HAVANT ROAD, EMSWORTH

ADDENDUM TRANSPORT ASSESSMENT

March 2017

Barratt Homes Ltd

RESIDENTIAL DEVELOPMENT
HAVANT ROAD, EMSWORTH

ADDENDUM TRANSPORT ASSESSMENT

CONTROLLED DOCUMENT

PB-Associates Document No:	041.0025/ATA/2		
Status:	Original	*Copy No:*	
	Name	*Signature*	*Date*
Prepared by:	Beth Wilson	[redacted]	March 2017
Checked:	Mark Smith		March 2017
PBA Approved:	Mark Smith		March 2017

Revision Record					
Rev.	*Date*	*By*	*Summary of Changes*	*Chkd*	*Aprvd*
2	02/03/2017	JH	Client Comments	MS	MS

Barratt Homes Ltd
Tollbar House
Tollbar Way
Hedge End
Southampton
SO30 2UH

Paul Basham Associates Ltd
Lancaster Court
8 Barnes Wallis Road
Fareham
Hampshire
PO15 5TU

RESIDENTIAL DEVELOPMENT
HAVANT ROAD, EMSWORTH

ADDENDUM TRANSPORT ASSESSMENT

Contents

1. INTRODUCTION 3
2. PROPOSED REVISED SCHEME 5
3. SITE ACCESS 8
4. DEVELOPMENT TRAFFIC IMPACT 11
5. TRIP DISTRIBUTION 12
6. TEMPRO GROWTH FACTORS 13
7. JUNCTION CAPACITY ASSESSMENTS 14
8. CONTRIBUTIONS 29
9. SUMMARY AND CONCLUSIONS 30

Tables

Table 1 – Revised Accommodation Schedule

Table 2 – HBC Adopted Car Parking Standards & Requirements

Table 3 – Proposed Site Access Linsig Outputs ('2021 with development')

Table 4 - Proposed Site Access Linsig Outputs ('2026 with development')

Table 5 – TRICS Trip Rates & Development Traffic Impact

Table 6 – 2021-2026 TEMPRO Growth Outputs

Table 7 – 2016 Baseline Scenario

Table 8 – 2021 Baseline Scenario

Table 9 – 2026 Baseline Scenario

Table 10 – Summary of Baseline Scenarios (AM Peak)

Table 11 – Summary of Baseline Scenarios (PM Peak)

Table 12 – 2021 'With Development & Mitigation' Scenarios

Table 13 – 2026 'With Development & Mitigation' Scenarios

Table 14 – Summary of 2021 'with and without Development' scenarios (AM Peak)

Table 15 – Summary of 2021 'with and without Development' scenarios (PM Peak)

Table 16 – Summary of 2026 'with and without Development' scenarios (AM Peak)

Table 17 – Summary of 2026 'with and without Development' scenarios (PM Peak)

Table 18 – Net Impact of Proposed Development on Linked Junction

Appendices

Appendix A – Revised Site Layout

Appendix B – Parking Layout

Appendix C – Cycle Storage and Bin Storage Layout

Appendix D – Internal Visibility Splays & Forward Visibility Splays

Appendix E – 'Super Large' Refuse Vehicle Tracking

Appendix F – Proposed Site Access Linsig Outputs

Appendix G – Revised Trip Distributions Diagram

Appendix H – 2021-2026 TEMPRO Growth Outputs

Appendix I – Updated 'Emsworth Roundabout' Modelling Outputs

Appendix J – Updated 'A27 Linked Roundabout' Modelling Outputs

Appendix K – Linked Junction Agreed Mitigation Works

1. INTRODUCTION

1.1 This Addendum Transport Assessment (ATA) has been prepared by Paul Basham Associates (PBA) on behalf of Barratt Homes (BH) Ltd to support a revised application for a proposed residential development comprising 161 dwellings at Havant Road, Emsworth.

1.2 The previous application was submitted in July 2016 for the *'erection of 192 dwellings with associated parking, access, landscaping and surface water drainage, pumping station and substation'* (application reference APP/16/00774). The application was supported by a full Transport Assessment (TA) and Travel Plan (TP) prepared by PBA, with pre-application advice also sought from Hampshire County Council (HCC).

1.3 Subsequent to the application being submitted HCC and Highways England (HE) were consulted to assess the highways implications of such a development. Discussions have been ongoing between HCC, HE and PBA via e-mail, telephone and formal written correspondence throughout the process. In addition Havant Borough Council have been consulted, and provided comments on, the internal site layout

1.4 The correspondence between all parties is referred to throughout this report. The correspondence demonstrates that a number of issues which were raised at an early stage have been addressed and overcome, and one of the aims of this report is to provide an overview of the information which has been agreed, as well as to provide further information/ clarification on that which is still outstanding. Whilst correspondence is not appended to this report, it is referred to where relevant and appropriate, and each document can be provided on request.

1.5 In addition, this report addresses changes to the site layout which includes the reduction in unit numbers from 192 to 161, an updated accommodation schedule, updated car parking layout & numbers and updated internal road layout (and therefore revised details of internal visibility & tracking).

1.6 Details of the existing Local Road Network, Site Accessibility and Personal Injury Accident (PIA) data were assessed in detail as part of the previous application. As there are no outstanding issues or concerns raised by either HCC or HE relating to these points and these points are not affected by the site layout or unit number changes, this ATA does not include any further information in this regard.

1.7 An Addendum Travel Plan has also been prepared by PBA to respond to comments made by HCC and HE on the full Travel Plan which was submitted as part of the original application. This is a separate document and should be read in conjunction with this report.

1.8 The remainder of this ATA will be structured in the following manner:

Chapter 2: Proposed Revised Scheme

Chapter 3: Site Access

Chapter 4: Development Traffic Impact

Chapter 5: Trip Distribution

Chapter 6: TEMPRO Growth Factors

Chapter 7: Junction Capacity Assessments

Chapter 8: Contributions

Chapter 9: Summary and Conclusions

2. PROPOSED REVISED SCHEME

Accommodation Schedule

2.1 The revised scheme comprises 161 dwellings (compared to the former 192), of which 30% would be affordable. The revised accommodation schedule is summarised in **Table 1**, with the revised site layout included as **Appendix A**.

	Unit Type	Number of Dwellings
Affordable	1 Bedroom Flat	3
	2 Bedroom Flat	12
	2 Bedroom Coach House	4
	2 Bedroom House	10
	3 Bedroom House	19
	TOTAL	48
Private	1 Bedroom Flat	3
	2 Bedroom Flat	18
	2 Bedroom Coach House	5
	2 Bedroom House	18
	3 Bedroom House	56
	4 Bedroom House	13
	TOTAL	113
	Total	161

Table 1: Revised Accommodation Schedule

Car Parking Provision

2.2 As per the previous TA (July 2016), Havant Borough Council's Parking Supplementary Planning Document (adopted in July 2016) has been used to assess the revised parking provision associated with this revised scheme. The standards are outlined (along with the associated car parking requirements for the site) in **Table 2**.

Size of Dwelling	Car Parking Requirements per Dwelling	Total Units	Total Requirements
1 Bedroom	1 space	6	6
2 Bedroom	2 spaces	67	134
3 Bedroom	2 spaces	75	150
4+ Bedroom	3 spaces	13	39
TOTAL	-	161	329

Table 2: HBC Adopted Car Parking Standards & Requirements

2.3 In addition to these minimum requirements an additional 20% unallocated parking provision for visitors is required.

2.4 The revised development provides a total of 326 residential spaces, of which 1 space would be provided for the 1 bedroom units, 1-2 spaces for the 2 bedrooms units, 2 spaces per 3 bedroom units and 3 spaces per 4 bedroom unit. A further 27 spaces are intended for formal visitor parking spaces, totalling 353 spaces.

2.5 The slight shortfall below the standards relates to plots 110, 117 and 129 (all 2 bedroom Coach Houses) and additional visitor parking is provided near each of these plots. The parking layout is provided as Appendix B.

Cycle Parking Provision

2.6 As detailed in the previous TA, long-stay cycle parking will be provided for each unit within a dedicated cycle shed in the rear of each garden, or a garage (where provided and measuring at least 6m x 3m). For the flats, secure, communal cycle stores are proposed, which will be overlooked and well-lit to ensure that the stores are safe and user-friendly. Cycle storage is demonstrated on the Cycle Parking and Bin Storage layout, included as Appendix C.

Internal Road Layout

2.7 As per the previous layout the parameters have been designed to create an attractive and permeable pedestrian and cycle environment and have been tailored through the application process to further achieve this by providing a 'Trim Trail' around the perimeter of the site and ensure that sufficient open space is provided.

2.8 The development site's spine road measures 5.5m in width, after which the carriageways become narrower and more reflective of Manual for Streets (MfS) design guidance principles, with 4.8m being sufficient for a car and larger vehicle to pass. To summarise the design principles on which the scheme is based:

- Site access measures 7.2m in width to allow for the proposed signalised site access, after which the internal spine road narrows to 5.5m. Adjacent to plot 69 the spine road narrows to 4.8m, with a continued width beyond this point to the rear of the site.
- The entire length of the spine road is supported by a 2m wide footways on the northern side, with at least a 1m wide and in most places a 2m wide footway on the southern side.
- The southern loop road leading off the spine road measures 4.8m in width, supported by 2m wide footways on either side.
- A 2m wide 'Trim Trail' is provided around the perimeter of the site.

2.9 In accordance with MfS design guidelines, all carriageway bends within the peripheries of the proposed internal site design (i.e. away from the spine road) would achieve the required inter-visibility for vehicles travelling up to 15mph within the site, supported by planting maintained below 600m in height. Visibility along the length of the spine road is achieved for vehicles travelling up to 20mph. Internal visibility and forward visibility splays are demonstrated in Appendix D.

Servicing and Emergency Access

2.10 Tracking has been undertaken on the revised site layout, demonstrating a 'super large' refuse vehicle successfully manoeuvring through the site, as demonstrated in **Appendix E**. In keeping with MfS (paragraph 6.8.9) and Building Regulation guidance, no resident would be required to carry their bins greater than 30m to a collection point or kerb edge, and the refuse vehicle would be able to get within 25m of each property or collection point.

2.11 The revised access has also been assessed to ensure that a fire tender can successfully turn on-site, and get within 45m of each building, in line with Building Regulation requirements.

2.12 As per the previous application, further pedestrian and cycle access is proposed via a separate access on Selangor Avenue, in the location of the existing gated access. The pedestrian/ cycle access is demonstrated on the site layout and measures 3m in width and will be supported by lockable bollards.

3. SITE ACCESS

3.1 The TA (July 2016) outlined the site access discussions to date and proposed that, based on the anticipated peak movements from the site, a simple priority bellmouth arrangement should be provided. This was supported by modelling using PICADY software which identified that this type of access would operate within capacity without impacting on the existing operation of Havant Road.

3.2 PBA also provided modelling results within the TA to demonstrate the comparable impact of a signalised junction which was identified by HCC in their pre-application correspondence as the preferred access arrangement. The signalised junction modelling results identified a queue length of 25.2 vehicles on Havant Road (WB) in the AM Peak, and 26.2 vehicles on Havant Road (EB) in the PM Peak, compared to queue lengths of 0-1 vehicles on Havant Road when modelling a simple priority junction.

3.3 Whilst a simple priority site access was identified by PBA as the most appropriate based on the above queue length differences, HCC also provided further feedback on the impact of the site access in their formal consultation response. Their response states, *'It [the modelling of the signalised crossing] does not acknowledge the safety benefit the controlled operation would provide for those vehicles existing the development.'* HCC went on to request that further modelling was undertaken to refine the scenarios to be more reflective of the potential junction operation.

3.4 Revised modelling of the signal junction was requested by HCC's ITS team on 15th December 2016. The revised modelling was requested in order to understand the potential difference between providing a 90 second and a 120 second cycle time, with a pedestrian phase every other cycle. Further modelling was undertaken using each scenario (90 seconds and 120 seconds), and whilst longer queues are experienced on the site access arm using the 120 second cycle time, the queues on Havant Road are shorter, and are therefore considered more suitable to ensure that as little delay as possible is experienced on the busiest arm.

3.5 In addition, a further modelling scenario was requested on 16th February 2017 to understand the impact of the 2036 future year. However the current version of TEMPRO does not take into account the committed developments outlined in Havant Borough Council's Housing Statement (adopted in December 2016), and therefore the '2036 future year' scenario is unrepresentative of the future Local Road Network.

3.6 The modelling of the site access has now been updated to reflect the change in unit numbers to 161 units, with the resulting 120 cycle time outputs (with a pedestrian phase every other cycle) provided in **Table 3** ('2021 with development' scenario) and **Table 4** ('2026 with development' scenario) and also included as **Appendix F**. Whilst the 2036 scenario has not been provided, the models have been updated to reflect the 2026 scenario (the future year scenario requested for the Havant Road/ A27 junction, to provide consistency in assessment). In addition, the 90 second cycle time outputs have also been included in **Appendix F** for information purposes.

2021 With Development (120 second cycle time)	AM Peak			PM Peak		
	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)	Degree of Saturation	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)	Degree of Saturation
Havant Road (WB)	25.7	11.4	73.5%	11.8	7.4	49.7%
Havant Road (EB)	12.9	7.4	52.5%	26.0	11.5	74.2%
Site Access	2.3	80.0	45.9%	1.0	71.3	22.1%

Table 3: Proposed Site Access Linsig Outputs ('2021 with development')

2026 With Development (120 second cycle time)	AM Peak			PM Peak		
	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)	Degree of Saturation	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)	Degree of Saturation
Havant Road (WB)	41.8	17.8	78.5%	15.9	9.7	53.2%
Havant Road (EB)	16.8	9.3	56.0%	41.8	17.8	79.4%
Site Access	3.8	118.0	45.9%	1.8	108.7	22.1%

Table 4: Proposed Site Access Linsig Outputs ('2026 with development')

3.7 As demonstrated in **Table 3**, in the AM Peak period the signalised junction arrangement is expected to generate maximum queues of 26 vehicles (on the Havant Road WB arm), with 13 vehicles demonstrated on the Havant Road EB arm and 3 vehicles at the site access. In the PM Peak period, the junction is expected to generate maximum queues of 26 vehicles (on the Havant Road EB arm), with 13 vehicles on the Havant Road EB arm and 1 vehicle at the site access.

3.8 **Table 4** demonstrates the proposed access outputs in the PM Peak, with a maximum queue of 41 vehicles (on the Havant Road WB arm), with 17 vehicles demonstrated on the Havant Road EB arm and 4 vehicles at the site access. In the PM Peak period, the junction is expected to generate maximum queues of 42 vehicles (on the Havant Road EB arm), with 16 vehicles on the Havant Road EB arm and 2 vehicles at the site access.

3.9 It was requested by HCC that the modelling should ensure that the queuing vehicles at the signalised junction do not encroach on the A27 roundabouts or affect its operation. The roundabouts are located 370m from the proposed site access, and the maximum queue length on the Havant Road (EB) arm of 42 vehicles (in the 2026, PM Peak) would equate to a distance of 252m. The site access is therefore expected to have no impact on the A27 linked roundabouts.

3.10 Due to the overriding safety benefit of providing a signalised crossing over a simple priority junction arrangement, it is expected that the above modelling will be considered sufficient to justify the proposed site access, particularly given that comments from HCC have already been addressed. In addition, the 120 cycle time with a pedestrian phase every other cycle is considered a worst case scenario, with pedestrians unlikely to cross this often.

4. DEVELOPMENT TRAFFIC IMPACT

4.1 As previously described, the revised layout incorporates 31 fewer dwellings than previously assessed (in terms of traffic impact), and it is therefore considered that the revised unit numbers will be considered acceptable by HCC and HE.

4.2 Nonetheless and for the sake of clarity, the revised trip generation (using the previously agreed trip rates) are included in **Table 5**.

	AM Peak (0800—0900)		PM Peak (1700-1800)		Total Daily
	Arrivals	Departures	Arrivals	Departures	
Trip Rate	0.145	0.362	0.329	0.174	4.479
161 Dwellings	23	58	53	28	721

Table 5: TRICS Trip Rates & Development Traffic Impact

4.3 The revised trip rate analysis indicates likely trip generation of 721 daily vehicle trips, with 81 vehicle trips in the AM Peak (0800-0900) and in the PM Peak (1700-1800). This trip generation is a reduction compared to the previously proposed 860 daily trips (with 98 trips in the AM Peak and 96 trips in the PM Peak).

5. TRIP DISTRIBUTION

5.1 The TA provided details of the anticipated trip distribution from the site based on ATC surveys which were undertaken on Havant Road, the turning count surveys undertaken at the A27 linked roundabouts and the Emsworth Road roundabout and validated by Census Data. A 70%/30% split was concluded, whereby the majority of traffic would turn right out of the site towards the A27 in the AM Peak with the opposite occurring in the peak period.

5.2 This trip distribution was agreed in writing at the pre-application stage by HCC, and was subsequently noted as acceptable in HCC's consultee response.

5.3 HE's first response stated, *'it is noted that no analysis of Census data, indicating where people currently living in the ward are travelling to get to their place of work, has been undertaken to consider what percentage of vehicle trips shall be using the SRN…it is unclear where the 70% figure has come from and this should be clarified'.*

5.4 Subsequently and as a direct response to HE's concerns, further information was provided via e-mail. This provided further details on the validity of the trip distribution figure and gave details of the Census Data which was used at the time of assessment. It also noted that the 70% figure was considered a robust approach when compared to the Havant Road ATC data, directing more traffic through the A27 roundabouts to ensure the 'worst case' scenario was tested.

5.5 In HE's second response it was agreed that the trip distribution methodology is robust, and therefore that the forecasted development impact assessments are appropriate.

5.6 The revised trip distribution diagrams based on this approach and using the revised unit numbers are included as Appendix G.

6. TEMPRO GROWTH FACTORS

6.1 The TA provided a growth factor for the 2016-2021 period, using the NTEM adjusted growth factor for the Emsworth district.

6.2 The 2016-2021 growth rates were agreed by HCC at the pre-application stage and again referred to in their formal consultee response. These growth rates were also agreed by HE.

6.3 As HE requested additional information to be provided in the form of further modelling at the A27 linked roundabouts for the 2026 future year scenario, a further growth factor was required from 2021-2026. The 2021-2026 growth rates are presented in **Table 6**, with the associated TEMPRO outputs included as **Appendix H**.

	Growth Rate	
Period	AM Peak	PM Peak
2021-2026	1.0683	1.0731

Table 6: 2021-2026 TEMPRO Growth Outputs

6.4 As the growth rate parameters are the same as those previously used, it is anticipated that they will be considered acceptable. The revised modelling has been completed on this basis.

7. JUNCTION CAPACITY ASSESSMENTS

Scope of Junction Assessment

7.1 The TA undertook junction capacity assessments of five junctions, as requested at the pre-application stage by HCC. These were:

- Proposed Site Access (further assessment included within **Chapter 3** of this report)
- Southleigh Road/ Emsworth Road Junction
- Victoria Road/ North Street Junction
- Emsworth Roundabout;
- Havant Road/ A27 Slip Road/ church Lane Roundabout and Emsworth Road/ Havant Road/ A27 Slip Road Roundabout (A27 linked roundabouts)

7.2 The Southleigh Road/ Emsworth Road junction and the Victoria Road/ North Street junction were first assessed in terms of the percentage increase of traffic expected on these junctions based on the turning count surveys and distribution assessments. As the percentage increase in traffic was extremely low at both junctions, neither were further assessed.

7.3 It was agreed by HCC in their consultee response that no further modelling work was required at either junction.

7.4 The site access was assessed using PICADY 5 modelling software, with the results presented in the TA (July 2016). Whilst no issues with the modelling itself was found by either HCC or HE, the junction is now proposed to be signalised, and therefore the modelling contained in the TA is superseded. The site access modelling is contained within **Chapter 3** of this report.

Modelling Scenarios

7.5 The modelling scenarios that were presented in the original TA are as follows:

- Future Year 2021;
- Future Year 2021 + Development;
- Future Year 2021 + Development + Mitigation (where required).

7.6 Whilst the modelling scenarios were not discussed in HCC's consultee response, HE requested that further modelling should be undertaken in the following scenarios also:

- The development and construction phase;
- The opening year, assuming full build out and occupation; and
- Either a date ten years after the date of registration of the associated planning application or the end of the Local Plan period (whichever is greater).

7.7 PBA's response stated, *'the scope of modelling assessment was agreed with HCC through the pre-application process, presuming a full build out and occupation year of 2021. If required by Highways England, a 2026 year modelling scenario could be provided – although this would only identify additional traffic on the network through wider growth rather than development related impact.'*

7.8 Nonetheless, in the interest of obtaining a solution on the matter, PBA undertook further modelling of the 2026 period. The results of this revised modelling was included in an e-mail to HE and HCC.

7.9 As the revised scheme comprises 161 units, rather than the previously submitted 192, all updated modelling has been undertaken in the following scenarios:

- 2016 Baseline
- 2021 Baseline
- 2021 'with development'
- 2026 Baseline
- 2026 'with development'
- 2021 'with development + mitigation' (where appropriate)
- 2026 'with development + mitigation' (where appropriate).

7.10 The modelling was originally undertaken using ARCADY 7 (for each roundabout) and PICADY 5 (for the site access).

7.11 Whilst not specifically mentioned in the HCC's consultee response, HCC asked for the A27 linked roundabout junction models to be re-run using Junction 9 rather than ARCADY 8 in an e-mail dated 31st October 2016. All models have since been re-run using Junctions 9, and so slightly different results can be seen (including for the baseline scenarios) than those originally submitted. This is because Junctions 9 enables the user to 'link' the roundabouts, and also to assign flows to particular lanes.

Modelling Results

Emsworth Roundabout

7.12 The TA provided modelling of the Havant Road/ North Street/ High Street Roundabout (Emsworth Roundabout), which demonstrated that the roundabout would operate within capacity in all scenarios. This was accepted by HCC within their consultee response, where it was stated that, *'As the junction will be operating within capacity, no capacity improvement works are required at this junction.'* As HE did not comment on this roundabout, it is assumed that they also accept this stance.

7.13 The Emsworth Roundabout has been re-modelled to include the revised unit numbers (161 units). As the unit numbers are less than those previously submitted and agreed, it is anticipated that the revised modelling will be accepted. The following modelling scenarios for the Emsworth Roundabout are included in **Appendix I**:

- 2016 Baseline;
- 2021 Baseline;
- 2026 Baseline;
- 2021 'with development';
- 2026 'with development.

A27 Linked Roundabouts

7.14 The TA provided modelling of the A27/ Emsworth Road Roundabout and the A27/ Havant Road Roundabout using ARCADY 8, which uses separate models and cannot 'link' roundabouts. As previously described, HCC requested the modelling to be updated using Junctions 9 software, which allows users to 'link' the roundabouts, and also assign lanes to traffic movements.

7.15 As a direct response to HCC's comments, PBA updated all models to use Junction 9, which enabled the 'link' function and the lane assignment. In addition, the model was updated to reflect the recently undertaken topographical survey (rather than OS mapping) and the revised models were therefore considered much more accurate.

7.16 As the modelling was updated subsequent to HCC's consultee response the comments made in this response do not apply to the revised modelling. Rather, e-mail comments from HCC relating to the A27 linked roundabouts relate to e-mails dated 17th November 2016 and 16th February 2017.

7.17 Once comments were provided by HE PBA were able to update the junction models to address all outstanding comments. The comments from HE were broadly positive, however suggested a few amendments which could be made to the model.

7.18 PBA updated all modelling using the updated unit numbers, as well as the suggestions made by HE in their response. These included:

- Junction 1 Arm 3 modelled with a consistent approach width and entry width (7.3m) with no flare;
- Junction 2 Arm 1 modelled with a consistent approach and entry width (6.08m) with no flare;
- HGV percentages to match survey outputs;

7.19 PBA were also asked by HE to validate all models using queue length surveys. Queue length surveys are being undertaken, and the results will be provided subsequently.

7.20 The results of the updated modelling were provided in an e-mail to HCC & HE. The A27 linked roundabout modelling results are contained in the remainder of this Chapter. For clarity, the baseline scenarios have been grouped, as have the 'with development + mitigation' scenarios. Again for clarity, the 'with development' (and no mitigation) scenarios have not been included in this assessment, as the development would not come forward without the associated mitigation works. All updated modelling for the A27 linked roundabouts is included in **Appendix J**.

Analysis of Baseline Scenarios

2016 Baseline

7.21 **Table 7** demonstrates the 2016 Baseline modelling outputs. As shown, the junction operates within capacity, with an RFC of less than 0.85 on each arm and maximum queues of 6 vehicles on one arm (Junction 2 – Havant Road) in the PM Peak and 5 vehicles on one arm (Junction 1 – A27 Off-Slip) in the PM Peak.

2016 Baseline	AM Peak			PM Peak		
	Queue Length	Delay	RFC	Queue Length	Delay	RFC
Junction 1 (A27/ Emsworth Road)						
Arm 2 – Emsworth Road (S)	0.4	5.06	0.272	0.4	5.23	0.284
Arm 3 – A27 Off-Slip	1.9	6.30	0.567	4.6	11.23	0.778
Arm 4 – Emsworth Road (N)	3.4	19.57	0.752	3.6	25.42	0.750
Junction 2 (A27/ Havant Road)						
Arm 1 – A27 Off-slip	0.1	4.02	0.076	0.2	5.09	0.157
Arm 2 – Havant Road	5.7	15.58	0.826	1.6	6.74	0.527
Arm 3 – Church Lane	0.0	0.00	0.000	0.0	0.00	0.000
Arm 5 – Emsworth Road (S)	3.3	8.98	0.725	4.4	10.58	0.802

Table 7: 2016 Baseline Scenario (A27 Roundabouts)

2021 Baseline

7.22 As demonstrated in **Table 8** in the 2021 future year Baseline scenario, the Emsworth Road (N) arm and the Havant Road arm are shown to be approaching capacity in the AM Peak, with the A27 Off-Slip (Junction 1), the Emsworth Road (S) arm and the Emsworth Road (N) arm approaching capacity in the PM Peak.

2021 Baseline	AM Peak			PM Peak		
	Queue Length	Delay	RFC	Queue Length	Delay	RFC
Junction 1 (A27/ Emsworth Road)						
Arm 2 – Emsworth Road (S)	0.4	5.20	0.292	0.5	5.54	0.311
Arm 3 – A27 Off-Slip	2.5	7.39	0.632	9.7	19.76	0.871
Arm 4 – Emsworth Road (N)	8.2	41.79	0.874	10.0	63.30	0.901
Junction 2 (A27/ Havant Road)						
Arm 1 – A27 Off-slip	0.1	4.36	0.092	0.3	5.84	0.184
Arm 2 – Havant Road	12.3	32.23	0.928	2.0	7.72	0.594
Arm 3 – Church Lane	0.0	0.00	0.000	0.0	0.00	0.000
Arm 5 – Emsworth Road (S)	4.4	10.70	0.794	6.2	12.92	0.877

Table 8: 2021 Baseline Scenario (A27 Roundabouts)

7.23 In the AM Peak, the Emsworth Road (N) arm demonstrates an increase in queue length from 3.4 vehicles in the 2016 Baseline scenario to 8.2 vehicles (an increase of 4.8 vehicles). In addition, the delay in seconds increases from 19.57 to 41.79 (an increase of 22.22 seconds), with the RFC increased by 0.122 from the 2016 Baseline scenario. The Havant Road arm shows an increase in queue length from 5.7 vehicles to 12.3 vehicles (an increase of 6.6 vehicles). The delay in seconds increases compared to the 2016 Baseline scenario from 32.23 to 60.79 (an increase of 28.56 seconds), with the RFC increased by 0.04 from the 2016 Baseline scenario.

7.24 In the PM Peak, the A27 Off-slip (Junction 1) demonstrates an increase in queue length from 4.6 vehicles in the 2016 Baseline scenario to 9.7 vehicles (an increase of 5.1 vehicles). In addition, the delay in seconds increases from 11.23 to 19.76 (an increase of 8.53 seconds), with the RFC increased by 0.093 from the 2016 Baseline scenario. The Emsworth Road (S) arm shows an increase in queue length from 4.4 vehicles to 6.2 vehicles (an increase of 1.8 vehicles). The delay in seconds increases compared to the 2016 Baseline scenario from 10.58 to 12.92 (an increase of 2.34 seconds), with the RFC increased by 0.075 from the 2016 Baseline scenario. The Emsworth Road (N) arm demonstrates an increase in queue length from 3.6 vehicles to 10 vehicles (an increase of 6.4 vehicles). The delay in seconds increases compared to the 2016 Baseline scenario from 25.42 to 63.30 (an increase of 37.88 seconds), with the RFC increased by 0.151 from the 2016 Baseline scenario.

2026 Baseline

7.25 As shown in **Table 9**, in the 2026 future year Baseline scenario, the Emsworth Road (N) arm and the Havant Road arm are shown to be approaching capacity in the AM Peak, with the A27 Off-Slip (Junction 1), the Emsworth Road (S) arm and the Emsworth Road (N) arm approaching capacity in the PM Peak, as per the 2021 scenario.

2026 Baseline	AM Peak			PM Peak		
	Queue Length	Delay	RFC	Queue Length	Delay	RFC
Junction 1 (A27/ Emsworth Road)						
Arm 2 – Emsworth Road (S)	0.4	5.26	0.305	0.5	5.73	0.337
Arm 3 – A27 Off-Slip	3.1	8.51	0.678	24.1	44.17	0.946
Arm 4 – Emsworth Road (N)	17.0	81.72	0.964	26.0	146.14	1.009
Junction 2 (A27/ Havant Road)						
Arm 1 – A27 Off-slip	0.1	4.90	0.099	0.3	6.37	0.210
Arm 2 – Havant Road	26.0	60.79	0.968	2.3	8.57	0.640
Arm 3 – Church Lane	0.0	0.00	0.000	0.0	0.00	0.000
Arm 5 – Emsworth Road (S)	4.8	11.93	0.835	6.8	14.73	0.911

Table 9: 2026 Baseline Scenario (A27 Roundabouts)

7.26 In the AM Peak, the Emsworth Road (N) arm demonstrates an increase in queue length from 8.2 vehicles in the 2021 Baseline scenario to 17.0 vehicles (an increase of 8 vehicles). In addition, the delay in seconds increases from 41.79 to 81.72 (an increase of 39.93 seconds), with the RFC increased by 0.09 from the 2021 Baseline scenario. The Havant Road arm shows an increase in queue length from 12.3 vehicles to 26 vehicles (an increase of 13.7 vehicles). The delay in seconds increases compared to the 2021 Baseline scenario from 32.23 to 60.79 (an increase of 28.56 seconds), with the RFC increased by 0.04 from the 2021 Baseline scenario.

7.27 In the PM Peak, the A27 Off-slip (Junction 1) demonstrates an increase in queue length from 9.7 vehicles in the 2021 Baseline scenario to 24.1 vehicles (an increase of 14.4 vehicles). In addition, the delay in seconds increases from 19.76 to 44.17 (an increase of 24.41 seconds), with the RFC increased by 0.075 from the 2021 Baseline scenario. The Emsworth Road (S) arm shows an increase in queue length from 6.2 vehicles to 6.8 vehicles (an increase of 0.6 vehicles). The delay in seconds increases compared to the 2021 Baseline scenario from 12.92 to 14.73 (an increase of 1.81 seconds), with the RFC increased by 0.034 from the 2021 Baseline scenario. The Emsworth Road (N) arm demonstrates an increase in queue length from 10 vehicles to 26 vehicles (an increase of 16 vehicles). The delay in seconds increases compared to the 2021 Baseline scenario from 63.30 to 146.14 (an increase of 82.84 seconds), with the RFC increased by 0.108 from the 2021 Baseline scenario.

Summary

7.28 To summarise the baseline scenarios, **Table 10** demonstrates the increase in queue length, delay and RFC over time, if no development were to come forward in the AM Peak, with **Table 11** demonstrating this in the PM Peak. The queue length figures have been rounded up to the nearest vehicle, and the delays have also been rounded to the nearest second.

AM (Baseline)	2016 Queue Length	2021 Queue Length	2026 Queue Length	TOTAL INCREASE (2016-2026)	2016 Delay	2021 Delay	2026 Delay	TOTAL INCREASE (2016-2026)	2016 RFC	2021 RFC	2026 RFC	TOTAL INCREASE (2016-2026)
Junction 1 (A27/ Emsworth Road)												
Arm 2 – Emsworth Road (S)	1	1	1	0	5	5	5	0	0.272	0.292	0.305	**+0.033**
Arm 3 – A27 Off-Slip	2	3	4	**+2**	6	7	9	**+3**	0.567	0.632	0.678	**+0.111**
Arm 4 – Emsworth Road (N)	4	9	17	**+13**	20	42	82	**+62**	0.752	0.874	0.964	**+0.212**
Junction 2 (A27/ Havant Road)												
Arm 1 – A27 Off-slip	1	1	1	0	4	4	5	**+1**	0.076	0.092	0.099	**+0.023**
Arm 2 – Havant Road	6	13	26	**+20**	16	32	61	**+45**	0.826	0.928	0.968	**+0.142**
Arm 3 – Church Lane	0	0	0	0	0	0	0	0	0.000	0.000	0.000	0.00
Arm 5 – Emsworth Road (S)	4	5	5	**+1**	9	11	12	**+3**	0.725	0.794	0.835	**+0.11**

Table 10: Summary of Baseline Scenarios (AM Peak) (A27 Roundabouts)

PM (Baseline)	2016 Queue Length	2021 Queue Length	2026 Queue Length	TOTAL INCREASE (2016-2026)	2016 Delay	2021 Delay	2026 Delay	TOTAL INCREASE (2016-2026)	2016 RFC	2021 RFC	2026 RFC	TOTAL INCREASE (2016-2026)
Junction 1 (A27/ Emsworth Road)												
Arm 2 – Emsworth Road (S)	1	1	1	0	5	6	6	**+1**	0.284	0.311	0.337	**+0.053**
Arm 3 – A27 Off-Slip	5	10	25	**+20**	11	20	44	**+33**	0.778	0.871	0.946	**+0.168**
Arm 4 – Emsworth Road (N)	4	10	26	**+22**	25	63	146	**+121**	0.750	0.901	1.009	**+0.259**
Junction 2 (A27/ Havant Road)												
Arm 1 – A27 Off-slip	1	1	1	0	5	6	6	**+1**	0.157	0.184	0.210	**+0.053**
Arm 2 – Havant Road	2	2	3	**+1**	7	8	9	**+2**	0.527	0.594	0.640	**+0.113**
Arm 3 – Church Lane	0	0	0	0	0	0	0	0	0.000	0.000	0.000	0.000
Arm 5 – Emsworth Road (S)	5	7	7	**+2**	11	13	15	**+4**	0.802	0.877	0.911	**+0.109**

Table 11: Summary of Baseline Scenarios (PM Peak) (A27 Roundabouts)

7.29 **Tables 10** and **11** demonstrate that, if the development weren't to come forward, the Emsworth Road (N) arm and the Havant Road arm would be considered to be approaching capacity' in the AM Peak, with the A27 Off-Slip (Junction 1), the Emsworth Road (N) arm and the Emsworth Road (S) arm approaching/ at capacity in the PM Peak in both the 2021 and the 2026 Baseline scenarios.

Proposed Mitigation Works

7.30 The proposed extent of mitigation works on the Havant Road arm and the Emsworth Road (S) arm have been agreed by HCC, and are demonstrated in **Appendix K**.

7.31 It should be noted that HCC were at first concerned that the Emsworth Road arm of the roundabout in the PM Peak would operate over capacity in the 2021 'with development' scenario, and therefore that further mitigation works on this arm would be desired. Further analysis was provided to HCC, which summarised the proposed justification which this ATA would provide to alleviate these potential concerns raised by HCC. This justification is presented within the remainder of this Chapter.

Analysis of 'With Development + Mitigation' Scenarios

2021 'with Development + Mitigation'

7.32 **Table 12** demonstrates the '2021 future year with Development + Mitigation scenario.

2021 With Development + Mitigation	AM Peak			PM Peak		
	Queue Length	Delay	RFC	Queue Length	Delay	RFC
Junction 1 (A27/ Emsworth Road)						
Arm 2 – Emsworth Road (S)	0.4	5.34	0.303	0.5	5.57	0.320
Arm 3 – A27 Off-Slip	2.4	7.27	0.635	9.6	20.04	0.893
Arm 4 – Emsworth Road (N)	7.2	38.00	0.878	12.3	72.98	0.938
Junction 2 (A27/ Havant Road)						
Arm 1 – A27 Off-slip	0.1	4.61	0.093	0.2	6.13	0.193
Arm 2 – Havant Road	6.5	16.42	0.844	1.7	6.13	0.540
Arm 3 – Church Lane	0.0	0.00	0.000	0.0	0.00	0.000
Arm 5 – Emsworth Road (S)	3.2	8.03	0.710	4.6	9.93	0.790

Table 12: 2021 with Development + Mitigation Scenario (A27 Roundabouts)

7.33 As demonstrated in **Table 12** the Emsworth Road (N) arm is shown to be approaching capacity in the AM Peak, with the impact of the development successfully mitigated on the Havant Road Arm to below the '2021 Baseline' scenario. The Emsworth Road (N) arm demonstrates a decrease in queue length from 8.2 vehicles to 7.2 vehicles when compared with the 2021 Baseline scenario, with a decrease in delay of 3.79 seconds (from 41.79 to 38 seconds). The RFC does however, slightly increase from 0.874 to 0.878 (an increase of 0.04).

7.34 In the PM peak, the 2021 future year with development + mitigation scenario demonstrates the A27 Off-slip and the Emsworth Road (N) arm approaching capacity, with the impact of the development successfully mitigated on the Emsworth Road (S) arm. In the PM Peak, the A27 Off-Slip (Junction 1) demonstrates a decrease in vehicles from 9.7 to 9.6 (a decrease of 0.1 vehicles). The delay is increased slightly from 19.76 to 20.04 seconds (an increase of 0.28 seconds), with the RFC also increases slightly (by 0.037) when comparing to the 2021 Baseline scenario. The Havant Road arm demonstrates a decrease in vehicles from 2 to 1.7, with a decrease also demonstrated when looking at queue length and RFC. The Emsworth Road (S) arm shows an increase in queue length from 10 vehicles to 12.3 vehicles (an increase of 2.3 vehicles). The delay in seconds increases compared to the 2021 Baseline scenario from 63.30 to 72.98 (an increase of 9.68 seconds), with the RFC increased by 0.037 from the 2021 Baseline scenario.

2026 'with development'

7.35 **Table 13** demonstrates the '2026 future year with Development + Mitigation scenario.

2026 With Development + Mitigation	AM Peak			PM Peak		
	Queue Length	Delay	RFC	Queue Length	Delay	RFC
Junction 1 (A27/ Emsworth Road)						
Arm 2 – Emsworth Road (S)	0.5	5.53	0.325	0.5	5.73	0.342
Arm 3 – A27 Off-Slip	3.2	7.96	0.691	21.2	40.68	0.966
Arm 4 – Emsworth Road (N)	17.0	80.51	0.982	30.4	166.95	1.068
Junction 2 (A27/ Havant Road)						
Arm 1 – A27 Off-slip	0.1	5.01	0.108	0.3	6.67	0.222
Arm 2 – Havant Road	9.7	24.41	0.900	1.9	6.63	0.577
Arm 3 – Church Lane	0.0	0.00	0.000	0.0	0.00	0.000
Arm 5 – Emsworth Road (S)	3.8	8.87	0.756	4.9	11.36	0.833

Table 13: 2026 with Development + Mitigation Scenario (A27 Roundabouts)

7.36 In the 2026 future year with Development + Mitigation scenario, the Emsworth Road (N) arm and the Havant Road arm are shown to be approaching capacity in the AM Peak. The Emsworth Road (N) arm demonstrates no increase in queue length compared to the 2026 Baseline scenario, with a slight increase in delay from 80.51 seconds to 81.72 seconds (an increase of 1.12 seconds). The RFC shows a slight increase from 0.964 in the Baseline scenario to 0.982 (an increase of 0.018). The Havant Road arm demonstrates a decrease in queue length compared to the baseline scenario of 16.3 vehicles (from 26 vehicles to 9.7 vehicles), with a decrease in delay from 60.79 seconds to 24.41 seconds (a decrease of 36.38 seconds). The RFC is also decreased from the 2026 Baseline scenario, from 0.968 to 0.900 (a decrease of 0.068).

7.37 In the PM peak, the 2026 future year with development + mitigation scenario demonstrates the A27 Off-slip approaching capacity, with the Emsworth Road (N) arm considered 'over capacity'. In the PM Peak, the A27 Off-Slip (Junction 1) demonstrates a decrease in queue length from 24.1 to 21.2 (a decrease of 2.9 vehicles). The delay is also reduced, from 44.17 seconds to 40.48 seconds (a decrease of 3.69 seconds) with the RFC slightly increased from 0.966 to 0.946 (an increase of 0.02). The Havant Road Arm demonstrates a decrease in queue length from 2.3 vehicles to 1.9 vehicles, with the delay time and RFC also reduced. The Emsworth Road (N) arm shows an increase in queue length from 26 vehicles to 30.4 vehicles (an increase of 4.4 vehicles). The delay in seconds increases compared to the 2026 Baseline scenario from 146.14 to 166.95 (an increase of 20.81 seconds), with the RFC increased by 0.059 from the 2026 Baseline scenario.

Summary

7.38 To summarise the 'with Development + Mitigation scenarios against the Baseline scenarios, **Table 14** demonstrates the changes in queue length, delay and RFC in the AM Peak, with **Table 15** demonstrating the same in the PM Peak in the 2021 scenarios. **Table 16** and **Table 17** demonstrate the same in the 2026 scenarios. The queue length figures have been rounded up to the nearest vehicle, and the delays have also been rounded to the nearest second.

