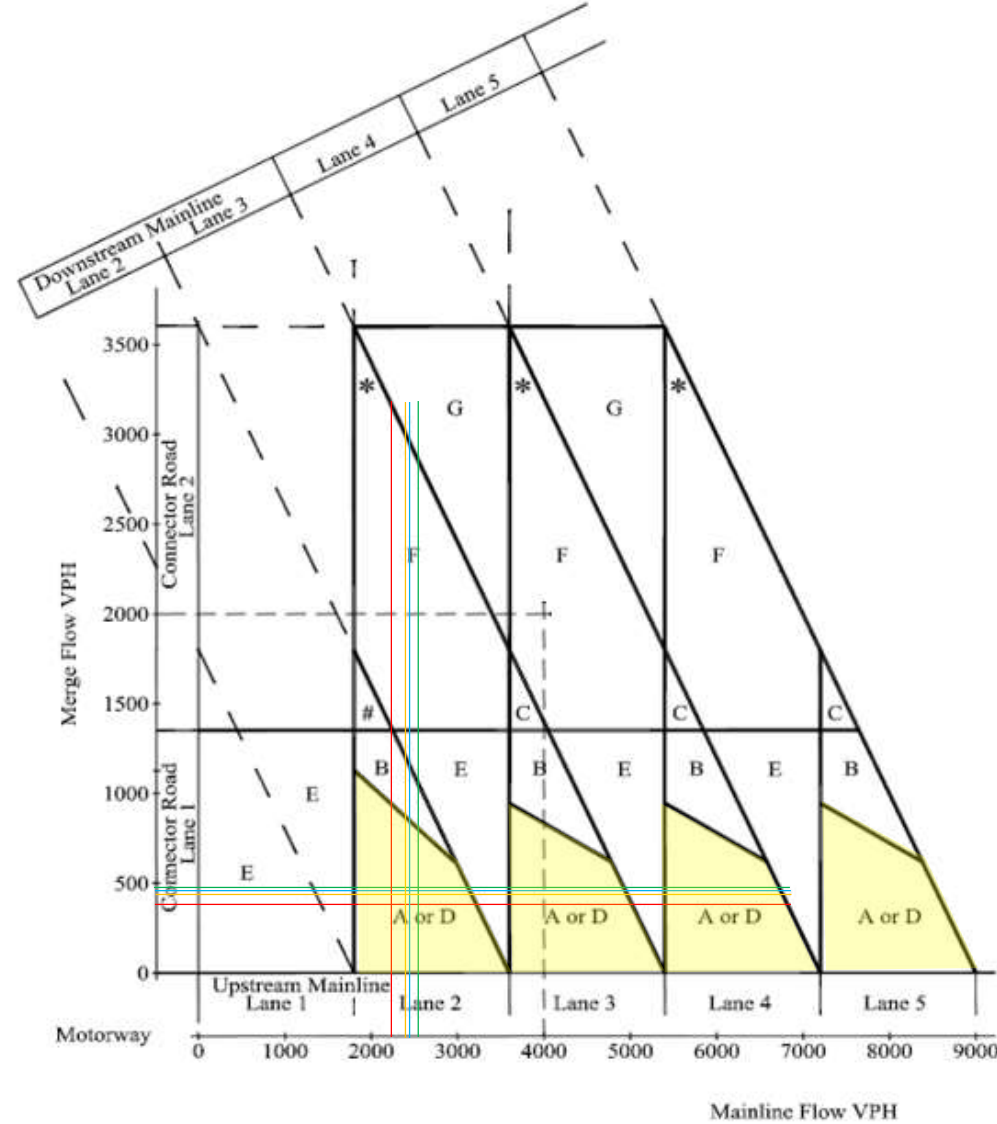
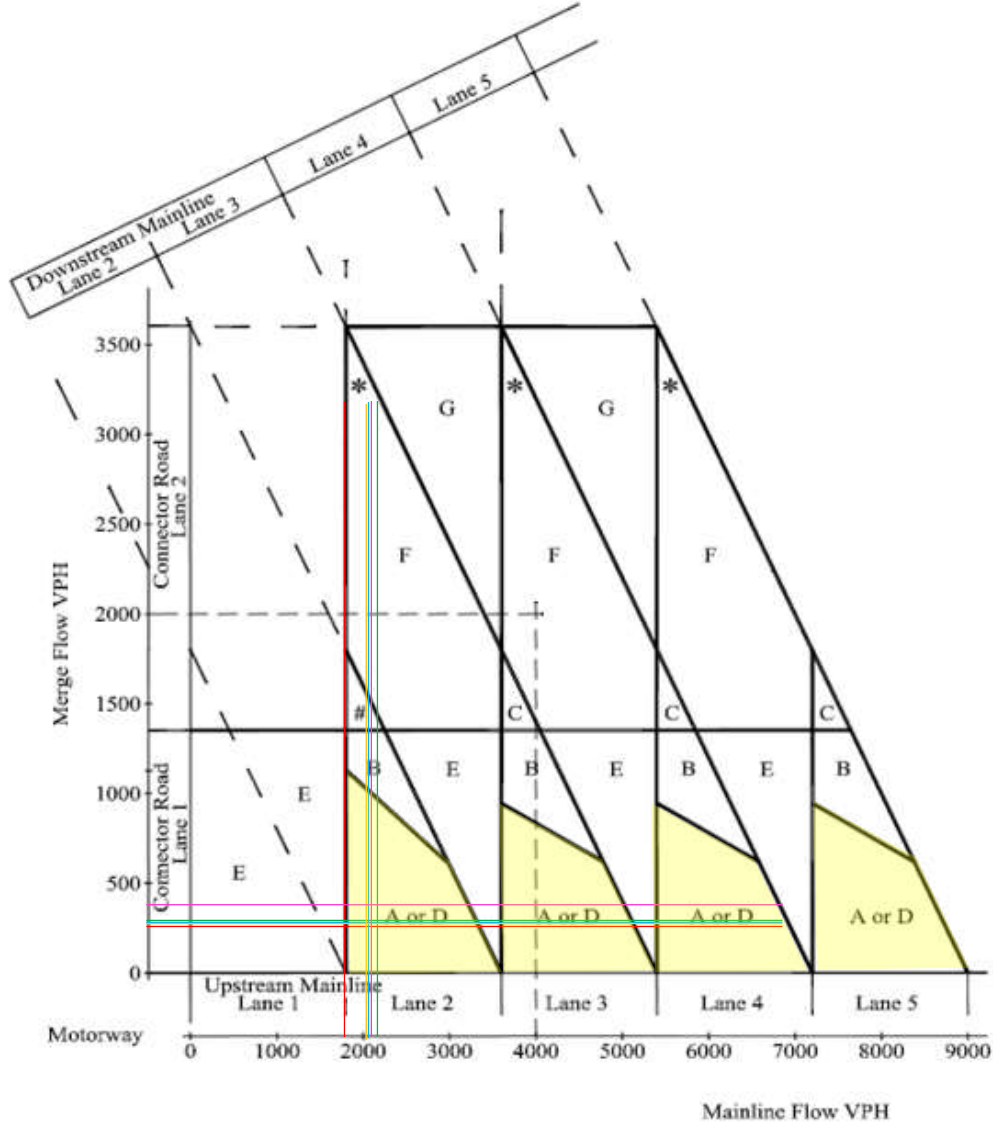
PM Peak Westbound -J8