AM Peak	2021 Baseline	2021 with development + mitigation	TOTAL CHANGE	2021 Baseline	2021 with development + mitigation	TOTAL CHANGE	2021 Baseline	2021 with development + mitigation	TOTAL CHANGE
	Queue Length	Queue Length		Delay	Delay		RFC	RFC	
Junction 1 (A27/ Emsworth Road)									
Arm 2 – Emsworth Road (S)	1	1	0	5	5	0	0.292	0.303	+0.011
Arm 3 – A27 Off-Slip	3	3	0	7	7	0	0.632	0.635	+0.003
Arm 4 – Emsworth Road (N)	9	8	-1	42	38	-4	0.874	0.878	+0.004
Junction 2 (A27/ Havant Road)									
Arm 1 – A27 Off-slip	1	1	0	4	5	+1	0.092	0.093	+0.001
Arm 2 – Havant Road	13	7	-6	32	16	-16	0.928	0.844	-0.084
Arm 3 – Church Lane	0	0	0	0	0	0	0.000	0.000	0.000
Arm 5 – Emsworth Road (S)	5	4	-1	11	8	-3	0.794	0.710	-0.084

Table 14: Summary of 2021 'with and without development' Scenarios (AM Peak) (A27 Roundabouts)

PM Peak	2021 Baseline	2021 with development + mitigation	TOTAL CHANGE	2021 Baseline	2021 with development + mitigation	TOTAL CHANGE	2021 Baseline	2021 with development + mitigation	TOTAL CHANGE
	Queue Length	Queue Length		Delay	Delay		RFC	RFC	
Junction 1 (A27/ Emsworth Road)									
Arm 2 – Emsworth Road (S)	1	1	0	6	6	0	0.311	0.320	+0.009
Arm 3 – A27 Off-Slip	10	10	0	20	20	0	0.871	0.893	+0.022
Arm 4 – Emsworth Road (N)	10	13	+3	63	73	+10	0.901	0.938	+0.037
Junction 2 (A27/ Havant Road)									
Arm 1 – A27 Off-slip	1	1	0	6	6	0	0.184	0.193	+0.009
Arm 2 – Havant Road	2	2	0	8	6	-2	0.594	0.540	-0.054
Arm 3 – Church Lane	0	0	0	0	0	0	0.000	0.000	0.000
Arm 5 – Emsworth Road (S)	7	5	-2	13	10	-3	0.877	0.790	-0.087

Table 15: Summary of 2021 'with and without development' Scenarios (PM Peak) (A27 Roundabouts)

AM	2026 Baseline	2026 with development + mitigation	TOTAL CHANGE	2026 Baseline	2026 with development + mitigation	TOTAL CHANGE	2026 Baseline	2026 with development + mitigation	TOTAL CHANGE
	Queue Length	Queue Length		Delay	Delay		RFC	RFC	
Junction 1 (A27/ Emsworth Road)									
Arm 2 – Emsworth Road (S)	1	1	0	5	6	+1	0.305	0.325	**+0.020**
Arm 3 – A27 Off-Slip	4	4	**0**	9	8	**-1**	0.678	0.691	**+0.013**
Arm 4 – Emsworth Road (N)	17	17	**0**	82	81	**-1**	0.964	0.982	**+0.018**
Junction 2 (A27/ Havant Road)									
Arm 1 – A27 Off-slip	1	1	0	5	5	**0**	0.099	0.108	**+0.009**
Arm 2 – Havant Road	26	10	**-16**	61	24	**-37**	0.968	0.900	**-0.068**
Arm 3 – Church Lane	0	0	0	0	0	0	0.000	0.000	0.000
Arm 5 – Emsworth Road (S)	5	4	**-1**	12	9	**-3**	0.855	0.756	**-0.099**

Table 16: Summary of 2026 'with and without development' Scenarios (AM Peak) (A27 Roundabouts)

PM	2026 Baseline	2026 with development + mitigation	TOTAL CHANGE	2026 Baseline	2026 with development + mitigation	TOTAL CHANGE	2026 Baseline	2026 with development + mitigation	TOTAL CHANGE
	Queue Length	Queue Length		Delay	Delay		RFC	RFC	
Junction 1 (A27/ Emsworth Road)									
Arm 2 – Emsworth Road (S)	1	1	0	6	6	0	0.337	0.342	**+0.005**
Arm 3 – A27 Off-Slip	25	22	**-3**	44	41	**-3**	0.946	0.966	**+0.020**
Arm 4 – Emsworth Road (N)	26	31	**+5**	146	167	**+21**	1.009	1.068	**+0.059**
Junction 2 (A27/ Havant Road)									
Arm 1 – A27 Off-slip	1	1	0	6	7	**+1**	0.210	0.222	**+0.012**
Arm 2 – Havant Road	3	3	**0**	9	7	**-2**	0.640	0.577	**-0.063**
Arm 3 – Church Lane	0	0	0	0	0	0	0.000	0.000	0.000
Arm 5 – Emsworth Road (S)	7	7	**0**	15	11	**-4**	0.911	0.833	**-0.078**

Table 17: Summary of 2026 'with and without development' Scenarios (PM Peak) (A27 Roundabouts)

7.39 **Tables 14** and **15** show that, if the development were to come forward with the proposed mitigation, the 5-year future (2021) queue length on the Emsworth Road (N) arm would be less than existing in the AM Peak, with delay also reduced. In the PM Peak, a queue of an additional 3 vehicles can be expected, with additional delay of 10 seconds. All other arms show either a decrease or no increase in traffic compared to the 2021 Baseline, apart from a marginal 1 second increase in delay on the A27 Off-Slip (Junction 1).

7.40 **Tables 16** and **17** show that, if the development were to come forward with the proposed mitigation, the 10 year future (2026) queue length on the Emsworth Road (N) arm would not increase compared with the 2026 Baseline scenario, with the delay reduced by 1 second. In the PM Peak, an increase of up to 5 vehicles can be expected on this arm, with additional queuing time of 21 seconds. Again, all other arms show either a decrease or no increase in traffic compared to the 2026 Baseline, apart from a marginal 1 second increase in delay on the A27 Off-Slip (Junction 1).

7.41 Whilst it is understood that there is a modest increase in queue/delay on the Emsworth Road (N) in the PM peak only (nil detriment in the AM peak), it is felt that the decreases in queuing, delay and RFC on the other arms outweigh the slight increase here.

Total increases in traffic

7.42 **Table 18** demonstrates the net impact of the proposed development traffic on the whole linked junction. This is important to note, as the roundabout is as defined by the model a single linked junction, and therefore mitigation works applied to certain arms have an impact on other arms also and the operation of the roundabout as a whole.

	Baseline	with development + mitigation	TOTAL CHANGE	Baseline	with development + mitigation	TOTAL CHANGE
	Queue Length	Queue Length		Delay	Delay	
AM						
2021	32	24	-8	101	79	-22
2026	54	37	-17	174	133	-41
PM						
2021	31	32	+1	116	121	+5
2026	63	65	+2	226	239	+13

Table 18: Net Impact of Proposed Development on Linked Junction

7.43 As demonstrated in **Table 18**, the 'net impact' of development (and the proposed mitigation) on the linked roundabout is 2 queuing vehicles in the 2026 PM scenario, with a substantial decrease of 17 vehicles queuing on the roundabout in the AM Peak. The net impact in terms of delay is a 41 second reduction compared to the 2026 baseline in the AM peak and only a 13 second increase in the 2026 PM peak.

7.44 It is also worth noting that the additional traffic shown on the Emsworth Road arm will most likely be returning residents travelling back from Havant, having travelled to Havant in the AM peak. Given the mitigation works on the Havant Road arm, vehicles travelling towards Havant in the AM Peak can expect a decrease in delay of 37 seconds (in the 2026 scenario), and the increase of 21 seconds on the Emsworth Road arm on their return would still lead to an overall modest decrease in total journey time to/from work across the course of the day. This can also be shown with queue lengths, with a decrease in the AM (2026) Peak of 16 vehicles on the Havant Road arm, and an increase of just 5 vehicles on the Emsworth Road arm in the PM Peak.

7.45 In further correspondence dated 16th February 2017 HCC agreed that, based on a summary of the above further interrogation of the modelling results, the *'improvements proposed are therefore considered to suitably mitigate the impact of the development on these roundabouts'*, subject to the agreement of HE.

7.46 It is therefore concluded that the required extent of highway works to mitigate the impact of the development proposals at the A27 Linked Roundabouts is that previously agreed by HCC and contained within **Appendix K** of this report.

8. CONTRIBUTIONS

8.1 In e-mail correspondence with HCC and based on previous on-going discussions regarding HCC's requirements for sustainable improvements in the area, a contribution (rather than S278 works) would be sought to improve pedestrian access to Emsworth Primary School.

8.2 HCC requested that a contribution should be sought towards additional traffic calming measures outside Emsworth Primary School in the form of road surfacing and the installation of dropped kerbs and tactile paving on both Victoria Road and the school access. The extent of the works have been suggested by HCC within a sketch (included as Appendix L), and a contribution of £30,000 has been offered by Barratt Homes to help HCC deliver these works.

8.3 In addition, the mitigation works at the A27 linked roundabouts, as well as the installation of the site access which includes a signalised crossing on Havant Road, has been recognised as a positive additional benefit to the community.

9. SUMMARY AND CONCLUSIONS

9.1 This ATA has been prepared by PBA on behalf of BH to support a revised application for a proposed residential development comprising 161 dwellings at Havant Road, Emsworth. A previous application was submitted in July 2016 for 192 dwellings, and ongoing discussions have taken place between PBA, HE and HCC, and it is understood that Havant Borough Council were consulted to assess the internal site layout, however no comments have yet been received.

9.2 The correspondence between PBA, HE and HCC demonstrates that a number of issues which were raised at an early stage have been addressed and overcome, and the aim of this report was to address any outstanding issues, as well as update all previous information to relate to the revised 161 units.

9.3 The revised scheme comprises 161 dwellings (compared to the former 192), of which 30% would be affordable. The revised development provides a total of 326 residential spaces, of which 1 space would be provided for the 1 bedroom units, 1-2 spaces for the 2 bedrooms units, 2 spaces per 3 bedroom units and 3 spaces per 4 bedroom unit. A further 27 spaces are intended for formal visitor parking spaces, totalling 353 spaces. In addition, cycle parking is provided for each plot, with communal cycle stores proposed for the blocks of flats.

9.4 The internal road layout has been updated to reflect comments received as part of the application, with a 'Trim Trail' now provided around the entire perimeter of the site. Internal visibility has been assessed, which demonstrates achievable visibility for speeds of up to 20mph along the spine road, and 15mph within the site's peripheries. Refuse vehicle tracking has also been undertaken, which demonstrates that refuse vehicles can get to within the required carry distances of each property, with carry distances for residents also achievable. Fire tenders are able to get within 45m of each property.

9.5 A signalled junction is proposed to access the site. The modelling of the site access has been updated to reflect the change in unit numbers to 161 units. The revised modelling and resulting outputs have been agreed as acceptable by HCC.

9.6 Revised trip rate analysis indicates likely trip generation of 721 daily vehicle trips, with 81 vehicle trips in the AM Peak (0800-0900) and in the PM Peak (1700-1800). This trip generation is a reduction compared to the previously consented 860 daily trips (with 98 trips in the AM Peak and 96 trips in the PM Peak). The anticipated trip distribution from the site has been agreed by both HCC and HE.

9.7 In order to undertake further modelling of the A27 Linked Roundabouts, a further TEMPRO growth rate assessment was undertaken for the 2021-2026 period. It is anticipated that this figure will be considered acceptable, as the parameters used have been previously agreed with both HCC and HE for the 2016-2021 scenario.

9.8 Revised modelling for the Emsworth Roundabout has been undertaken, using the revised unit numbers and the requested 2026 scenario. As the roundabout is shown to be operating within capacity in all scenarios, no mitigation works are proposed. This has been agreed by HCC.

9.9 Revised modelling of the A27 linked roundabouts has been undertaken to address the change in unit numbers, the requested modelling changes by HE, the further 2026 scenarios requested by HE and the updating of the model to Junctions 9.

9.10 The results demonstrate that, due to the mitigation works proposed on the southern A27 roundabout, in the 2026 'future year' scenario (with mitigation) the vehicle queues and delay on the Havant Road arm are substantially reduced, with reductions occurring on most other arms at the junction also. The Emsworth Road (N) arm demonstrates a slight increase in queue length and delay, however this is minimal with up to 5 additional vehicles in the 2026 PM Peak and no additional vehicles in the AM Peak.

9.11 In addition, the 'net' impact of the development traffic on the linked junction when taking into account the proposed mitigation works is negligible. The modelling parameters, outcome and mitigation works have been agreed by HCC.

9.12 A contribution to support sustainable infrastructure improvements to the school of £30,000 (based on the HCC design) has been proposed by Barratt Homes (in addition to the A27 roundabout mitigation works and the installation of the signalised crossing on Havant Road).

Appendix A

Drawn by MAH Checked by BJC

Date NOVEMBER 2016

This drawing and the works depicted are the copyright of Simon Cooper Associates Ltd, and may not be reproduced or amended except by written permission. No liability will be accepted for amendments made by other persons.

Revisions

Rev.	Date	Drawn	Checked

HAVANT ROAD EMSWORTH 161

SCHEDULE OF DWELLINGS

BARRATT

REF	TYPE	DESCRIPTION	STOREY	SQ.FT	NO	TOTAL	Comments
WD	WOODCROFT	4 BED TOWN HOUSE	2.5	1309	9	11781	Standard
KI	KINGSLEY	4 BED HOUSE	2.0	1080	4	4320	Standard
ES	ESKDALE	3 BED HOUSE	2.0	1058	5	5290	Standard
EN	ENNERDALE	3 BED HOUSE	2.0	917	17	15589	Standard
BU	BUCHANAN	3 BED HOUSE	2.0	875	4	3500	Standard
MA	MAIDSTONE	3 BED HOUSE	2.0	830	17	14110	Standard
FO	FOLKSTONE	3 BED HOUSE	2.0	830	13	10790	Standard
RO	ROSEBERRY	2 BED HOUSE	2.0	679	18	12222	Standard
AV+	ALVERTON (SPECIAL)	2 BED COACH HOUSE	2.0	706	5	3530	Hants Garages
CO	COLEFORD	2 BED FLAT	3.0	692	3	2076	Standard
MN	MALDON	2 BED FLAT	3.0	676	6	4056	Standard
HO	HORNSEA	2 BED FLAT	3.0	655	3	1965	Standard
AM	AMBERSHAM	2 BED FLAT	3.0	584	6	3504	Standard
LO	LOUGHTON	1 BED FLAT	3.0	472	3	1416	Standard
SUB TOTAL					**113**	**94149**	

AFFORDABLE

REF	TYPE	DESCRIPTION	STOREY	SQ.FT	NO	TOTAL	Comments
SOCIAL HOUSING (30%) *							
3BH	ESKDALE (SPECIAL)	3 BED HOUSE	2.0	1058	1	1058	No En-Suite
T69	TYPE 69	3 BED HOUSE	2.0	787	12	9444	Standard NGF
T64	TYPE 64	3 BED HOUSE	2.0	733	6	4398	Standard NGF
T73	TYPE 73	2 BED COACH HOUSE	2.0	704	4	2816	Standard NGF
2BFA	COLEFORD (SPECIAL)	2 BED FLAT	3.0	692	3	2076	No En-Suite
2BFC	MALDON (SPECIAL)	2 BED FLAT	3.0	676	3	2028	No En-Suite
2BFB	HORNSEA (SPECIAL)	2 BED FLAT	3.0	655	3	1965	No En-Suite
T67	TYPE 67	2 BED HOUSE	2.0	602	10	6020	Standard NGF
2BFD	AMBERSHAM (SPECIAL	2 BED FLAT	3.0	584	3	1752	No En-Suite
1BFA	LOUGHTON (SPECIAL)	1 BED FLAT	3.0	472	3	1416	No En-Suite
SUB TOTAL					**48**	**32973**	
GRAND TOTAL					**161**	**127122**	

0 5 10 15 20 25
0m 25m
Scale 1:500

Project:
HAVANT ROAD,
EMSWORTH, HAMPSHIRE

Drawing Title:
PLANNING
LAYOUT

Client:
BARRATT HOMES

SIMON COOPER
Simon Cooper Associates Limited,
Connaught House, 23-24 Southend Road,
Rayleigh, SS4 3LR
Telephone 01375 430039
info@simoncooper.net www.simoncooper.net

Drg. No. 18-2059-100

Scale @ A0 1:500 Rev.

Appendix B

Drawn by: RKCS Checked: MAH
Date: FEBRUARY 2017
The drawing and all other materials appearing in this document are the copyright of Simon Cooper Associates Limited and may not be reproduced or otherwise disclosed to third parties without the express written authority of Simon Cooper Associates.
Revisions
Rev Date Drawn Checked
KEY
ALLOCATED = 250 SPACES
GARAGES = 61 SPACES
CAR PORTS = 13 SPACES
VISITOR = 27 SPACES
TOTAL = 353 SPACES
0.5 1.0 2.5 5.0 7.5 10.0 15.0 20.0 25m
Scale 1:500
PRELIMINARY
Project: HAVANT BOROUGH EMSWORTH PROJECT
Drawing: SITE STRATEGY PLAN
BARRATT HOMES
SIMON COOPER
Simon Cooper Associates Limited
Garrison House, Garrison Lane, Felixstowe, Suffolk, IP11 7RA
Telephone: 01394 276556
Facsimile: 01394 276558
Dwg No: 18-2059-107
Rev:
Scale @ A1:1:500
OPEN SPACE
SELANGOR AVENUE
Emsworth

Appendix C

Drawn by: RKDB Checked by: MAH

Date: FEBRUARY 2017

This drawing and the works depicted are the copyright of Simon Cooper Associates Ltd. and may not be reproduced or amended except by written permission. No liability will be accepted for amendments made by other persons.

Revisions

Rev.	Date	Drawn	Checked

KEY

- g Rear gate access
- d Garage door access
- Cycle Storage within Garage or Store
- 1.8m x 1.2m Shed for Cycle Storage
- Area of hardstanding for Refuse and Recycle Bins

0 5 10 15 20 25
0m 25m
Scale 1:500

Project:
HAVANT ROAD,
EMSWORTH, PARKSHIRE

Drawing:
BIN AND CYCLE
STORAGE

PRELIMINARY

BARRATT HOMES

SIMON COOPER

Simon Cooper Associates Limited,
Connaught House, 22/24 Guildford Road,
Bognor Regis, PO21 5DA
Telephone: 01278 450039
info@simoncooper.net www.simoncooper.net

Drg. No: 18-2059-106

Scale @ A0: 1:500 Rev:

Appendix D

The drawings, information and data recorded in this document ("the information") is the property of Paul Basham Associates.This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purposes other than which it was supplied by Paul Basham Associates. Paul Basham Associates makes no representation, undertakes no duty and accepts no responsibilities to any third party who may use or rely upon this document or the information.

GENERAL NOTES

1. THIS DRAWING IS INTENDED TO BE VIEWED IN COMBINATION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
3. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES – THIS MUST BE TREATED AS INDICATIVE ONLY.
4. ALL DIMENSIONS AND LEVELS ARE IN METRES. DO NOT SCALE THIS DRAWING, PRINT, PLOT OR DISK.
5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.
6. 25m JUNCTION VISIBILITY SPLAYS AND 17m FORWARD VISIBILITY SPLAYS ARE BASED ON DESIGN SPEEDS OF 20MPH (WTH 15MPH ON ROAD BENDS) IN ACCORDANCE WITH MANUAL FOR STREETS DESIGN PRINCIPLES.

Rev	Description	Date	By	Chkd
A	REVISED APPLICATION	14.02.17	BW	MS

paulbasham ASSOCIATES

Paul Basham Associates Ltd
Lancaster Court
8 Barnes Wallis Road
Fareham Hampshire
PO15 5TU
T +44 (0) 1489 668134
E info@paulbashamassociates.com
W www.paulbashamassociates.com

Client

BARRATT HOMES

Project Name
HAVANT ROAD, EMSWORTH

Title
INTERNAL VISIBILITY SPLAYS

Project Phase
PRELIMINARY

Checked By	Checked Date	Drawn By	Drawn Date
JH	19.07.16	SB/SG	19.07.16

Client Drawing No.	Scale	
-	1:1000	(AT A1 SIZE)

PBA Drawing No.	Revision
041.0025.007	A

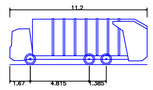
Appendix E

The drawings, information and data recorded in this document ("the information") is the property of Paul Basham Associates.This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purposes other than which it was supplied by Paul Basham Associates. Paul Basham Associates makes no representation, undertakes no duty and accepts no responsibilities to any third party who may use or rely upon this document or the information.

GENERAL NOTES

1. THIS DRAWING IS INTENDED TO BE VIEWED IN COMBINATION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
3. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES – THIS MUST BE TREATED AS INDICATIVE ONLY.
4. ALL DIMENSIONS AND LEVELS ARE IN METRES. DO NOT SCALE THIS DRAWING, PRINT, PLOT OR DISK.
5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.

REFUSE VEHICLE PROFILE



Phoenix 2 Duo (P2-15W with Elite 6x4 chassis)

Overall Length	11.200m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.504m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	9.500m

NORTH

Rev	Description	Date	By	Chkd
A	REVISED APPLICATION	14.02.17	BW	MS

Paul Basham Associates Ltd
Lancaster Court
8 Barnes Wallis Road
Fareham Hampshire
PO15 5TU
T +44 (0) 1489 668134
E info@paulbashamassociates.com
W www.paulbashamassociates.com

Client: BARRATT HOMES

Project Name: HAVANT ROAD, EMSWORTH

Title: INTERNAL REFUSE TRACKING

Project Phase: PRELIMINARY

Checked By	Checked Date	Drawn By	Drawn Date
JH	19.07.16	BW	19.07.16

Client Drawing No.	Scale	
-	1:1000	(AT A1 SIZE)

PBA Drawing No.	Revision
041.0025.008	A

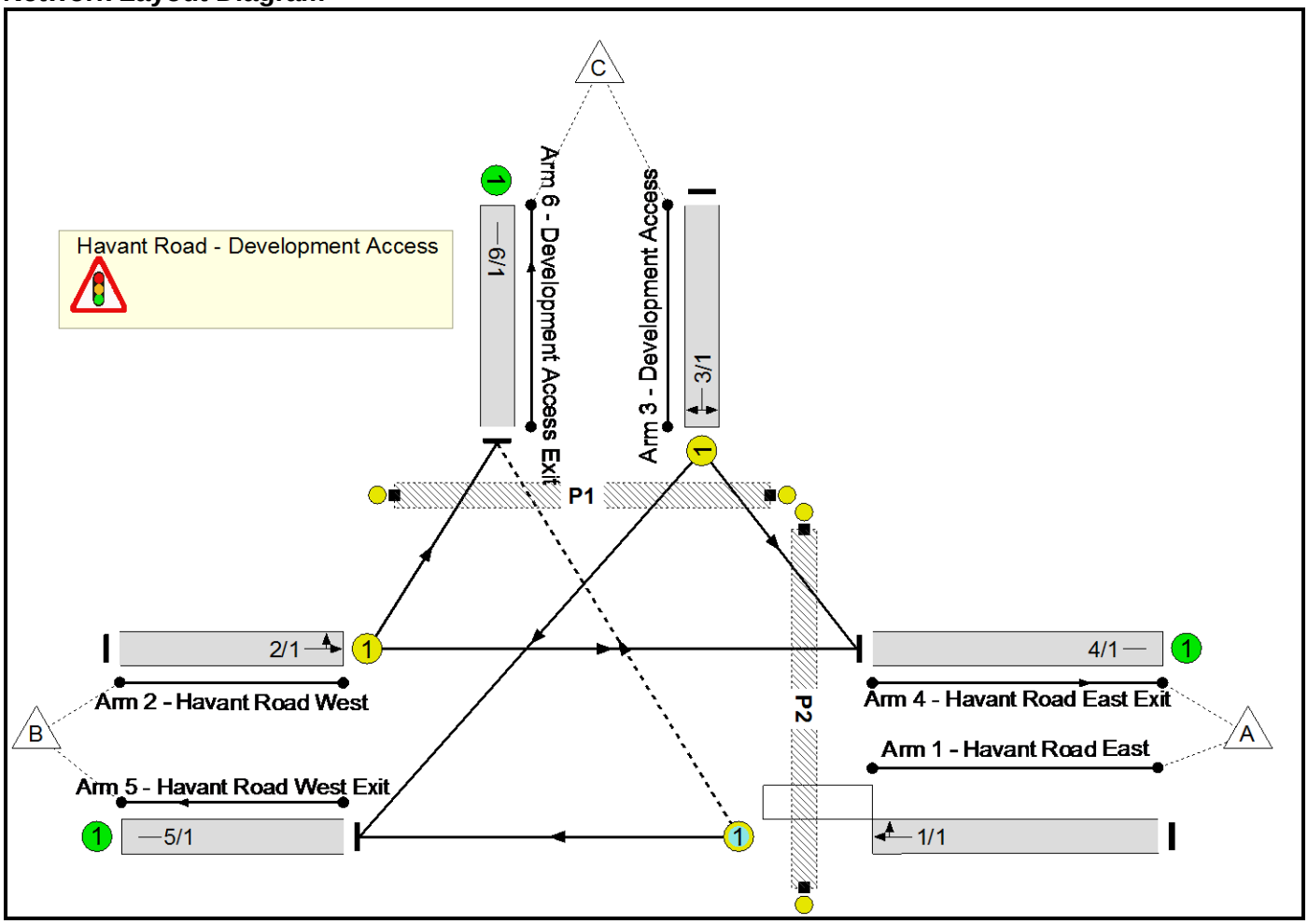
Appendix F

Full Input Data And Results

User and Project Details

Project:	**Warblington Meadows**
Title:	**Havant Road - Development Access Jct**
Location:	
File name:	Havant Road - Development Access v3.lsg3x
Author:	JR
Company:	PBA
Address:	
Notes:	

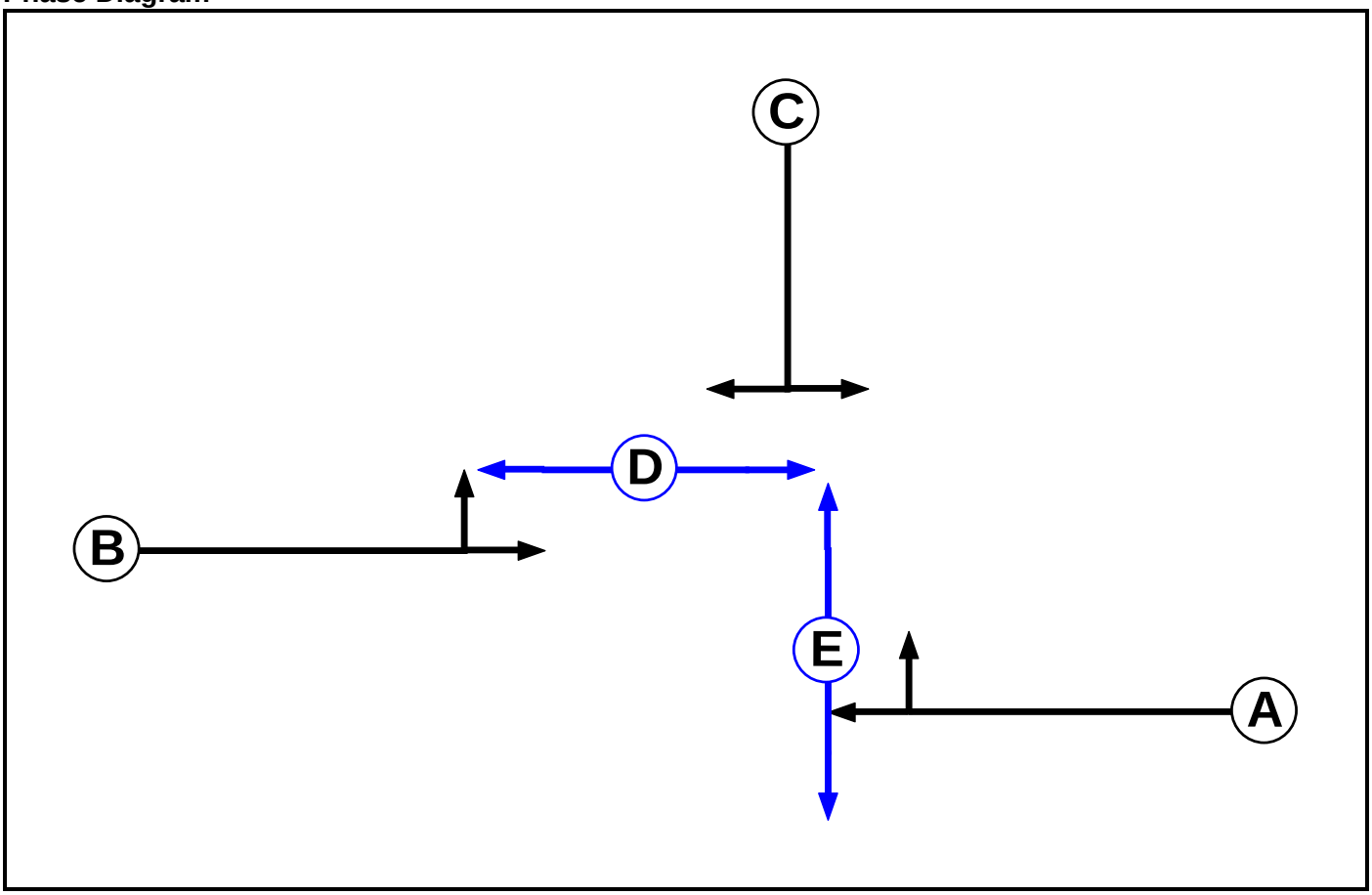
Network Layout Diagram



Full Input Data And Results

Scenario 1: '2021 with Dev AM Peds every other 90 cycle time' (FG2: '2021 with Dev AM', Plan 2: 'Network Control Plan 2')

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7

Full Input Data And Results

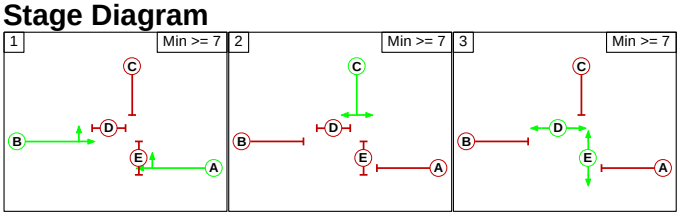
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

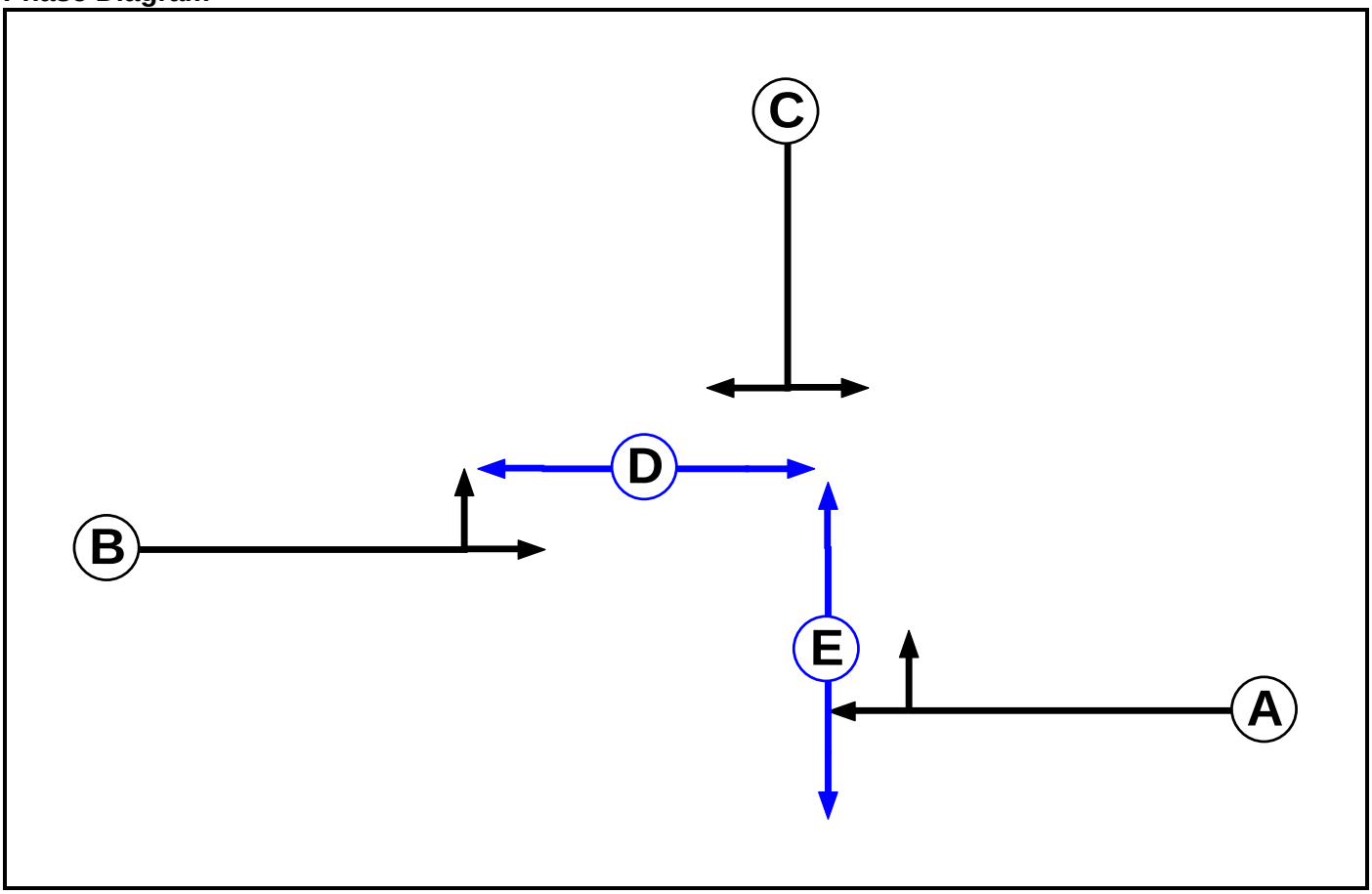
Prohibited Stage Change

From Stage	To Stage			
		1	2	3
	1		6	9
	2	6		8
	3	6	6	

Full Input Data And Results

Scenario 2: '2021 with Dev PM Peds every other 90 cycle time' (FG1: '2021 with Dev PM', Plan 2: 'Network Control Plan 2')

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7

Full Input Data And Results

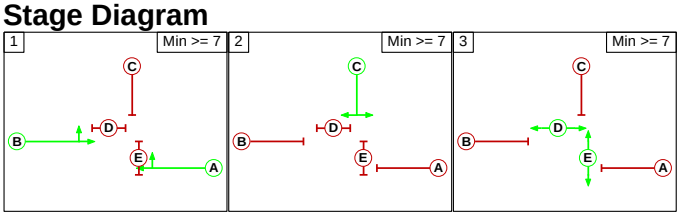
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

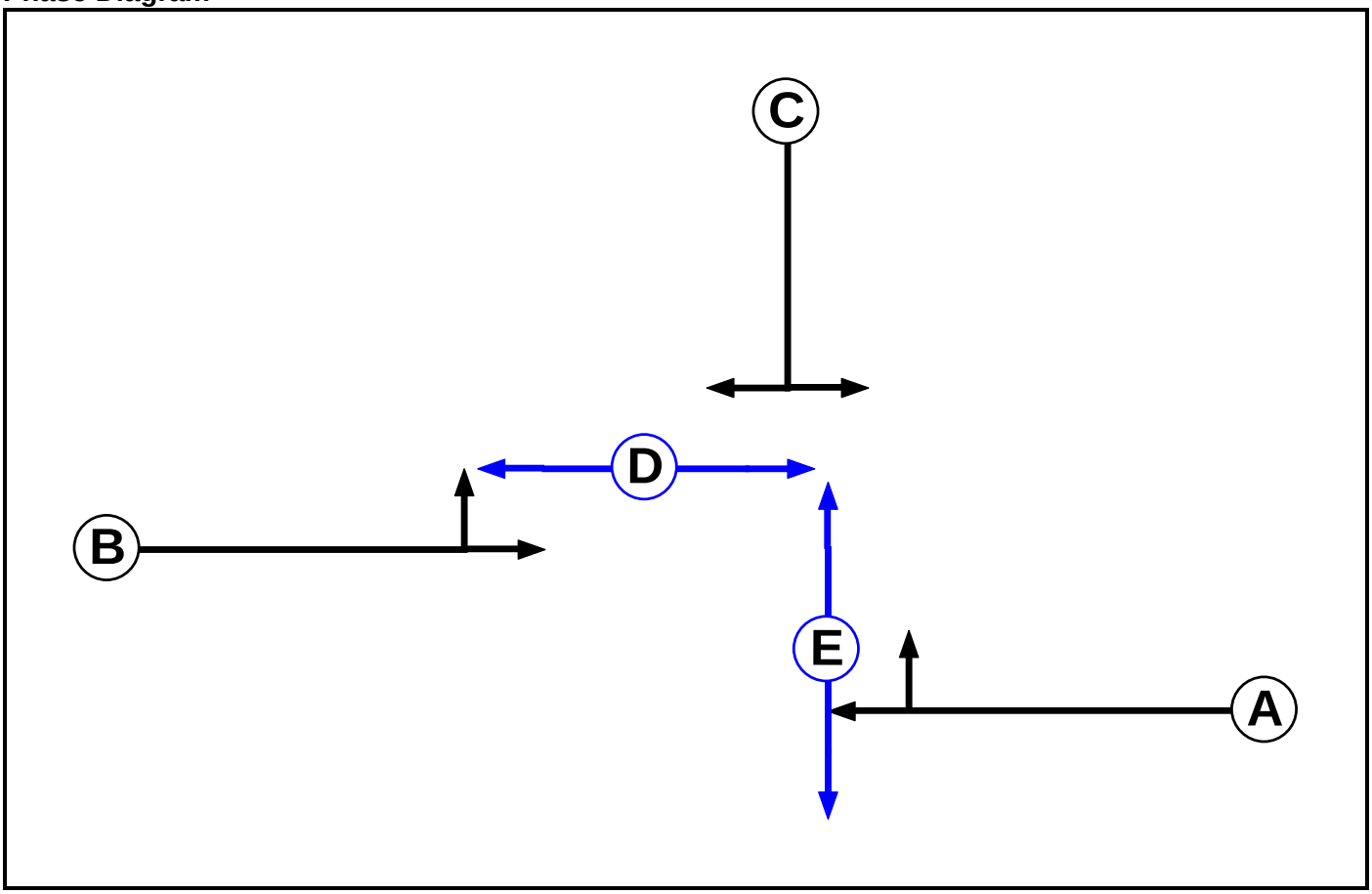
Prohibited Stage Change

From Stage	To Stage			
		1	2	3
	1		6	9
	2	6		8
	3	6	6	

Full Input Data And Results

Scenario 3: '2021 with Dev AM Peds every other 120 cycle time' (FG2: '2021 with Dev AM', Plan 2: 'Network Control Plan 2')

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7

Full Input Data And Results

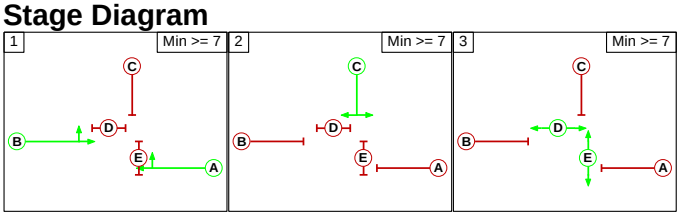
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

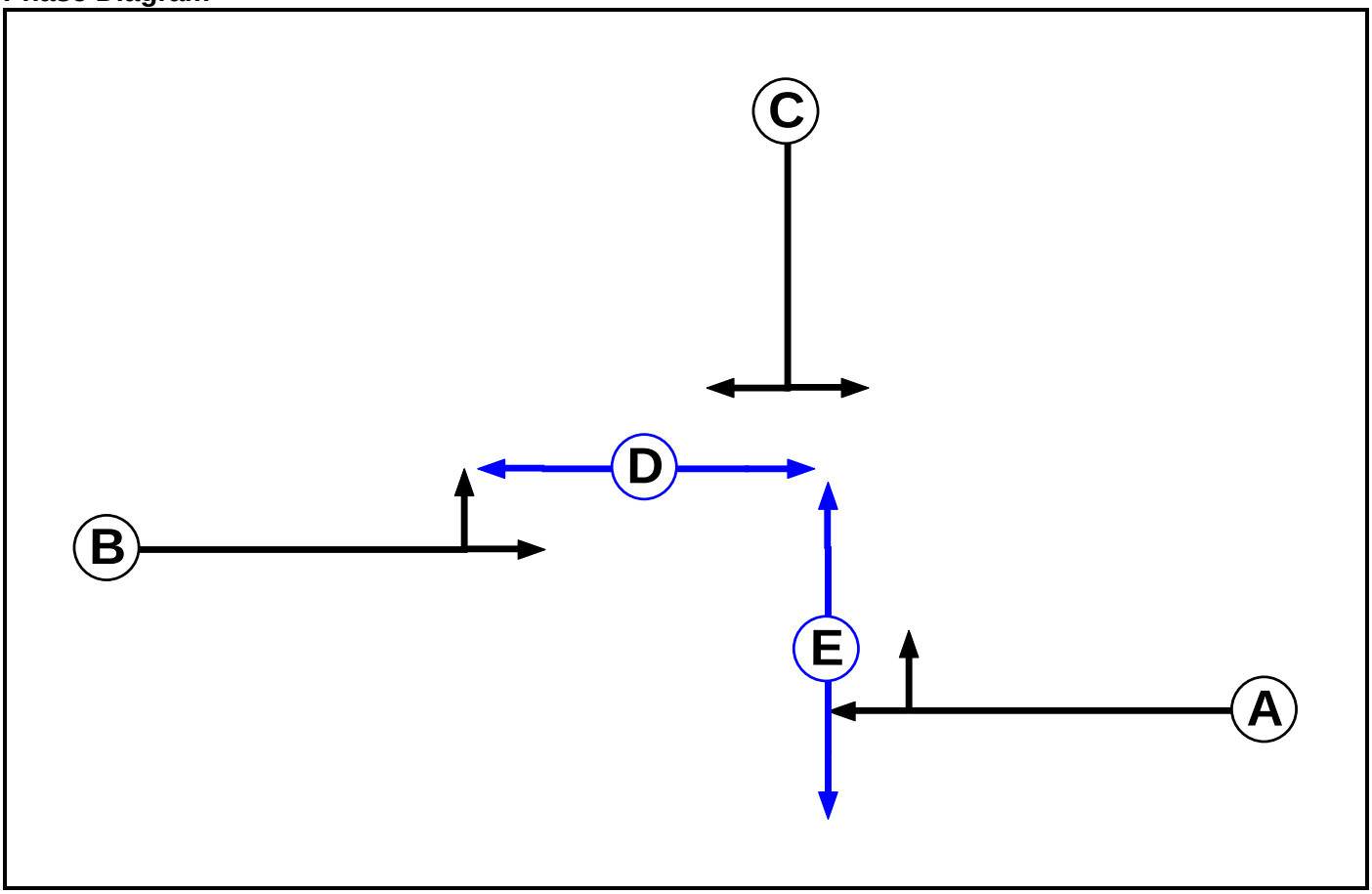
Prohibited Stage Change

From Stage	To Stage			
		1	2	3
	1		6	9
	2	6		8
	3	6	6	

Full Input Data And Results

Scenario 4: '2021 with Dev PM Peds every other 120 cycle time' (FG1: '2021 with Dev PM', Plan 2: 'Network Control Plan 2')