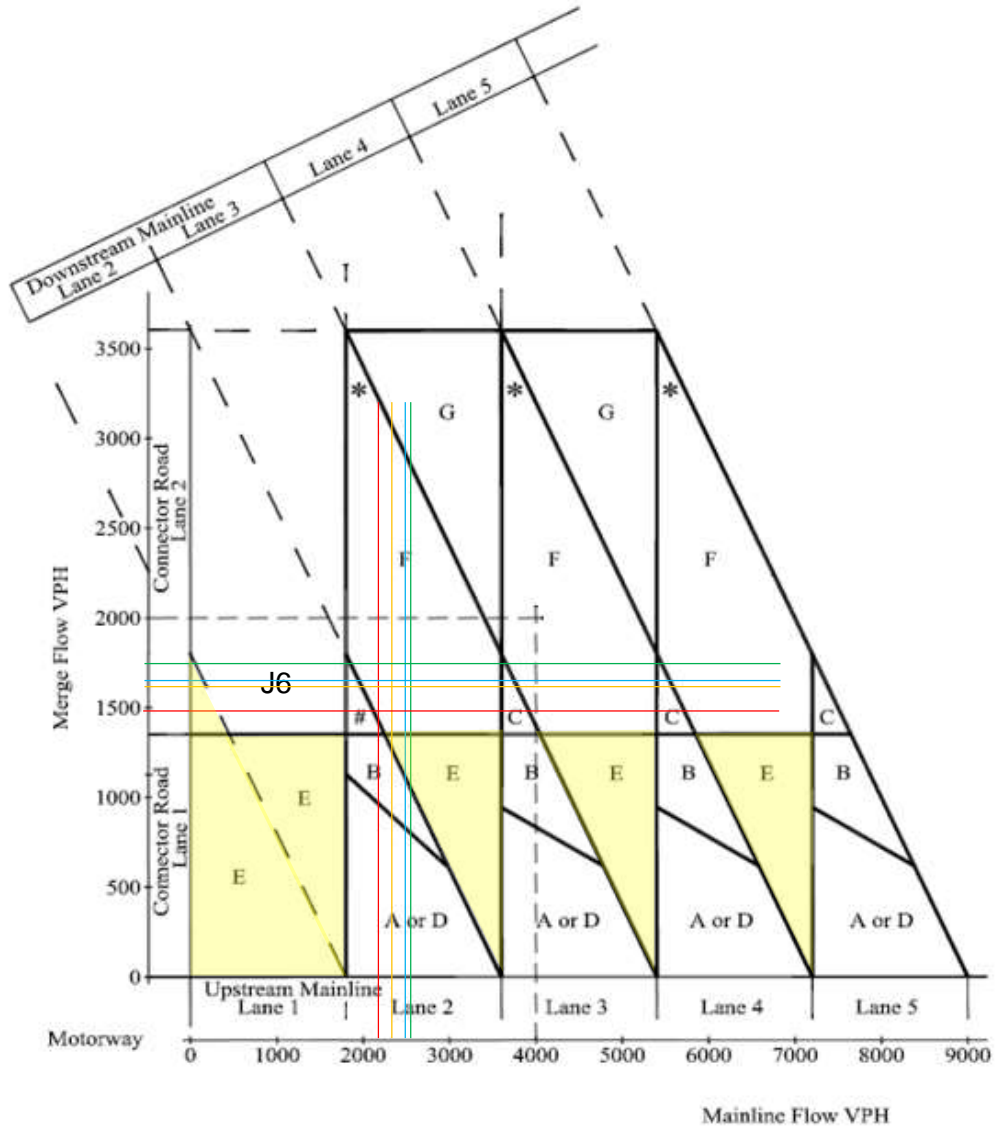


PM Peak Westbound -J5W

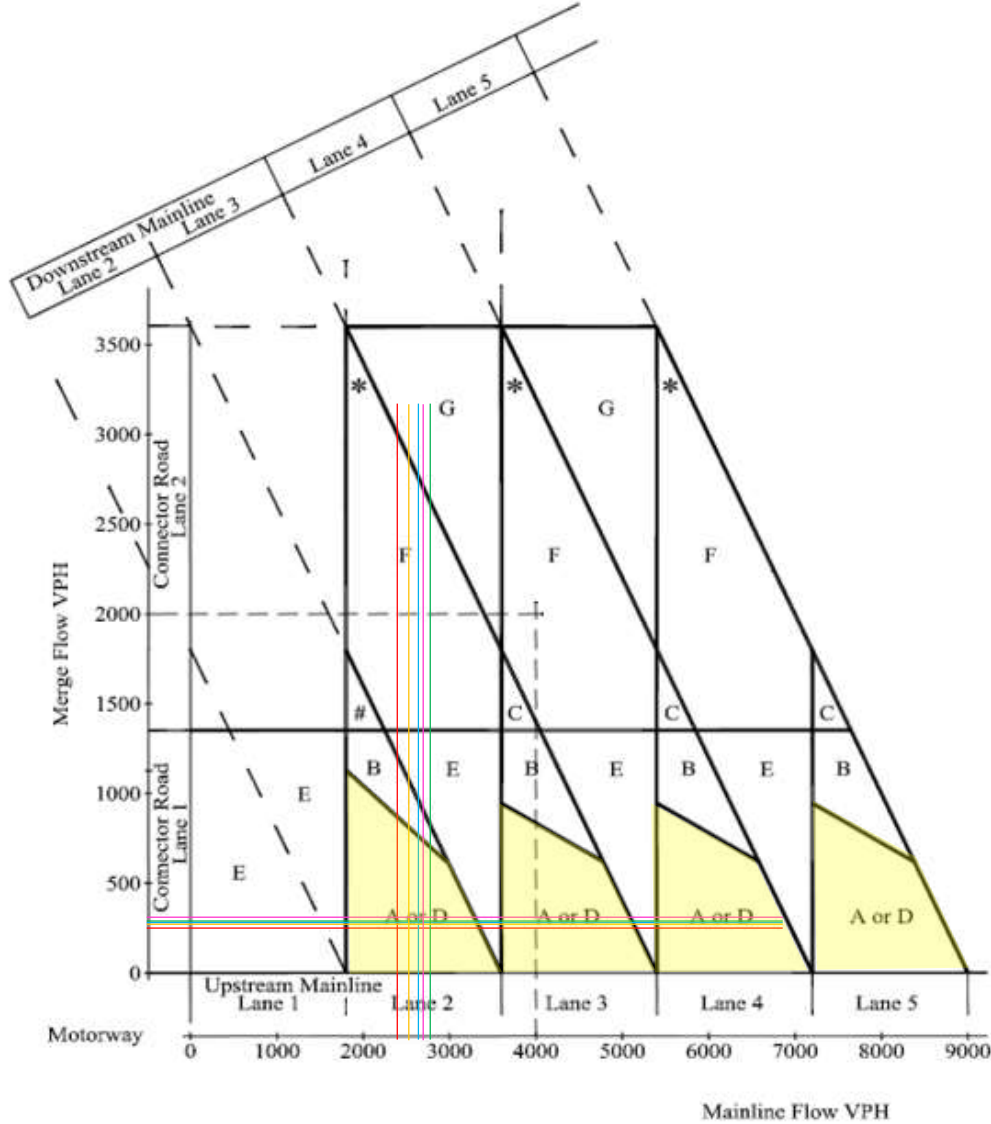
PM Peak Westbound -J5E



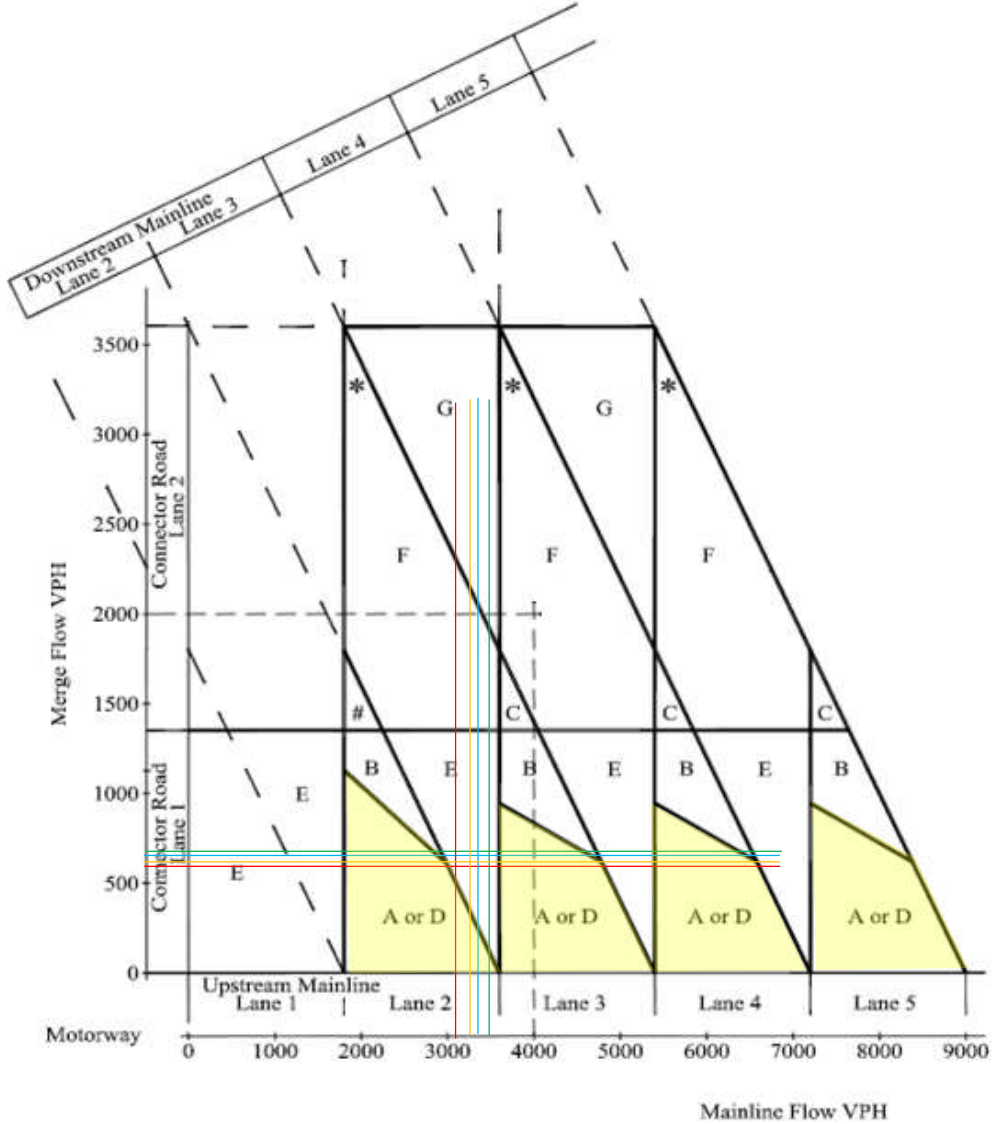


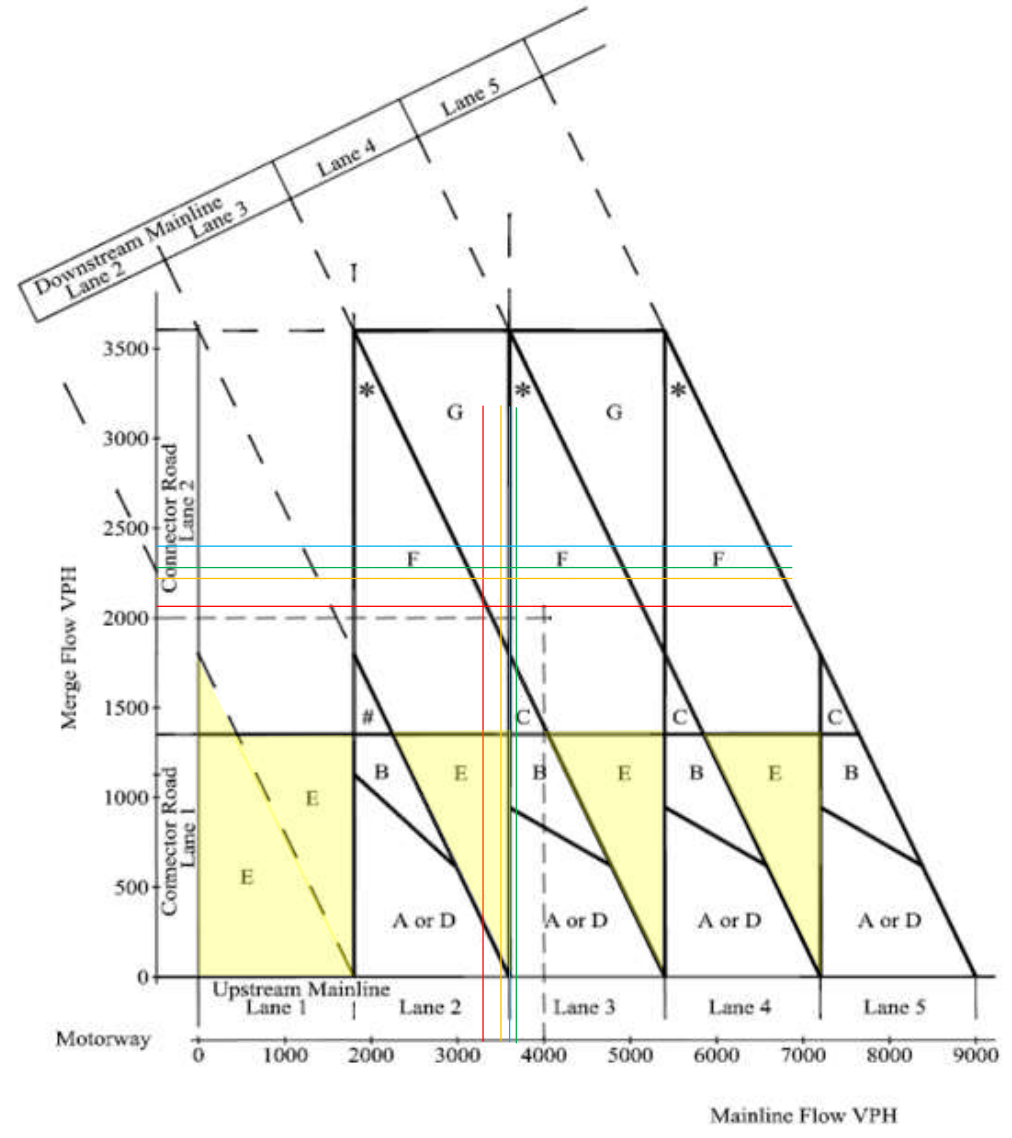


PM Peak Eastbound – J8