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7

Full Input Data And Results

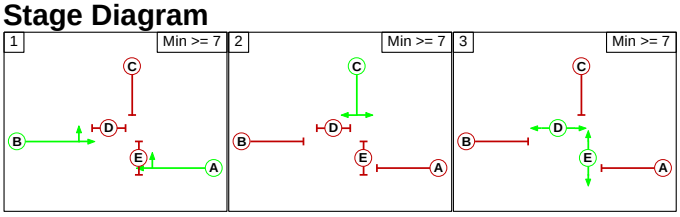
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

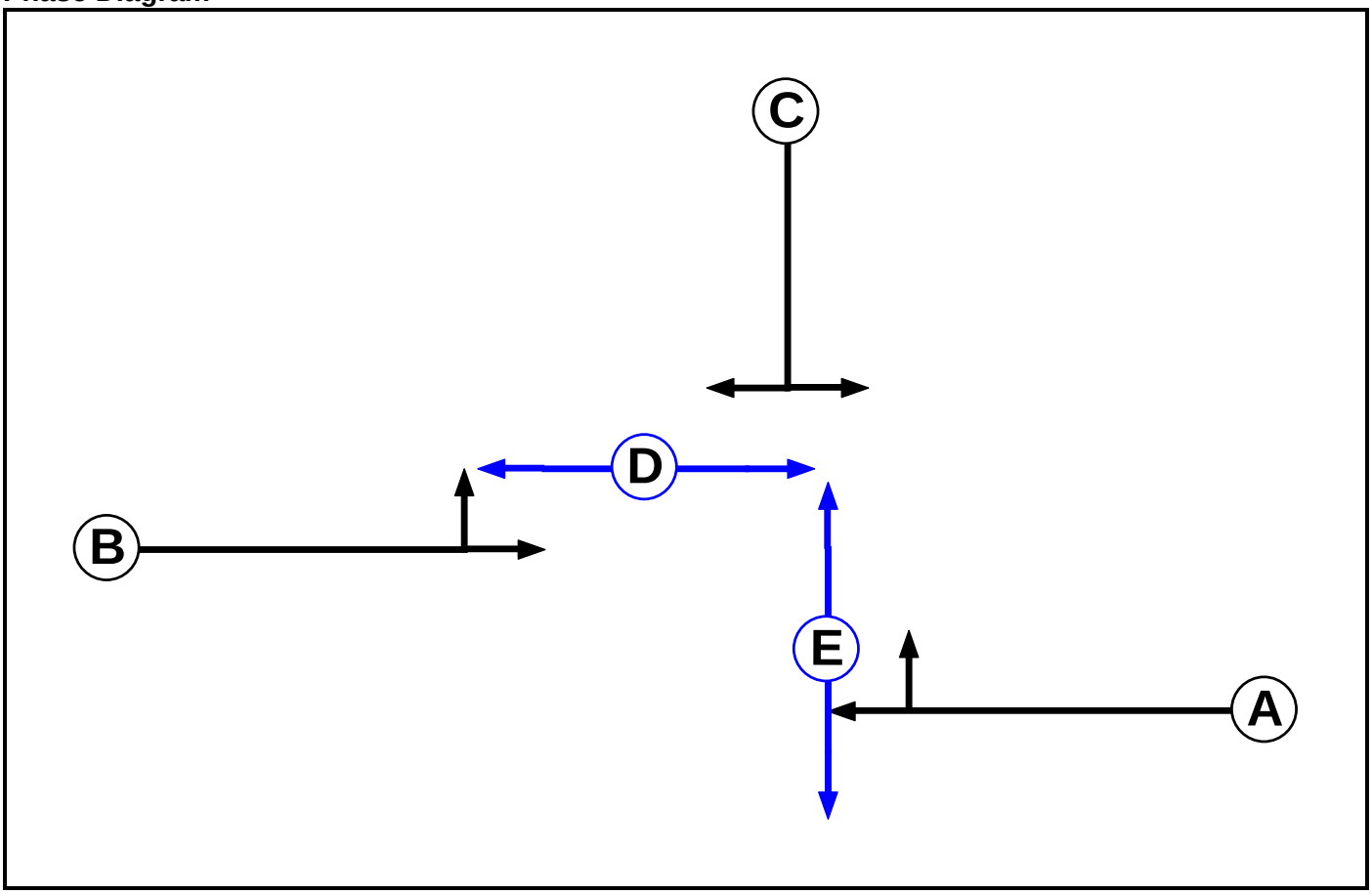
Prohibited Stage Change

From Stage	To Stage			
		1	2	3
	1		6	9
	2	6		8
	3	6	6	

Full Input Data And Results

Scenario 5: '2026 with Dev AM Peds every other 90 CT' (FG3: '2026 with Dev AM', Plan 2: 'Network Control Plan 2')

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7

Full Input Data And Results

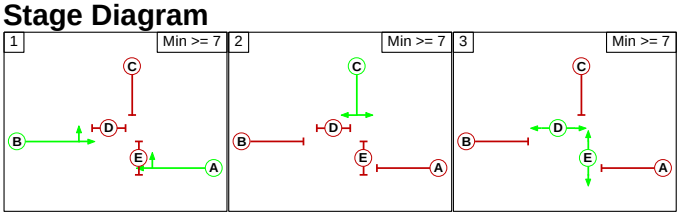
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

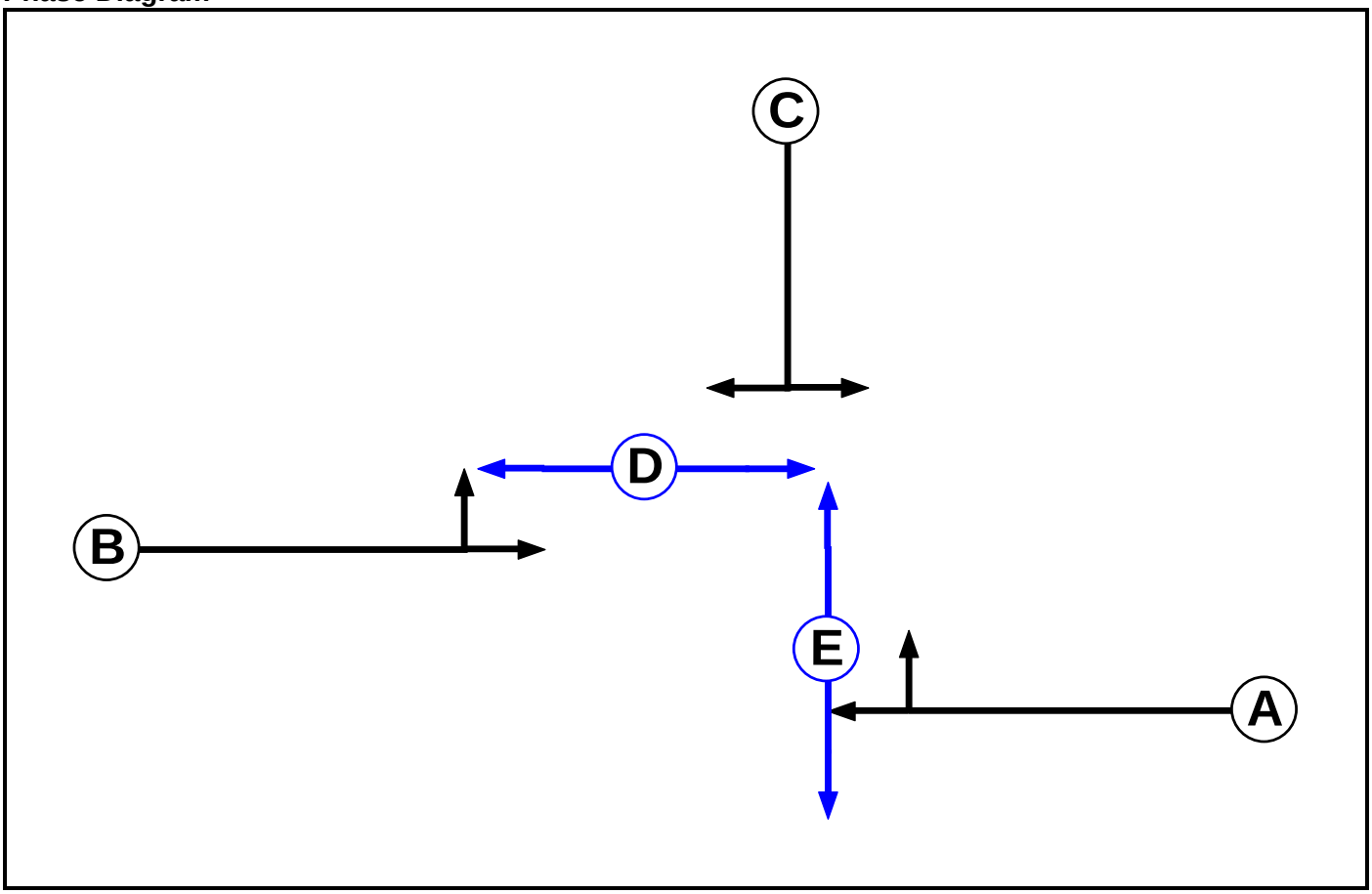
Prohibited Stage Change

From Stage	To Stage			
		1	2	3
	1		6	9
	2	6		8
	3	6	6	

Full Input Data And Results

Scenario 6: '2026 with Dev PM Peds every other 90 CT' (FG4: '2026 with Dev PM', Plan 2: 'Network Control Plan 2')

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7

Full Input Data And Results

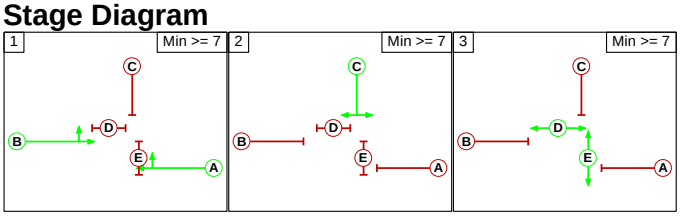
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

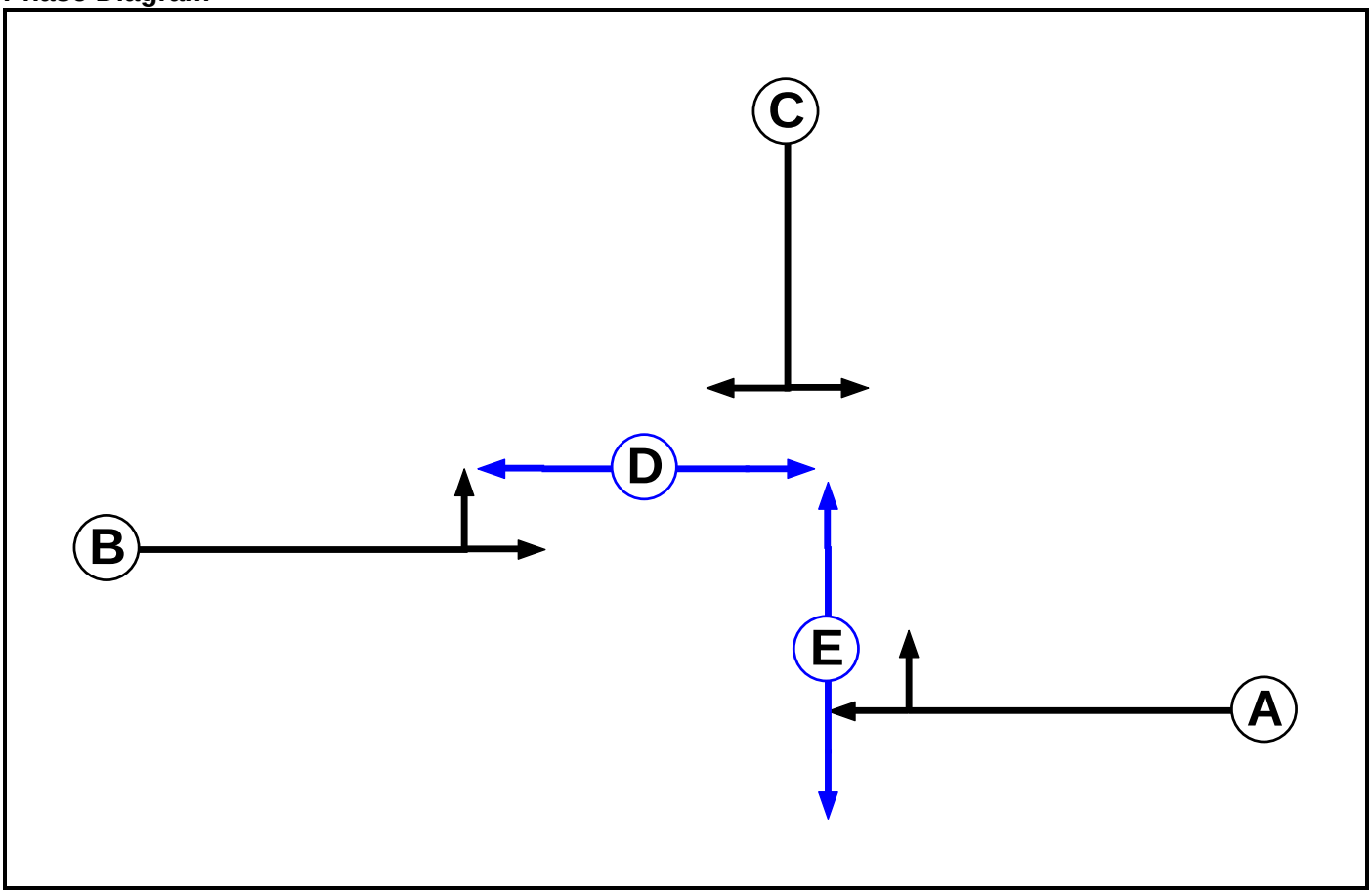
Prohibited Stage Change

From Stage	To Stage			
		1	2	3
	1		6	9
	2	6		8
	3	6	6	

Full Input Data And Results

Scenario 7: '2026 with Dev AM Peds every other 120 CT' (FG3: '2026 with Dev AM', Plan 2: 'Network Control Plan 2')

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7

Full Input Data And Results

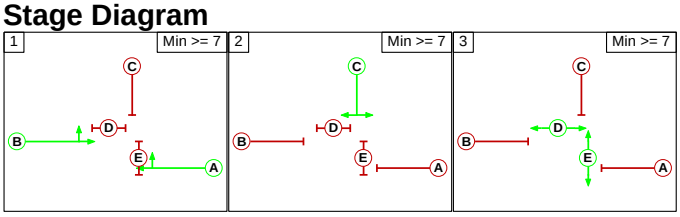
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

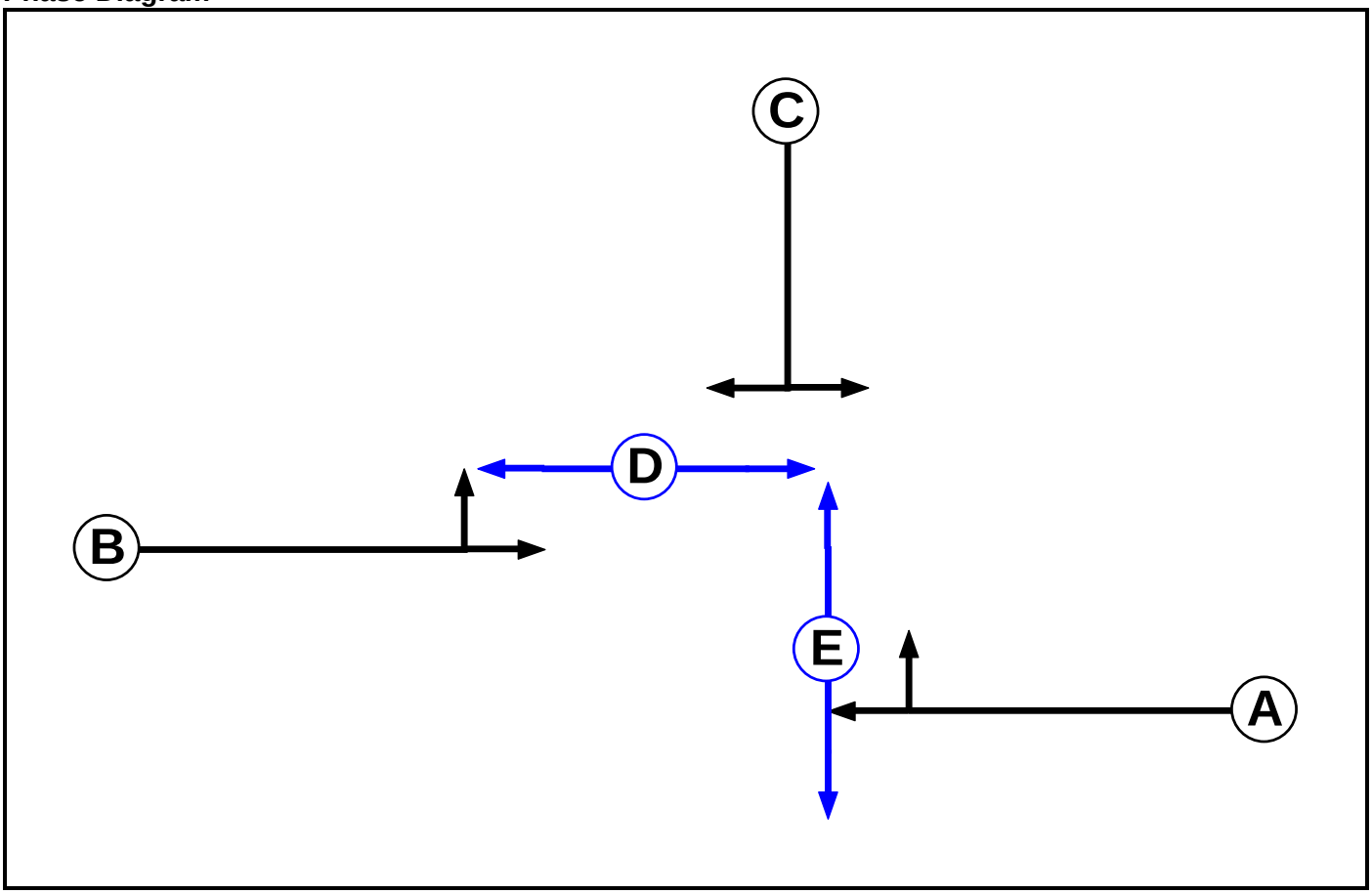
Prohibited Stage Change

From Stage	To Stage			
		1	2	3
	1		6	9
	2	6		8
	3	6	6	

Full Input Data And Results

Scenario 8: '2026 with Dev PM Peds every other 120 CT' (FG4: '2026 with Dev PM', Plan 2: 'Network Control Plan 2')

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7

Full Input Data And Results

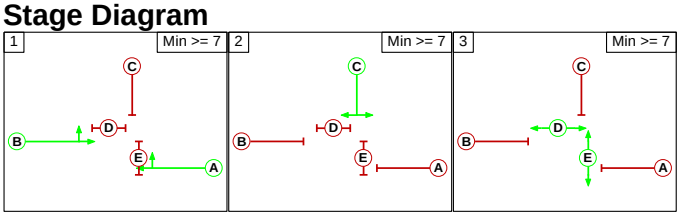
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage	To Stage			
		1	2	3
	1		6	9
	2	6		8
	3	6	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Havant Road - Development Access											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
1/1 (Havant Road East)	6/1 (Right)	1439	0	2/1	1.09	All	4.80	4.80	0.50	5	2.00

Full Input Data And Results

Lane Input Data

Junction: Havant Road - Development Access												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Havant Road East)	O	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	16.00
2/1 (Havant Road West)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
											Arm 6 Left	17.00
3/1 (Development Access)	U	C	2	3	60.0	Geom	-	4.40	0.00	Y	Arm 4 Left	13.50
											Arm 5 Right	20.80
4/1 (Havant Road East Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (Havant Road West Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Development Access Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2021 with Dev PM'	17:00	18:00	01:00	
2: '2021 with Dev AM'	08:00	09:00	01:00	
3: '2026 with Dev AM'	08:00	09:00	01:00	
4: '2026 with Dev PM'	17:00	18:00	01:00	

Scenario 1: '2021 with Dev AM Peds every other 90 cycle time' (FG2: '2021 with Dev AM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1115	7	1122
	B	778	0	16	794
	C	18	40	0	58
	Tot.	796	1155	23	1974

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2021 with Dev AM Peds every other 90 cycle time
Junction: Havant Road - Development Access	
1/1	1122
2/1	794
3/1	58
4/1	796
5/1	1155
6/1	23

Lane Saturation Flows

Junction: Havant Road - Development Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Havant Road East)	3.25	0.00	Y	Arm 5 Ahead	Inf	99.4 %	1939	1939
				Arm 6 Right	16.00	0.6 %		
2/1 (Havant Road West)	3.00	0.00	Y	Arm 4 Ahead	Inf	98.0 %	1912	1912
				Arm 6 Left	17.00	2.0 %		
3/1 (Development Access)	4.40	0.00	Y	Arm 4 Left	13.50	31.0 %	1895	1895
				Arm 5 Right	20.80	69.0 %		
4/1 (Havant Road East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Havant Road West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Development Access Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2021 with Dev PM Peds every other 90 cycle time' (FG1: '2021 with Dev PM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	740	17	757
	B	1086	0	36	1122
	C	8	20	0	28
	Tot.	1094	760	53	1907

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2021 with Dev PM Peds every other 90 cycle time
Junction: Havant Road - Development Access	
1/1	757
2/1	1122
3/1	28
4/1	1094
5/1	760
6/1	53

Lane Saturation Flows

Junction: Havant Road - Development Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Havant Road East)	3.25	0.00	Y	Arm 5 Ahead	Inf	97.8 %	1936	1936
				Arm 6 Right	16.00	2.2 %		
2/1 (Havant Road West)	3.00	0.00	Y	Arm 4 Ahead	Inf	96.8 %	1910	1910
				Arm 6 Left	17.00	3.2 %		
3/1 (Development Access)	4.40	0.00	Y	Arm 4 Left	13.50	28.6 %	1897	1897
				Arm 5 Right	20.80	71.4 %		
4/1 (Havant Road East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Havant Road West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Development Access Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2021 with Dev AM Peds every other 120 cycle time' (FG2: '2021 with Dev AM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1115	7	1122
	B	778	0	16	794
	C	18	40	0	58
	Tot.	796	1155	23	1974

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2021 with Dev AM Peds every other 120 cycle time
Junction: Havant Road - Development Access	
1/1	1122
2/1	794
3/1	58
4/1	796
5/1	1155
6/1	23

Lane Saturation Flows

Junction: Havant Road - Development Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Havant Road East)	3.25	0.00	Y	Arm 5 Ahead	Inf	99.4 %	1939	1939
				Arm 6 Right	16.00	0.6 %		
2/1 (Havant Road West)	3.00	0.00	Y	Arm 4 Ahead	Inf	98.0 %	1912	1912
				Arm 6 Left	17.00	2.0 %		
3/1 (Development Access)	4.40	0.00	Y	Arm 4 Left	13.50	31.0 %	1895	1895
				Arm 5 Right	20.80	69.0 %		
4/1 (Havant Road East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Havant Road West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Development Access Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2021 with Dev PM Peds every other 120 cycle time' (FG1: '2021 with Dev PM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	740	17	757
	B	1086	0	36	1122
	C	8	20	0	28
	Tot.	1094	760	53	1907

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2021 with Dev PM Peds every other 120 cycle time
Junction: Havant Road - Development Access	
1/1	757
2/1	1122
3/1	28
4/1	1094
5/1	760
6/1	53

Lane Saturation Flows

Junction: Havant Road - Development Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Havant Road East)	3.25	0.00	Y	Arm 5 Ahead	Inf	97.8 %	1936	1936
				Arm 6 Right	16.00	2.2 %		
2/1 (Havant Road West)	3.00	0.00	Y	Arm 4 Ahead	Inf	96.8 %	1910	1910
				Arm 6 Left	17.00	3.2 %		
3/1 (Development Access)	4.40	0.00	Y	Arm 4 Left	13.50	28.6 %	1897	1897
				Arm 5 Right	20.80	71.4 %		
4/1 (Havant Road East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Havant Road West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Development Access Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2026 with Dev AM Peds every other 90 CT' (FG3: '2026 with Dev AM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1191	7	1198
	B	831	0	16	847
	C	18	40	0	58
	Tot.	849	1231	23	2103

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2026 with Dev AM Peds every other 90 CT
Junction: Havant Road - Development Access	
1/1	1198
2/1	847
3/1	58
4/1	849
5/1	1231
6/1	23

Lane Saturation Flows

Junction: Havant Road - Development Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Havant Road East)	3.25	0.00	Y	Arm 5 Ahead	Inf	99.4 %	1939	1939
				Arm 6 Right	16.00	0.6 %		
2/1 (Havant Road West)	3.00	0.00	Y	Arm 4 Ahead	Inf	98.1 %	1912	1912
				Arm 6 Left	17.00	1.9 %		
3/1 (Development Access)	4.40	0.00	Y	Arm 4 Left	13.50	31.0 %	1895	1895
				Arm 5 Right	20.80	69.0 %		
4/1 (Havant Road East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Havant Road West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Development Access Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2026 with Dev PM Peds every other 90 CT' (FG4: '2026 with Dev PM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	794	17	811
	B	1165	0	36	1201
	C	8	20	0	28
	Tot.	1173	814	53	2040

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 with Dev PM Peds every other 90 CT
Junction: Havant Road - Development Access	
1/1	811
2/1	1201
3/1	28
4/1	1173
5/1	814
6/1	53

Lane Saturation Flows

Junction: Havant Road - Development Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Havant Road East)	3.25	0.00	Y	Arm 5 Ahead	Inf	97.9 %	1936	1936
				Arm 6 Right	16.00	2.1 %		
2/1 (Havant Road West)	3.00	0.00	Y	Arm 4 Ahead	Inf	97.0 %	1910	1910
				Arm 6 Left	17.00	3.0 %		
3/1 (Development Access)	4.40	0.00	Y	Arm 4 Left	13.50	28.6 %	1897	1897
				Arm 5 Right	20.80	71.4 %		
4/1 (Havant Road East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Havant Road West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Development Access Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 7: '2026 with Dev AM Peds every other 120 CT' (FG3: '2026 with Dev AM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1191	7	1198
	B	831	0	16	847
	C	18	40	0	58
	Tot.	849	1231	23	2103

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2026 with Dev AM Peds every other 120 CT
Junction: Havant Road - Development Access	
1/1	1198
2/1	847
3/1	58
4/1	849
5/1	1231
6/1	23

Lane Saturation Flows

Junction: Havant Road - Development Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Havant Road East)	3.25	0.00	Y	Arm 5 Ahead	Inf	99.4 %	1939	1939
				Arm 6 Right	16.00	0.6 %		
2/1 (Havant Road West)	3.00	0.00	Y	Arm 4 Ahead	Inf	98.1 %	1912	1912
				Arm 6 Left	17.00	1.9 %		
3/1 (Development Access)	4.40	0.00	Y	Arm 4 Left	13.50	31.0 %	1895	1895
				Arm 5 Right	20.80	69.0 %		
4/1 (Havant Road East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Havant Road West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Development Access Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2026 with Dev PM Peds every other 120 CT' (FG4: '2026 with Dev PM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	794	17	811
	B	1165	0	36	1201
	C	8	20	0	28
	Tot.	1173	814	53	2040

Full Input Data And Results

Traffic Lane Flows

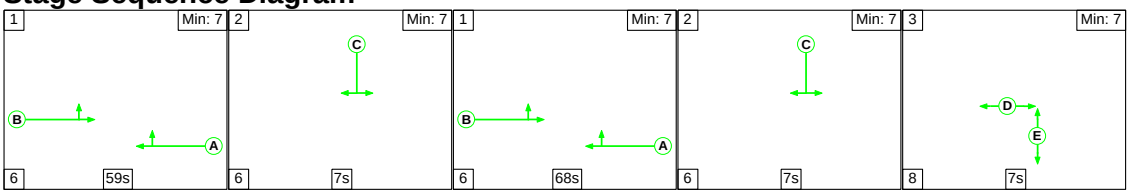
Lane	Scenario 8: 2026 with Dev PM Peds every other 120 CT
Junction: Havant Road - Development Access	
1/1	811
2/1	1201
3/1	28
4/1	1173
5/1	814
6/1	53

Lane Saturation Flows

Junction: Havant Road - Development Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Havant Road East)	3.25	0.00	Y	Arm 5 Ahead	Inf	97.9 %	1936	1936
				Arm 6 Right	16.00	2.1 %		
2/1 (Havant Road West)	3.00	0.00	Y	Arm 4 Ahead	Inf	97.0 %	1910	1910
				Arm 6 Left	17.00	3.0 %		
3/1 (Development Access)	4.40	0.00	Y	Arm 4 Left	13.50	28.6 %	1897	1897
				Arm 5 Right	20.80	71.4 %		
4/1 (Havant Road East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Havant Road West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Development Access Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2021 with Dev AM Peds every other 90 cycle time' (FG2: '2021 with Dev AM', Plan 2: 'Network Control Plan 2')

Stage Sequence Diagram

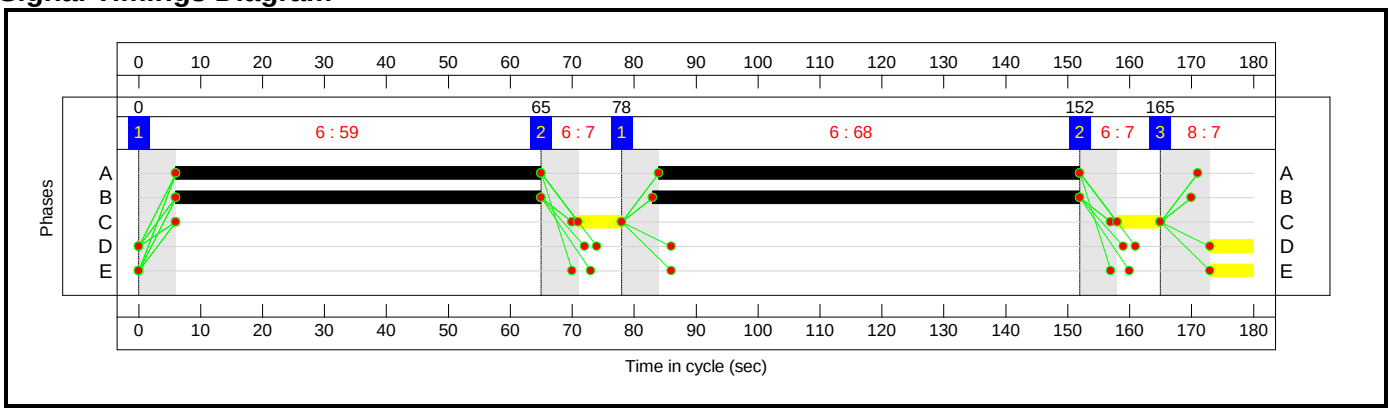


Stage Timings

Stage	1	2	1	2	3
Duration	59	7	68	7	7
Change Point	0	65	78	152	165

Full Input Data And Results

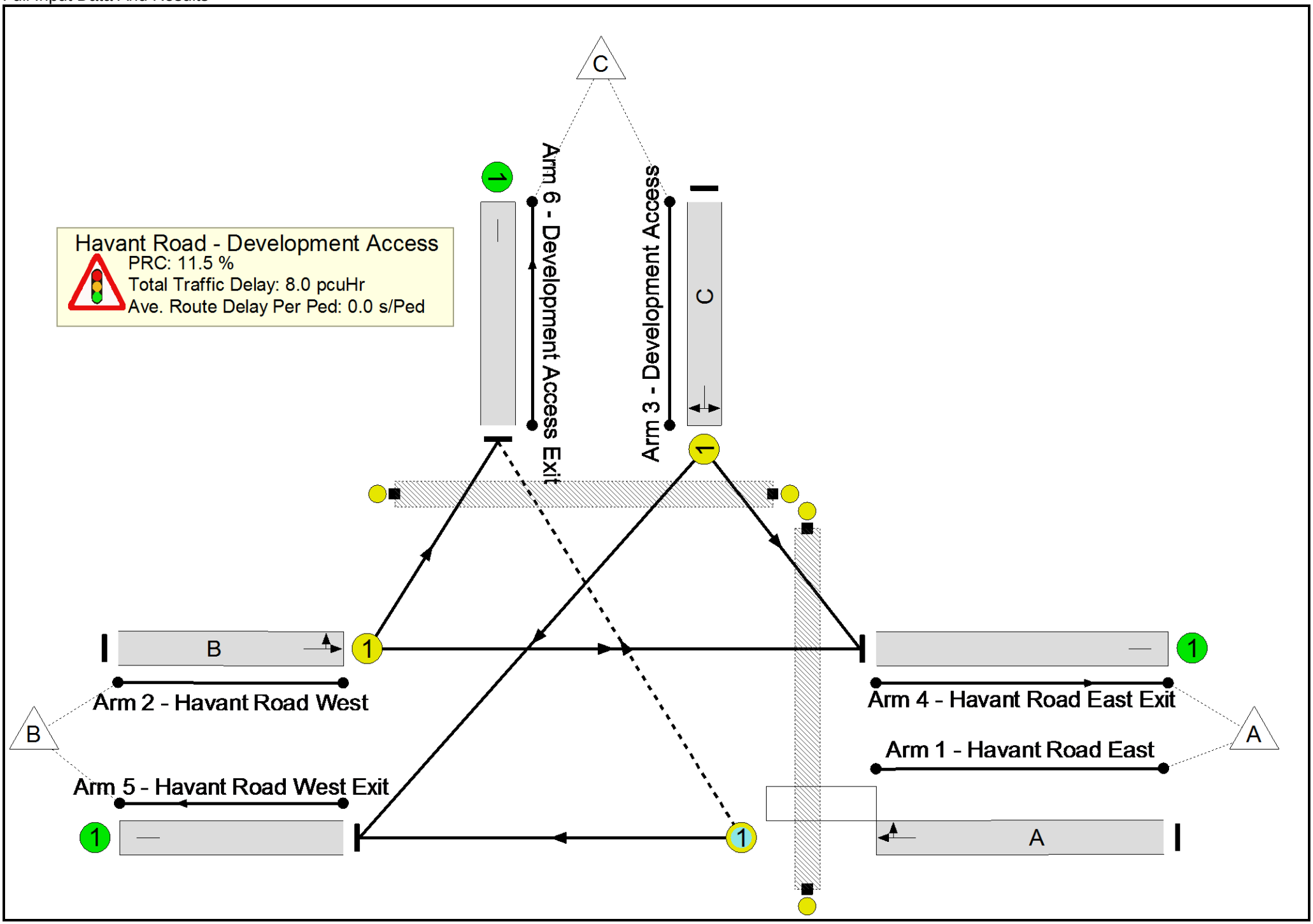
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Havant Road - Development Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.7%**
Havant Road - Development Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.7%**
1/1	Havant Road East Ahead Right	O	N/A	N/A	A		2	127	-	1122	1939	1390	80.7%
2/1	Havant Road West Ahead Left	U	N/A	N/A	B		2	128	-	794	1912	1381	57.5%
3/1	Development Access Left Right	U	N/A	N/A	C		2	14	-	58	1895	168	34.4%
4/1	Havant Road East Exit	U	N/A	N/A	-		-	-	-	796	Inf	Inf	0.0%
5/1	Havant Road West Exit	U	N/A	N/A	-		-	-	-	1155	Inf	Inf	0.0%
6/1	Development Access Exit	U	N/A	N/A	-		-	-	-	23	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	D		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	E		1	7	-	0	-	0	0.0%

Full Input Data And Results

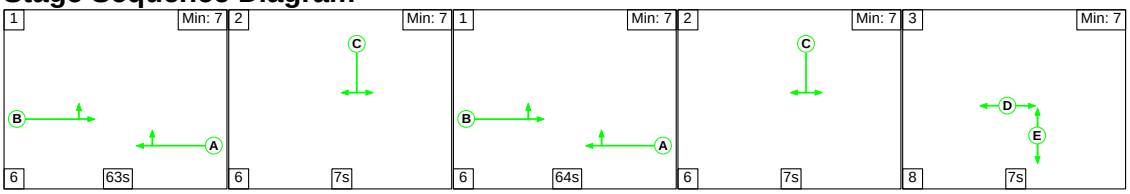
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Havant Road - Development Access Jct	**-**	**-**	**7**	**0**	**0**	**5.0**	**3.0**	**0.0**	**8.0**	**-**	**-**	**-**	**-**
Havant Road - Development Access	**-**	**-**	**7**	**0**	**0**	**5.0**	**3.0**	**0.0**	**8.0**	**-**	**-**	**-**	**-**
1/1	1122	1122	7	0	0	2.9	2.1	0.0	5.0	16.0	24.3	2.1	26.4
2/1	794	794	-	-	-	1.4	0.7	-	2.1	9.6	12.4	0.7	13.0
3/1	58	58	-	-	-	0.6	0.3	-	0.9	54.8	1.4	0.3	1.7
4/1	796	796	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	1155	1155	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	23	23	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 11.5 Total Delay for Signalled Lanes (pcuHr): 7.98 Cycle Time (s): 180
PRC Over All Lanes (%): 11.5 Total Delay Over All Lanes(pcuHr): 7.98

Full Input Data And Results

Scenario 2: '2021 with Dev PM Peds every other 90 cycle time' (FG1: '2021 with Dev PM', Plan 2: 'Network Control Plan 2')

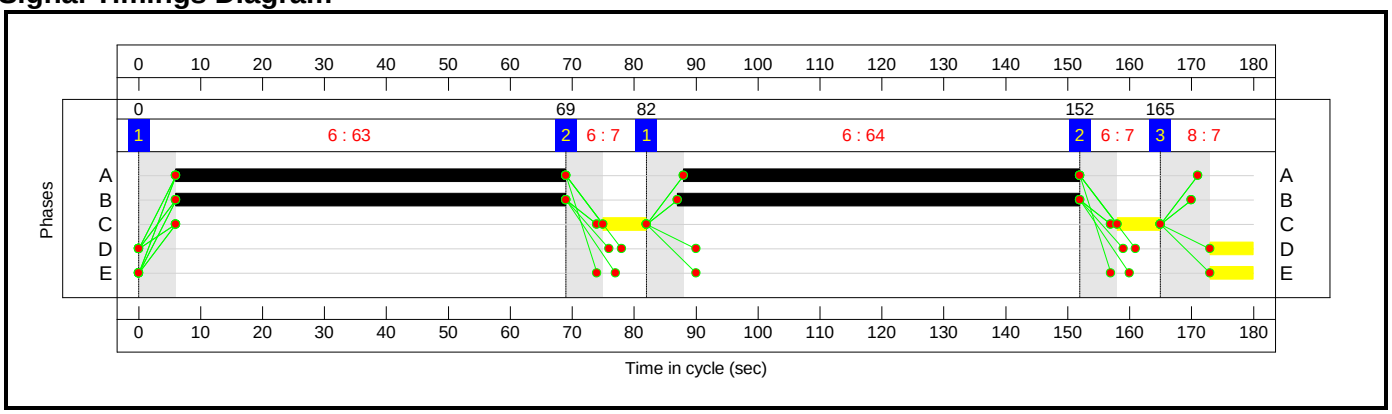
Stage Sequence Diagram



Stage Timings

Stage	1	2	1	2	3
Duration	63	7	64	7	7
Change Point	0	69	82	152	165

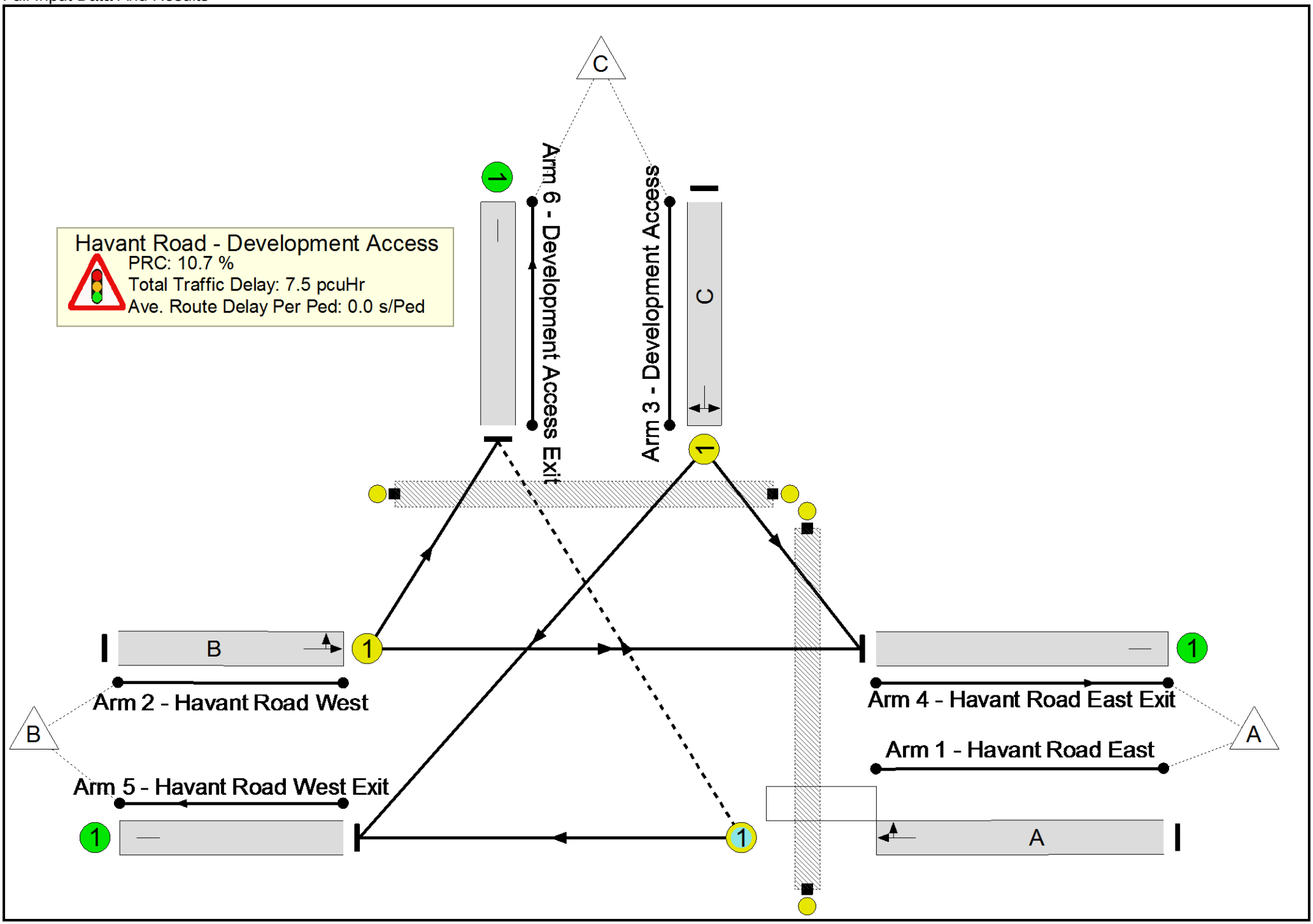
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Havant Road - Development Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.3%**
Havant Road - Development Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.3%**
1/1	Havant Road East Ahead Right	O	N/A	N/A	A		2	127	-	757	1936	1387	54.6%
2/1	Havant Road West Ahead Left	U	N/A	N/A	B		2	128	-	1122	1910	1379	81.3%
3/1	Development Access Left Right	U	N/A	N/A	C		2	14	-	28	1897	169	16.6%
4/1	Havant Road East Exit	U	N/A	N/A	-		-	-	-	1094	Inf	Inf	0.0%
5/1	Havant Road West Exit	U	N/A	N/A	-		-	-	-	760	Inf	Inf	0.0%
6/1	Development Access Exit	U	N/A	N/A	-		-	-	-	53	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	D		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	E		1	7	-	0	-	0	0.0%

Full Input Data And Results

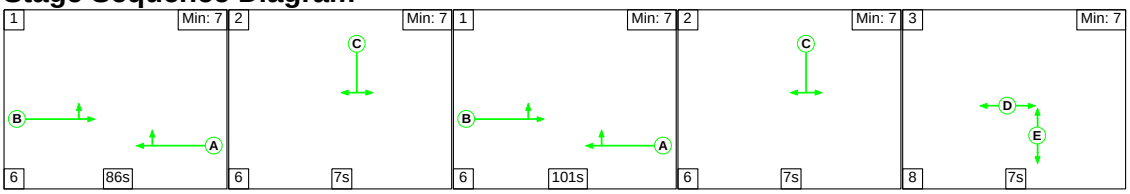
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Havant Road - Development Access Jct	**-**	**-**	**16**	**0**	**1**	**4.5**	**2.8**	**0.1**	**7.5**	**-**	**-**	**-**	**-**
Havant Road - Development Access	**-**	**-**	**16**	**0**	**1**	**4.5**	**2.8**	**0.1**	**7.5**	**-**	**-**	**-**	**-**
1/1	757	757	16	0	1	1.4	0.6	0.1	2.0	9.7	11.4	0.6	12.0
2/1	1122	1122	-	-	-	2.9	2.1	-	5.0	16.2	24.6	2.1	26.8
3/1	28	28	-	-	-	0.3	0.1	-	0.4	51.0	0.7	0.1	0.8
4/1	1094	1094	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	760	760	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	53	53	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 10.7 Total Delay for Signalled Lanes (pcuHr): 7.46 Cycle Time (s): 180
PRC Over All Lanes (%): 10.7 Total Delay Over All Lanes(pcuHr): 7.46

Full Input Data And Results

Scenario 3: '2021 with Dev AM Peds every other 120 cycle time' (FG2: '2021 with Dev AM', Plan 2: 'Network Control Plan 2')

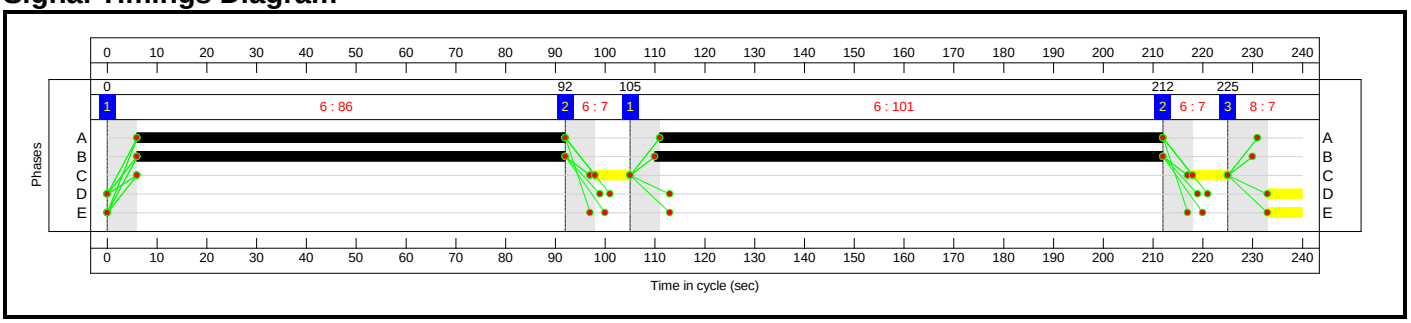
Stage Sequence Diagram



Stage Timings

Stage	1	2	1	2	3
Duration	86	7	101	7	7
Change Point	0	92	105	212	225

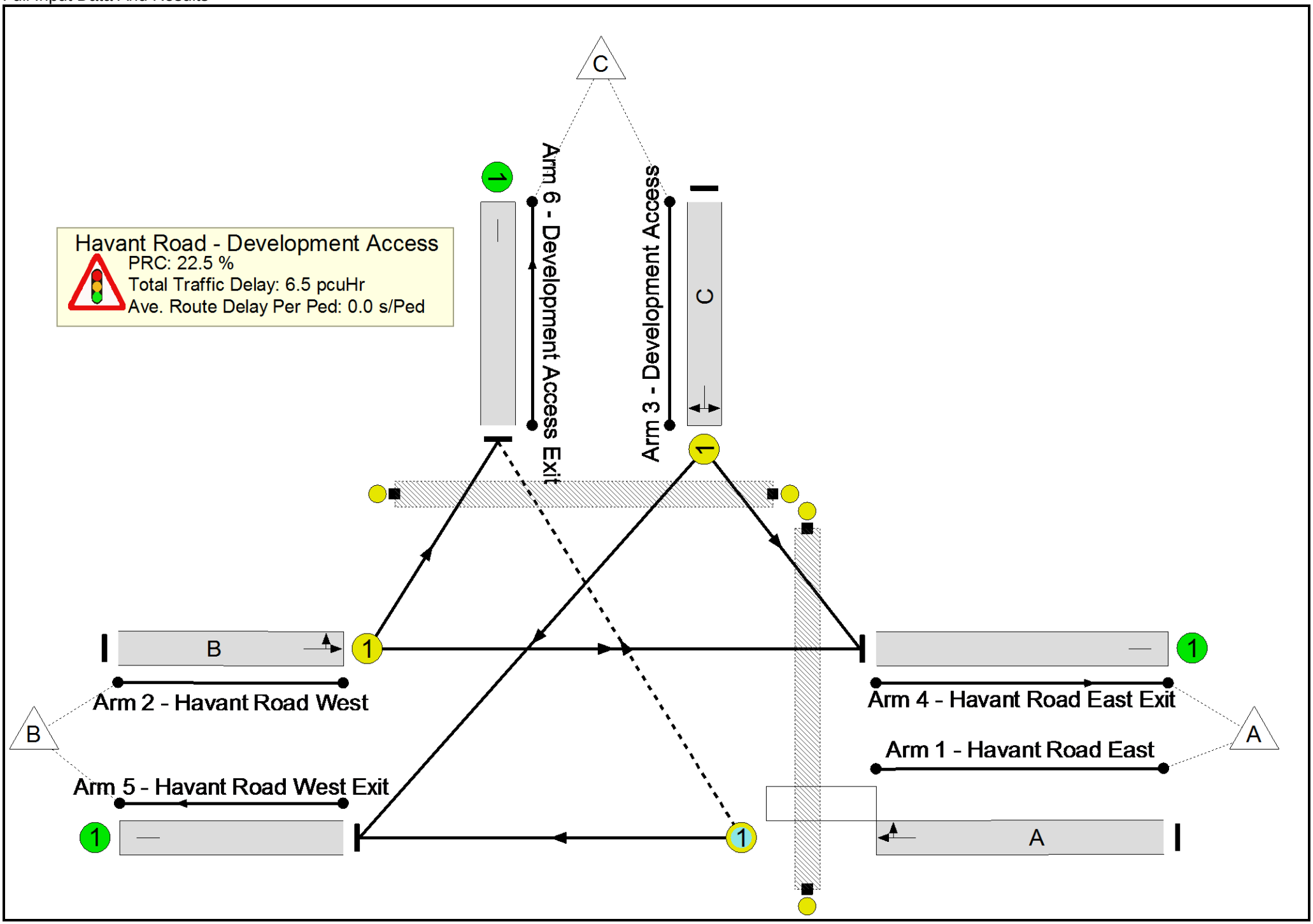
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Havant Road - Development Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.5%**
Havant Road - Development Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.5%**
1/1	Havant Road East Ahead Right	O	N/A	N/A	A		2	187	-	1122	1939	1527	73.5%
2/1	Havant Road West Ahead Left	U	N/A	N/A	B		2	188	-	794	1912	1514	52.5%
3/1	Development Access Left Right	U	N/A	N/A	C		2	14	-	58	1895	126	45.9%
4/1	Havant Road East Exit	U	N/A	N/A	-		-	-	-	796	Inf	Inf	0.0%
5/1	Havant Road West Exit	U	N/A	N/A	-		-	-	-	1155	Inf	Inf	0.0%
6/1	Development Access Exit	U	N/A	N/A	-		-	-	-	23	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	D		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	E		1	7	-	0	-	0	0.0%

Full Input Data And Results

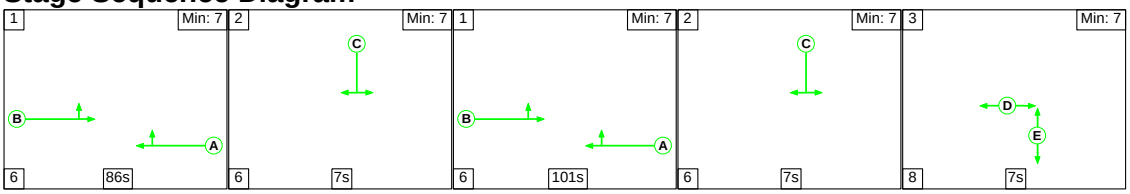
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Havant Road - Development Access Jct	**-**	**-**	**7**	**0**	**0**	**4.1**	**2.3**	**0.0**	**6.5**	**-**	**-**	**-**	**-**
Havant Road - Development Access	**-**	**-**	**7**	**0**	**0**	**4.1**	**2.3**	**0.0**	**6.5**	**-**	**-**	**-**	**-**
1/1	1122	1122	7	0	0	2.2	1.4	0.0	3.6	11.4	24.3	1.4	25.7
2/1	794	794	-	-	-	1.1	0.6	-	1.6	7.4	12.4	0.6	12.9
3/1	58	58	-	-	-	0.9	0.4	-	1.3	80.0	1.9	0.4	2.3
4/1	796	796	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	1155	1155	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	23	23	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 22.5 Total Delay for Signalled Lanes (pcuHr): 6.48 Cycle Time (s): 240
PRC Over All Lanes (%): 22.5 Total Delay Over All Lanes(pcuHr): 6.48

Full Input Data And Results

Scenario 4: '2021 with Dev PM Peds every other 120 cycle time' (FG1: '2021 with Dev PM', Plan 2: 'Network Control Plan 2')

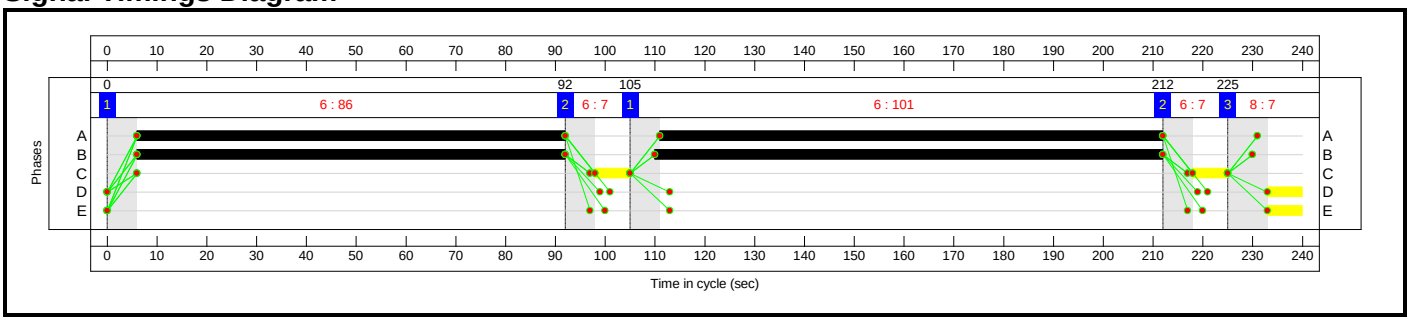
Stage Sequence Diagram



Stage Timings

Stage	1	2	1	2	3
Duration	86	7	101	7	7
Change Point	0	92	105	212	225

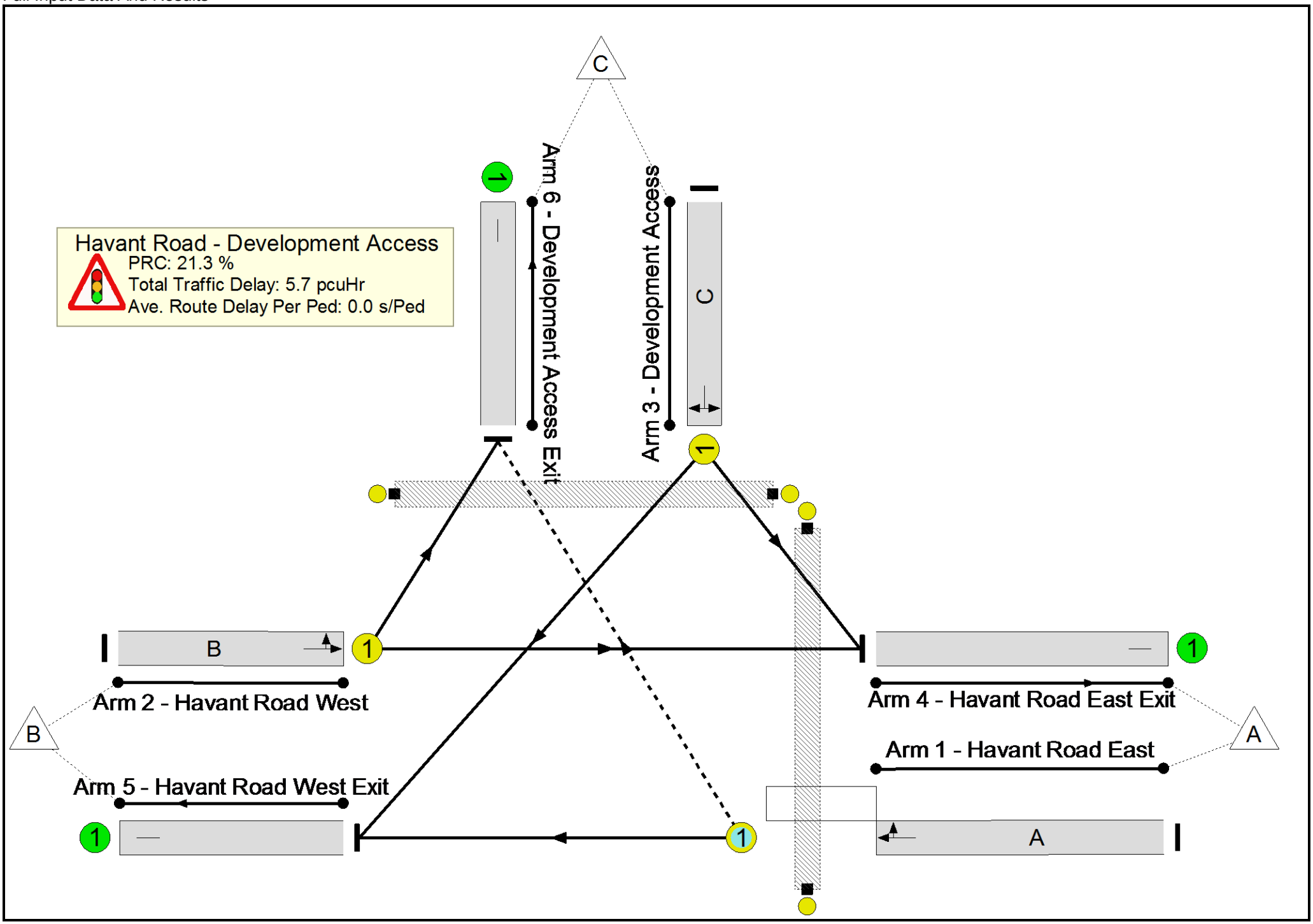
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Havant Road - Development Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.2%**
Havant Road - Development Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.2%**
1/1	Havant Road East Ahead Right	O	N/A	N/A	A		2	187	-	757	1936	1525	49.7%
2/1	Havant Road West Ahead Left	U	N/A	N/A	B		2	188	-	1122	1910	1512	74.2%
3/1	Development Access Left Right	U	N/A	N/A	C		2	14	-	28	1897	126	22.1%
4/1	Havant Road East Exit	U	N/A	N/A	-		-	-	-	1094	Inf	Inf	0.0%
5/1	Havant Road West Exit	U	N/A	N/A	-		-	-	-	760	Inf	Inf	0.0%
6/1	Development Access Exit	U	N/A	N/A	-		-	-	-	53	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	D		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	E		1	7	-	0	-	0	0.0%

Full Input Data And Results

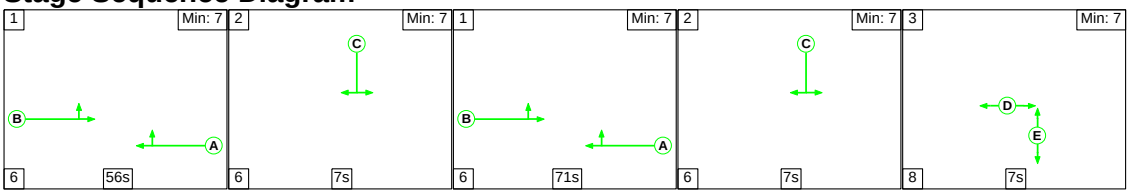
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Havant Road - Development Access Jct	**-**	**-**	**17**	**0**	**0**	**3.6**	**2.1**	**0.1**	**5.7**	**-**	**-**	**-**	**-**
Havant Road - Development Access	**-**	**-**	**17**	**0**	**0**	**3.6**	**2.1**	**0.1**	**5.7**	**-**	**-**	**-**	**-**
1/1	757	757	17	0	0	1.0	0.5	0.1	1.6	7.4	11.4	0.5	11.8
2/1	1122	1122	-	-	-	2.2	1.4	-	3.6	11.5	24.6	1.4	26.0
3/1	28	28	-	-	-	0.4	0.1	-	0.6	71.3	0.9	0.1	1.0
4/1	1094	1094	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	760	760	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	53	53	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 21.3 Total Delay for Signalled Lanes (pcuHr): 5.72 Cycle Time (s): 240
PRC Over All Lanes (%): 21.3 Total Delay Over All Lanes(pcuHr): 5.72

Full Input Data And Results

Scenario 5: '2026 with Dev AM Peds every other 90 CT' (FG3: '2026 with Dev AM', Plan 2: 'Network Control Plan 2')

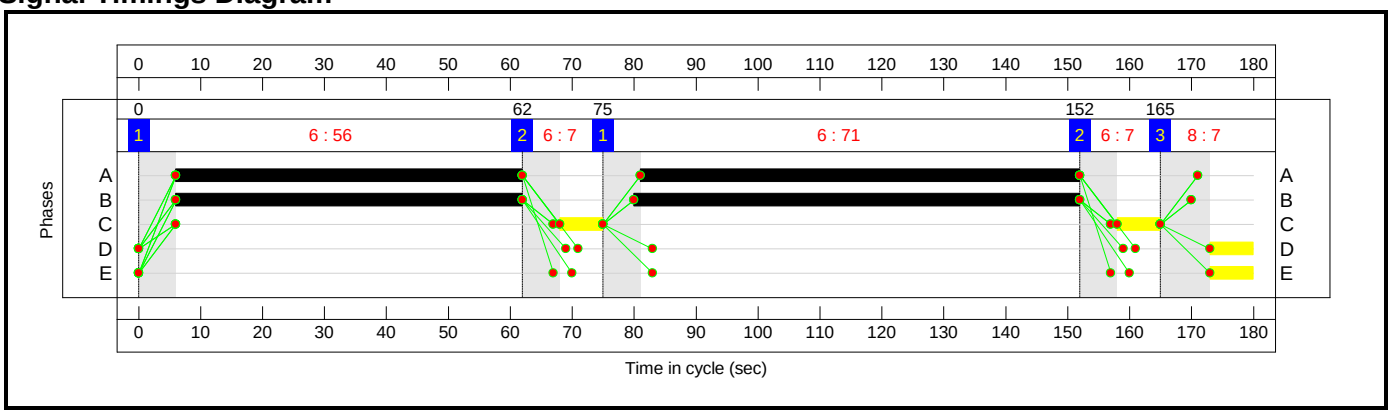
Stage Sequence Diagram



Stage Timings

Stage	1	2	1	2	3
Duration	56	7	71	7	7
Change Point	0	62	75	152	165

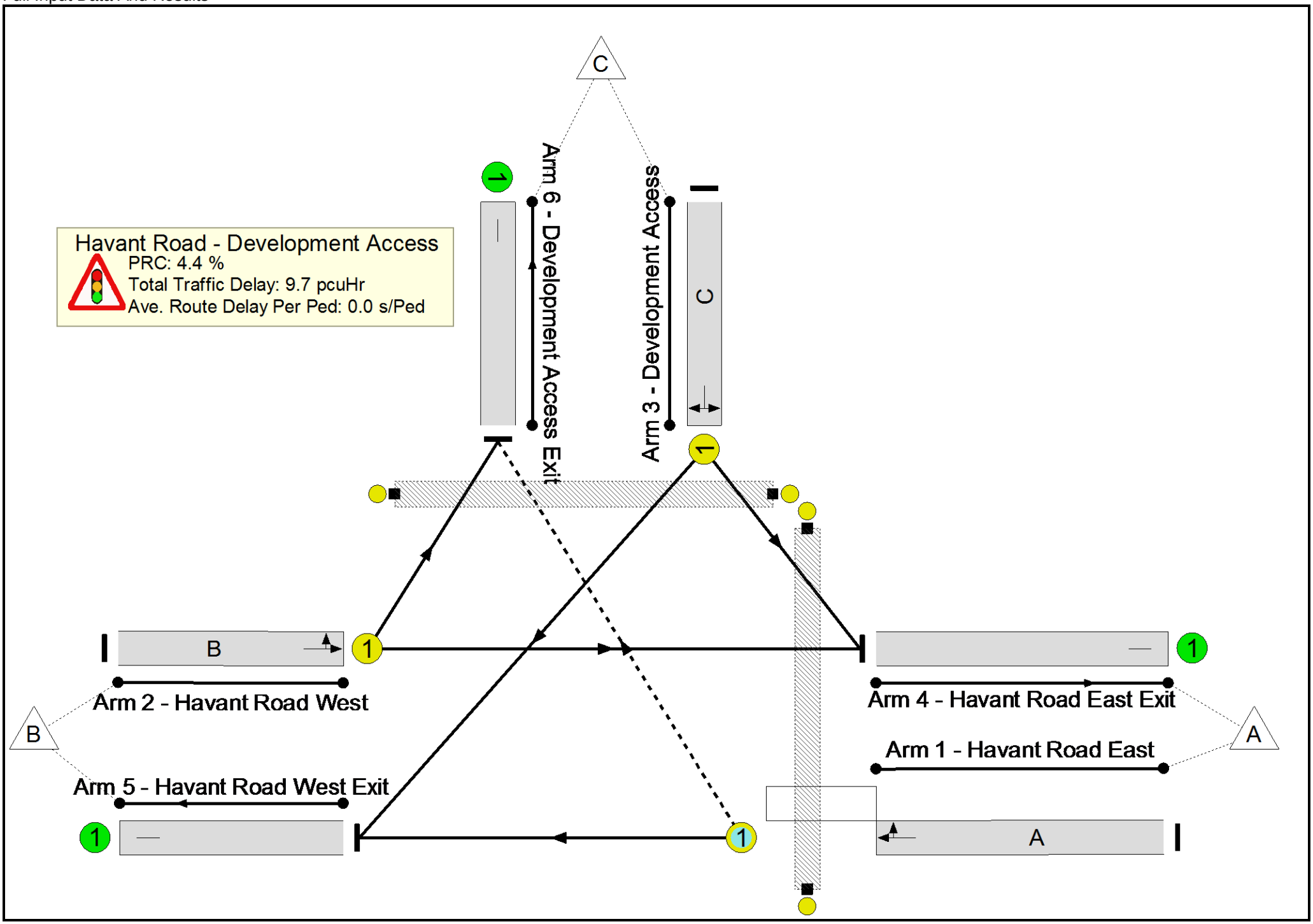
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Havant Road - Development Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**86.2%**
Havant Road - Development Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**86.2%**
1/1	Havant Road East Ahead Right	O	N/A	N/A	A		2	127	-	1198	1939	1390	86.2%
2/1	Havant Road West Ahead Left	U	N/A	N/A	B		2	128	-	847	1912	1381	61.3%
3/1	Development Access Left Right	U	N/A	N/A	C		2	14	-	58	1895	168	34.4%
4/1	Havant Road East Exit	U	N/A	N/A	-		-	-	-	849	Inf	Inf	0.0%
5/1	Havant Road West Exit	U	N/A	N/A	-		-	-	-	1231	Inf	Inf	0.0%
6/1	Development Access Exit	U	N/A	N/A	-		-	-	-	23	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	D		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	E		1	7	-	0	-	0	0.0%

Full Input Data And Results

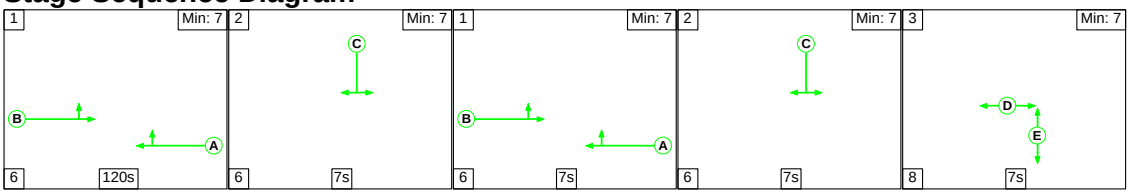
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Havant Road - Development Access Jct	**-**	**-**	**7**	**0**	**0**	**5.7**	**4.1**	**0.0**	**9.7**	**-**	**-**	**-**	**-**
Havant Road - Development Access	**-**	**-**	**7**	**0**	**0**	**5.7**	**4.1**	**0.0**	**9.7**	**-**	**-**	**-**	**-**
1/1	1198	1198	7	0	0	3.4	3.0	0.0	6.5	19.4	28.6	3.0	31.6
2/1	847	847	-	-	-	1.6	0.8	-	2.4	10.2	13.9	0.8	14.7
3/1	58	58	-	-	-	0.6	0.3	-	0.9	54.8	1.4	0.3	1.6
4/1	849	849	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	1231	1231	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	23	23	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 4.4 Total Delay for Signalled Lanes (pcuHr): 9.75 Cycle Time (s): 180
PRC Over All Lanes (%): 4.4 Total Delay Over All Lanes(pcuHr): 9.75

Full Input Data And Results

Scenario 6: '2026 with Dev PM Peds every other 90 CT' (FG4: '2026 with Dev PM', Plan 2: 'Network Control Plan 2')

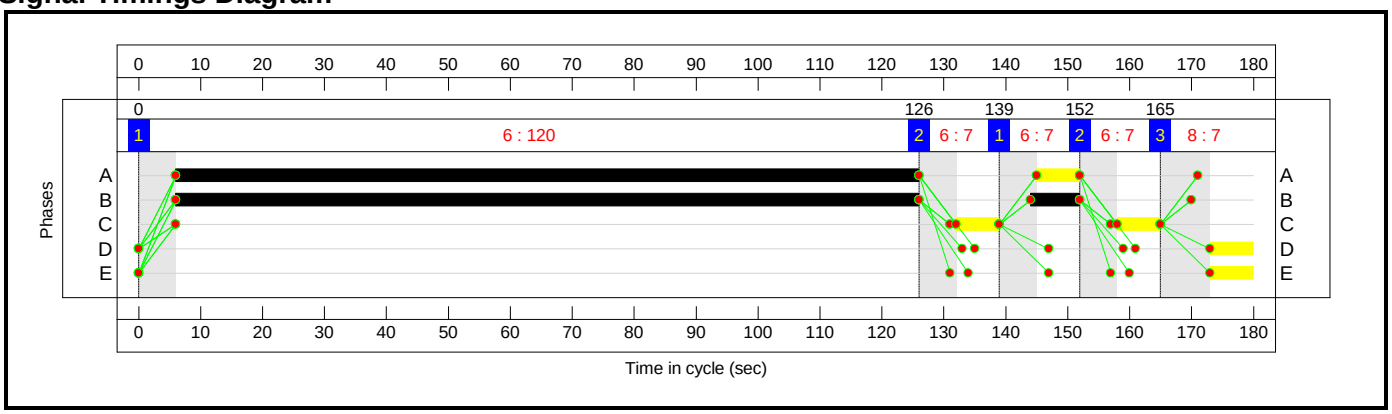
Stage Sequence Diagram



Stage Timings

Stage	1	2	1	2	3
Duration	120	7	7	7	7
Change Point	0	126	139	152	165

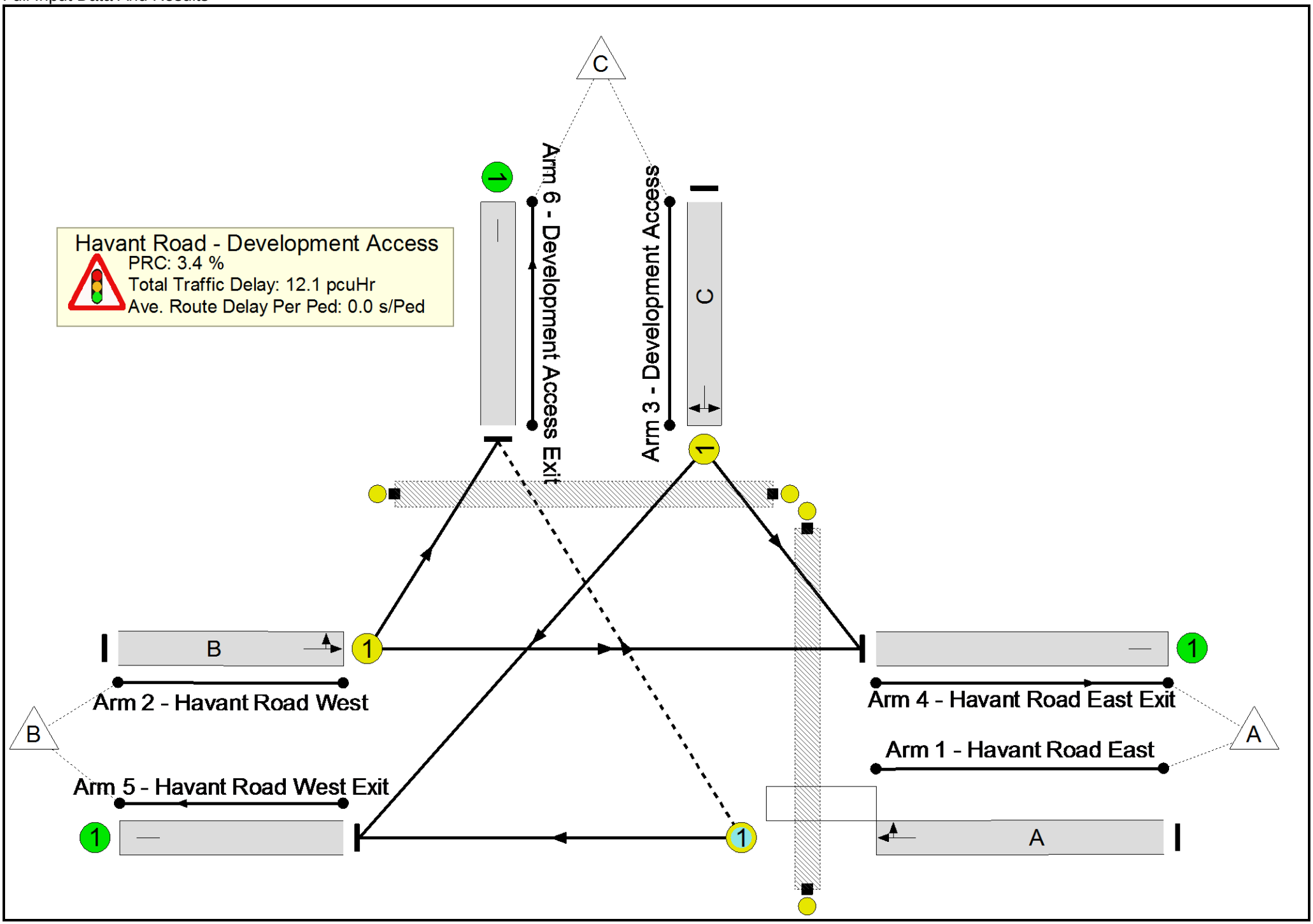
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Havant Road - Development Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.1%**
Havant Road - Development Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.1%**
1/1	Havant Road East Ahead Right	O	N/A	N/A	A		2	127	-	811	1936	1387	58.5%
2/1	Havant Road West Ahead Left	U	N/A	N/A	B		2	128	-	1201	1910	1379	87.1%
3/1	Development Access Left Right	U	N/A	N/A	C		2	14	-	28	1897	169	16.6%
4/1	Havant Road East Exit	U	N/A	N/A	-		-	-	-	1173	Inf	Inf	0.0%
5/1	Havant Road West Exit	U	N/A	N/A	-		-	-	-	814	Inf	Inf	0.0%
6/1	Development Access Exit	U	N/A	N/A	-		-	-	-	53	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	D		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	E		1	7	-	0	-	0	0.0%

Full Input Data And Results

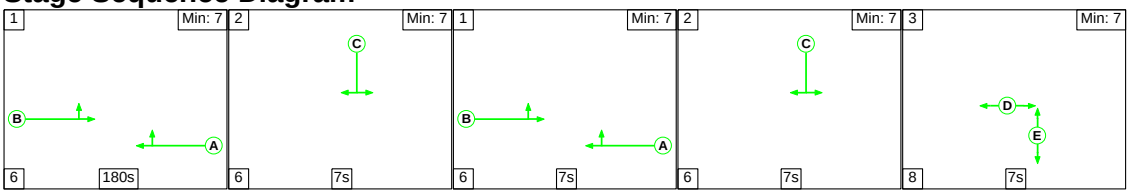
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Havant Road - Development Access Jct	**-**	**-**	**15**	**0**	**2**	**7.9**	**4.0**	**0.2**	**12.1**	**-**	**-**	**-**	**-**
Havant Road - Development Access	**-**	**-**	**15**	**0**	**2**	**7.9**	**4.0**	**0.2**	**12.1**	**-**	**-**	**-**	**-**
1/1	811	811	15	0	2	2.0	0.7	0.2	2.9	12.7	15.3	0.7	16.0
2/1	1201	1201	-	-	-	5.4	3.2	-	8.6	25.8	39.9	3.2	43.2
3/1	28	28	-	-	-	0.5	0.1	-	0.6	73.9	1.2	0.1	1.3
4/1	1173	1173	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	814	814	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	53	53	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 3.4 Total Delay for Signalled Lanes (pcuHr): 12.06 Cycle Time (s): 180
PRC Over All Lanes (%): 3.4 Total Delay Over All Lanes(pcuHr): 12.06

Full Input Data And Results

Scenario 7: '2026 with Dev AM Peds every other 120 CT' (FG3: '2026 with Dev AM', Plan 2: 'Network Control Plan 2')

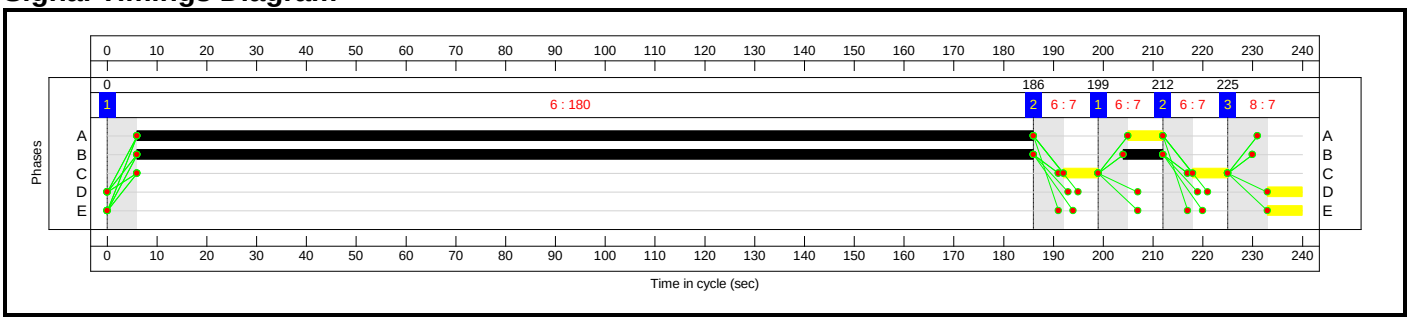
Stage Sequence Diagram



Stage Timings

Stage	1	2	1	2	3
Duration	180	7	7	7	7
Change Point	0	186	199	212	225

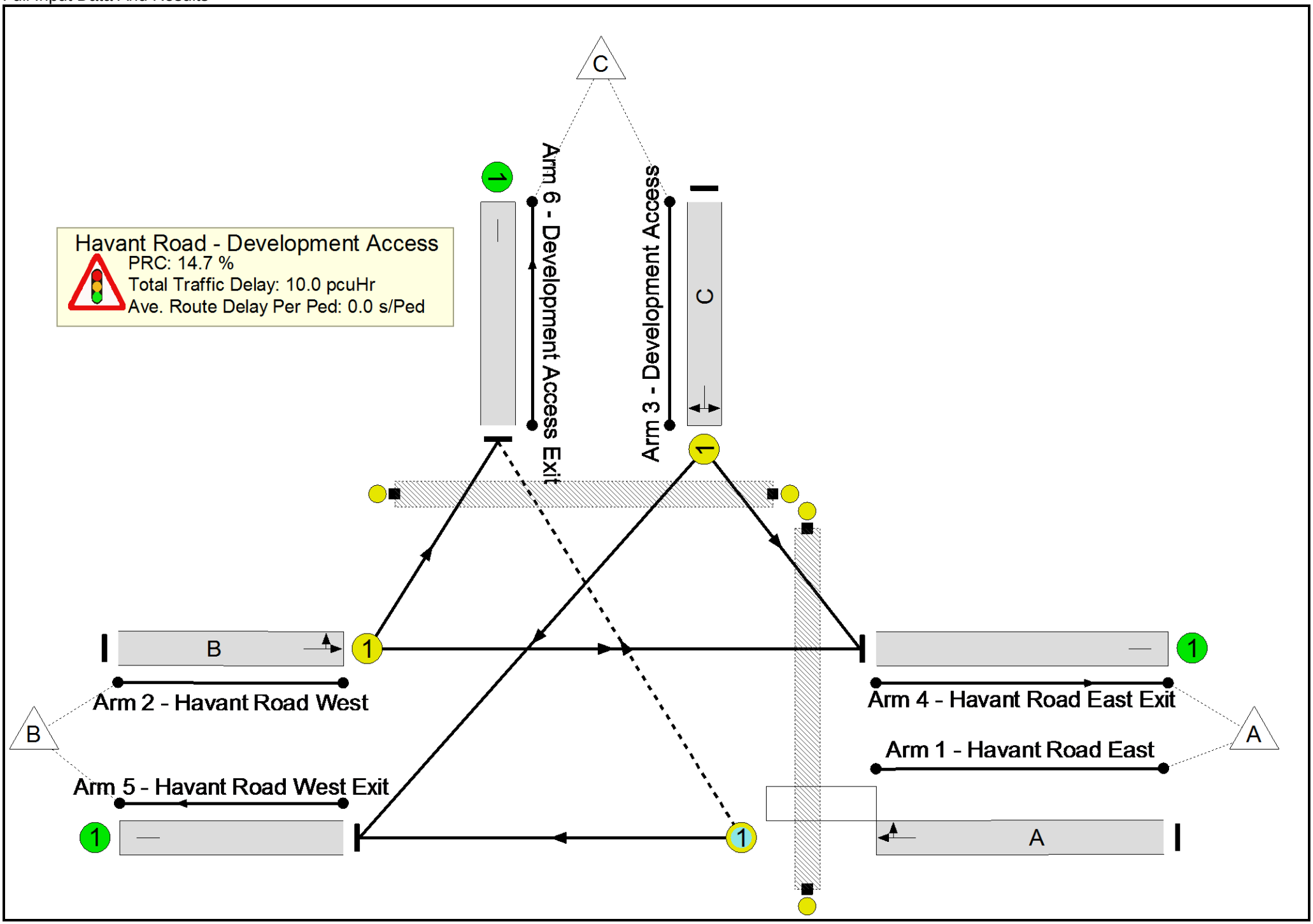
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Havant Road - Development Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.5%**
Havant Road - Development Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.5%**
1/1	Havant Road East Ahead Right	O	N/A	N/A	A		2	187	-	1198	1939	1527	78.5%
2/1	Havant Road West Ahead Left	U	N/A	N/A	B		2	188	-	847	1912	1514	56.0%
3/1	Development Access Left Right	U	N/A	N/A	C		2	14	-	58	1895	126	45.9%
4/1	Havant Road East Exit	U	N/A	N/A	-		-	-	-	849	Inf	Inf	0.0%
5/1	Havant Road West Exit	U	N/A	N/A	-		-	-	-	1231	Inf	Inf	0.0%
6/1	Development Access Exit	U	N/A	N/A	-		-	-	-	23	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	D		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	E		1	7	-	0	-	0	0.0%