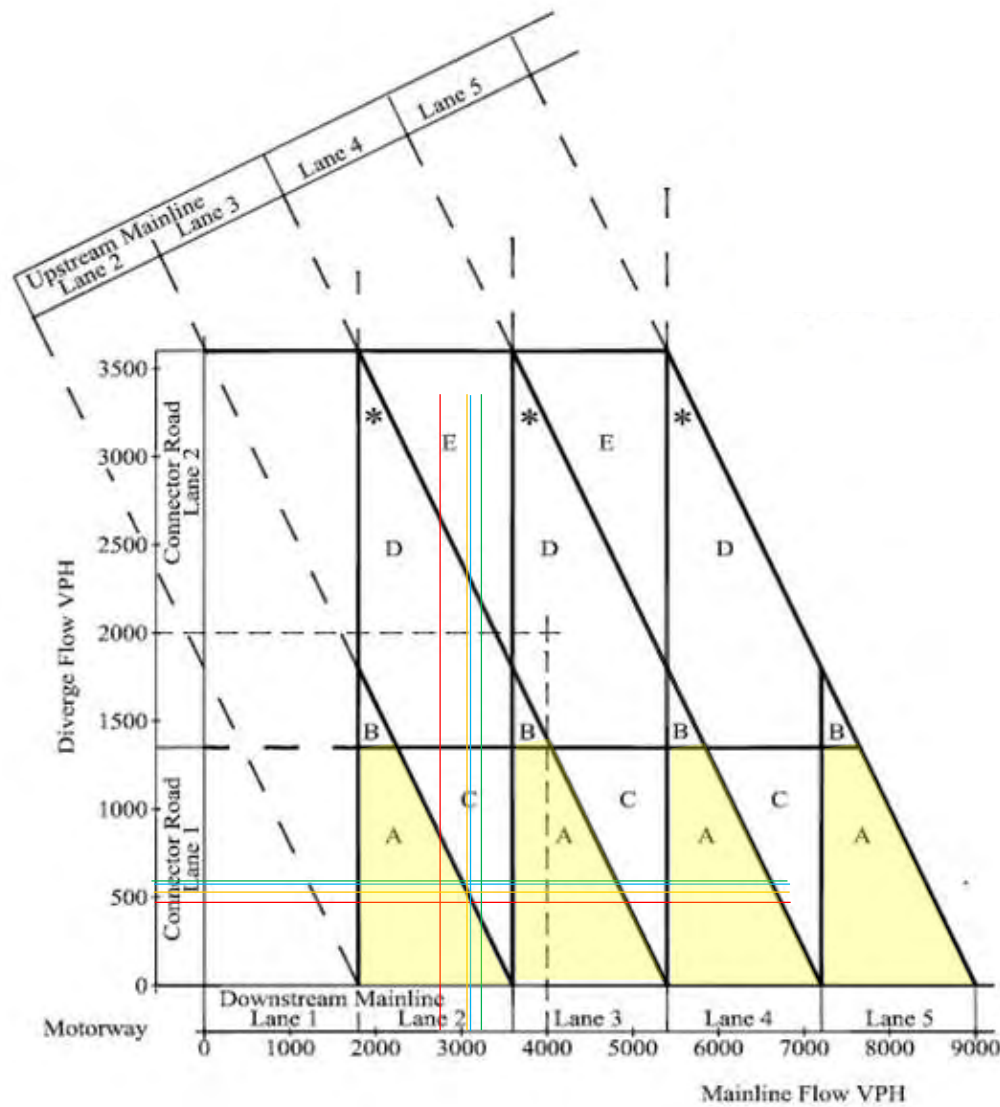
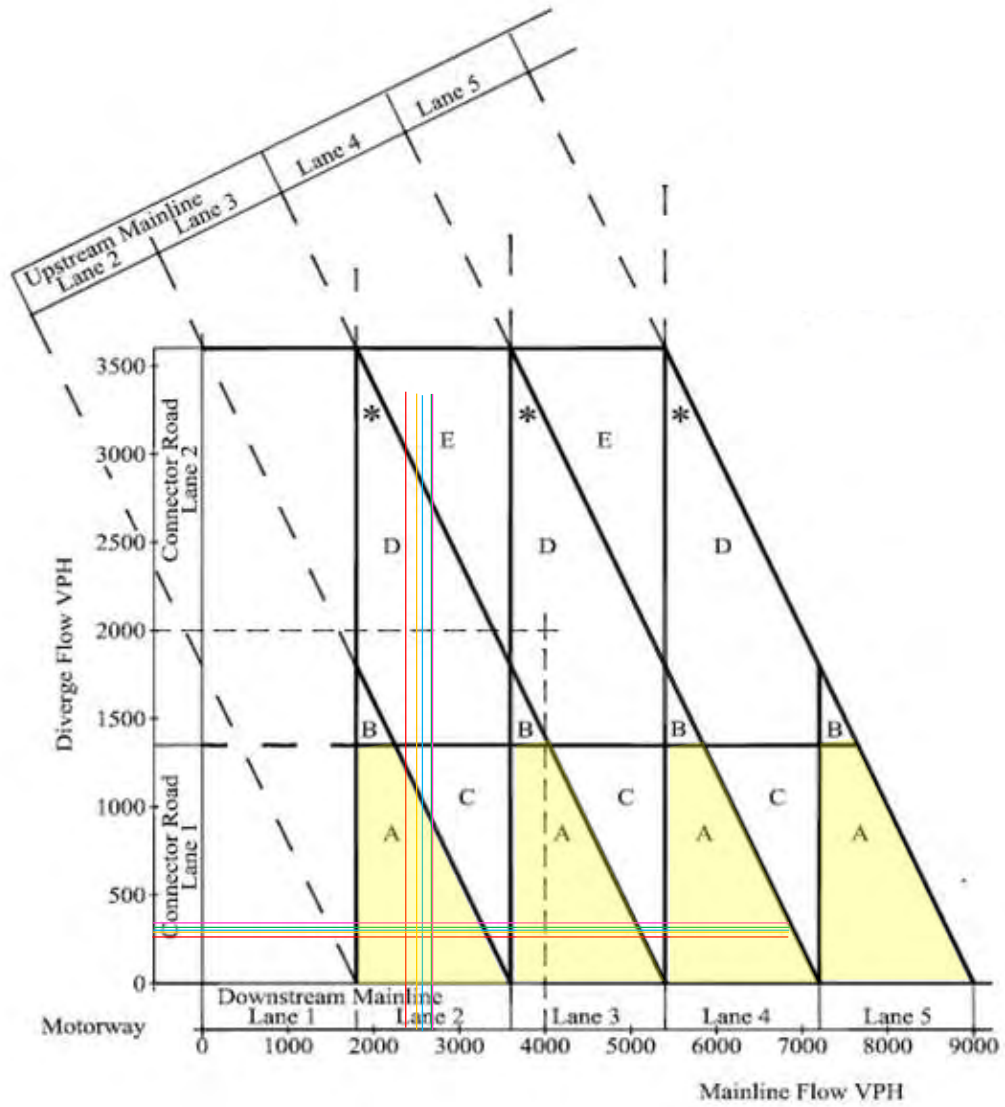
PM Peak Eastbound – J7