Full Input Data And Results

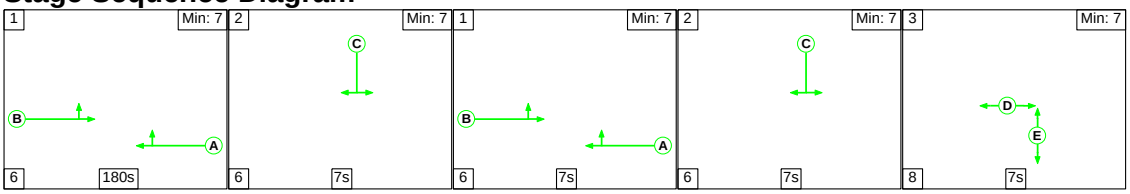
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Havant Road - Development Access Jct	**-**	**-**	**7**	**0**	**0**	**7.2**	**2.9**	**0.0**	**10.0**	**-**	**-**	**-**	**-**
Havant Road - Development Access	**-**	**-**	**7**	**0**	**0**	**7.2**	**2.9**	**0.0**	**10.0**	**-**	**-**	**-**	**-**
1/1	1198	1198	7	0	0	4.1	1.8	0.0	5.9	17.8	40.0	1.8	41.8
2/1	847	847	-	-	-	1.5	0.6	-	2.2	9.3	16.2	0.6	16.8
3/1	58	58	-	-	-	1.5	0.4	-	1.9	118.0	3.4	0.4	3.8
4/1	849	849	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	1231	1231	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	23	23	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 14.7 Total Delay for Signalled Lanes (pcuHr): 10.01 Cycle Time (s): 240
PRC Over All Lanes (%): 14.7 Total Delay Over All Lanes(pcuHr): 10.01

Full Input Data And Results

Scenario 8: '2026 with Dev PM Peds every other 120 CT' (FG4: '2026 with Dev PM', Plan 2: 'Network Control Plan 2')

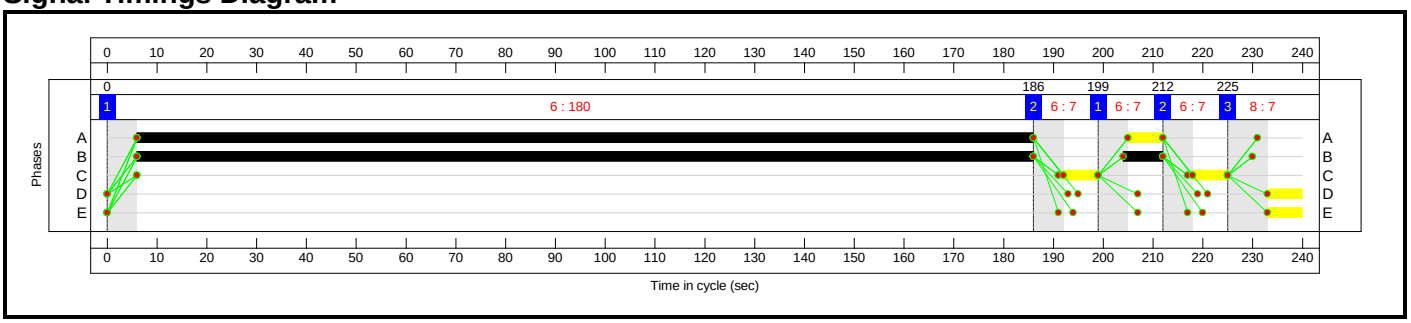
Stage Sequence Diagram



Stage Timings

Stage	1	2	1	2	3
Duration	180	7	7	7	7
Change Point	0	186	199	212	225

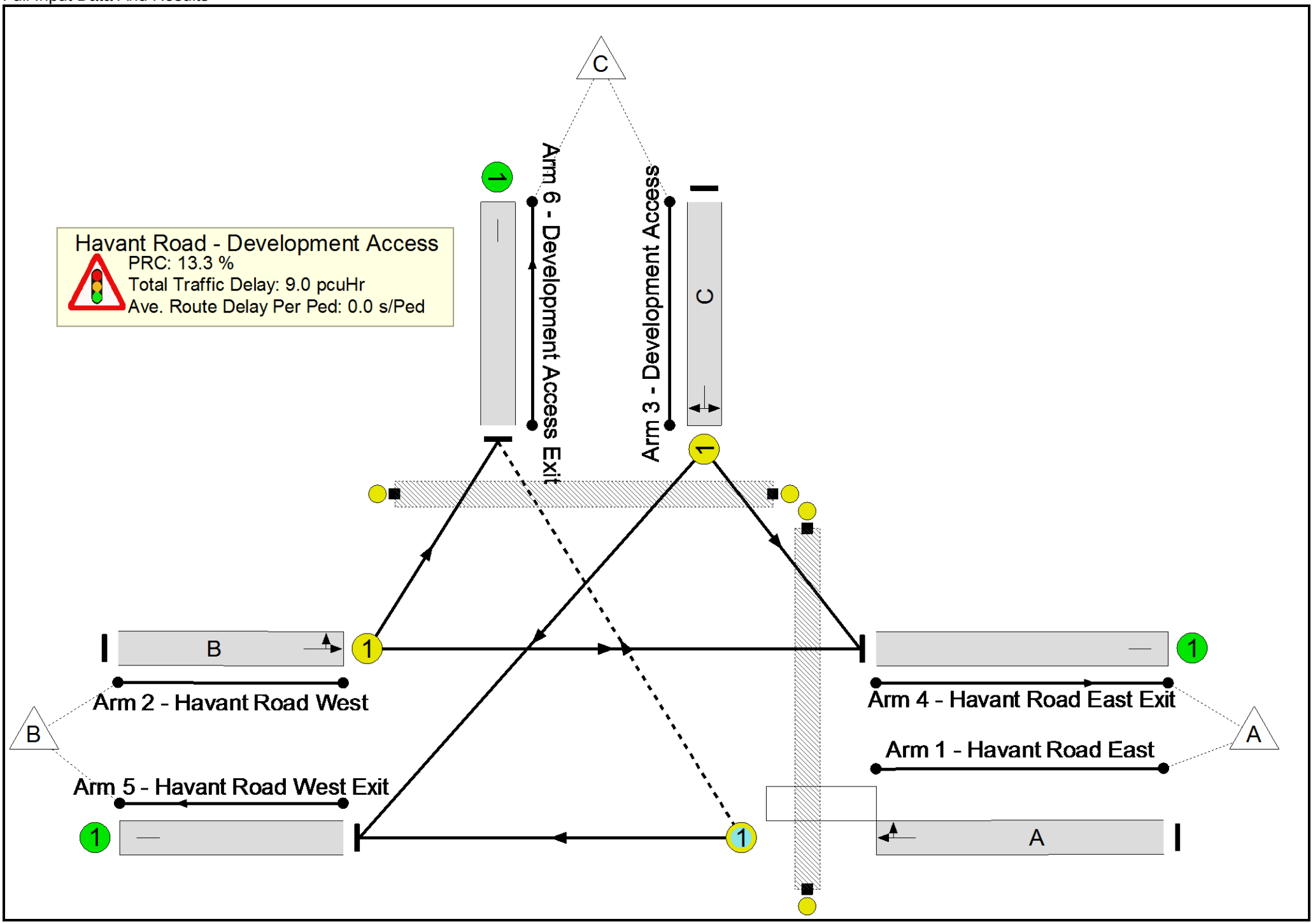
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

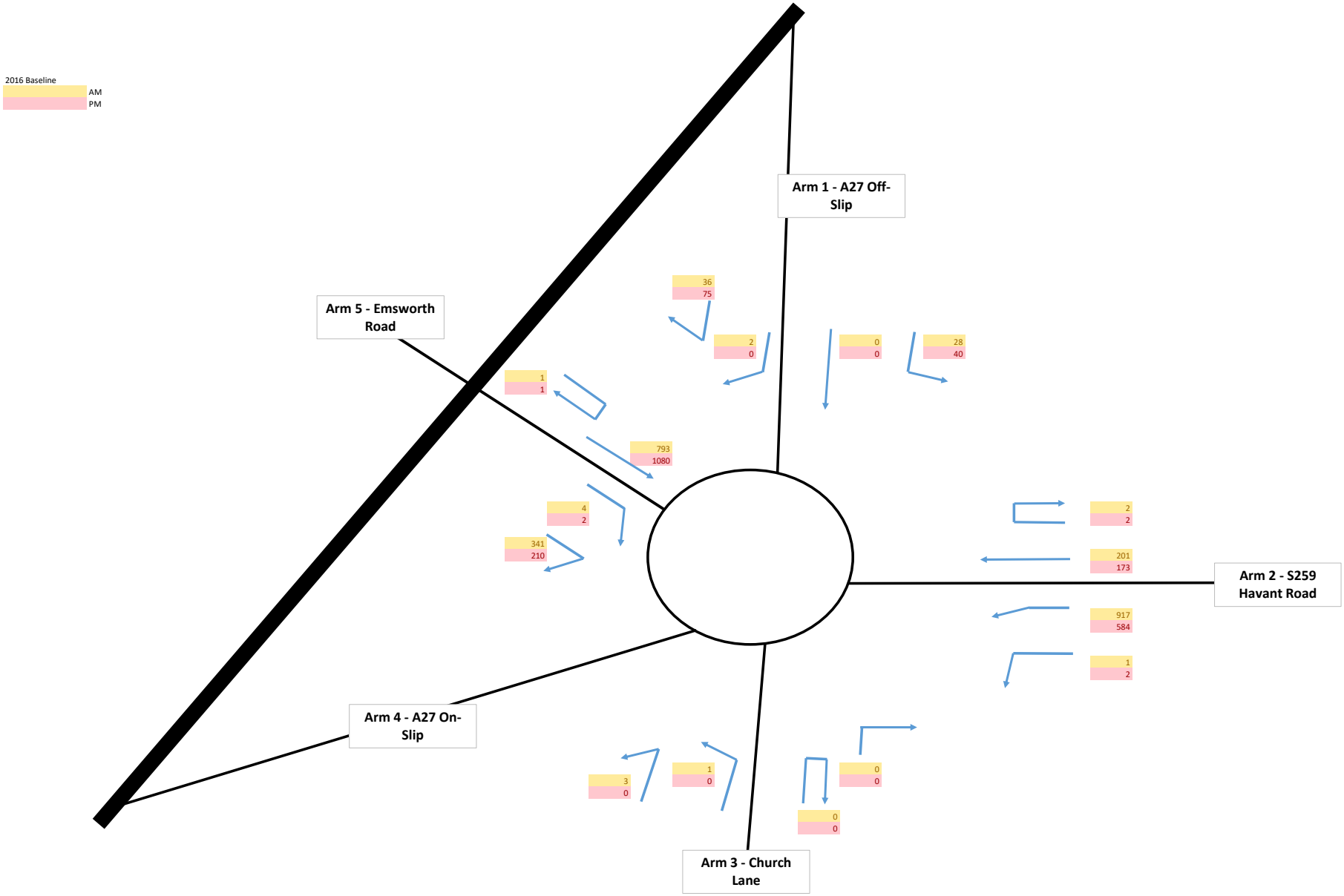
Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Havant Road - Development Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.4%**
Havant Road - Development Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.4%**
1/1	Havant Road East Ahead Right	O	N/A	N/A	A		2	187	-	811	1936	1525	53.2%
2/1	Havant Road West Ahead Left	U	N/A	N/A	B		2	188	-	1201	1910	1512	79.4%
3/1	Development Access Left Right	U	N/A	N/A	C		2	14	-	28	1897	126	22.1%
4/1	Havant Road East Exit	U	N/A	N/A	-		-	-	-	1173	Inf	Inf	0.0%
5/1	Havant Road West Exit	U	N/A	N/A	-		-	-	-	814	Inf	Inf	0.0%
6/1	Development Access Exit	U	N/A	N/A	-		-	-	-	53	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	D		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	E		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Havant Road - Development Access Jct	**-**	**-**	**15**	**0**	**2**	**6.2**	**2.6**	**0.1**	**9.0**	**-**	**-**	**-**	**-**
Havant Road - Development Access	**-**	**-**	**15**	**0**	**2**	**6.2**	**2.6**	**0.1**	**9.0**	**-**	**-**	**-**	**-**
1/1	811	811	15	0	2	1.5	0.6	0.1	2.2	9.7	15.3	0.6	15.9
2/1	1201	1201	-	-	-	4.0	1.9	-	5.9	17.8	39.9	1.9	41.8
3/1	28	28	-	-	-	0.7	0.1	-	0.8	108.7	1.6	0.1	1.8
4/1	1173	1173	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	814	814	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	53	53	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 13.3 Total Delay for Signalled Lanes (pcuHr): 8.97 Cycle Time (s): 240
PRC Over All Lanes (%): 13.3 Total Delay Over All Lanes(pcuHr): 8.97

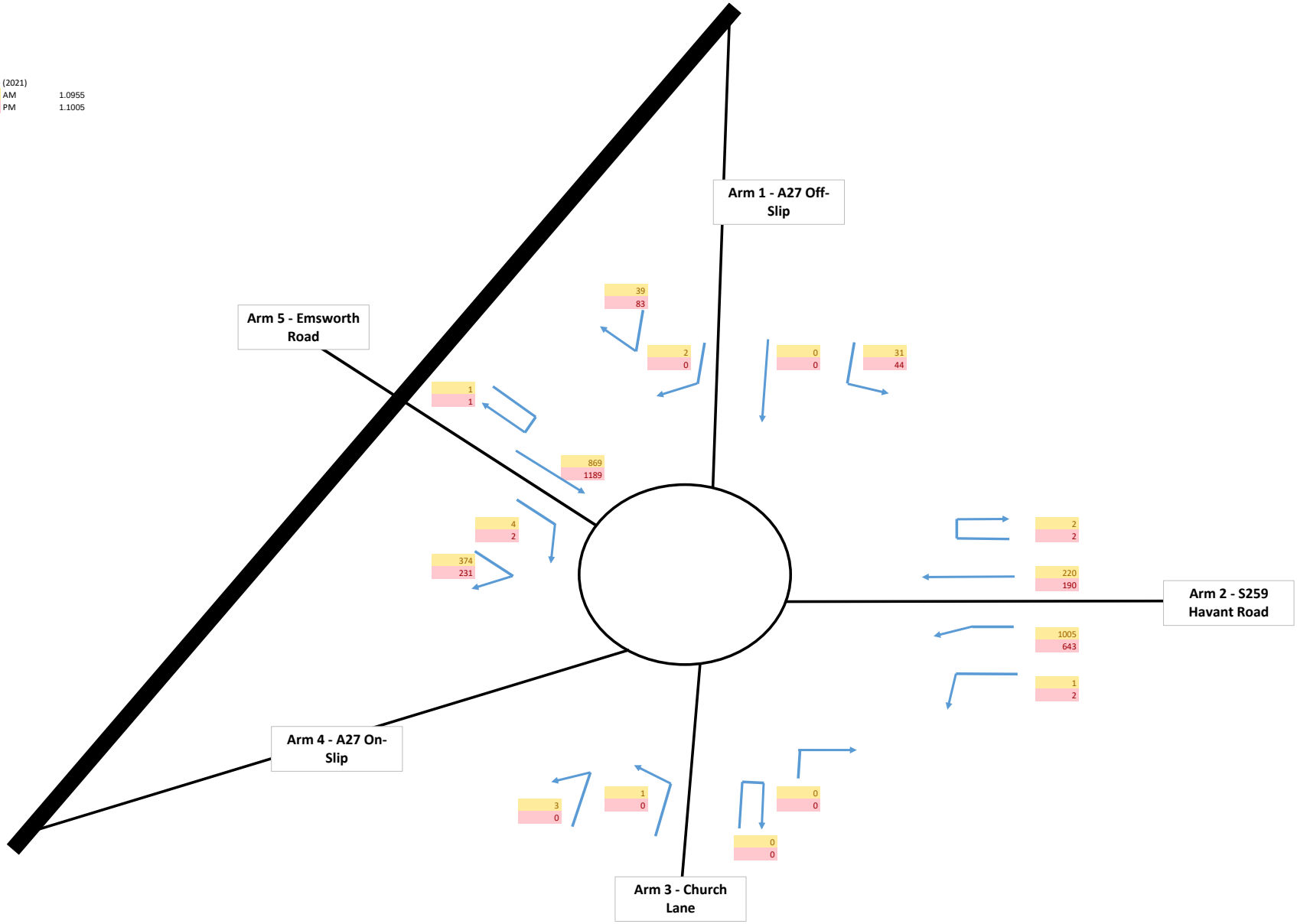
Appendix G


2016 Baseline
AM
PM
Arm 1 - A27 Off-Slip
Arm 2 - S259 Havant Road
Arm 3 - Church Lane
Arm 4 - A27 On-Slip
Arm 5 - Emsworth Road
36
75
2
0
0
0
28
40
1
1
793
1080
4
2
341
210
2
2
201
173
917
584
1
2
3
0
1
0
0
0
0
0

2021 Baseline

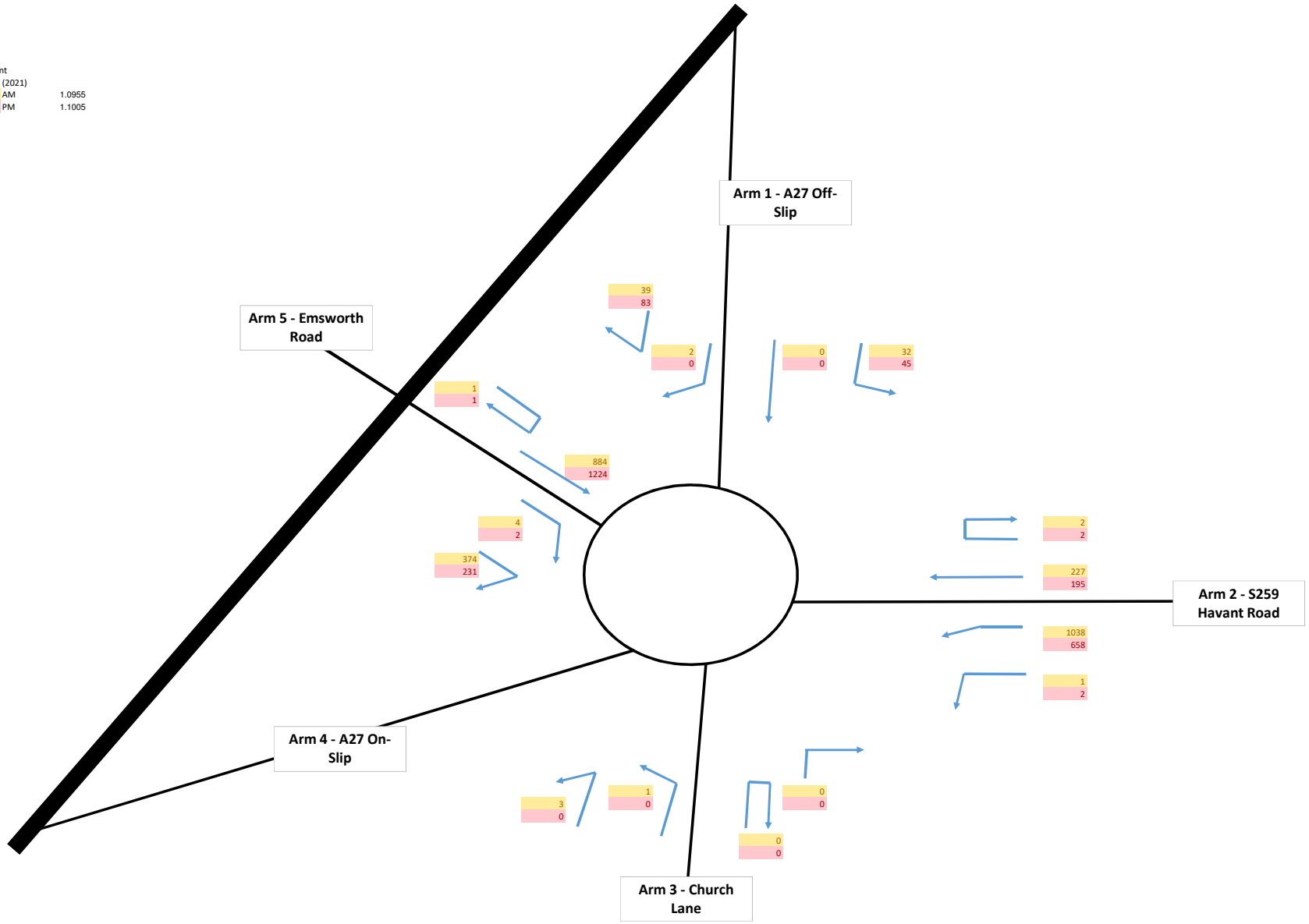
TEMPRO Growth Rate (2021)

	AM	1.0955
	PM	1.1005



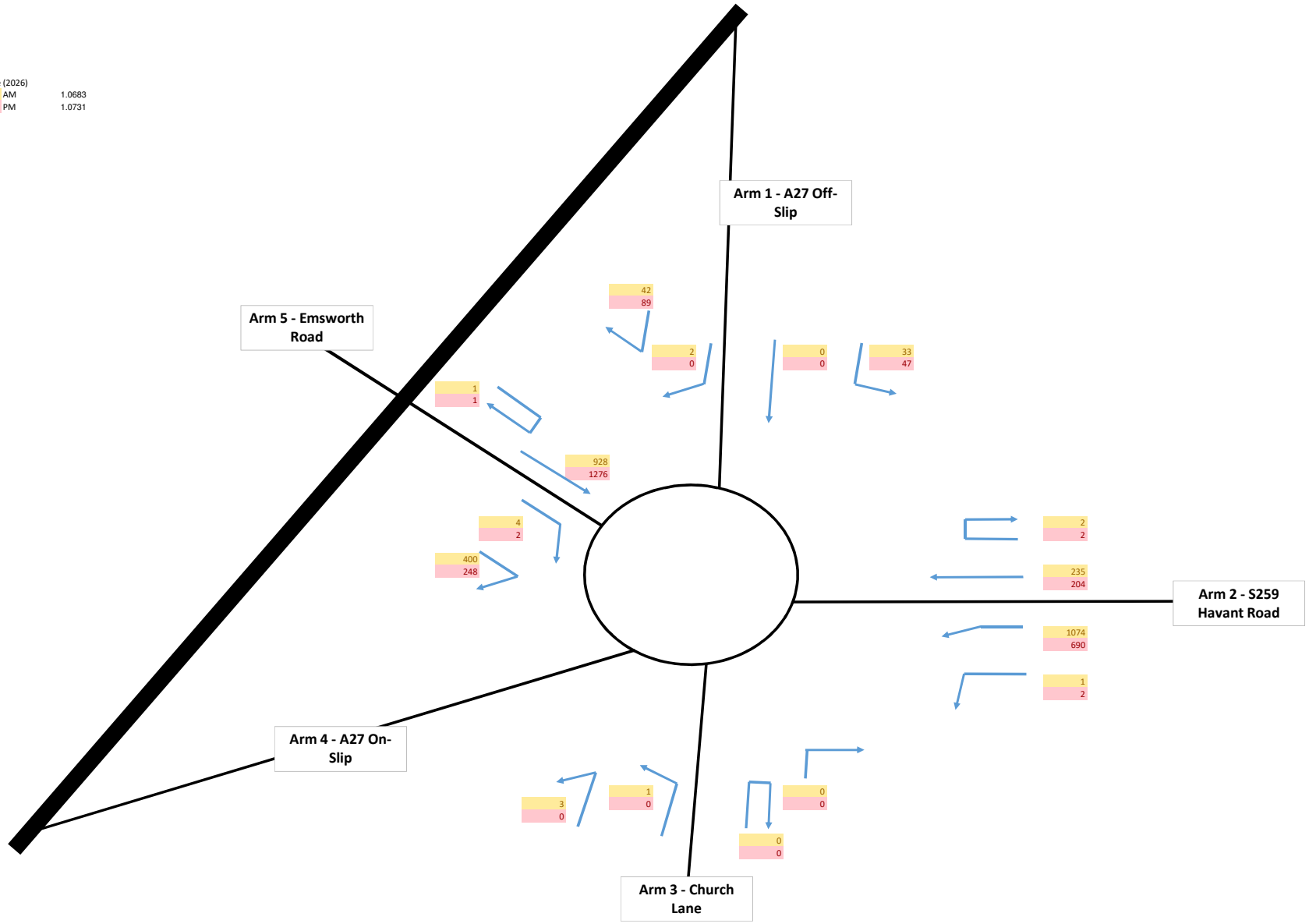
2021 with development
TEMPRO Growth Rate (2021)

	AM	1.0955
	PM	1.1005



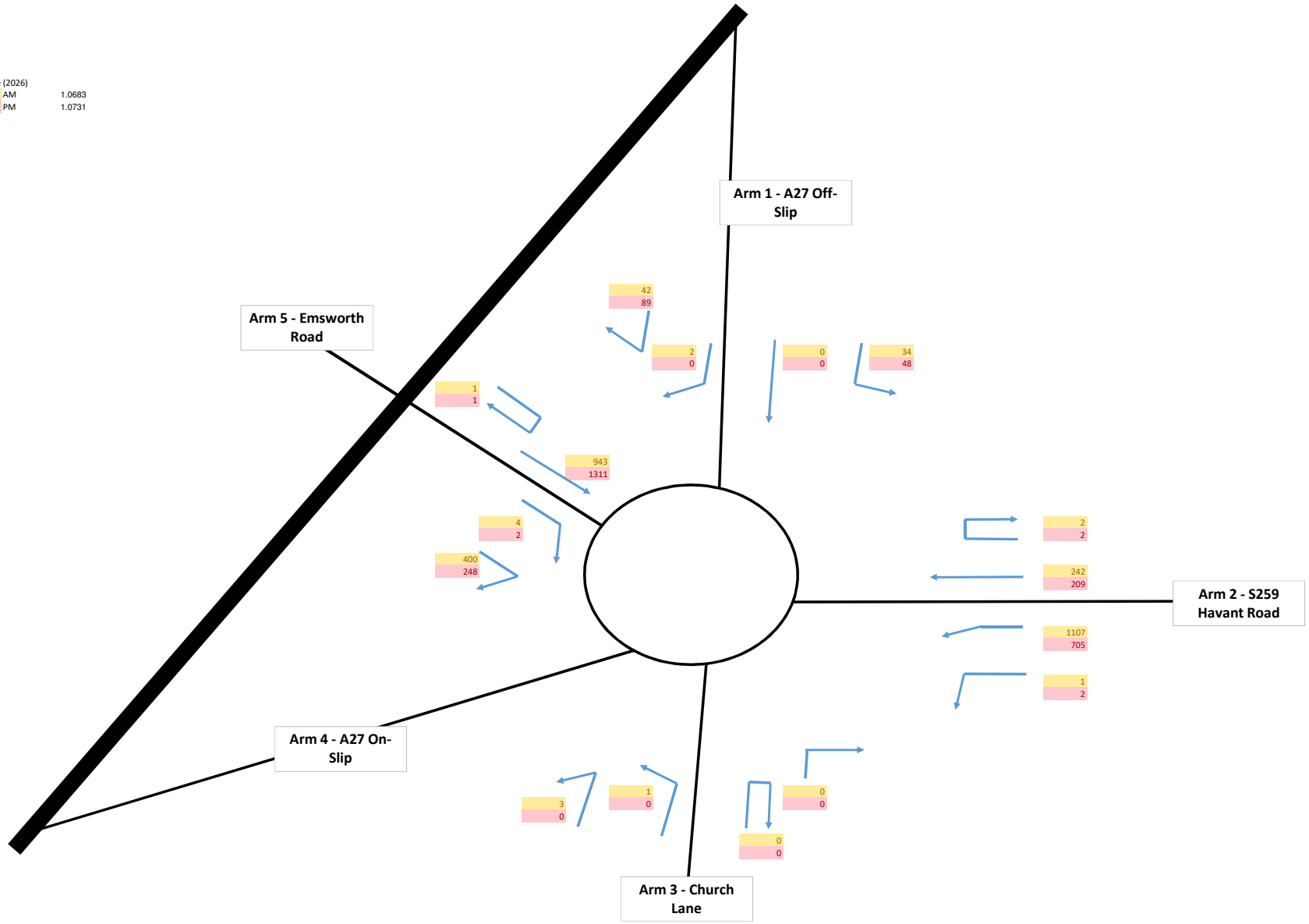
TEMPRO Growth Rate (2026)

	AM	1.0683
	PM	1.0731

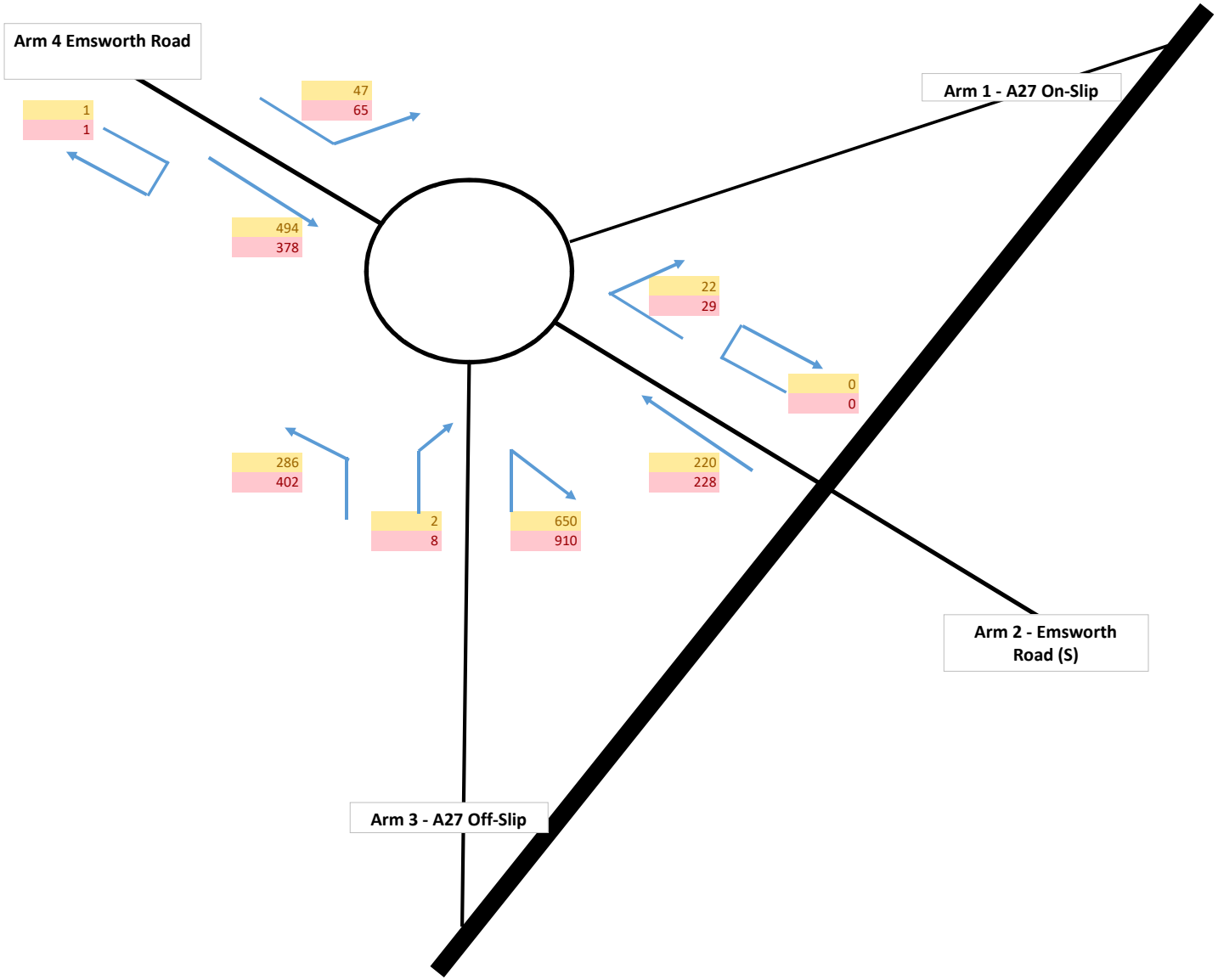


TEMPRO Growth Rate (2026)

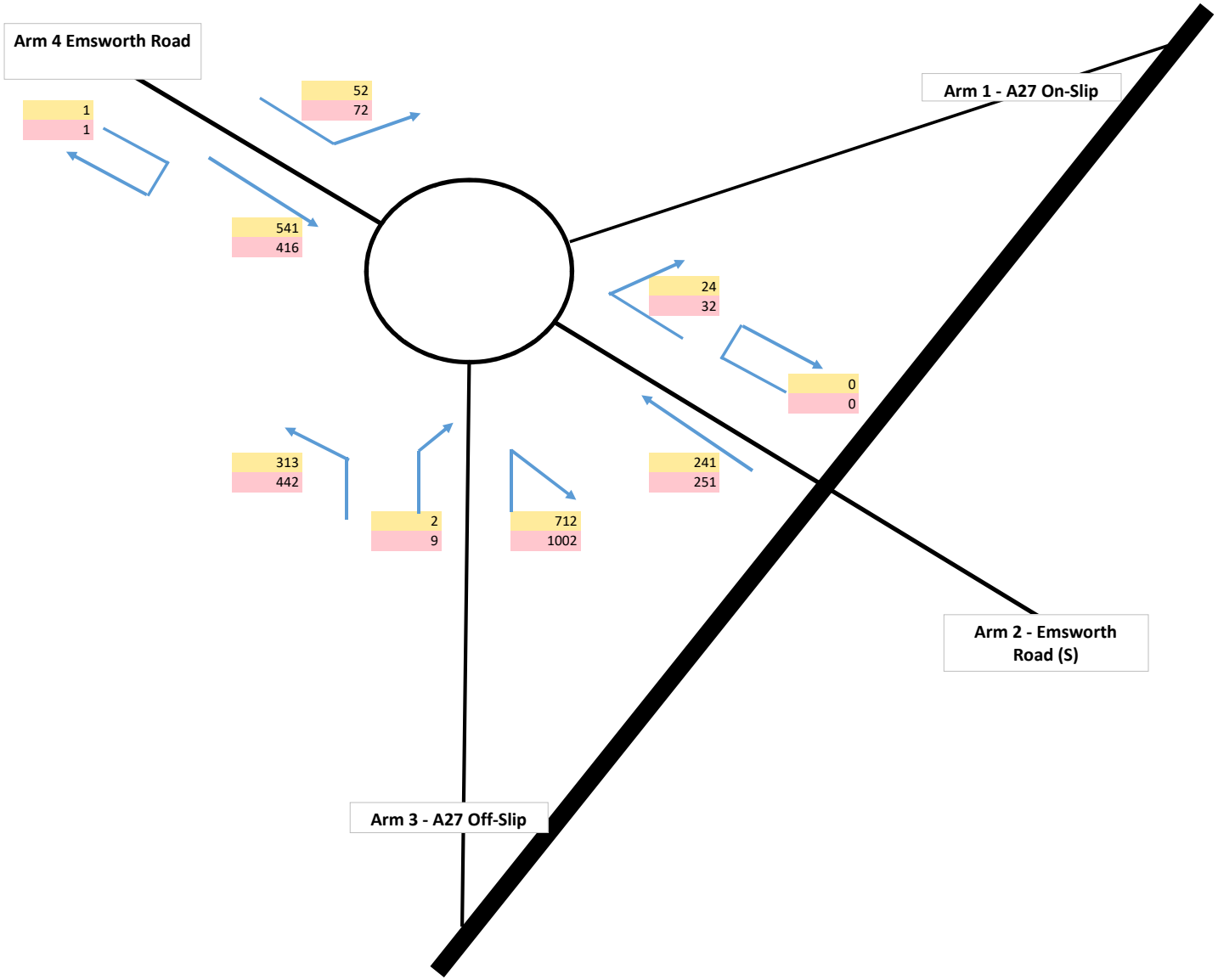
	AM	1.0683
	PM	1.0731



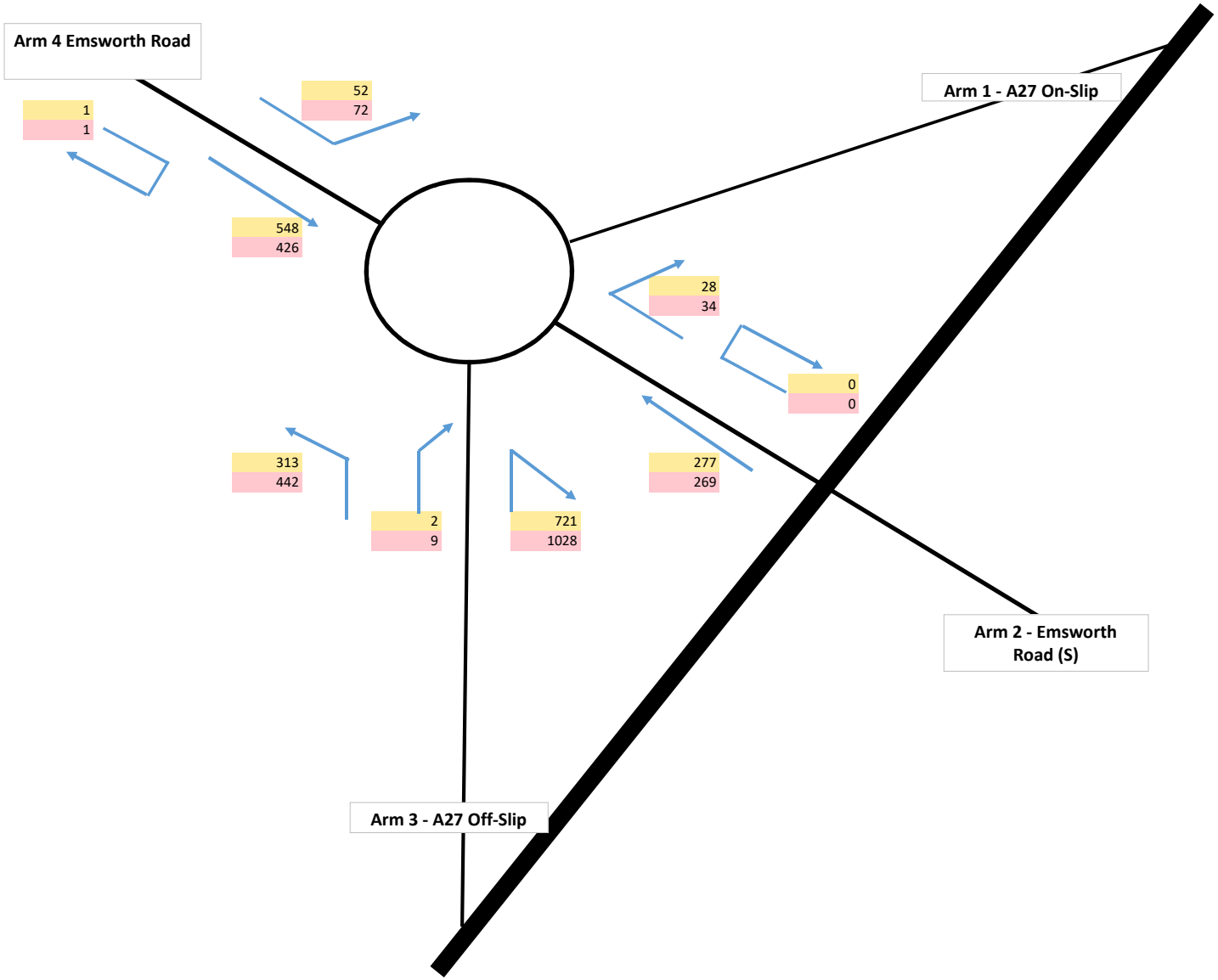
2016 baseline



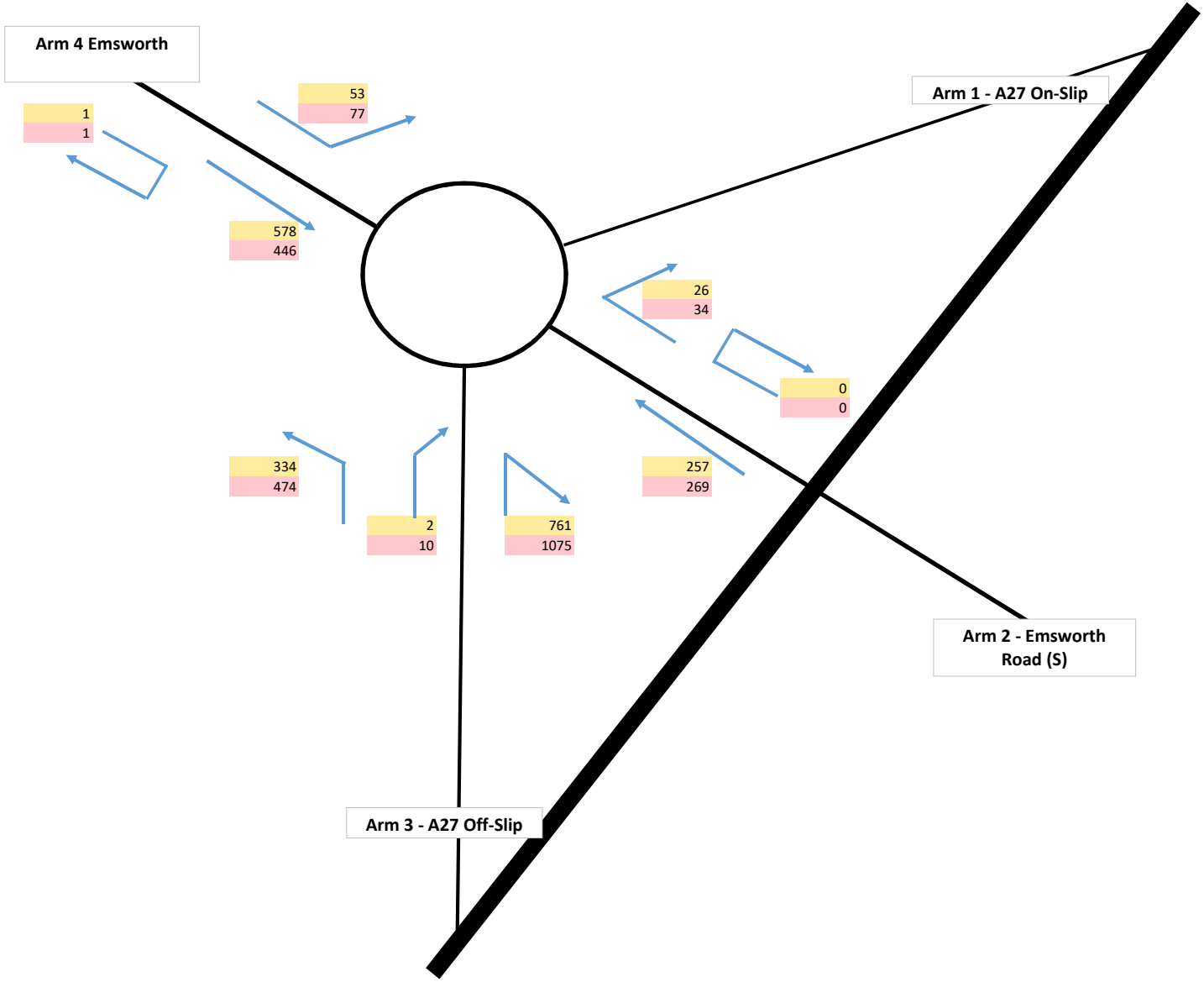
1.0955
1.1005
2021 baseline



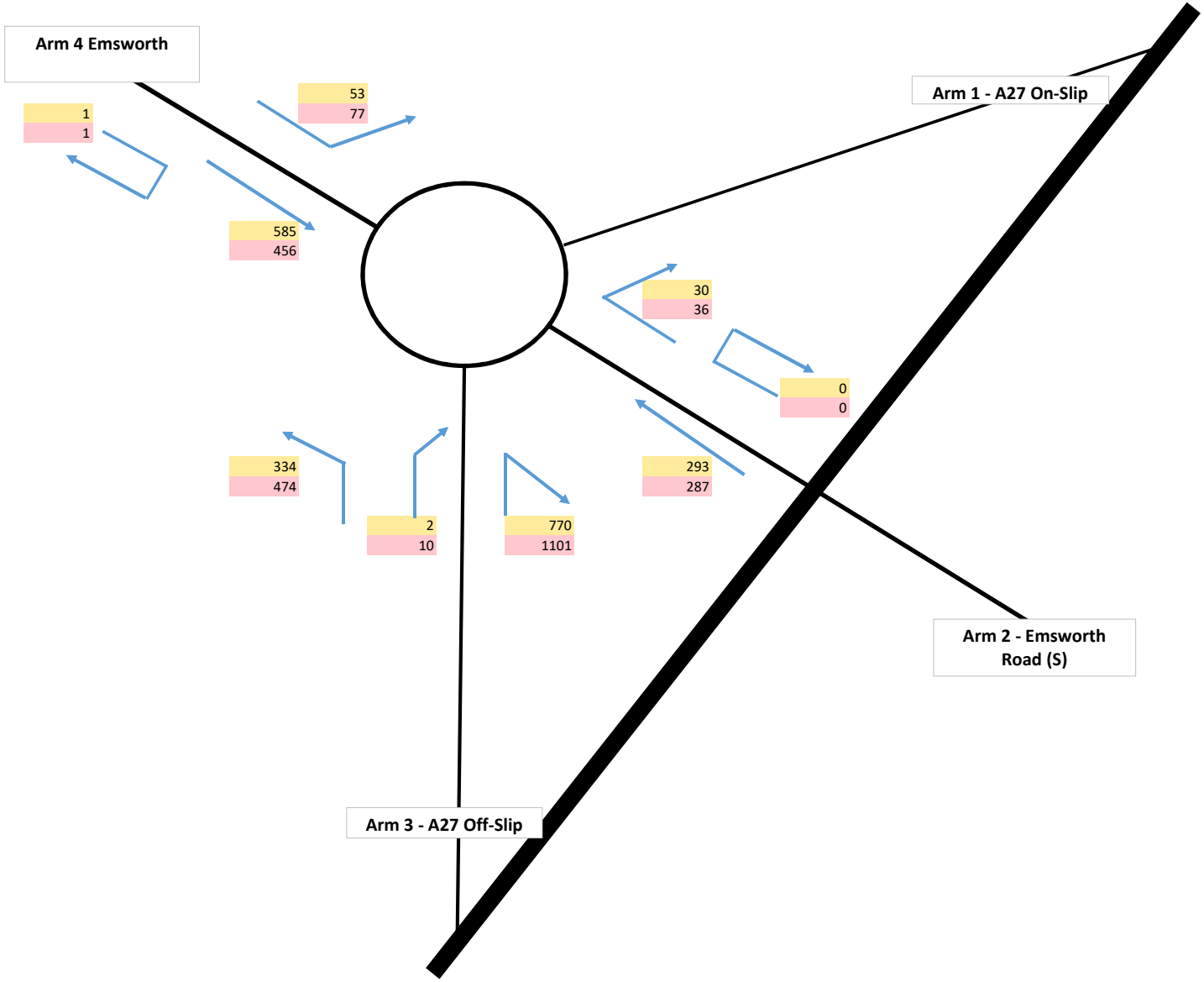
1.0955
1.1005
2021 with dev



1.0683 (TEMPRO 2026)
1.0731
2026 base



1.0683 (TEMPRO 2026)
1.0731
2026 with dev



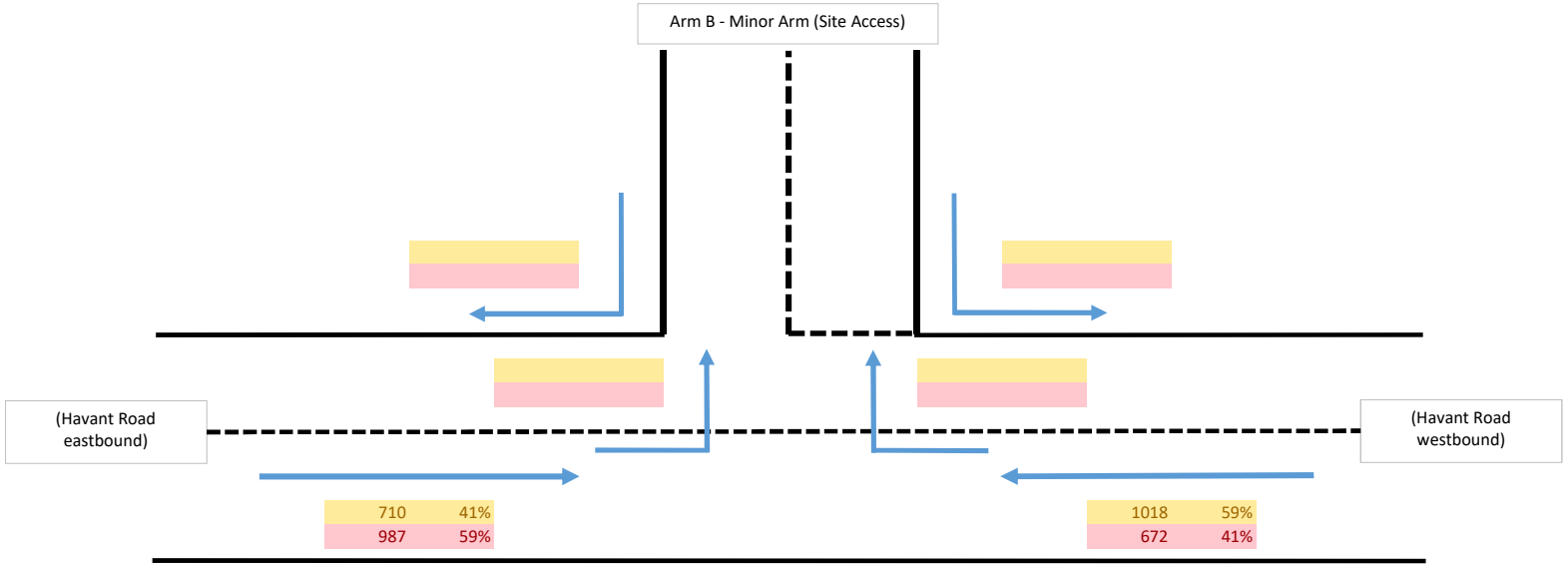
2016 Base

AM Peak Distribution

ATC Survey	No. Vehicles	%
westbound	1018	59%
eastbound	710	41%
Total	1728	100%

PM Peak Distribution

ATC Survey	No. Vehicles	%
westbound	672	41%
eastbound	987	59%
Total	1659	100%



2016 Base with Development

AM Peak Distribution

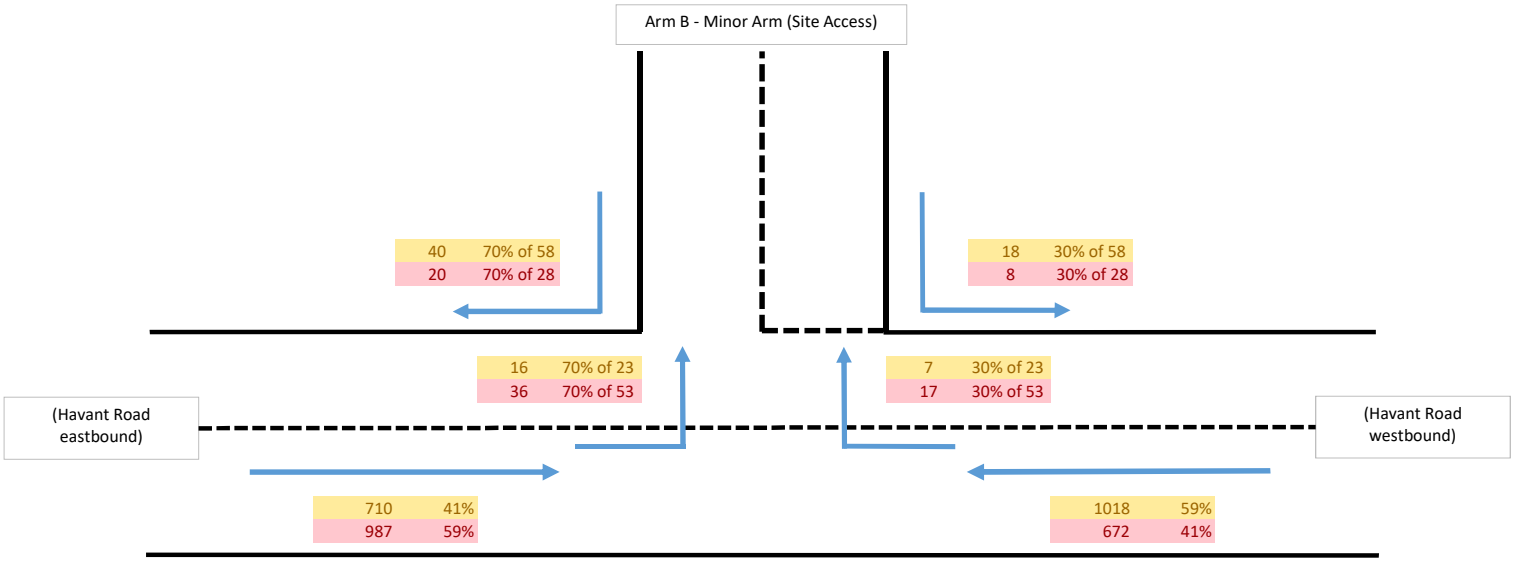
ATC Survey	No. Vehicles	%
westbound	1018	59%
eastbound	710	41%
Total	1728	100%

TRICS	No. Vehicles
Arrivals	23
Departures	58

PM Peak Distribution

ATC Survey	No. Vehicles	%
westbound	672	41%
eastbound	987	59%
Total	1659	100%

TRICS	No. Vehicles
Arrivals	53
Departures	28



2021 Base with Development

AM Peak Distribution

ATC Survey	No. Vehicles	%
westbound	1115	59%
eastbound	778	41%
Total	1893	100%

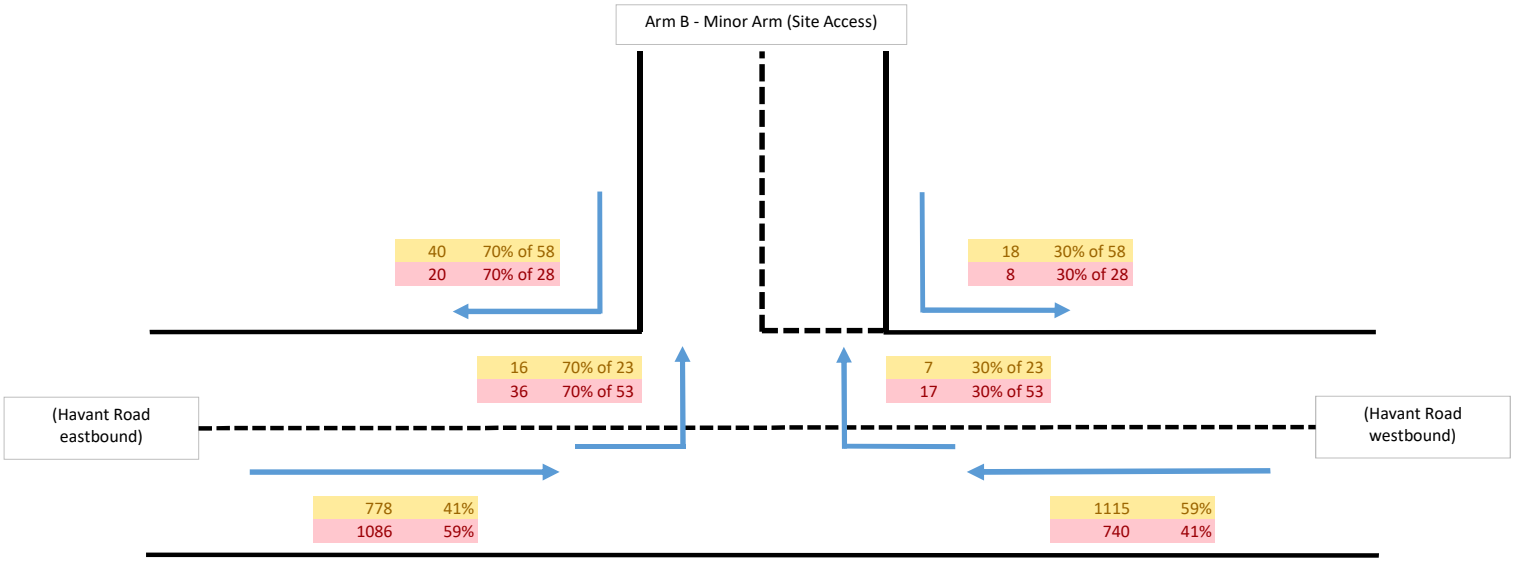
TRICS	No. Vehicles
Arrivals	23
Departures	58

PM Peak Distribution

ATC Survey	No. Vehicles	%
westbound	740	41%
eastbound	1086	59%
Total	1826	100%

TRICS	No. Vehicles
Arrivals	53
Departures	28

TEMPRO Growth Rate	(2016-2021)
AM	PM
1.0955	1.1005



2026 Base with Development

AM Peak Distribution

ATC Survey	No. Vehicles	%
westbound	1191	59%
eastbound	831	41%
Total	2022	100%

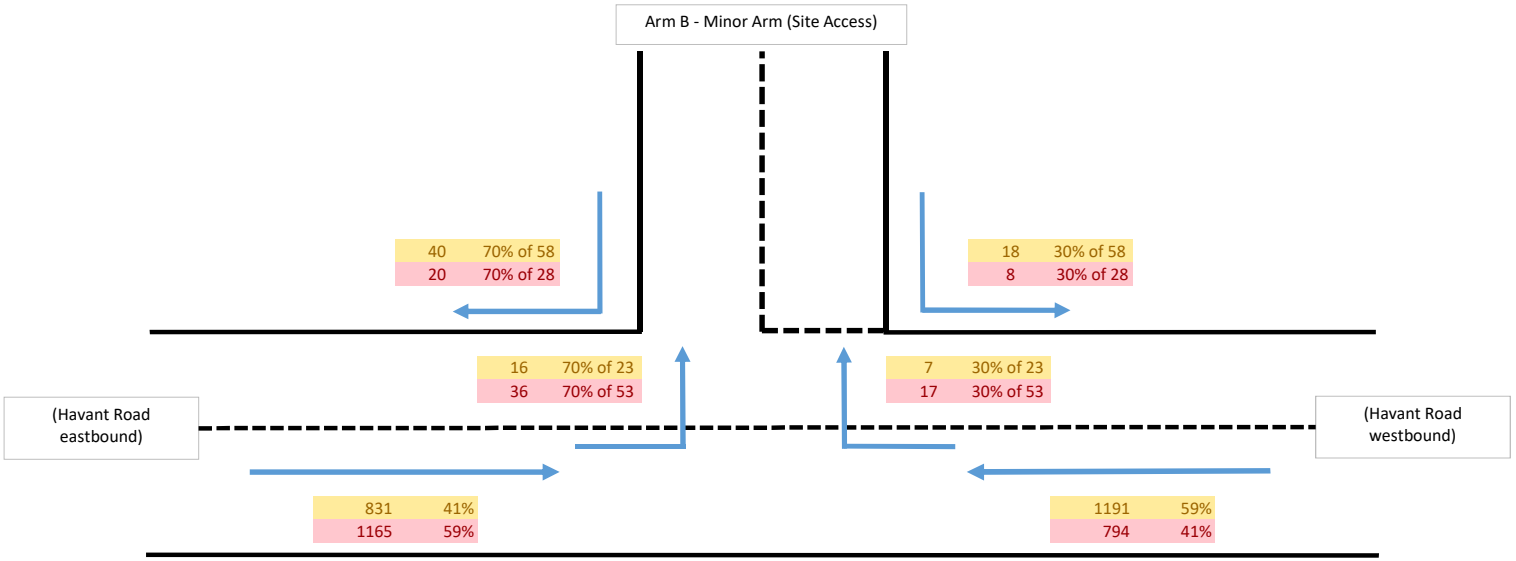
TRICS	No. Vehicles
Arrivals	23
Departures	58

PM Peak Distribution

ATC Survey	No. Vehicles	%
westbound	794	41%
eastbound	1165	59%
Total	1959	100%

TRICS	No. Vehicles
Arrivals	53
Departures	28

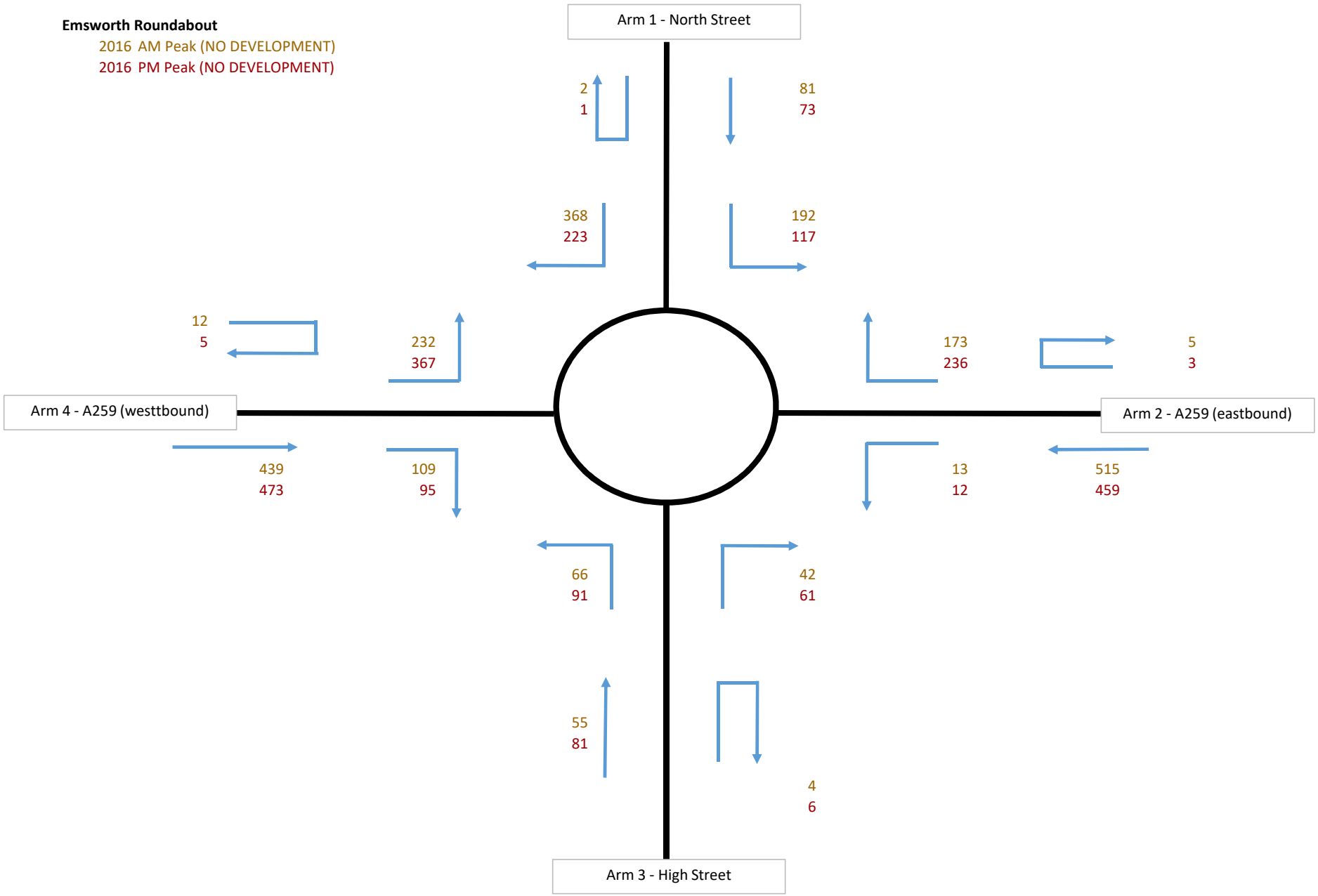
TEMPRO Growth Rate	2021-2026
AM	PM
1.0683	1.0731



Emsworth Roundabout

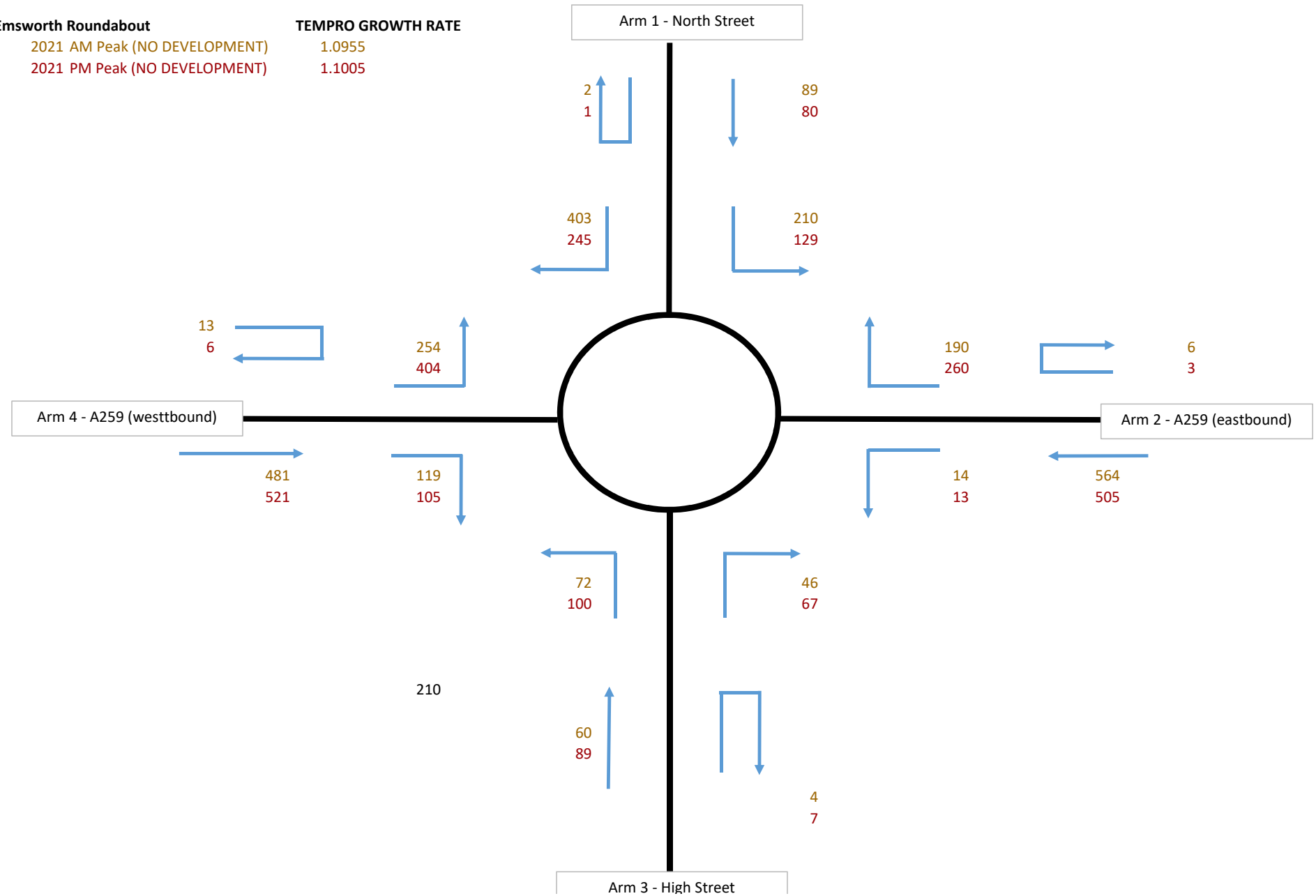
2016 AM Peak (NO DEVELOPMENT)

2016 PM Peak (NO DEVELOPMENT)



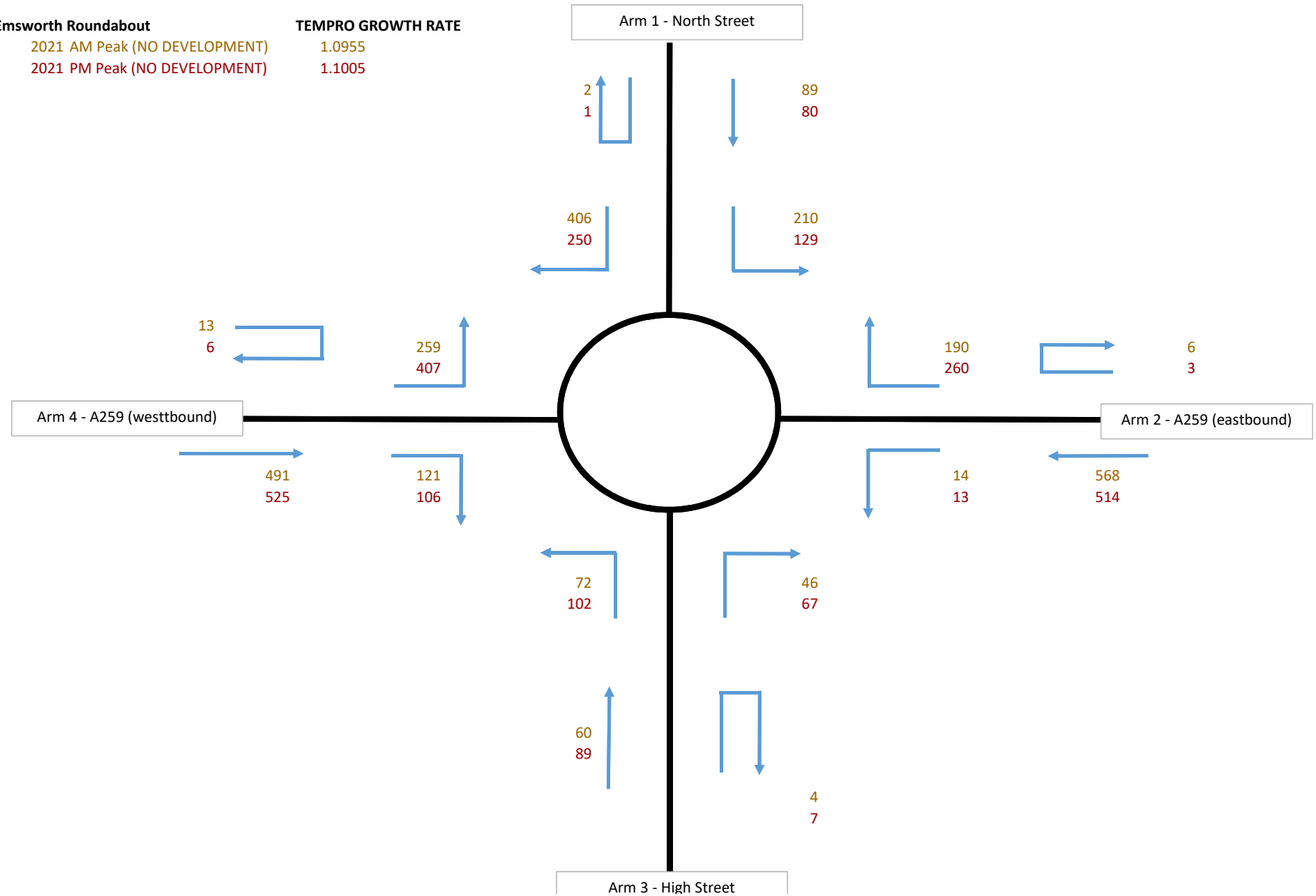
Emsworth Roundabout

	TEMPRO GROWTH RATE
2021 AM Peak (NO DEVELOPMENT)	1.0955
2021 PM Peak (NO DEVELOPMENT)	1.1005



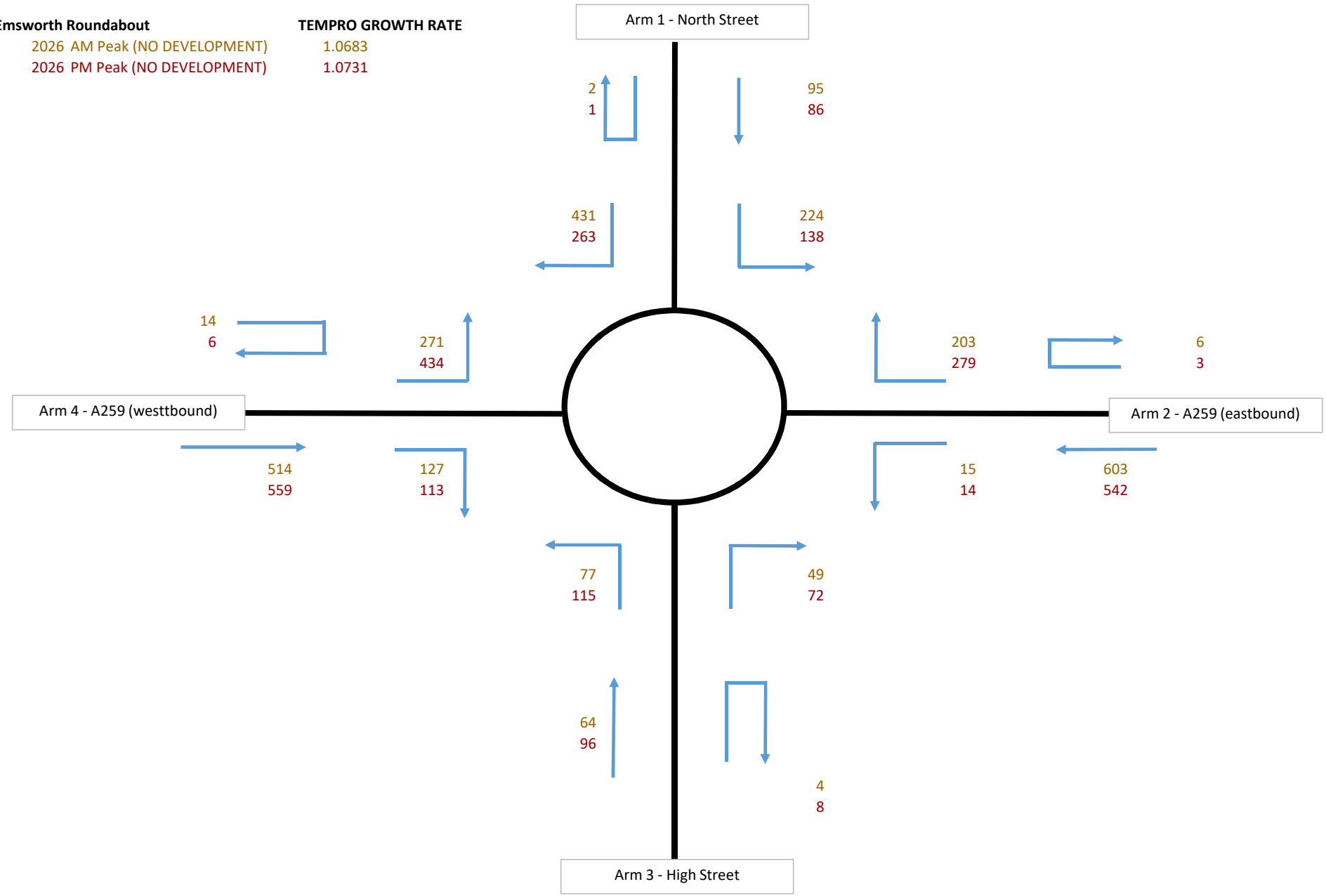
Emsworth Roundabout

	TEMPRO GROWTH RATE
2021 AM Peak (NO DEVELOPMENT)	1.0955
2021 PM Peak (NO DEVELOPMENT)	1.1005



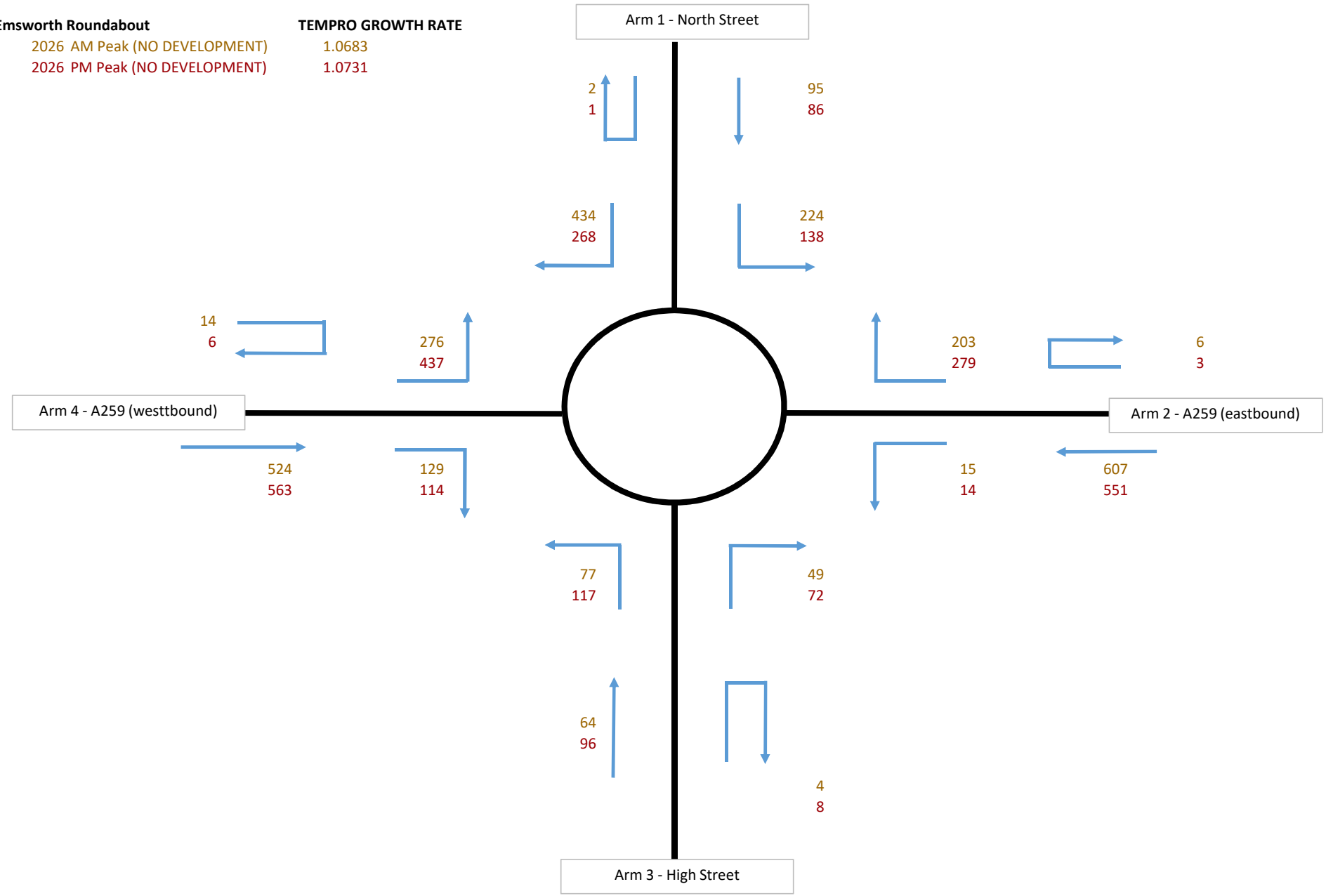
Emsworth Roundabout

	TEMPRO GROWTH RATE
2026 AM Peak (NO DEVELOPMENT)	1.0683
2026 PM Peak (NO DEVELOPMENT)	1.0731

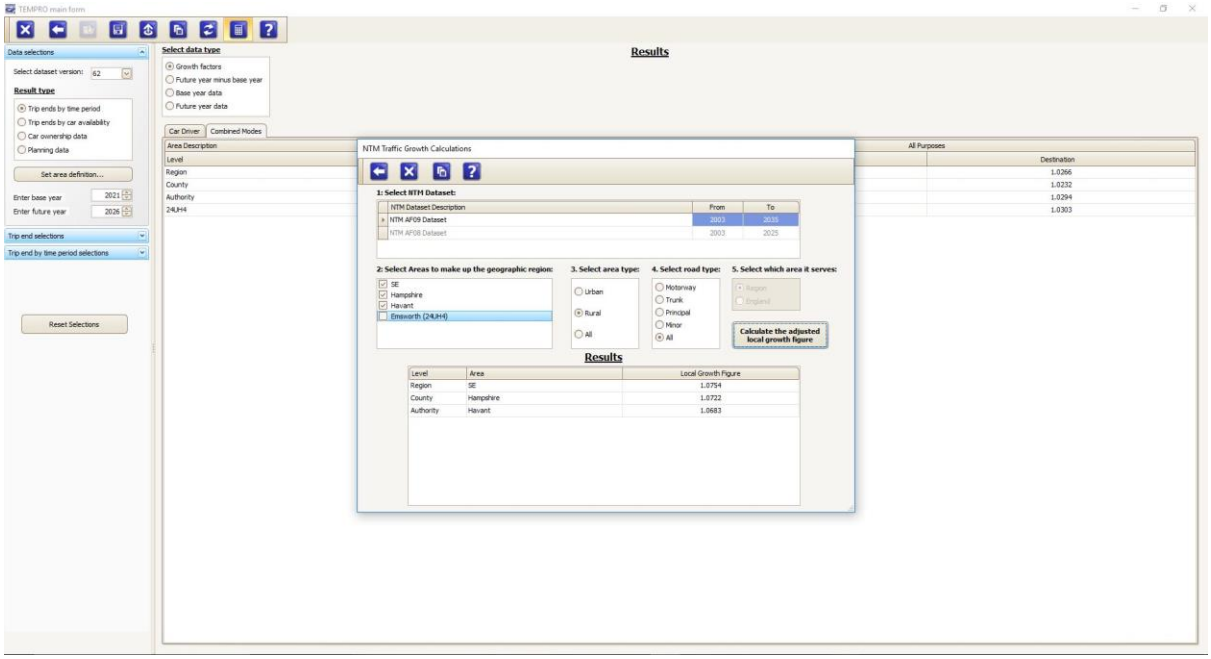


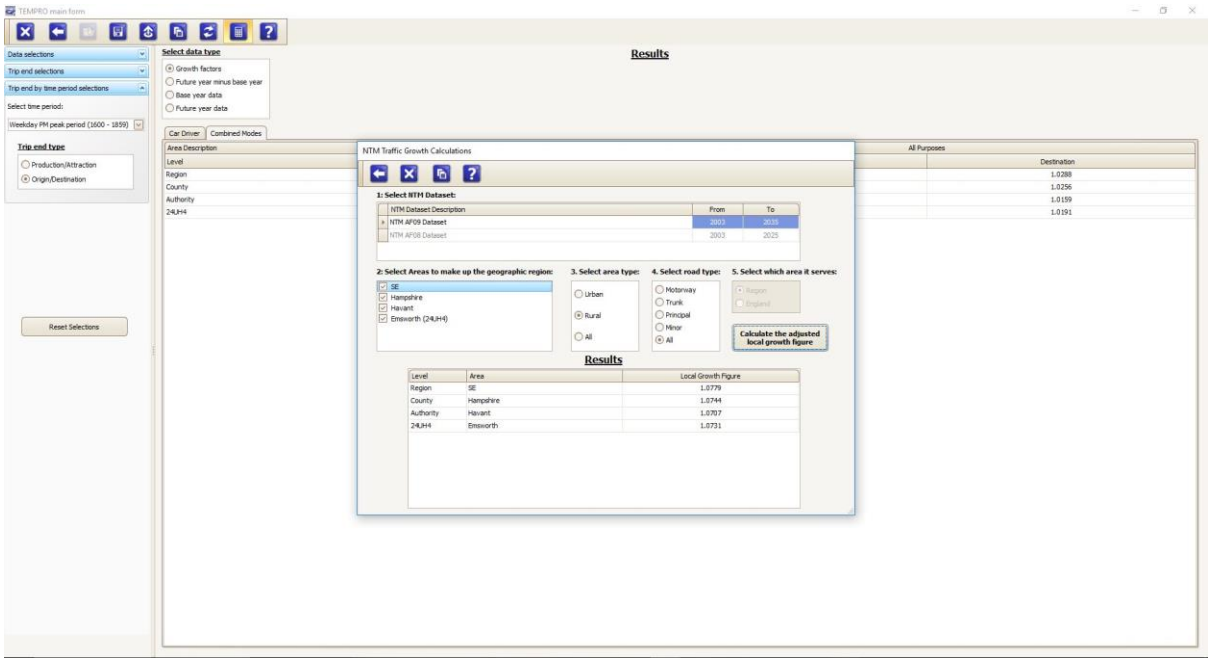
Emsworth Roundabout

	TEMPRO GROWTH RATE
2026 AM Peak (NO DEVELOPMENT)	1.0683
2026 PM Peak (NO DEVELOPMENT)	1.0731



Appendix H


TEMPRO main form
Data selections
Select dataset version: 62
Result type
Trip ends by time period
Trip ends by car availability
Car ownership data
Planning data
Set area definition...
Enter base year 2021
Enter future year 2026
Trip end selections
Trip end by time period selections
Reset Selections
Select data type
Growth factors
Future year minus base year
Base year data
Future year data
Results
Car Driver
Combined Modes
Area Description
Level
All Purposes
Destination
Region 1.0266
County 1.0232
Authority 1.0294
24UH4 1.0303
NTM Traffic Growth Calculations
1: Select NTM Dataset:
NTM Dataset Description
From
To
NTM AF09 Dataset 2003 2035
NTM AF08 Dataset 2003 2025
2: Select Areas to make up the geographic region:
SE
Hampshire
Havant
Emsworth (24UH4)
3. Select area type:
Urban
Rural
All
4. Select road type:
Motorway
Trunk
Principal
Minor
All
5. Select which area it serves:
Region
England
Calculate the adjusted local growth figure
Results
Level
Area
Local Growth Figure
Region SE 1.0754
County Hampshire 1.0722
Authority Havant 1.0683