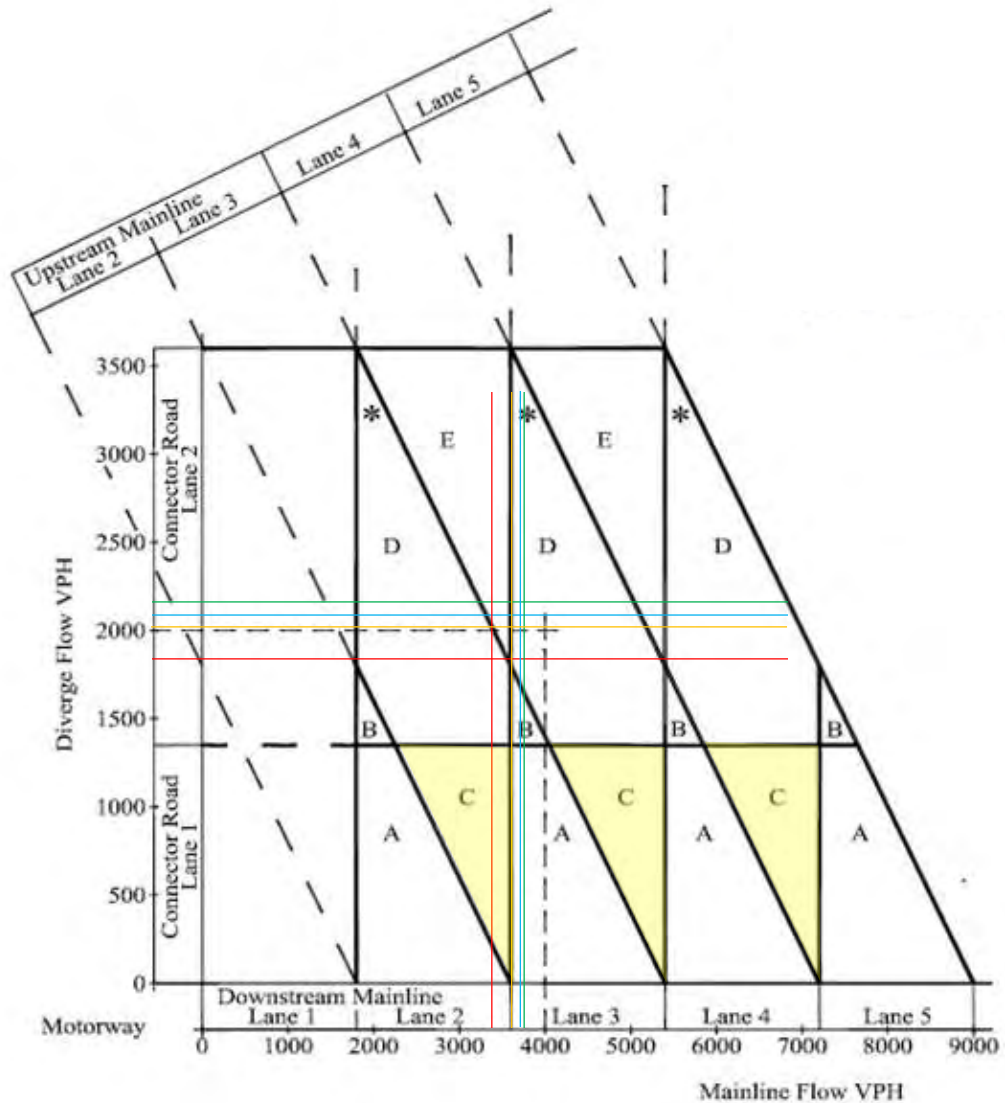


AM Peak Westbound -J8

AM Peak Westbound -J7

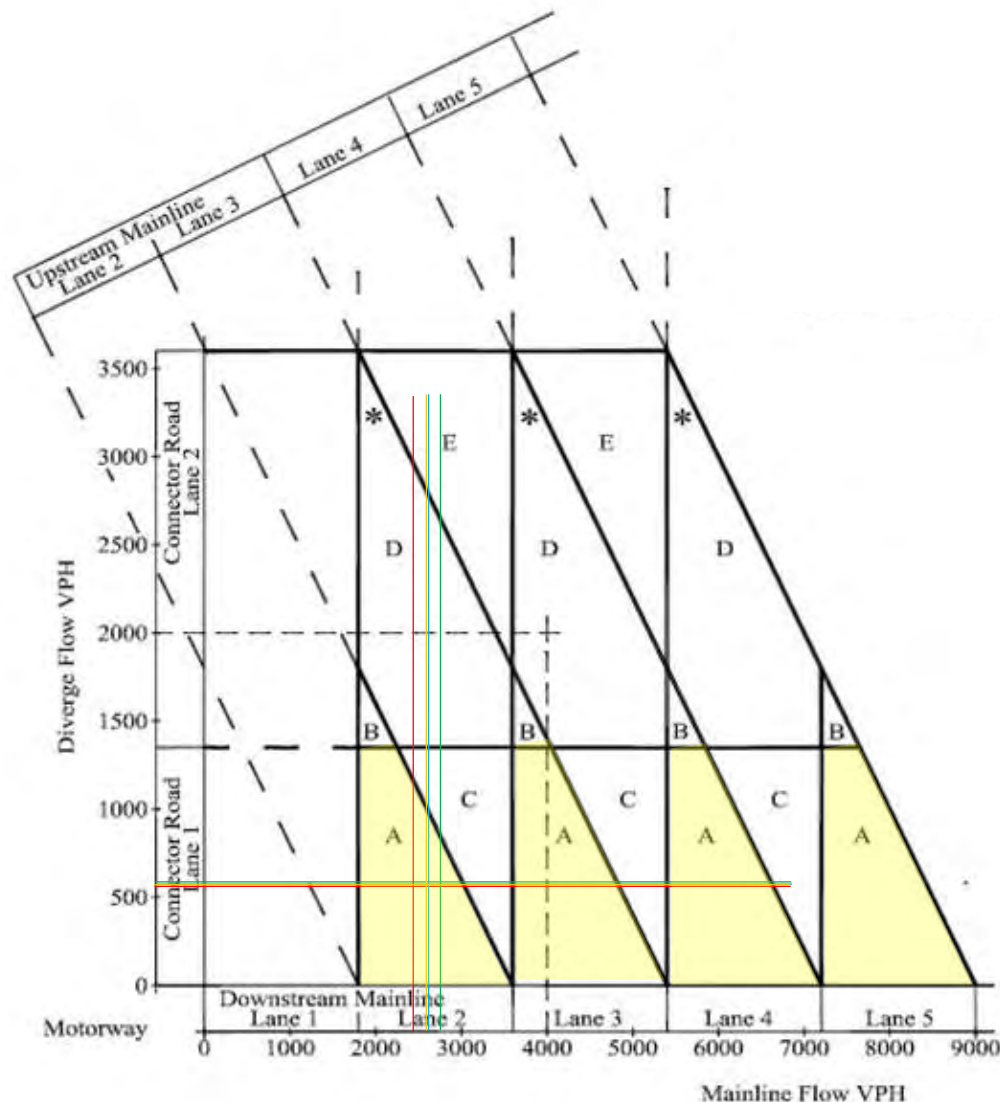
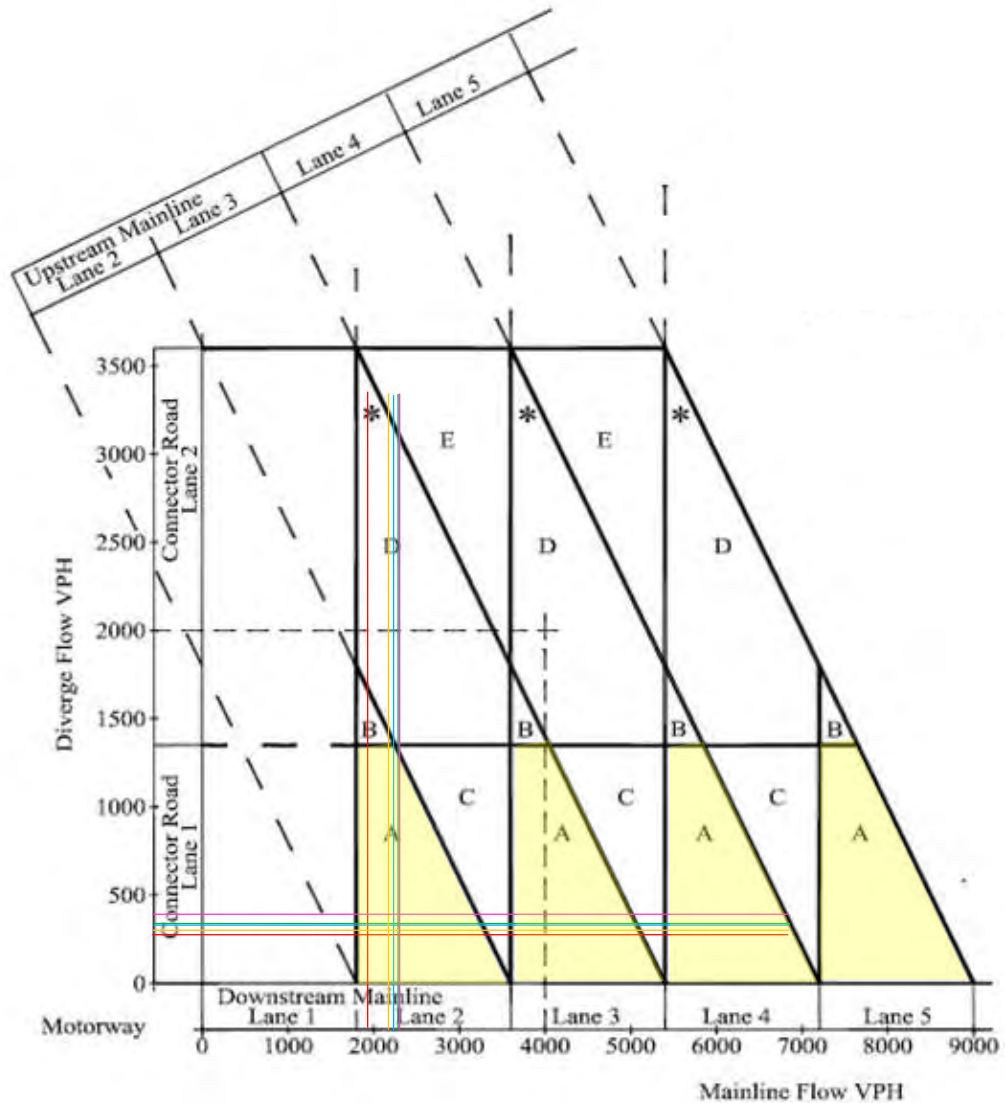