TEMPRO main form
Data selections
Trip end selections
Trip end by time period selections
Select time period:
Weekday PM peak period (1600 - 1859)
Trip end type
Production/Attraction
Origin/Destination
Reset Selections
Select data type
Growth factors
Future year minus base year
Base year data
Future year data
Results
Car Driver
Combined Modes
Area Description
Level
All Purposes
Destination
Region 1.0288
County 1.0256
Authority 1.0159
24UH4 1.0191
NTM Traffic Growth Calculations
1: Select NTM Dataset:
NTM Dataset Description
From
To
NTM AF09 Dataset 2003 2035
NTM AF08 Dataset 2003 2025
2: Select Areas to make up the geographic region:
SE
Hampshire
Havant
Emsworth (24UH4)
3. Select area type:
Urban
Rural
All
4. Select road type:
Motorway
Trunk
Principal
Minor
All
5. Select which area it serves:
Region
England
Calculate the adjusted local growth figure
Results
Level
Area
Local Growth Figure
Region SE 1.0779
County Hampshire 1.0744
Authority Havant 1.0707
24UH4 Emsworth 1.0731

Appendix I

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2016 BASELINE.j9
Path: Z:\Projects\040-049\041 Barratt Homes\041.0025 Warblington Meadows, Havant\Reports\MODELLING\Modelling January 2017\Emsworth Roundabout
Report generation date: 10/01/2017 13:01:46

»2016 - 2017, AM
»2016 - 2017, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2016 - 2017							
Arm 1	1.3	6.48	0.56	A	0.6	4.40	0.36	A
Arm 2	2.9	13.56	0.75	B	1.0	4.60	0.50	A
Arm 3	0.5	10.29	0.34	B	0.4	5.02	0.27	A
Arm 4	1.1	4.73	0.53	A	1.7	5.94	0.63	A

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

File summary

File Description

Title	Emsworth Roundabout
Location	
Site number	
Date	10/01/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	041.0025
Enumerator	Beth
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	Veh	perHour	s	-Min	perMin

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:45	09:15	15
D2	2017	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1-1	2016	100.000

2016 - 2017, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	8.32	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	ARM 1 NORTH STREET	
2	ARM 2 A259 EAST STREET	
3	ARM 3 HIGH STREET	
4	ARM 4 A259 WEST STREET	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.90	8.10	13.3	33.8	29.0	45.0	
2	3.45	7.82	29.2	62.5	29.0	49.0	
3	3.81	7.33	14.8	10.0	29.0	38.0	
4	4.10	7.78	24.1	18.1	29.0	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.660	1756
2	0.685	1877
3	0.620	1626
4	0.702	1946

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	643	100.000
2		✓	706	100.000
3		✓	167	100.000
4		✓	792	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	2	192	81	368
	2	173	5	13	515
	3	55	42	4	66
	4	232	12	109	439

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	50	1	3	1
	2	2	20	0	5
	3	0	5	0	6
	4	2	5	3	8

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.56	6.48	1.3	A
2	0.75	13.56	2.9	B
3	0.34	10.29	0.5	B
4	0.53	4.73	1.1	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	484	458	1413	0.343	482	0.5	3.858	A
2	532	752	1283	0.414	529	0.7	4.754	A
3	126	1126	864	0.146	125	0.2	4.867	A
4	596	210	1701	0.351	594	0.5	3.248	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	578	549	1350	0.428	577	0.7	4.650	A
2	635	900	1181	0.537	633	1.1	6.542	A
3	150	1348	725	0.207	150	0.3	6.253	A
4	712	252	1672	0.426	711	0.7	3.742	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	708	671	1265	0.560	706	1.3	6.419	A
2	777	1102	1043	0.745	771	2.8	12.915	B
3	184	1645	539	0.341	183	0.5	10.091	B
4	872	307	1635	0.534	870	1.1	4.702	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	708	673	1264	0.560	708	1.3	6.475	A
2	777	1104	1042	0.746	777	2.9	13.562	B
3	184	1653	534	0.345	184	0.5	10.290	B
4	872	309	1633	0.534	872	1.1	4.729	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	578	551	1349	0.429	580	0.8	4.697	A
2	635	904	1179	0.538	641	1.2	6.776	A
3	150	1359	718	0.209	151	0.3	6.363	A
4	712	255	1670	0.426	714	0.7	3.771	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	484	461	1411	0.343	485	0.5	3.891	A
2	532	756	1280	0.415	533	0.7	4.830	A
3	126	1134	859	0.146	126	0.2	4.913	A
4	596	212	1699	0.351	597	0.5	3.270	A

2016 - 2017, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	5.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2017	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	414	100.000
2		✓	710	100.000
3		✓	239	100.000
4		✓	940	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	1	117	73	223
	2	236	3	12	459
	3	81	61	6	91
	4	367	473	95	5

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	0	1
	2	1	0	1	0
	3	3	0	0	0
	4	0	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.36	4.40	0.6	A
2	0.50	4.60	1.0	A
3	0.27	5.02	0.4	A
4	0.63	5.94	1.7	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	312	482	1422	0.219	311	0.3	3.237	A
2	535	302	1662	0.322	533	0.5	3.181	A
3	180	695	1181	0.152	179	0.2	3.594	A
4	708	291	1737	0.407	705	0.7	3.478	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	372	577	1360	0.274	372	0.4	3.644	A
2	638	362	1621	0.394	638	0.6	3.658	A
3	215	832	1096	0.196	215	0.2	4.083	A
4	845	348	1697	0.498	844	1.0	4.215	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	456	706	1275	0.357	455	0.6	4.385	A
2	782	443	1566	0.499	780	1.0	4.578	A
3	263	1019	981	0.268	263	0.4	5.008	A
4	1035	426	1641	0.631	1032	1.7	5.884	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	456	708	1274	0.358	456	0.6	4.398	A
2	782	444	1565	0.500	782	1.0	4.595	A
3	263	1021	980	0.269	263	0.4	5.021	A
4	1035	427	1641	0.631	1035	1.7	5.942	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	372	580	1358	0.274	373	0.4	3.656	A
2	638	363	1620	0.394	640	0.7	3.677	A
3	215	835	1094	0.196	215	0.2	4.098	A
4	845	350	1696	0.498	848	1.0	4.260	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	312	485	1420	0.219	312	0.3	3.249	A
2	535	304	1661	0.322	535	0.5	3.200	A
3	180	699	1178	0.153	180	0.2	3.609	A
4	708	293	1736	0.408	709	0.7	3.507	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2021 BASELINE.j9
Path: Z:\Projects\040-049\041 Barratt Homes\041.0025 Warblington Meadows, Havant\Reports\MODELLING\Modelling January 2017\Emsworth Roundabout\2021 Baseline
Report generation date: 10/01/2017 13:55:46

»2021 Baseline - 2017, AM
»2021 Baseline - 2017, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2021 Baseline - 2017							
Arm 1	1.7	7.92	0.63	A	0.7	4.96	0.41	A
Arm 2	1.7	7.45	0.64	A	1.3	5.34	0.56	A
Arm 3	0.4	6.35	0.26	A	0.5	5.74	0.32	A
Arm 4	1.4	5.27	0.58	A	2.4	7.66	0.71	A

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

File summary

File Description

Title	Emsworth Roundabout
Location	
Site number	
Date	10/01/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	041.0025
Enumerator	Beth
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	Veh	perHour	s	-Min	perMin

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:45	09:15	15
D2	2017	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1-1	2021 Baseline	100.000

2021 Baseline - 2017, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	6.75	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	ARM 1 NORTH STREET	
2	ARM 2 A259 EAST STREET	
3	ARM 3 HIGH STREET	
4	ARM 4 A259 WEST STREET	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.90	8.10	13.3	33.8	29.0	45.0	
2	3.45	7.82	29.2	62.5	29.0	49.0	
3	3.81	7.33	14.8	10.0	29.0	38.0	
4	4.10	7.78	24.1	18.1	29.0	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.660	1756
2	0.685	1877
3	0.620	1626
4	0.702	1946

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	704	100.000
2		✓	774	100.000
3		✓	182	100.000
4		✓	867	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	2	210	89	403
	2	190	6	14	564
	3	60	46	4	72
	4	254	481	119	13

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	50	1	3	1
	2	2	20	0	5
	3	0	5	0	6
	4	2	5	3	8

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.63	7.92	1.7	A
2	0.64	7.45	1.7	A
3	0.26	6.35	0.4	A
4	0.58	5.27	1.4	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	530	502	1390	0.381	528	0.6	4.163	A
2	583	472	1483	0.393	580	0.6	3.974	A
3	137	883	1023	0.134	136	0.2	4.058	A
4	653	231	1713	0.381	650	0.6	3.381	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	633	601	1322	0.479	632	0.9	5.205	A
2	696	565	1421	0.490	695	0.9	4.948	A
3	164	1057	915	0.179	163	0.2	4.786	A
4	779	276	1681	0.464	778	0.9	3.983	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	775	735	1231	0.630	772	1.7	7.800	A
2	852	691	1337	0.638	849	1.7	7.335	A
3	200	1292	770	0.260	200	0.3	6.309	A
4	955	338	1639	0.583	953	1.4	5.232	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	775	737	1229	0.630	775	1.7	7.918	A
2	852	694	1335	0.638	852	1.7	7.449	A
3	200	1297	767	0.261	200	0.4	6.351	A
4	955	339	1638	0.583	955	1.4	5.268	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	633	603	1321	0.479	636	0.9	5.279	A
2	696	569	1419	0.490	699	1.0	5.021	A
3	164	1064	911	0.180	164	0.2	4.822	A
4	779	278	1680	0.464	781	0.9	4.016	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	530	504	1388	0.382	531	0.6	4.209	A
2	583	475	1481	0.393	584	0.7	4.017	A
3	137	889	1019	0.134	137	0.2	4.083	A
4	653	232	1712	0.381	654	0.6	3.404	A

2021 Baseline - 2017, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	6.26	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2017	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	455	100.000
2		✓	781	100.000
3		✓	263	100.000
4		✓	1036	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	1	129	80	245
	2	260	3	13	505
	3	89	67	7	100
	4	404	521	105	6

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	0	1
	2	1	0	1	0
	3	3	0	0	0
	4	0	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.41	4.96	0.7	A
2	0.56	5.34	1.3	A
3	0.32	5.74	0.5	A
4	0.71	7.66	2.4	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	343	532	1390	0.247	341	0.3	3.429	A
2	588	333	1641	0.358	586	0.6	3.403	A
3	198	765	1138	0.174	197	0.2	3.824	A
4	780	320	1717	0.454	777	0.8	3.817	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	409	636	1321	0.310	409	0.4	3.944	A
2	702	399	1596	0.440	701	0.8	4.019	A
3	236	916	1045	0.226	236	0.3	4.450	A
4	931	383	1672	0.557	930	1.2	4.840	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	501	778	1228	0.408	500	0.7	4.936	A
2	860	488	1535	0.560	858	1.3	5.304	A
3	290	1121	918	0.315	289	0.5	5.714	A
4	1141	469	1611	0.708	1136	2.4	7.513	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	501	781	1227	0.408	501	0.7	4.960	A
2	860	489	1534	0.561	860	1.3	5.340	A
3	290	1123	917	0.316	290	0.5	5.738	A
4	1141	470	1610	0.708	1141	2.4	7.660	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	409	640	1318	0.310	410	0.5	3.968	A
2	702	400	1595	0.440	704	0.8	4.050	A
3	236	919	1042	0.227	237	0.3	4.473	A
4	931	385	1671	0.557	936	1.3	4.927	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	343	535	1387	0.247	343	0.3	3.448	A
2	588	335	1640	0.359	589	0.6	3.427	A
3	198	769	1135	0.174	198	0.2	3.844	A
4	780	322	1715	0.455	782	0.8	3.862	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2021 with dev.j9
Path: Z:\Projects\040-049\041 Barratt Homes\041.0025 Warblington Meadows, Havant\Reports\MODELLING\Modelling January 2017\Emsworth Roundabout\2021 with dev
Report generation date: 10/01/2017 13:59:30

»2021 with development - 2017, AM
»2021 with development - 2017, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2021 with development - 2017							
Arm 1	1.7	8.14	0.64	A	0.7	5.02	0.41	A
Arm 2	1.8	7.58	0.64	A	1.3	5.46	0.57	A
Arm 3	0.4	6.41	0.26	A	0.5	5.85	0.32	A
Arm 4	1.5	5.42	0.59	A	2.5	7.80	0.71	A

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

File summary

File Description

Title	Emsworth Roundabout
Location	
Site number	
Date	10/01/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	041.0025
Enumerator	Beth
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	Veh	perHour	s	-Min	perMin

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:45	09:15	15
D2	2017	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1-1	2021 with development	100.000

2021 with development - 2017, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	6.89	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	ARM 1 NORTH STREET	
2	ARM 2 A259 EAST STREET	
3	ARM 3 HIGH STREET	
4	ARM 4 A259 WEST STREET	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.90	8.10	13.3	33.8	29.0	45.0	
2	3.45	7.82	29.2	62.5	29.0	49.0	
3	3.81	7.33	14.8	10.0	29.0	38.0	
4	4.10	7.78	24.1	18.1	29.0	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.660	1756
2	0.685	1877
3	0.620	1626
4	0.702	1946

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	707	100.000
2		✓	778	100.000
3		✓	182	100.000
4		✓	884	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	2	210	89	406
	2	190	6	14	568
	3	60	46	4	72
	4	259	491	121	13

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	50	1	3	1
	2	2	20	0	5
	3	0	5	0	6
	4	2	5	3	8

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.64	8.14	1.7	A
2	0.64	7.58	1.8	A
3	0.26	6.41	0.4	A
4	0.59	5.42	1.5	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	532	511	1384	0.385	530	0.6	4.204	A
2	586	476	1481	0.396	583	0.6	3.999	A
3	137	888	1020	0.134	136	0.2	4.073	A
4	666	231	1713	0.389	663	0.6	3.420	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	636	611	1315	0.483	634	0.9	5.279	A
2	699	570	1418	0.493	698	1.0	4.993	A
3	164	1063	911	0.180	163	0.2	4.811	A
4	795	276	1681	0.473	794	0.9	4.049	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	778	748	1222	0.637	775	1.7	8.007	A
2	857	697	1333	0.643	853	1.8	7.456	A
3	200	1300	765	0.262	200	0.4	6.361	A
4	973	338	1639	0.594	971	1.4	5.375	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	778	750	1220	0.638	778	1.7	8.136	A
2	857	699	1331	0.643	856	1.8	7.577	A
3	200	1305	762	0.263	200	0.4	6.405	A
4	973	339	1638	0.594	973	1.5	5.417	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	636	614	1313	0.484	639	0.9	5.361	A
2	699	573	1416	0.494	703	1.0	5.070	A
3	164	1070	907	0.180	164	0.2	4.848	A
4	795	278	1680	0.473	797	0.9	4.087	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	532	514	1382	0.385	534	0.6	4.251	A
2	586	479	1479	0.396	587	0.7	4.044	A
3	137	894	1016	0.135	137	0.2	4.097	A
4	666	232	1712	0.389	667	0.6	3.449	A

2021 with development - 2017, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	6.37	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2017	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	460	100.000
2		✓	790	100.000
3		✓	265	100.000
4		✓	1044	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	1	129	80	250
	2	260	3	13	514
	3	89	67	7	102
	4	407	525	106	6

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	0	1
	2	1	0	1	0
	3	3	0	0	0
	4	0	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.41	5.02	0.7	A
2	0.57	5.46	1.3	A
3	0.32	5.85	0.5	A
4	0.71	7.80	2.5	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	346	535	1387	0.250	345	0.3	3.450	A
2	595	337	1638	0.363	592	0.6	3.435	A
3	200	775	1131	0.176	199	0.2	3.857	A
4	786	320	1717	0.458	783	0.8	3.840	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	414	641	1318	0.314	413	0.5	3.976	A
2	710	404	1592	0.446	709	0.8	4.072	A
3	238	928	1037	0.230	238	0.3	4.503	A
4	939	383	1672	0.561	937	1.3	4.890	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	506	783	1225	0.413	505	0.7	4.998	A
2	870	494	1530	0.568	868	1.3	5.418	A
3	292	1136	909	0.321	291	0.5	5.821	A
4	1149	469	1611	0.714	1145	2.4	7.648	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	506	786	1223	0.414	506	0.7	5.023	A
2	870	495	1529	0.569	870	1.3	5.456	A
3	292	1138	907	0.322	292	0.5	5.846	A
4	1149	470	1610	0.714	1149	2.5	7.804	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	414	645	1315	0.314	414	0.5	4.000	A
2	710	406	1591	0.446	712	0.8	4.104	A
3	238	932	1035	0.230	239	0.3	4.529	A
4	939	385	1671	0.562	943	1.3	4.980	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	346	539	1385	0.250	347	0.3	3.469	A
2	595	339	1637	0.363	596	0.6	3.460	A
3	200	780	1129	0.177	200	0.2	3.878	A
4	786	322	1715	0.458	788	0.9	3.889	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2026 Baseline.j9
Path: Z:\Projects\040-049\041 Barratt Homes\041.0025 Warblington Meadows, Havant\Reports\MODELLING\Modelling January 2017\Emsworth Roundabout\2026 Baseline
Report generation date: 10/01/2017 14:03:24

»2026 Bsaeline - 2017, AM
»2026 Bsaeline - 2017, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2026 Bsaeline - 2017							
Arm 1	2.2	9.77	0.69	A	0.8	5.52	0.45	A
Arm 2	2.3	9.14	0.70	A	1.6	6.14	0.61	A
Arm 3	0.4	7.22	0.30	A	0.6	6.59	0.37	A
Arm 4	1.7	5.97	0.63	A	3.3	9.94	0.77	A

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

File summary

File Description

Title	Emsworth Roundabout
Location	
Site number	
Date	10/01/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	041.0025
Enumerator	Beth
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	Veh	perHour	s	-Min	perMin

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:45	09:15	15
D2	2017	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1-1	2026 Bsaeline	100.000

2026 Bsaeline - 2017, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	8.08	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	ARM 1 NORTH STREET	
2	ARM 2 A259 EAST STREET	
3	ARM 3 HIGH STREET	
4	ARM 4 A259 WEST STREET	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.90	8.10	13.3	33.8	29.0	45.0	
2	3.45	7.82	29.2	62.5	29.0	49.0	
3	3.81	7.33	14.8	10.0	29.0	38.0	
4	4.10	7.78	24.1	18.1	29.0	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.660	1756
2	0.685	1877
3	0.620	1626
4	0.702	1946

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	752	100.000
2		✓	827	100.000
3		✓	194	100.000
4		✓	926	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	2	224	95	431
	2	203	6	15	603
	3	64	49	4	77
	4	271	514	127	14

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	50	1	3	1
	2	2	20	0	5
	3	0	5	0	6
	4	2	5	3	8

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.69	9.77	2.2	A
2	0.70	9.14	2.3	A
3	0.30	7.22	0.4	A
4	0.63	5.97	1.7	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	566	535	1367	0.414	563	0.7	4.465	A
2	623	504	1462	0.426	620	0.7	4.259	A
3	146	943	986	0.148	145	0.2	4.280	A
4	697	246	1703	0.409	694	0.7	3.562	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	676	641	1295	0.522	675	1.1	5.789	A
2	743	604	1395	0.533	742	1.1	5.495	A
3	174	1129	871	0.200	174	0.2	5.166	A
4	832	294	1669	0.499	831	1.0	4.291	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	828	784	1197	0.692	824	2.2	9.524	A
2	911	737	1306	0.697	906	2.2	8.921	A
3	214	1379	716	0.298	213	0.4	7.142	A
4	1020	360	1624	0.628	1017	1.7	5.907	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	828	786	1196	0.692	828	2.2	9.771	A
2	911	741	1304	0.698	910	2.3	9.143	A
3	214	1386	712	0.300	214	0.4	7.221	A
4	1020	361	1623	0.628	1019	1.7	5.966	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	676	644	1293	0.523	680	1.1	5.921	A
2	743	609	1392	0.534	748	1.2	5.624	A
3	174	1139	865	0.202	175	0.3	5.223	A
4	832	296	1667	0.499	835	1.0	4.338	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	566	539	1365	0.415	568	0.7	4.524	A
2	623	508	1460	0.427	624	0.7	4.319	A
3	146	950	981	0.149	146	0.2	4.313	A
4	697	248	1701	0.410	698	0.7	3.592	A

2026 Bsaeline - 2017, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	7.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2017	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	488	100.000
2		✓	838	100.000
3		✓	291	100.000
4		✓	1112	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	1	138	86	263
	2	279	3	14	542
	3	96	72	8	115
	4	434	559	113	6

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	0	1
	2	1	0	1	0
	3	3	0	0	0
	4	0	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.45	5.52	0.8	A
2	0.61	6.14	1.6	A
3	0.37	6.59	0.6	A
4	0.77	9.94	3.3	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	367	570	1364	0.269	366	0.4	3.602	A
2	631	358	1624	0.388	628	0.6	3.606	A
3	219	820	1104	0.198	218	0.2	4.060	A
4	837	344	1700	0.493	833	1.0	4.137	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	439	683	1291	0.340	438	0.5	4.220	A
2	753	428	1576	0.478	752	0.9	4.367	A
3	262	982	1004	0.261	261	0.3	4.844	A
4	1000	412	1651	0.605	997	1.5	5.485	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	537	833	1192	0.451	536	0.8	5.478	A
2	923	524	1510	0.611	920	1.5	6.075	A
3	320	1201	869	0.369	319	0.6	6.544	A
4	1224	504	1586	0.772	1217	3.2	9.587	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	537	838	1189	0.452	537	0.8	5.521	A
2	923	525	1509	0.611	923	1.6	6.139	A
3	320	1204	867	0.370	320	0.6	6.587	A
4	1224	505	1585	0.772	1224	3.3	9.945	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	439	689	1287	0.341	440	0.5	4.258	A
2	753	430	1574	0.479	756	0.9	4.412	A
3	262	987	1001	0.261	263	0.4	4.879	A
4	1000	414	1650	0.606	1007	1.6	5.656	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	367	574	1361	0.270	368	0.4	3.625	A
2	631	360	1623	0.389	632	0.6	3.637	A
3	219	825	1101	0.199	220	0.2	4.087	A
4	837	346	1698	0.493	839	1.0	4.204	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2026 with dev.j9
Path: Z:\Projects\040-049\041 Barratt Homes\041.0025 Warblington Meadows, Havant\Reports\MODELLING\Modelling January 2017\Emsworth Roundabout\2026 with dev
Report generation date: 10/01/2017 14:06:57

»2026 with development - 2017, AM
»2026 with development - 2017, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2026 with development - 2017							
Arm 1	2.3	10.06	0.70	B	0.8	5.60	0.46	A
Arm 2	2.3	9.30	0.70	A	1.6	6.29	0.62	A
Arm 3	0.4	7.29	0.30	A	0.6	6.73	0.38	A
Arm 4	1.7	6.13	0.64	A	3.4	10.19	0.78	B

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

File summary

File Description

Title	Emsworth Roundabout
Location	
Site number	
Date	10/01/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	041.0025
Enumerator	Beth
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	Veh	perHour	s	-Min	perMin

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:45	09:15	15
D2	2017	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1-1	2026 with development	100.000

2026 with development - 2017, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	8.26	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	ARM 1 NORTH STREET	
2	ARM 2 A259 EAST STREET	
3	ARM 3 HIGH STREET	
4	ARM 4 A259 WEST STREET	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.90	8.10	13.3	33.8	29.0	45.0	
2	3.45	7.82	29.2	62.5	29.0	49.0	
3	3.81	7.33	14.8	10.0	29.0	38.0	
4	4.10	7.78	24.1	18.1	29.0	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.660	1756
2	0.685	1877
3	0.620	1626
4	0.702	1946

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	755	100.000
2		✓	831	100.000
3		✓	194	100.000
4		✓	941	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	2	224	95	434
	2	203	6	15	607
	3	64	49	4	77
	4	276	524	127	14

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	50	1	3	1
	2	2	20	0	5
	3	0	5	0	6
	4	2	5	3	8

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.70	10.06	2.3	B
2	0.70	9.30	2.3	A
3	0.30	7.29	0.4	A
4	0.64	6.13	1.7	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	568	543	1362	0.417	566	0.7	4.504	A
2	626	506	1461	0.428	623	0.7	4.282	A
3	146	949	982	0.149	145	0.2	4.297	A
4	708	246	1703	0.416	706	0.7	3.600	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	679	650	1289	0.527	677	1.1	5.870	A
2	747	606	1394	0.536	745	1.1	5.541	A
3	174	1136	867	0.201	174	0.3	5.195	A
4	846	294	1669	0.507	845	1.0	4.362	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	831	795	1190	0.699	827	2.2	9.793	A
2	915	741	1304	0.702	910	2.3	9.048	A
3	214	1387	712	0.300	213	0.4	7.208	A
4	1036	360	1624	0.638	1033	1.7	6.069	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	831	797	1188	0.700	831	2.3	10.065	B
2	915	744	1301	0.703	915	2.3	9.300	A
3	214	1394	707	0.302	214	0.4	7.290	A
4	1036	361	1623	0.639	1036	1.7	6.135	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	679	653	1287	0.528	683	1.1	6.011	A
2	747	611	1390	0.537	752	1.2	5.675	A
3	174	1145	861	0.203	175	0.3	5.257	A
4	846	296	1667	0.507	849	1.0	4.414	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	568	546	1360	0.418	570	0.7	4.568	A
2	626	510	1458	0.429	627	0.8	4.343	A
3	146	956	978	0.149	146	0.2	4.332	A
4	708	248	1701	0.416	710	0.7	3.637	A

2026 with development - 2017, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	7.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2017	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	493	100.000
2		✓	847	100.000
3		✓	293	100.000
4		✓	1120	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	1	138	86	268
	2	279	3	14	551
	3	96	72	8	117
	4	437	563	114	6

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	0	1
	2	1	0	1	0
	3	3	0	0	0
	4	0	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.46	5.60	0.8	A
2	0.62	6.29	1.6	A
3	0.38	6.73	0.6	A
4	0.78	10.19	3.4	B

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	371	574	1362	0.273	370	0.4	3.624	A
2	638	362	1621	0.393	635	0.6	3.642	A
3	221	831	1097	0.201	220	0.3	4.097	A
4	843	344	1700	0.496	839	1.0	4.166	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	443	687	1288	0.344	443	0.5	4.257	A
2	761	434	1572	0.484	760	0.9	4.428	A
3	263	995	996	0.264	263	0.4	4.905	A
4	1007	412	1651	0.610	1005	1.5	5.547	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	543	839	1189	0.457	542	0.8	5.554	A
2	933	530	1506	0.619	930	1.6	6.225	A
3	323	1217	859	0.375	322	0.6	6.682	A
4	1233	504	1586	0.777	1226	3.3	9.802	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	543	843	1186	0.458	543	0.8	5.599	A
2	933	532	1504	0.620	932	1.6	6.291	A
3	323	1220	857	0.376	323	0.6	6.730	A
4	1233	505	1585	0.778	1233	3.4	10.192	B

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	443	693	1284	0.345	444	0.5	4.297	A
2	761	436	1570	0.485	764	1.0	4.480	A
3	263	999	993	0.265	264	0.4	4.943	A
4	1007	414	1650	0.610	1014	1.6	5.724	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	371	578	1359	0.273	372	0.4	3.648	A
2	638	364	1620	0.394	639	0.7	3.676	A
3	221	836	1094	0.202	221	0.3	4.125	A
4	843	346	1698	0.497	846	1.0	4.233	A

Appendix J

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2016 Base using entry lane analysis.j9
Path: Z:\Projects\040-049\041 Barratt Homes\041.0025 Warblington Meadows, Havant\Reports\MODELLING\Modelling January 2017\A27 Roundabouts\2016 Baseline
Report generation date: 11/01/2017 14:59:34

»2016 Baseline - 2016, AM
»2016 Baseline - 2016, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2016 Baseline [Lane Simulation] - 2016							
Junction 1 - Arm 2	0.4	5.06		A	0.4	5.23		A
Junction 1 - Arm 3	1.9	6.30		A	4.6	11.23		B
Junction 1 - Arm 4	3.4	19.57		C	3.6	25.42		D
Junction 2 - Arm 1	0.1	4.02		A	0.2	5.09		A
Junction 2 - Arm 2	5.7	15.58		C	1.6	6.74		A
Junction 2 - Arm 3	0.0	0.00		A	0.0	0.00		A
Junction 2 - Arm 5	3.3	8.98		A	4.4	10.58		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	2016 Baseline
Location	A27 Roundabouts, Havant
Site number	
Date	31/10/2016
Version	
Status	(new file)
Identifier	
Client	Barratts
Jobnumber	041.0039
Enumerator	Shannon
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	Veh	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	✓	1895055370	350	131.70

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	07:45	09:15	15	✓
D2	2016	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	2016 Baseline	✓	✓	100.000	100.000

2016 Baseline - 2016, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2016 Baseline [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.
Warning	Geometry	Junction 2 - Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	10.29	B
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	12.02	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Junction	Arm	Name	Description
1	1	A27 On-Slip	
	2	Emsworth Road (S)	
	3	A27 Off-Slip	
	4	untitled	
2	1	A27 Off-Slip	
	2	Havant Road	
	3	Church Lane	
	4	A27 On-Slip	
	5	Emsworth Road	

Roundabout Geometry

Junction	Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	1							✓
	2	3.70	3.70	0.0	12.2	35.0	53.0	
	3	7.30	7.30	0.0	24.3	35.0	49.0	
	4	4.17	5.20	0.5	23.6	35.0	46.0	
2	1	6.08	6.08	0.0	19.0	40.0	27.1	
	2	3.69	6.74	42.0	13.0	40.0	26.5	
	3	3.14	6.18	4.0	12.0	40.0	46.0	
	4							✓
	5	5.06	7.40	12.0	15.0	40.0	48.9	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1	1		
	2	0.475	997
	3	0.712	2085
	4	0.544	1242
2	1	0.675	1856
	2	0.666	1841
	3	0.498	1112
	4		
	5	0.639	1808

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	1	Evenly split	10.00
	2	Evenly split	10.00
	3	Evenly split	10.00
	4	Evenly split	10.00
2	1	Evenly split	10.00
	2	Evenly split	10.00
	3	Evenly split	10.00
	4	Evenly split	10.00
	5	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	2	1 [Give-way line]	1	1,2,4	✓	7.00	0	99999
	3	1 [Give-way line]	1	1,2,4	✓	58.00	0	99999
			2	1,2,4	✓	58.00	0	99999
		2	1	(1,2,3,4)		Infinity		
	4	1 [Give-way line]	1	1,2,4		Infinity	0	99999
2	1	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	2	1 [Give-way line]	1	2,3,4,5	✓	10.43	0	99999
			2	2,3,4,5	✓	9.57	0	99999
		2	1	(1,2,3,4,5)		Infinity		
	3	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	5	1 [Give-way line]	1	2,3,4,5	✓	4.00	0	99999
			2	2,3,4,5	✓	4.00	0	99999
		2	1	(1,2,3,4,5)	✓	3.00		

Entry Lane slope and intercept

Junction	Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1	2	1 [Give-way line]	1	0.475	997
	3	1 [Give-way line]	1	0.356	1043
			2	0.356	1043
	4	1 [Give-way line]	1	0.544	1242
2	1	1 [Give-way line]	1	0.675	1856
	2	1 [Give-way line]	1	0.333	921
			2	0.333	921
	3	1 [Give-way line]	1	0.498	1112
	5	1 [Give-way line]	1	0.319	904
			2	0.319	904

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm			
				1	2	3	4
1	2	1 [Give-way line]	1	✓	✓		✓
	3	1 [Give-way line]	1	✓	✓		✓
			2	✓	✓		✓
		2	1	✓	✓	✓	✓
	4	1 [Give-way line]	1	✓	✓		✓

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm				
				1	2	3	4	5
2	1	1 [Give-way line]	1		✓	✓	✓	✓
	2	1 [Give-way line]	1		✓	✓	✓	✓
			2		✓	✓	✓	✓
		2	1	✓	✓	✓	✓	✓
	3	1 [Give-way line]	1		✓	✓	✓	✓
	5	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	07:45	09:15	15	✓

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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	5	Simple (vertical queueing)	Normal	0	100.00	
2	5	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1	1					
	2	✓				
	3		ONE HOUR	✓	938	100.000
	4		ONE HOUR	✓	542	100.000
2	1		ONE HOUR	✓	66	100.000
	2		ONE HOUR	✓	1121	100.000
	3		ONE HOUR	✓	4	100.000
	4					
	5	✓				

Origin-Destination Data

Junction 1

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	22	0	0	220
	3	2	650	0	286
	4	47	494	0	1

Junction 2

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	28	0	2	36
	2	0	2	1	917	201
	3	0	0	0	3	1
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	793	4	341	1

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	5	0	0	2
	3	50	4	0	3
	4	4	3	0	0

Junction 2

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	0	0	0	0
	2	0	0	0	3	2
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	2	0	2	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	1					
	2	5.06	0.4	A	220	330
	3	6.30	1.9	A	857	1285
	4	19.57	3.4	C	495	742
2	1	4.02	0.1	A	61	92
	2	15.58	5.7	C	1032	1548
	3	0.00	0.0	A	0	0
	4					
	5	8.98	3.3	A	1047	1571

Main Results for each time segment

07:45 - 08:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		53				
	2	177	44	0.72	177	857	0.0	0.2	4.367	A
	3	700	175	178	701	0	0.0	0.9	4.622	A
	4	408	102	503	407	376	0.0	0.7	6.493	A
2	1	52	13	856	52	0	0.0	0.0	2.776	A
	2	842	210	292	842	616	0.0	1.5	6.439	A
	3	0	0	1131	0	3	0.0	0.0	0.000	A
	4			0		952				
	5	857	214	2	854	177	0.0	1.4	5.693	A

08:00 - 08:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		67				
	2	216	54	0.96	216	1029	0.2	0.3	4.741	A
	3	840	210	217	841	0	0.9	1.3	5.221	A
	4	487	122	607	489	451	0.7	1.3	9.287	A
2	1	59	15	1029	59	0	0.0	0.1	3.310	A
	2	1012	253	346	1014	743	1.5	2.3	8.465	A
	3	0	0	1355	0	4	0.0	0.0	0.000	A
	4			0		1137				
	5	1029	257	2	1027	216	1.4	2.1	6.793	A

08:15 - 08:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		77				
	2	265	66	1	265	1261	0.3	0.3	5.056	A
	3	1024	256	266	1025	0	1.3	1.8	6.173	A
	4	600	150	738	601	553	1.3	3.4	18.446	C
2	1	74	18	1262	74	0	0.1	0.1	3.943	A
	2	1231	308	421	1232	914	2.3	5.3	14.464	B
	3	0	0	1648	0	5	0.0	0.0	0.000	A
	4			0		1380				
	5	1261	315	3	1260	265	2.1	3.1	8.613	A

08:30 - 08:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		80				
	2	266	67	0.93	266	1247	0.3	0.4	4.970	A
	3	1032	258	267	1035	0	1.8	1.8	6.297	A
	4	585	146	743	585	559	3.4	3.1	19.568	C
2	1	72	18	1246	72	0	0.1	0.1	4.019	A
	2	1244	311	422	1243	896	5.3	5.7	15.581	C
	3	0	0	1660	0	5	0.0	0.0	0.000	A
	4			0		1392				
	5	1247	312	2	1244	266	3.1	3.2	8.984	A

08:45 - 09:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		63				
	2	215	54	0.89	215	1025	0.4	0.3	4.701	A
	3	841	210	216	842	0	1.8	1.2	5.257	A
	4	481	120	604	485	454	3.1	1.1	10.889	B
2	1	58	14	1029	58	0	0.1	0.1	3.469	A
	2	1010	252	341	1012	746	5.7	2.3	9.424	A
	3	0	0	1349	0	4	0.0	0.0	0.000	A
	4			0		1132				
	5	1025	256	2	1028	215	3.2	1.7	6.884	A

09:00 - 09:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		52				
	2	182	45	0.82	182	868	0.3	0.2	4.508	A
	3	705	176	182	707	0	1.2	0.9	4.730	A
	4	407	102	513	407	376	1.1	0.8	7.202	A
2	1	52	13	870	52	0	0.1	0.0	3.089	A
	2	851	213	293	849	629	2.3	1.6	6.811	A
	3	0	0	1139	0	4	0.0	0.0	0.000	A
	4			0		956				
	5	868	217	1	869	182	1.7	1.4	5.841	A

Lane Results

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

Lanes: Main Results for each time segment

07:45 - 08:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		53			53	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	177	980	0.181	177	0.0	0.2	4.367	A
		Exit	1	1		857			857	0.0	0.0	0.004	A
	3	Entry	1	1	1,2,4	351	943	0.373	351	0.0	0.5	4.644	A
				2	1,2,4	349	941	0.371	350	0.0	0.4	4.599	A
			2	1	(1,2,3,4)	700			700	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	408	930	0.439	407	0.0	0.7	6.493	A
		Exit	1	1		376			376	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	52	1258	0.041	52	0.0	0.0	2.776	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	420	796	0.528	420	0.0	0.7	6.409	A
				2	2,3,4,5	421	796	0.530	422	0.0	0.8	6.469	A
			2	1	(1,2,3,4,5)	842			842	0.0	0.0	0.000	A
		Exit	1	1		616			616	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	532	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		952			952	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	427	872	0.489	426	0.0	0.7	5.658	A
				2	2,3,4,5	430	873	0.492	428	0.0	0.7	5.683	A
			2	1	(1,2,3,4,5)	857			857	0.0	0.0	0.022	A
		Exit	1	1		177			177	0.0	0.0	0.000	A

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		67			67	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	216	982	0.220	216	0.2	0.3	4.741	A
		Exit	1	1		1029			1029	0.0	0.0	0.041	A
	3	Entry	1	1	1,2,4	419	932	0.450	420	0.5	0.6	5.234	A
				2	1,2,4	421	930	0.452	421	0.4	0.7	5.207	A
			2	1	(1,2,3,4)	840			840	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	487	873	0.558	489	0.7	1.3	9.287	A
		Exit	1	1		451			451	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	59	1137	0.052	59	0.0	0.1	3.310	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	504	780	0.646	505	0.7	1.2	8.516	A
				2	2,3,4,5	508	781	0.652	509	0.8	1.1	8.414	A
			2	1	(1,2,3,4,5)	1012			1012	0.0	0.0	0.001	A
		Exit	1	1		743			743	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	418	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		1137			1137	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	512	873	0.586	511	0.7	1.1	6.700	A
				2	2,3,4,5	516	874	0.591	516	0.7	1.0	6.660	A
			2	1	(1,2,3,4,5)	1029			1029	0.0	0.0	0.112	A
		Exit	1	1		216			216	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		77			77	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	265	978	0.271	265	0.3	0.3	5.056	A
		Exit	1	1		1260			1261	0.0	0.1	0.221	A
	3	Entry	1	1	1,2,4	512	910	0.563	512	0.6	1.0	6.170	A
				2	1,2,4	512	912	0.561	513	0.7	0.9	6.175	A
			2	1	(1,2,3,4)	1024			1024	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	600	799	0.752	601	1.3	3.4	18.446	C
		Exit	1	1		553			553	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	74	973	0.076	74	0.1	0.1	3.943	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	611	755	0.808	611	1.2	2.6	14.350	B
				2	2,3,4,5	620	756	0.820	620	1.1	2.5	14.081	B
			2	1	(1,2,3,4,5)	1231			1230	0.0	0.2	0.231	A
		Exit	1	1		914			914	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	269	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4	Exit	1	1		1380			1380	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	634	873	0.725	633	1.1	1.5	8.181	A
				2	2,3,4,5	627	870	0.721	626	1.0	1.5	8.197	A
			2	1	(1,2,3,4,5)	1261			1260	0.0	0.2	0.421	A
		Exit	1	1		265			265	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		80			80	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	266	980	0.272	266	0.3	0.4	4.970	A
		Exit	1	1		1247			1247	0.1	0.1	0.245	A
	3	Entry	1	1	1,2,4	517	911	0.567	518	1.0	0.9	6.261	A
				2	1,2,4	515	911	0.566	517	0.9	0.9	6.333	A
			2	1	(1,2,3,4)	1032			1032	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	585	796	0.734	585	3.4	3.1	19.568	C
		Exit	1	1		559			559	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	72	985	0.073	72	0.1	0.1	4.019	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	623	756	0.825	622	2.6	2.8	15.097	C
				2	2,3,4,5	623	754	0.826	622	2.5	2.7	14.960	B
			2	1	(1,2,3,4,5)	1244			1246	0.2	0.2	0.553	A
		Exit	1	1		896			896	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	262	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4	Exit	1	1		1392			1392	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	625	873	0.717	624	1.5	1.5	8.482	A
				2	2,3,4,5	621	873	0.711	620	1.5	1.5	8.488	A
			2	1	(1,2,3,4,5)	1247			1246	0.2	0.2	0.499	A
		Exit	1	1		266			266	0.0	0.0	0.001	A