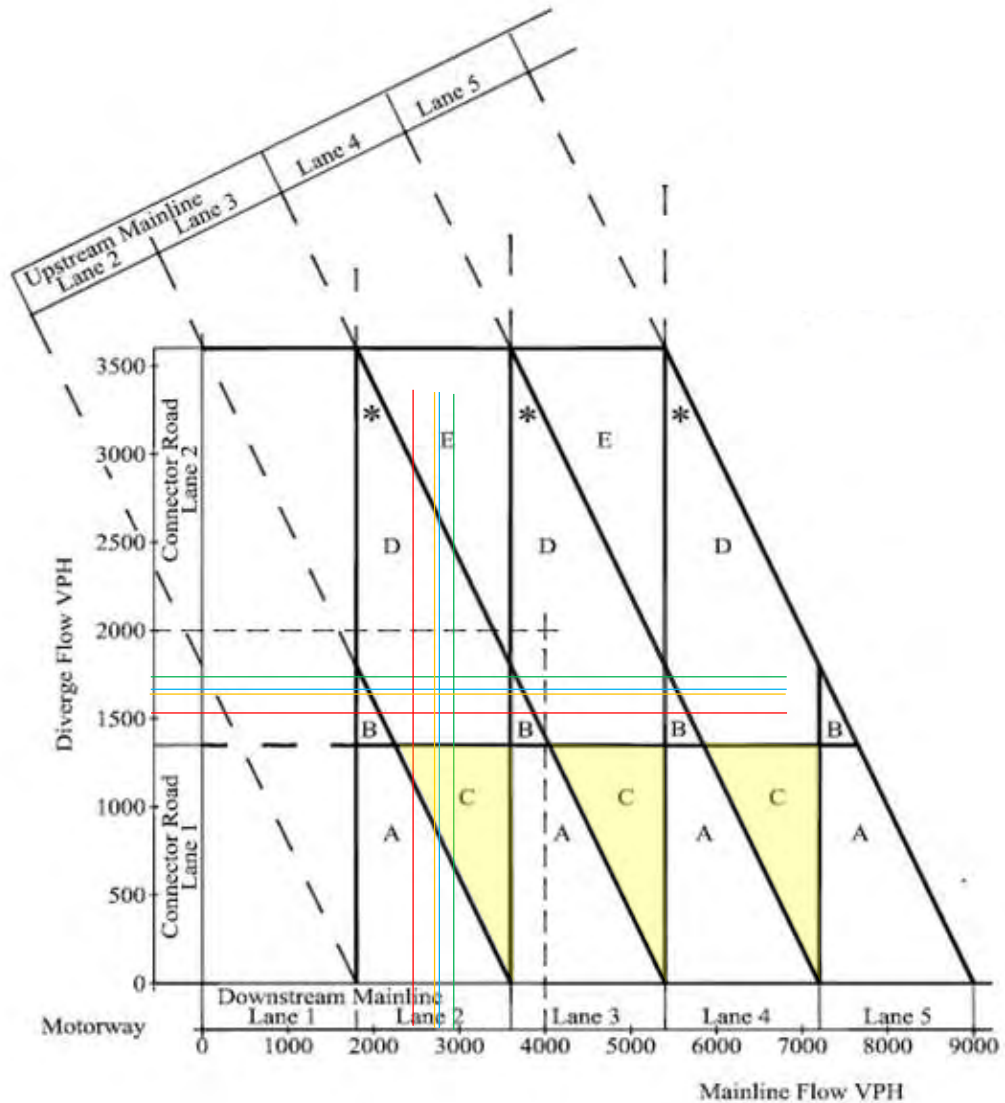
AM Peak Westbound -J6



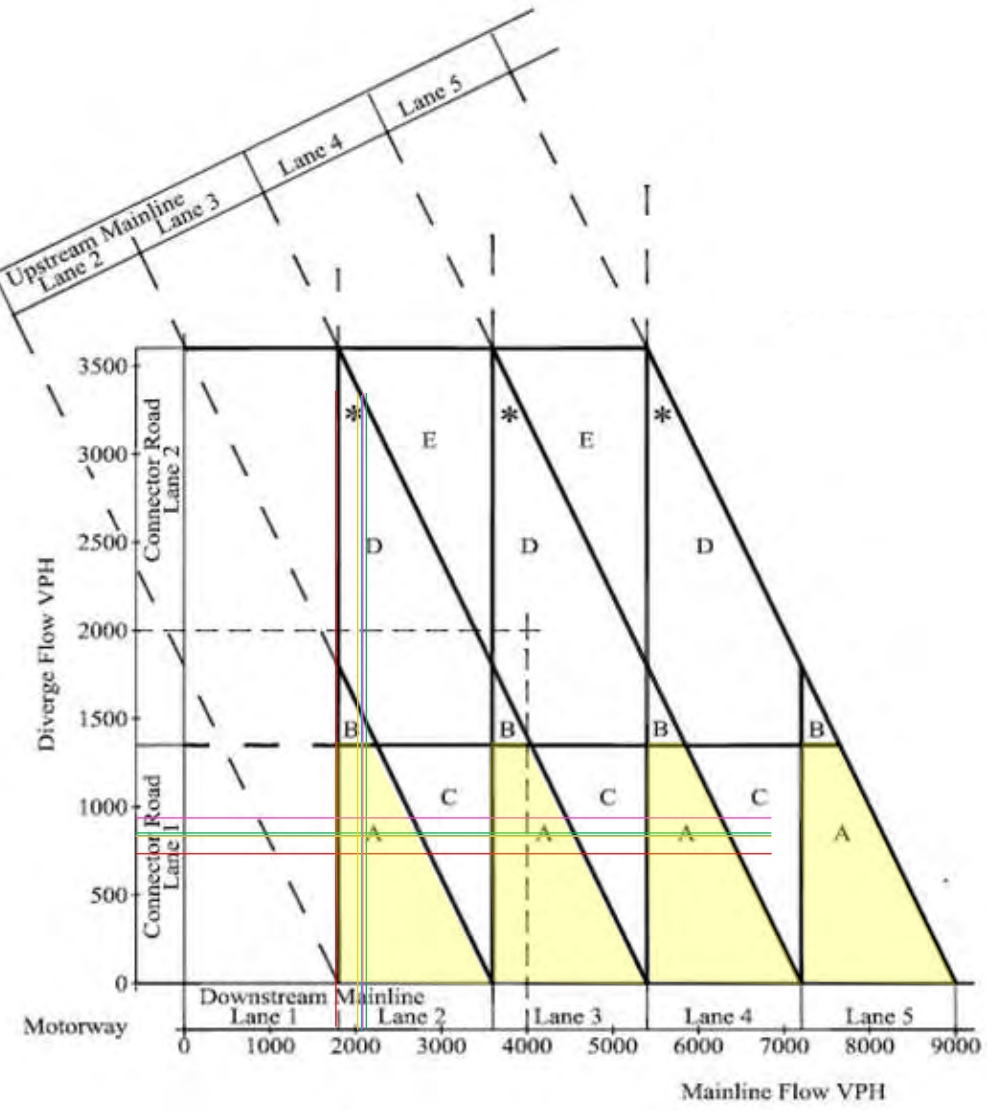
PM Peak Westbound -J8

PM Peak Westbound -J7

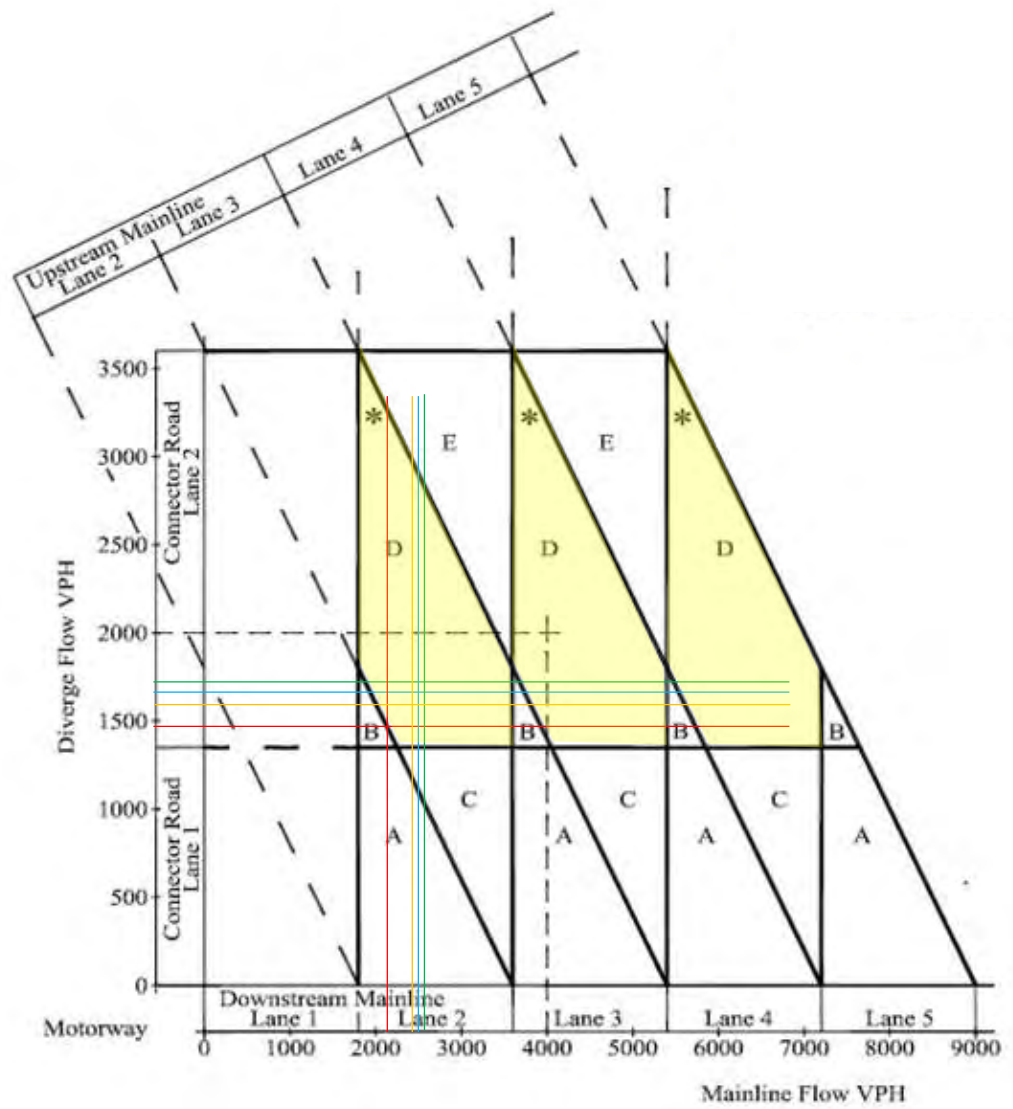




AM Peak Eastbound -J8

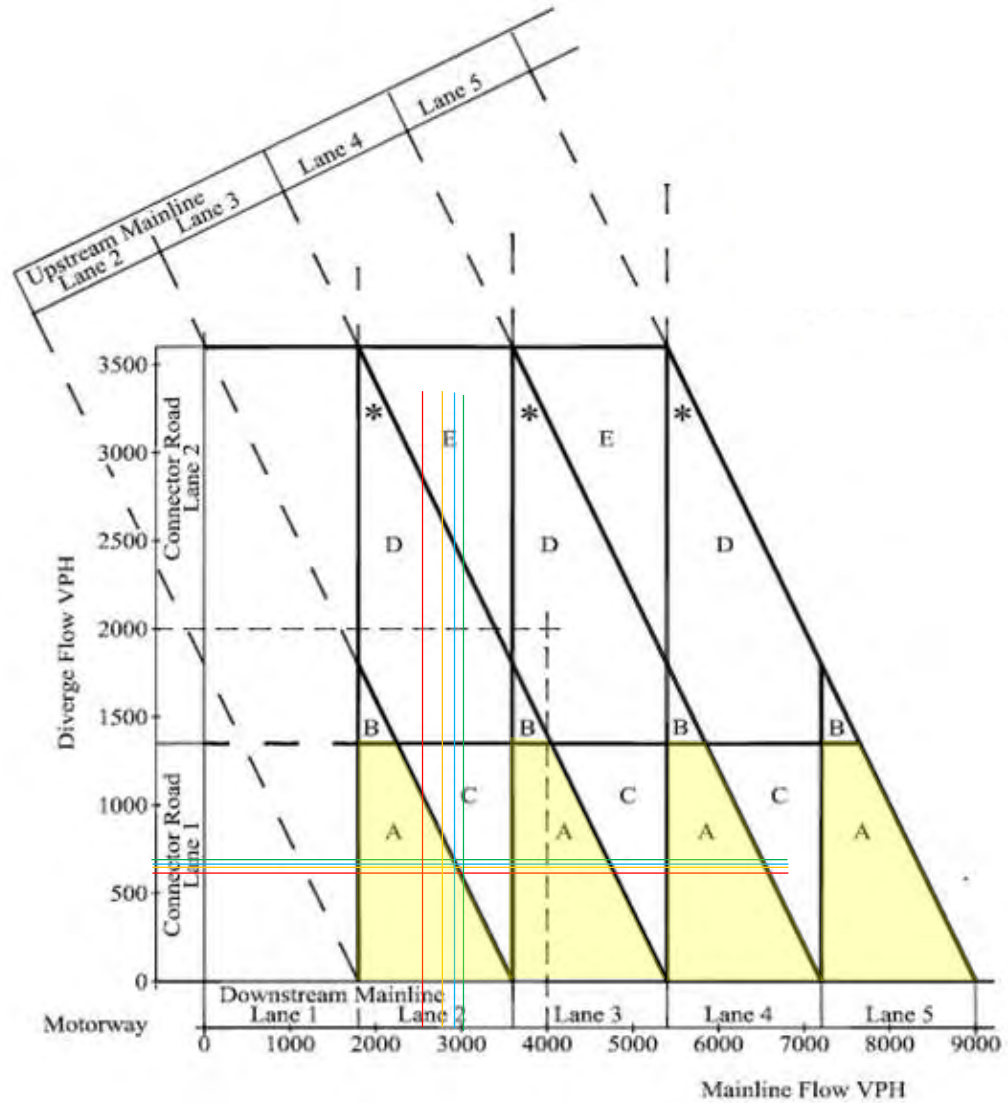
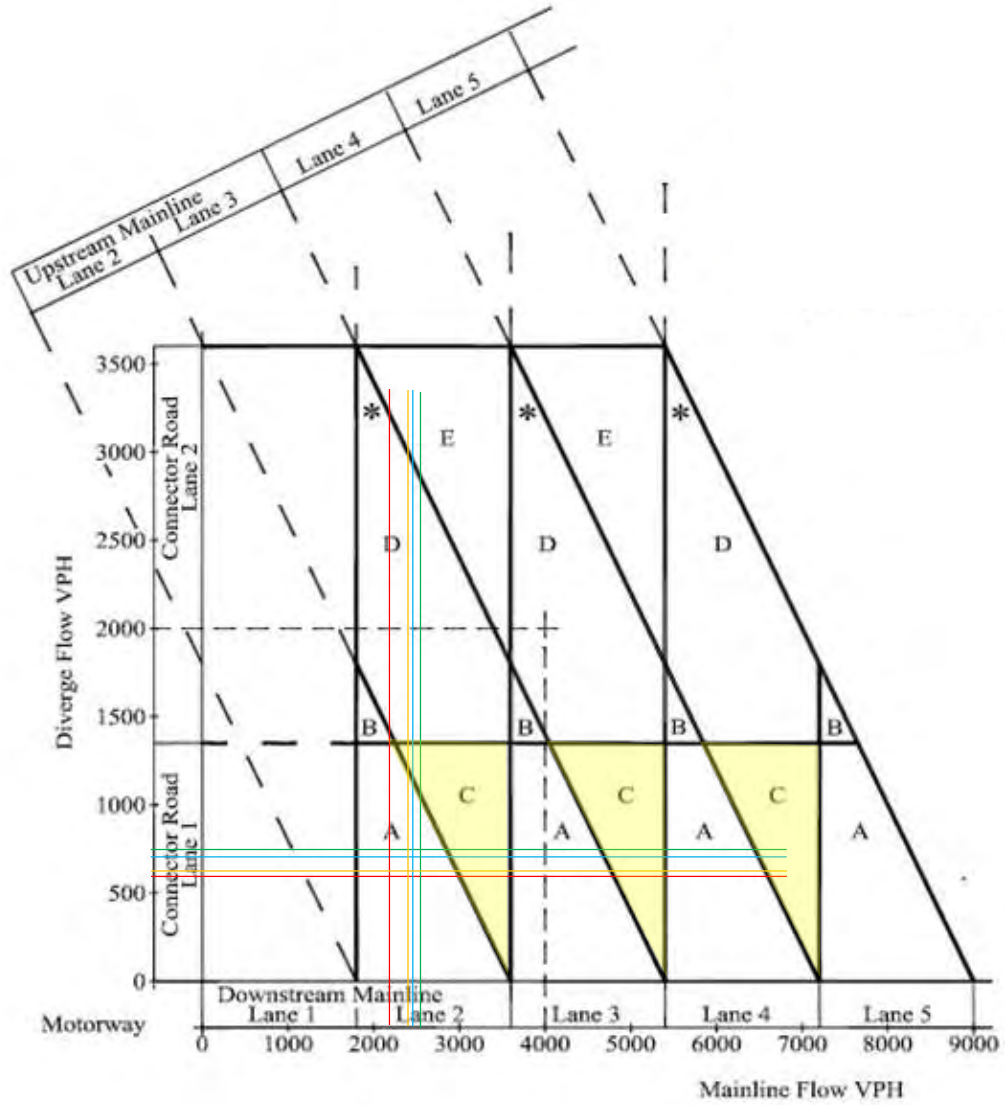


AM Peak Eastbound -J7

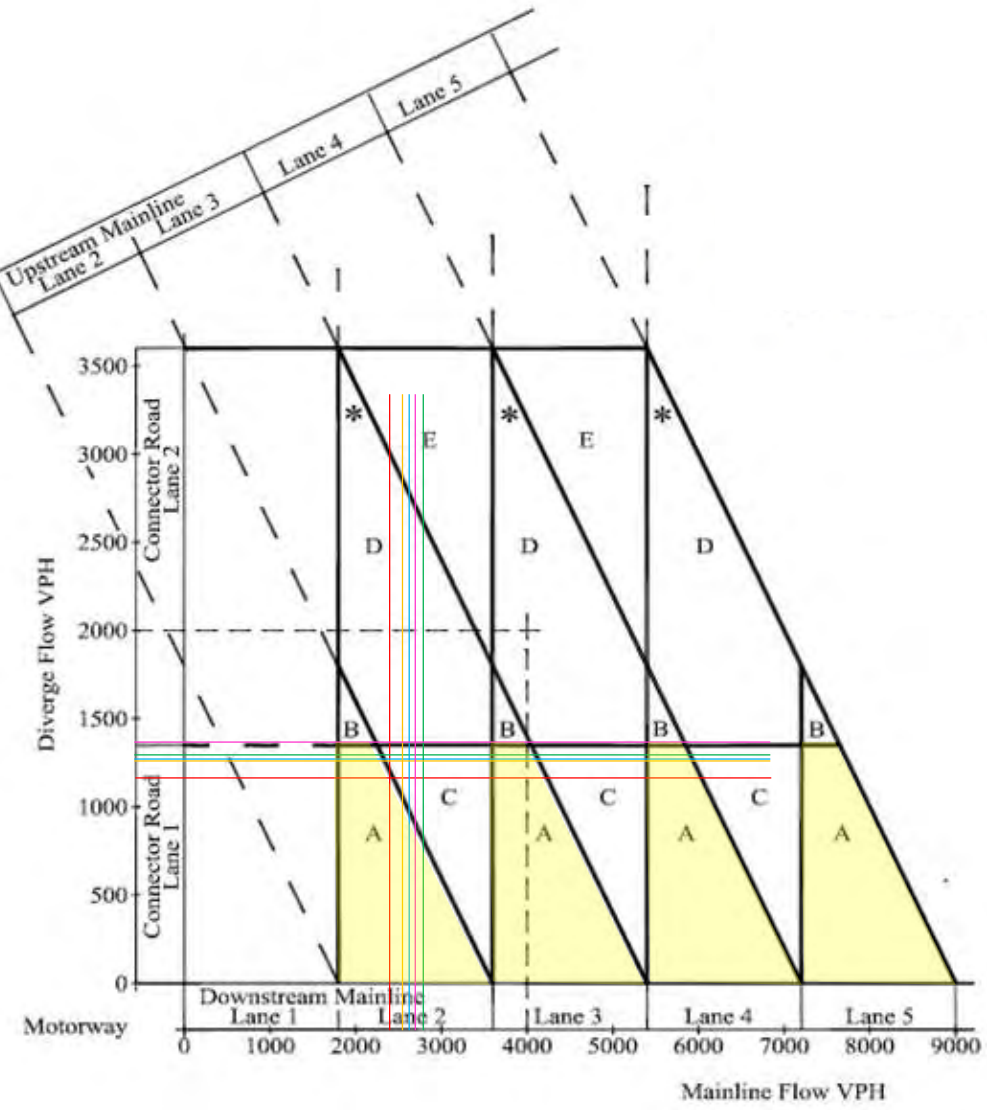


AM Peak Eastbound -J5E

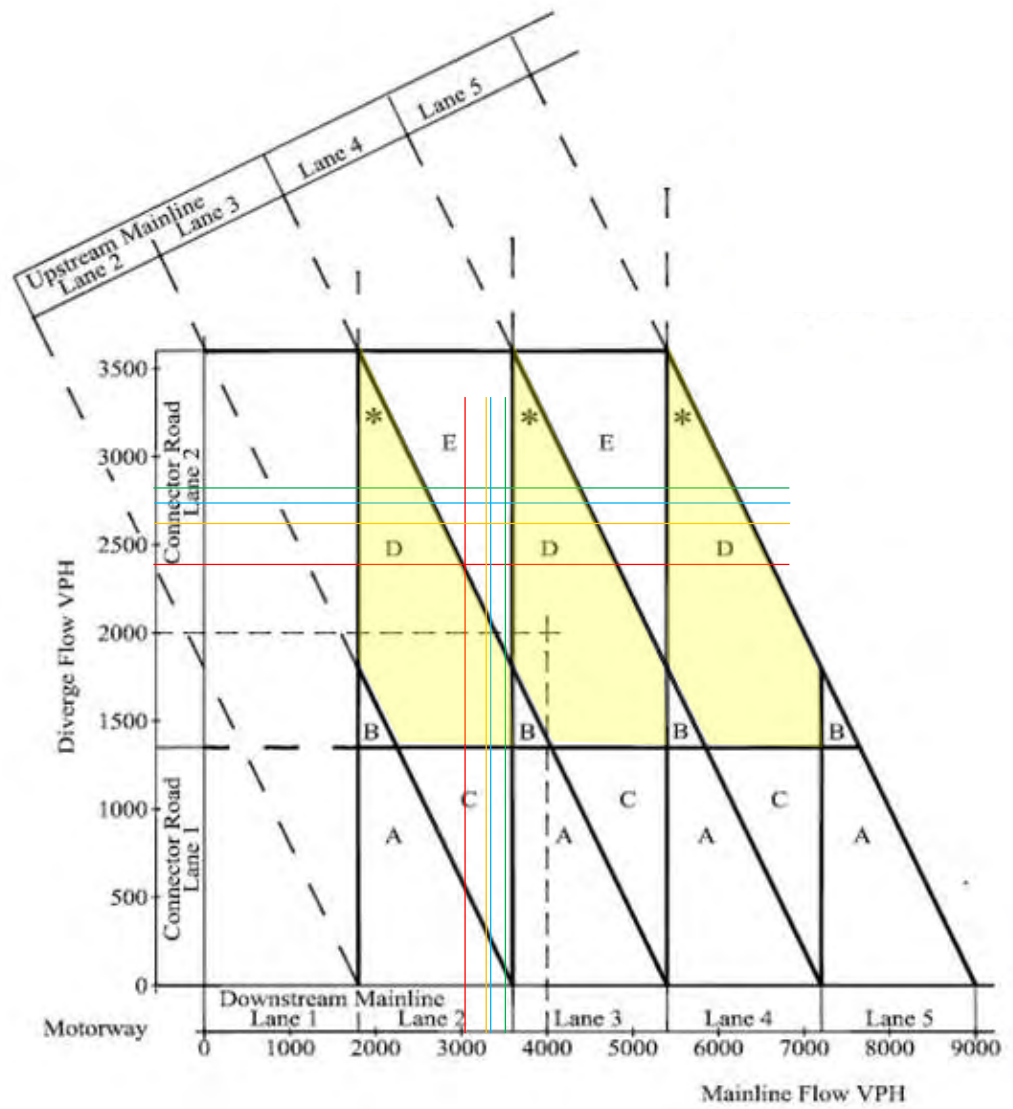
AM Peak Eastbound -J5W



PM Peak Eastbound -J8



PM Peak Eastbound -J7



PM Peak Eastbound –J5E

PM Peak Eastbound –J5W