08:45 - 09:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		63			63	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	215	981	0.219	215	0.4	0.3	4.701	A
		Exit	1	1		1024			1025	0.1	0.0	0.052	A
	3	Entry	1	1	1,2,4	418	931	0.449	419	0.9	0.6	5.270	A
				2	1,2,4	423	930	0.455	423	0.9	0.6	5.244	A
			2	1	(1,2,3,4)	841			841	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	481	875	0.550	485	3.1	1.1	10.889	B
		Exit	1	1		454			454	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	58	1137	0.051	58	0.1	0.1	3.469	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	503	781	0.645	505	2.8	1.2	9.387	A
				2	2,3,4,5	506	781	0.648	507	2.7	1.2	9.383	A
			2	1	(1,2,3,4,5)	1010			1010	0.2	0.0	0.064	A
		Exit	1	1		746			746	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	421	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		1132			1132	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	516	874	0.590	517	1.5	0.9	6.733	A
				2	2,3,4,5	509	873	0.583	511	1.5	0.8	6.777	A
			2	1	(1,2,3,4,5)	1025			1025	0.2	0.0	0.135	A
		Exit	1	1		215			215	0.0	0.0	0.000	A

09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		52			52	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	182	978	0.186	182	0.3	0.2	4.508	A
		Exit	1	1		867			868	0.0	0.0	0.009	A
	3	Entry	1	1	1,2,4	356	940	0.379	357	0.6	0.4	4.718	A
				2	1,2,4	350	941	0.372	350	0.6	0.4	4.741	A
			2	1	(1,2,3,4)	705			705	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	407	922	0.442	407	1.1	0.8	7.202	A
		Exit	1	1		376			376	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	52	1247	0.042	52	0.1	0.0	3.089	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	426	797	0.535	425	1.2	0.8	6.746	A
				2	2,3,4,5	425	800	0.531	424	1.2	0.8	6.877	A
			2	1	(1,2,3,4,5)	851			851	0.0	0.0	0.000	A
		Exit	1	1		629			629	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	529	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		956			956	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	436	873	0.500	437	0.9	0.7	5.789	A
				2	2,3,4,5	432	871	0.495	432	0.8	0.7	5.828	A
			2	1	(1,2,3,4,5)	868			868	0.0	0.0	0.033	A
		Exit	1	1		182			182	0.0	0.0	0.000	A

2016 Baseline - 2016, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2016 Baseline [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.
Warning	Geometry	Junction 2 - Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	13.62	B
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	8.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	5	Simple (vertical queueing)	Normal	0	100.00	
2	5	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1	1					
	2	✓				
	3		ONE HOUR	✓	1320	100.000
	4		ONE HOUR	✓	444	100.000
2	1		ONE HOUR	✓	115	100.000
	2		ONE HOUR	✓	761	100.000
	3		ONE HOUR	✓	0	100.000
	4					
	5	✓				

Origin-Destination Data

Junction 1

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	29	0	0	228
	3	8	910	0	402
	4	65	378	0	1

Junction 2

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	40	0	0	75
	2	0	2	2	584	173
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	1080	2	210	1

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	4	0	0	2
	3	0	1	0	1
	4	0	2	0	0

Junction 2

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	3	0	0	4
	2	0	0	0	2	3
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	1	0	1	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	1					
	2	5.23	0.4	A	229	343
	3	11.23	4.6	B	1213	1819
	4	25.42	3.6	D	409	613
2	1	5.09	0.2	A	107	160
	2	6.74	1.6	A	697	1046
	3	0.00	0.0	A	0	0
	4					
	5	10.58	4.4	B	1188	1782

Main Results for each time segment

16:45 - 17:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		77				
	2	190	48	0.74	190	977	0.0	0.3	4.598	A
	3	1000	250	190	1000	0	0.0	1.5	5.385	A
	4	338	85	717	337	473	0.0	0.7	6.566	A
2	1	87	22	980	87	0	0.0	0.1	3.160	A
	2	581	145	218	581	849	0.0	0.8	5.090	A
	3	0	0	797	0	2	0.0	0.0	0.000	A
	4			0		605				
	5	977	244	2	978	190	0.0	1.6	6.031	A

17:00 - 17:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		91				
	2	223	56	0.51	222	1165	0.3	0.4	4.882	A
	3	1189	297	222	1191	0	1.5	2.3	6.812	A
	4	405	101	852	404	561	0.7	1.1	10.060	B
2	1	103	26	1164	103	0	0.1	0.2	3.911	A
	2	680	170	255	682	1012	0.8	1.1	5.709	A
	3	0	0	933	0	3	0.0	0.0	0.000	A
	4			0		708				
	5	1165	291	2	1162	223	1.6	2.5	7.350	A

17:15 - 17:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		108				
	2	274	68	0.97	274	1432	0.4	0.4	5.227	A
	3	1459	365	275	1464	0	2.3	4.6	11.230	B
	4	490	123	1050	491	688	1.1	2.8	19.587	C
2	1	133	33	1429	133	0	0.2	0.2	4.881	A
	2	830	208	324	832	1238	1.1	1.6	6.618	A
	3	0	0	1152	0	4	0.0	0.0	0.000	A
	4			0		876				
	5	1432	358	2	1427	274	2.5	4.3	10.140	B

17:30 - 17:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		108				
	2	273	68	0.88	274	1416	0.4	0.4	5.123	A
	3	1449	362	275	1450	0	4.6	4.3	10.871	B
	4	490	123	1036	489	689	2.8	3.6	25.421	D
2	1	126	31	1416	125	0	0.2	0.2	5.087	A
	2	837	209	316	840	1225	1.6	1.4	6.736	A
	3	0	0	1153	0	4	0.0	0.0	0.000	A
	4			0		878				
	5	1416	354	2	1414	273	4.3	4.4	10.577	B

17:45 - 18:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		87				
	2	224	56	0.83	225	1158	0.4	0.3	4.873	A
	3	1178	295	225	1179	0	4.3	2.3	6.981	A
	4	399	100	846	401	558	3.6	1.3	12.851	B
2	1	104	26	1157	104	0	0.2	0.1	4.276	A
	2	679	170	258	678	1003	1.4	1.1	5.770	A
	3	0	0	933	0	4	0.0	0.0	0.000	A
	4			0		706				
	5	1158	290	2	1154	224	4.4	2.6	7.826	A

18:00 - 18:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		74				
	2	188	47	0.42	188	981	0.3	0.3	4.657	A
	3	1000	250	188	1003	0	2.3	1.5	5.561	A
	4	330	82	725	331	466	1.3	0.6	7.500	A
2	1	87	22	982	87	0	0.1	0.1	3.471	A
	2	575	144	220	577	849	1.1	0.7	5.236	A
	3	0	0	794	0	3	0.0	0.0	0.000	A
	4			0		604				
	5	981	245	1	981	188	2.6	1.7	6.045	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

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		77			77	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	190	965	0.197	190	0.0	0.3	4.598	A
		Exit	1	1		977			977	0.0	0.0	0.009	A
	3	Entry	1	1	1,2,4	499	964	0.517	499	0.0	0.7	5.384	A
				2	1,2,4	502	962	0.521	501	0.0	0.8	5.386	A
			2	1	(1,2,3,4)	1000			1000	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	338	833	0.406	337	0.0	0.7	6.566	A
		Exit	1	1		473			473	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	87	1147	0.076	87	0.0	0.1	3.160	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	288	827	0.349	288	0.0	0.4	5.068	A
				2	2,3,4,5	293	830	0.353	293	0.0	0.4	5.112	A
			2	1	(1,2,3,4,5)	581			581	0.0	0.0	0.000	A
		Exit	1	1		849			849	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	707	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		2			2	0.0	0.0	0.000	A
	4	Exit	1	1		605			605	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	489	892	0.549	490	0.0	0.8	5.947	A
				2	2,3,4,5	487	892	0.546	488	0.0	0.8	6.017	A
			2	1	(1,2,3,4,5)	977			977	0.0	0.0	0.048	A
		Exit	1	1		190			190	0.0	0.0	0.000	A

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		91			91	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	223	963	0.232	222	0.3	0.4	4.882	A
		Exit	1	1		1165			1165	0.0	0.0	0.065	A
	3	Entry	1	1	1,2,4	598	951	0.629	599	0.7	1.1	6.812	A
				2	1,2,4	591	952	0.621	592	0.8	1.1	6.813	A
			2	1	(1,2,3,4)	1189			1189	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	405	760	0.533	404	0.7	1.1	10.060	B
		Exit	1	1		561			561	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	103	1020	0.101	103	0.1	0.2	3.911	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	344	818	0.421	345	0.4	0.5	5.684	A
				2	2,3,4,5	336	815	0.412	336	0.4	0.6	5.735	A
			2	1	(1,2,3,4,5)	680			680	0.0	0.0	0.000	A
		Exit	1	1		1012			1012	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	637	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		708			708	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	585	893	0.655	583	0.8	1.3	7.163	A
				2	2,3,4,5	579	891	0.650	579	0.8	1.2	7.167	A
			2	1	(1,2,3,4,5)	1165			1164	0.0	0.1	0.184	A
		Exit	1	1		223			223	0.0	0.0	0.001	A

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		108			108	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	274	964	0.284	274	0.4	0.4	5.227	A
		Exit	1	1		1433			1432	0.0	0.3	0.491	A
	3	Entry	1	1	1,2,4	731	933	0.783	734	1.1	2.3	11.200	B
				2	1,2,4	728	933	0.781	730	1.1	2.3	11.261	B
			2	1	(1,2,3,4)	1459			1459	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	490	653	0.750	491	1.1	2.8	19.587	C
		Exit	1	1		688			688	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	133	847	0.157	133	0.2	0.2	4.881	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	416	793	0.524	416	0.5	0.8	6.623	A
				2	2,3,4,5	415	795	0.522	416	0.6	0.8	6.613	A
			2	1	(1,2,3,4,5)	830			830	0.0	0.0	0.000	A
		Exit	1	1		1238			1238	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	527	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		876			876	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	715	893	0.801	713	1.3	2.0	9.404	A
				2	2,3,4,5	715	892	0.802	714	1.2	1.9	9.329	A
			2	1	(1,2,3,4,5)	1432			1430	0.1	0.4	0.767	A
		Exit	1	1		274			274	0.0	0.0	0.001	A

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		108			108	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	273	964	0.284	274	0.4	0.4	5.123	A
		Exit	1	1		1415			1416	0.3	0.2	0.625	A
	3	Entry	1	1	1,2,4	726	933	0.778	725	2.3	2.2	10.854	B
				2	1,2,4	723	932	0.775	725	2.3	2.1	10.888	B
			2	1	(1,2,3,4)	1449			1449	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	490	662	0.740	489	2.8	3.6	25.421	D
		Exit	1	1		689			689	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	126	854	0.147	125	0.2	0.2	5.087	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	420	797	0.527	422	0.8	0.7	6.783	A
				2	2,3,4,5	417	794	0.526	418	0.8	0.7	6.688	A
			2	1	(1,2,3,4,5)	837			837	0.0	0.0	0.000	A
		Exit	1	1		1225			1225	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	526	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		878			878	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	704	893	0.788	702	2.0	2.1	9.737	A
				2	2,3,4,5	713	892	0.798	712	1.9	2.0	9.574	A
			2	1	(1,2,3,4,5)	1416			1417	0.4	0.4	0.922	A
		Exit	1	1		273			273	0.0	0.0	0.002	A

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		87			87	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	224	962	0.233	225	0.4	0.3	4.873	A
		Exit	1	1		1158			1158	0.2	0.0	0.136	A
	3	Entry	1	1	1,2,4	589	950	0.620	588	2.2	1.2	7.010	A
				2	1,2,4	589	950	0.620	590	2.1	1.0	6.952	A
			2	1	(1,2,3,4)	1178			1178	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	399	764	0.522	401	3.6	1.3	12.851	B
		Exit	1	1		558			558	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	104	1028	0.101	104	0.2	0.1	4.276	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	342	815	0.420	342	0.7	0.6	5.811	A
				2	2,3,4,5	336	812	0.414	336	0.7	0.6	5.730	A
			2	1	(1,2,3,4,5)	679			679	0.0	0.0	0.000	A
		Exit	1	1		1003			1003	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	637	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		706			706	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	582	893	0.652	580	2.1	1.2	7.522	A
				2	2,3,4,5	576	892	0.646	574	2.0	1.3	7.553	A
			2	1	(1,2,3,4,5)	1158			1158	0.4	0.1	0.295	A
		Exit	1	1		224			224	0.0	0.0	0.002	A

18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		74			74	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	188	965	0.195	188	0.3	0.3	4.657	A
		Exit	1	1		981			981	0.0	0.0	0.011	A
	3	Entry	1	1	1,2,4	499	965	0.517	500	1.2	0.8	5.606	A
				2	1,2,4	502	964	0.520	502	1.0	0.7	5.516	A
			2	1	(1,2,3,4)	1000			1000	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	330	831	0.397	331	1.3	0.6	7.500	A
		Exit	1	1		466			466	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	87	1143	0.077	87	0.1	0.1	3.471	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	287	827	0.347	288	0.6	0.3	5.220	A
				2	2,3,4,5	288	830	0.347	289	0.6	0.4	5.252	A
			2	1	(1,2,3,4,5)	575			575	0.0	0.0	0.000	A
		Exit	1	1		849			849	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	709	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		604			604	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	494	892	0.554	493	1.2	0.9	6.052	A
				2	2,3,4,5	487	894	0.545	488	1.3	0.8	5.952	A
			2	1	(1,2,3,4,5)	981			981	0.1	0.0	0.048	A
		Exit	1	1		188			188	0.0	0.0	0.005	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2021 Base + Devusing entry lane analysis.j9
Path: Z:\Projects\040-049\041 Barratt Homes\041.0025 Warblington Meadows, Havant\Reports\MODELLING\Modelling January 2017\A27 Roundabouts\2021 with dev
Report generation date: 10/02/2017 11:00:06

»2021 + Dev - 2021 + Dev, AM
»2021 + Dev - 2021 + Dev, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2021 + Dev [Lane Simulation] - 2021 + Dev							
Junction 1 - Arm 2	0.4	5.23		A	0.5	5.55		A
Junction 1 - Arm 3	2.4	7.57		A	11.5	24.82		C
Junction 1 - Arm 4	8.4	43.30		E	15.0	87.28		F
Junction 2 - Arm 1	0.1	4.57		A	0.3	6.14		A
Junction 2 - Arm 2	16.3	38.90		E	2.0	7.77		A
Junction 2 - Arm 3	0.0	0.00		A	0.0	0.00		A
Junction 2 - Arm 5	4.2	10.72		B	6.3	13.98		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	2021 + Dev
Location	A27 Roundabouts, Havant
Site number	
Date	31/10/2016
Version	
Status	(new file)
Identifier	
Client	Barratts
Jobnumber	041.0039
Enumerator	Shannon
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	Veh	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	✓	534690446	515	218.30

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	2021 + Dev	AM	ONE HOUR	07:45	09:15	15	✓
D2	2021 + Dev	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	2021 + Dev	✓	✓	100.000	100.000

2021 + Dev - 2021 + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2021 + Dev [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.
Warning	Geometry	Junction 2 - Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	18.52	C
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	24.25	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Junction	Arm	Name	Description
1	1	A27 On-Slip	
	2	Emsworth Road (S)	
	3	A27 Off-Slip	
	4	untitled	
2	1	A27 Off-Slip	
	2	Havant Road	
	3	Church Lane	
	4	A27 On-Slip	
	5	Emsworth Road	

Roundabout Geometry

Junction	Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	1							✓
	2	3.70	3.70	0.0	12.2	35.0	53.0	
	3	7.30	7.30	0.0	24.3	35.0	49.0	
	4	4.17	5.20	0.5	23.6	35.0	46.0	
2	1	6.08	6.08	0.0	19.0	40.0	27.1	
	2	3.69	6.74	42.0	13.0	40.0	26.5	
	3	3.14	6.18	4.0	12.0	40.0	46.0	
	4							✓
	5	5.06	7.40	12.0	15.0	40.0	48.9	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1	1		
	2	0.475	997
	3	0.712	2085
	4	0.544	1242
2	1	0.675	1856
	2	0.666	1841
	3	0.498	1112
	4		
	5	0.639	1808

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	1	Evenly split	10.00
	2	Evenly split	10.00
	3	Evenly split	10.00
	4	Evenly split	10.00
2	1	Evenly split	10.00
	2	Evenly split	10.00
	3	Evenly split	10.00
	4	Evenly split	10.00
	5	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	2	1 [Give-way line]	1	1,2,4	✓	7.00	0	99999
	3	1 [Give-way line]	1	1,2,4	✓	58.00	0	99999
			2	1,2,4	✓	58.00	0	99999
		2	1	(1,2,3,4)		Infinity		
	4	1 [Give-way line]	1	1,2,4		Infinity	0	99999
2	1	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	2	1 [Give-way line]	1	2,3,4,5	✓	10.43	0	99999
			2	2,3,4,5	✓	9.57	0	99999
		2	1	(1,2,3,4,5)		Infinity		
	3	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	5	1 [Give-way line]	1	2,3,4,5	✓	4.00	0	99999
			2	2,3,4,5	✓	4.00	0	99999
		2	1	(1,2,3,4,5)	✓	3.00		

Entry Lane slope and intercept

Junction	Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1	2	1 [Give-way line]	1	0.475	997
	3	1 [Give-way line]	1	0.356	1043
			2	0.356	1043
	4	1 [Give-way line]	1	0.544	1242
2	1	1 [Give-way line]	1	0.675	1856
	2	1 [Give-way line]	1	0.333	921
			2	0.333	921
	3	1 [Give-way line]	1	0.498	1112
	5	1 [Give-way line]	1	0.319	904
			2	0.319	904

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm			
				1	2	3	4
1	2	1 [Give-way line]	1	✓	✓		✓
	3	1 [Give-way line]	1	✓	✓		✓
			2	✓	✓		✓
		2	1	✓	✓	✓	✓
	4	1 [Give-way line]	1	✓	✓		✓

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm				
				1	2	3	4	5
2	1	1 [Give-way line]	1		✓	✓	✓	✓
	2	1 [Give-way line]	1		✓	✓	✓	✓
			2		✓	✓	✓	✓
		2	1	✓	✓	✓	✓	✓
	3	1 [Give-way line]	1		✓	✓	✓	✓
	5	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	2021 + Dev	AM	ONE HOUR	07:45	09:15	15	✓

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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	5	Simple (vertical queueing)	Normal	0	100.00	
2	5	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1	1					
	2	✓				
	3		ONE HOUR	✓	1036	100.000
	4		ONE HOUR	✓	601	100.000
2	1		ONE HOUR	✓	73	100.000
	2		ONE HOUR	✓	1268	100.000
	3		ONE HOUR	✓	4	100.000
	4					
	5	✓				

Origin-Destination Data

Junction 1

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	28	0	0	277
	3	2	721	0	313
	4	52	548	0	1

Junction 2

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	32	0	2	39
	2	0	2	1	1038	227
	3	0	0	0	3	1
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	884	4	374	1

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	5	0	0	2
	3	50	4	0	3
	4	4	3	0	0

Junction 2

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	0	0	0	0
	2	0	0	0	3	2
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	2	0	2	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	1					
	2	5.23	0.4	A	244	366
	3	7.57	2.4	A	949	1424
	4	43.30	8.4	E	551	827
2	1	4.57	0.1	A	67	100
	2	38.90	16.3	E	1166	1748
	3	0.00	0.0	A	0	0
	4					
	5	10.72	4.2	B	1159	1739

Main Results for each time segment

07:45 - 08:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		58				
	2	206	52	0.86	207	952	0.0	0.2	4.711	A
	3	778	195	208	779	0	0.0	1.1	4.880	A
	4	448	112	561	449	426	0.0	1.0	7.610	A
2	1	55	14	954	55	0	0.0	0.0	2.989	A
	2	961	240	316	960	693	0.0	2.2	7.439	A
	3	0	0	1272	0	3	0.0	0.0	0.000	A
	4			0		1065				
	5	952	238	2	952	206	0.0	1.7	6.295	A

08:00 - 08:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		69				
	2	238	59	0.77	238	1132	0.2	0.3	4.860	A
	3	924	231	239	925	0	1.1	1.5	5.650	A
	4	538	135	662	539	502	1.0	1.9	12.307	B
2	1	63	16	1135	63	0	0.0	0.1	3.556	A
	2	1134	283	377	1137	821	2.2	3.4	10.906	B
	3	0	0	1509	0	4	0.0	0.0	0.000	A
	4			0		1269				
	5	1132	283	2	1133	238	1.7	2.4	7.606	A

08:15 - 08:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		86				
	2	288	72	1	288	1377	0.3	0.4	5.235	A
	3	1135	284	289	1135	0	1.5	2.3	7.213	A
	4	661	165	819	646	605	1.9	7.2	29.644	D
2	1	80	20	1376	80	0	0.1	0.1	4.376	A
	2	1405	351	457	1386	999	3.4	13.4	27.361	D
	3	0	0	1838	0	5	0.0	0.0	0.000	A
	4			0		1548				
	5	1377	344	2	1375	288	2.4	4.0	10.148	B

08:30 - 08:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		84				
	2	291	73	1	291	1399	0.4	0.4	5.222	A
	3	1144	286	292	1145	0	2.3	2.4	7.575	A
	4	665	166	822	662	615	7.2	8.3	43.304	E
2	1	81	20	1401	81	0	0.1	0.1	4.571	A
	2	1394	349	468	1388	1014	13.4	16.2	38.900	E
	3	0	0	1850	0	6	0.0	0.0	0.000	A
	4			0		1558				
	5	1399	350	2	1398	291	4.0	4.1	10.717	B

08:45 - 09:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		71				
	2	243	61	0.93	243	1137	0.4	0.3	4.911	A
	3	928	232	244	929	0	2.4	1.5	5.819	A
	4	541	135	666	542	507	8.3	2.2	19.185	C
2	1	66	16	1139	66	0	0.1	0.1	3.882	A
	2	1138	285	380	1150	825	16.2	3.5	18.531	C
	3	0	0	1525	0	5	0.0	0.0	0.000	A
	4			0		1280				
	5	1137	284	2	1137	243	4.1	2.3	8.162	A

09:00 - 09:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		59				
	2	200	50	0.93	200	958	0.3	0.3	4.638	A
	3	785	196	201	786	0	1.5	1.1	5.008	A
	4	453	113	564	454	423	2.2	1.0	8.857	A
2	1	54	14	958	54	0	0.1	0.0	3.284	A
	2	961	240	314	958	698	3.5	2.2	8.013	A
	3	0	0	1268	0	4	0.0	0.0	0.000	A
	4			0		1066				
	5	958	240	2	956	200	2.3	1.7	6.436	A

Lane Results

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

Lanes: Main Results for each time segment

07:45 - 08:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		58			58	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	206	979	0.211	207	0.0	0.2	4.711	A
		Exit	1	1		952			952	0.0	0.0	0.014	A
	3	Entry	1	1	1,2,4	388	931	0.417	388	0.0	0.6	4.877	A
				2	1,2,4	390	932	0.418	391	0.0	0.5	4.883	A
			2	1	(1,2,3,4)	778			778	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	448	898	0.499	449	0.0	1.0	7.610	A
		Exit	1	1		426			426	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	55	1189	0.046	55	0.0	0.0	2.989	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	480	790	0.608	479	0.0	1.1	7.383	A
				2	2,3,4,5	481	789	0.609	481	0.0	1.1	7.489	A
			2	1	(1,2,3,4,5)	961			961	0.0	0.0	0.003	A
		Exit	1	1		693			693	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	460	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		1065			1065	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	476	873	0.545	475	0.0	0.8	6.218	A
				2	2,3,4,5	476	873	0.545	477	0.0	0.8	6.247	A
			2	1	(1,2,3,4,5)	952			952	0.0	0.0	0.062	A
		Exit	1	1		206			206	0.0	0.0	0.000	A

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		69			69	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	238	978	0.243	238	0.2	0.3	4.860	A
		Exit	1	1		1132			1132	0.0	0.0	0.099	A
	3	Entry	1	1	1,2,4	460	920	0.500	460	0.6	0.8	5.662	A
				2	1,2,4	464	921	0.504	465	0.5	0.8	5.638	A
			2	1	(1,2,3,4)	924			924	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	538	841	0.640	539	1.0	1.9	12.307	B
		Exit	1	1		502			502	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	63	1062	0.059	63	0.0	0.1	3.556	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	569	769	0.740	571	1.1	1.7	10.923	B
				2	2,3,4,5	565	770	0.734	566	1.1	1.7	10.793	B
			2	1	(1,2,3,4,5)	1134			1133	0.0	0.0	0.046	A
		Exit	1	1		821			821	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	339	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		1269			1269	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	566	872	0.649	566	0.8	1.2	7.365	A
				2	2,3,4,5	566	873	0.649	567	0.8	1.2	7.388	A
			2	1	(1,2,3,4,5)	1132			1132	0.0	0.1	0.227	A
		Exit	1	1		238			238	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		86			86	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	288	979	0.294	288	0.3	0.4	5.235	A
		Exit	1	1		1378			1377	0.0	0.2	0.520	A
	3	Entry	1	1	1,2,4	567	904	0.627	567	0.8	1.1	7.200	A
				2	1,2,4	569	905	0.628	568	0.8	1.2	7.227	A
			2	1	(1,2,3,4)	1135			1135	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	661	755	0.875	646	1.9	7.2	29.644	D
		Exit	1	1		605			605	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	80	894	0.089	80	0.1	0.1	4.376	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	699	744	0.940	694	1.7	5.3	23.677	C
				2	2,3,4,5	698	744	0.938	693	1.7	5.1	22.547	C
			2	1	(1,2,3,4,5)	1405			1397	0.0	3.0	4.074	A
		Exit	1	1		999			999	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	172	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4	Exit	1	1		1548			1548	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	686	874	0.785	685	1.2	1.8	9.364	A
				2	2,3,4,5	691	872	0.792	690	1.2	1.8	9.316	A
			2	1	(1,2,3,4,5)	1377			1377	0.1	0.3	0.802	A
		Exit	1	1		288			288	0.0	0.0	0.002	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		84			84	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	291	980	0.296	291	0.4	0.4	5.222	A
		Exit	1	1		1399			1399	0.2	0.2	0.627	A
	3	Entry	1	1	1,2,4	574	905	0.634	574	1.1	1.1	7.579	A
				2	1,2,4	571	903	0.631	571	1.2	1.2	7.571	A
			2	1	(1,2,3,4)	1144			1144	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	665	754	0.883	662	7.2	8.3	43.304	E
		Exit	1	1		615			615	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	81	878	0.092	81	0.1	0.1	4.571	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	700	739	0.946	698	5.3	5.9	28.841	D
				2	2,3,4,5	691	740	0.934	690	5.1	5.6	27.265	D
			2	1	(1,2,3,4,5)	1394			1391	3.0	4.8	10.743	B
		Exit	1	1		1014			1014	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	165	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		6			6	0.0	0.0	0.000	A
	4	Exit	1	1		1558			1558	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	698	874	0.799	698	1.8	1.8	9.742	A
				2	2,3,4,5	701	873	0.803	701	1.8	1.9	9.787	A
			2	1	(1,2,3,4,5)	1399			1399	0.3	0.4	0.951	A
		Exit	1	1		291			291	0.0	0.0	0.000	A

08:45 - 09:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		71			71	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	243	980	0.248	243	0.4	0.3	4.911	A
		Exit	1	1		1136			1137	0.2	0.0	0.189	A
	3	Entry	1	1	1,2,4	465	921	0.505	466	1.1	0.7	5.800	A
				2	1,2,4	463	917	0.504	463	1.2	0.8	5.839	A
			2	1	(1,2,3,4)	928			928	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	541	838	0.645	542	8.3	2.2	19.185	C
		Exit	1	1		507			507	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	66	1059	0.062	66	0.1	0.1	3.882	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	573	770	0.744	577	5.9	1.7	16.131	C
				2	2,3,4,5	569	768	0.741	573	5.6	1.7	15.680	C
			2	1	(1,2,3,4,5)	1138			1142	4.8	0.0	3.118	A
		Exit	1	1		825			825	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	331	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4	Exit	1	1		1280			1280	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	568	871	0.651	569	1.8	1.1	7.833	A
				2	2,3,4,5	569	872	0.653	569	1.9	1.2	7.810	A
			2	1	(1,2,3,4,5)	1137			1137	0.4	0.1	0.352	A
		Exit	1	1		243			243	0.0	0.0	0.000	A

09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		59			59	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	200	981	0.204	200	0.3	0.3	4.638	A
		Exit	1	1		958			958	0.0	0.0	0.020	A
	3	Entry	1	1	1,2,4	393	934	0.421	393	0.7	0.6	5.011	A
				2	1,2,4	392	933	0.421	393	0.8	0.5	5.005	A
			2	1	(1,2,3,4)	785			785	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	453	896	0.506	454	2.2	1.0	8.857	A
		Exit	1	1		423			423	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	54	1187	0.046	54	0.1	0.0	3.284	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	482	791	0.610	480	1.7	1.1	8.048	A
				2	2,3,4,5	479	790	0.606	478	1.7	1.1	7.985	A
			2	1	(1,2,3,4,5)	961			961	0.0	0.0	0.001	A
		Exit	1	1		698			698	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	462	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		1066			1066	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	479	874	0.548	478	1.1	0.8	6.365	A
				2	2,3,4,5	479	873	0.549	478	1.2	0.8	6.360	A
			2	1	(1,2,3,4,5)	958			958	0.1	0.0	0.075	A
		Exit	1	1		200			200	0.0	0.0	0.000	A

2021 + Dev - 2021 + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2021 + Dev [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.
Warning	Geometry	Junction 2 - Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	36.28	E
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	11.37	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2021 + Dev	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	5	Simple (vertical queueing)	Normal	0	100.00	
2	5	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1	1					
	2	✓				
	3		ONE HOUR	✓	1479	100.000
	4		ONE HOUR	✓	499	100.000
2	1		ONE HOUR	✓	128	100.000
	2		ONE HOUR	✓	857	100.000
	3		ONE HOUR	✓	0	100.000
	4					
	5	✓				

Origin-Destination Data

Junction 1

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	34	0	0	269
	3	9	1028	0	442
	4	72	426	0	1

Junction 2

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	45	0	0	83
	2	0	2	2	658	195
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	1224	2	231	1

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	4	0	0	2
	3	0	1	0	1
	4	0	2	0	0

Junction 2

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	3	0	0	4
	2	0	0	0	2	3
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	1	0	1	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	1					
	2	5.55	0.5	A	256	384
	3	24.82	11.5	C	1358	2036
	4	87.28	15.0	F	459	689
2	1	6.14	0.3	A	117	175
	2	7.77	2.0	A	783	1175
	3	0.00	0.0	A	0	0
	4					
	5	13.98	6.3	B	1331	1997

Main Results for each time segment

16:45 - 17:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		85				
	2	211	53	0.78	211	1095	0.0	0.3	4.833	A
	3	1112	278	212	1110	0	0.0	2.0	5.974	A
	4	377	94	802	379	520	0.0	0.9	8.055	A
2	1	98	24	1097	98	0	0.0	0.1	3.438	A
	2	649	162	238	648	957	0.0	1.1	5.425	A
	3	0	0	882	0	4	0.0	0.0	0.000	A
	4			0		669				
	5	1095	274	1	1096	211	0.0	2.1	6.798	A

17:00 - 17:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		101				
	2	251	63	0.84	252	1317	0.3	0.3	5.025	A
	3	1332	333	253	1337	0	2.0	2.8	8.134	A
	4	452	113	965	455	625	0.9	1.9	14.499	B
2	1	117	29	1317	118	0	0.1	0.1	4.301	A
	2	762	190	284	761	1150	1.1	1.4	6.099	A
	3	0	0	1042	0	3	0.0	0.0	0.000	A
	4			0		789				
	5	1317	329	2	1315	251	2.1	3.4	8.886	A

17:15 - 17:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		122				
	2	304	76	0.91	304	1578	0.3	0.5	5.514	A
	3	1630	408	305	1626	0	2.8	10.9	20.200	C
	4	550	137	1171	532	760	1.9	9.3	44.547	E
2	1	136	34	1579	136	0	0.1	0.3	5.583	A
	2	948	237	343	946	1372	1.4	2.0	7.473	A
	3	0	0	1285	0	4	0.0	0.0	0.000	A
	4			0		978				
	5	1578	395	2	1577	304	3.4	6.1	12.835	B

17:30 - 17:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		121				
	2	309	77	0.91	309	1583	0.5	0.5	5.547	A
	3	1633	408	310	1623	0	10.9	11.5	24.823	C
	4	549	137	1174	531	758	9.3	15.0	87.279	F
2	1	141	35	1578	141	0	0.3	0.2	6.138	A
	2	938	234	342	940	1377	2.0	1.9	7.769	A
	3	0	0	1278	0	4	0.0	0.0	0.000	A
	4			0		967				
	5	1583	396	2	1576	309	6.1	6.3	13.982	B

17:45 - 18:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		104				
	2	252	63	0.61	253	1324	0.5	0.3	5.047	A
	3	1333	333	254	1333	0	11.5	3.0	10.654	B
	4	452	113	961	469	626	15.0	2.4	45.924	E
2	1	113	28	1332	113	0	0.2	0.2	5.167	A
	2	764	191	289	763	1156	1.9	1.4	6.249	A
	3	0	0	1049	0	4	0.0	0.0	0.000	A
	4			0		795				
	5	1324	331	2	1330	252	6.3	3.4	10.549	B

18:00 - 18:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		83				
	2	207	52	0.74	206	1088	0.3	0.3	4.764	A
	3	1104	276	207	1108	0	3.0	1.8	6.324	A
	4	375	94	797	375	518	2.4	0.9	9.950	A
2	1	95	24	1088	95	0	0.2	0.1	3.917	A
	2	640	160	236	639	947	1.4	1.0	5.550	A
	3	0	0	872	0	3	0.0	0.0	0.000	A
	4			0		663				
	5	1088	272	2	1086	207	3.4	2.2	7.215	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

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		85			85	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	211	966	0.219	211	0.0	0.3	4.833	A
		Exit	1	1		1095			1095	0.0	0.0	0.031	A
	3	Entry	1	1	1,2,4	553	956	0.578	552	0.0	1.0	5.973	A
				2	1,2,4	559	957	0.585	558	0.0	1.0	5.975	A
			2	1	(1,2,3,4)	1112			1112	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	377	788	0.479	379	0.0	0.9	8.055	A
		Exit	1	1		520			520	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	98	1067	0.092	98	0.0	0.1	3.438	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	327	824	0.397	327	0.0	0.5	5.414	A
				2	2,3,4,5	322	822	0.392	321	0.0	0.6	5.436	A
			2	1	(1,2,3,4,5)	649			649	0.0	0.0	0.000	A
		Exit	1	1		957			957	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	664	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		669			669	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	551	893	0.617	552	0.0	1.0	6.647	A
				2	2,3,4,5	544	893	0.609	544	0.0	1.1	6.731	A
			2	1	(1,2,3,4,5)	1095			1095	0.0	0.1	0.108	A
		Exit	1	1		211			211	0.0	0.0	0.000	A

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		101			101	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	251	965	0.260	252	0.3	0.3	5.025	A
		Exit	1	1		1318			1317	0.0	0.2	0.230	A
	3	Entry	1	1	1,2,4	664	939	0.707	667	1.0	1.4	8.206	A
				2	1,2,4	668	940	0.710	670	1.0	1.4	8.063	A
			2	1	(1,2,3,4)	1332			1332	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	452	699	0.648	455	0.9	1.9	14.499	B
		Exit	1	1		625			625	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	117	921	0.127	118	0.1	0.1	4.301	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	381	806	0.472	381	0.5	0.7	6.110	A
				2	2,3,4,5	381	807	0.472	380	0.6	0.7	6.088	A
			2	1	(1,2,3,4,5)	762			762	0.0	0.0	0.000	A
		Exit	1	1		1150			1150	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	582	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		789			789	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	658	892	0.737	656	1.0	1.6	8.416	A
				2	2,3,4,5	659	892	0.739	659	1.1	1.6	8.449	A
			2	1	(1,2,3,4,5)	1317			1317	0.1	0.2	0.450	A
		Exit	1	1		251			251	0.0	0.0	0.000	A

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		122			122	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	304	965	0.315	304	0.3	0.5	5.514	A
		Exit	1	1		1580			1578	0.2	0.8	1.308	A
	3	Entry	1	1	1,2,4	816	922	0.885	815	1.4	5.4	20.174	C
				2	1,2,4	814	921	0.884	811	1.4	5.5	20.227	C
			2	1	(1,2,3,4)	1630			1630	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	550	589	0.933	532	1.9	9.3	44.547	E
		Exit	1	1		760			760	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	136	749	0.182	136	0.1	0.3	5.583	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	470	786	0.597	469	0.7	1.0	7.470	A
				2	2,3,4,5	478	788	0.607	476	0.7	1.0	7.475	A
			2	1	(1,2,3,4,5)	948			948	0.0	0.0	0.000	A
		Exit	1	1		1372			1372	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	459	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		978			978	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	787	893	0.882	787	1.6	2.6	11.192	B
				2	2,3,4,5	790	892	0.886	790	1.6	2.6	11.227	B
			2	1	(1,2,3,4,5)	1578			1578	0.2	0.8	1.616	A
		Exit	1	1		304			304	0.0	0.0	0.003	A

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		121			121	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	309	966	0.320	309	0.5	0.5	5.547	A
		Exit	1	1		1583			1583	0.8	0.8	1.856	A
	3	Entry	1	1	1,2,4	816	919	0.888	811	5.4	5.7	24.893	C
				2	1,2,4	817	920	0.888	812	5.5	5.7	24.754	C
			2	1	(1,2,3,4)	1633			1633	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	549	585	0.939	531	9.3	15.0	87.279	F
		Exit	1	1		758			758	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	141	749	0.188	141	0.3	0.2	6.138	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	468	787	0.595	470	1.0	0.9	7.767	A
				2	2,3,4,5	470	787	0.597	470	1.0	1.0	7.770	A
			2	1	(1,2,3,4,5)	938			938	0.0	0.0	0.000	A
		Exit	1	1		1377			1377	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	462	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		967			967	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	796	892	0.892	793	2.6	2.7	11.880	B
				2	2,3,4,5	786	892	0.881	783	2.6	2.6	11.979	B
			2	1	(1,2,3,4,5)	1583			1581	0.8	1.0	2.052	A
		Exit	1	1		309			309	0.0	0.0	0.003	A

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		104			104	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	252	962	0.262	253	0.5	0.3	5.047	A
		Exit	1	1		1325			1324	0.8	0.2	0.685	A
	3	Entry	1	1	1,2,4	671	940	0.714	672	5.7	1.5	10.668	B
				2	1,2,4	662	939	0.705	662	5.7	1.5	10.640	B
			2	1	(1,2,3,4)	1333			1333	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	452	701	0.645	469	15.0	2.4	45.924	E
		Exit	1	1		626			626	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	113	906	0.125	113	0.2	0.2	5.167	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	382	804	0.476	382	0.9	0.7	6.270	A
				2	2,3,4,5	382	804	0.475	381	1.0	0.7	6.229	A
			2	1	(1,2,3,4,5)	764			764	0.0	0.0	0.000	A
		Exit	1	1		1156			1156	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	578	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		795			795	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	666	892	0.747	669	2.7	1.6	9.566	A
				2	2,3,4,5	659	892	0.738	661	2.6	1.6	9.648	A
			2	1	(1,2,3,4,5)	1324			1325	1.0	0.2	0.959	A
		Exit	1	1		252			252	0.0	0.0	0.005	A

18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		83			83	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	207	964	0.215	206	0.3	0.3	4.764	A
		Exit	1	1		1089			1088	0.2	0.0	0.077	A
	3	Entry	1	1	1,2,4	550	954	0.576	551	1.5	0.9	6.322	A
				2	1,2,4	554	957	0.579	556	1.5	0.9	6.327	A
			2	1	(1,2,3,4)	1104			1104	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	375	791	0.474	375	2.4	0.9	9.950	A
		Exit	1	1		518			518	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	95	1069	0.089	95	0.2	0.1	3.917	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	319	822	0.387	318	0.7	0.5	5.550	A
				2	2,3,4,5	321	821	0.392	321	0.7	0.5	5.550	A
			2	1	(1,2,3,4,5)	640			640	0.0	0.0	0.000	A
		Exit	1	1		947			947	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	668	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		663			663	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	545	892	0.611	544	1.6	1.1	7.036	A
				2	2,3,4,5	543	892	0.609	542	1.6	1.1	7.048	A
			2	1	(1,2,3,4,5)	1088			1088	0.2	0.1	0.179	A
		Exit	1	1		207			207	0.0	0.0	0.000	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2021 Base using entry lane analysis.j9
Path: Z:\Projects\040-049\041 Barratt Homes\041.0025 Warblington Meadows, Havant\Reports\MODELLING\Modelling January 2017\A27 Roundabouts\2021 Baseline
Report generation date: 11/01/2017 15:04:41

»2021 Baseline - 2021, AM
»2021 Baseline - 2021, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2021 Baseline [Lane Simulation] - 2021							
Junction 1 - Arm 2	0.4	5.20		A	0.5	5.54		A
Junction 1 - Arm 3	2.5	7.39		A	9.7	19.76		C
Junction 1 - Arm 4	8.2	41.79		E	10.0	63.30		F
Junction 2 - Arm 1	0.1	4.36		A	0.3	5.84		A
Junction 2 - Arm 2	12.3	32.23		D	2.0	7.72		A
Junction 2 - Arm 3	0.0	0.00		A	0.0	0.00		A
Junction 2 - Arm 5	4.4	10.70		B	6.2	12.92		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	2021 Baseline
Location	A27 Roundabouts, Havant
Site number	
Date	31/10/2016
Version	
Status	(new file)
Identifier	
Client	Barratts
Jobnumber	041.0039
Enumerator	Shannon
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	Veh	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	✓	828722743	282	120.86

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	2021	AM	ONE HOUR	07:45	09:15	15	✓
D2	2021	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	2021 Baseline	✓	✓	100.000	100.000

2021 Baseline - 2021, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2021 Baseline [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.
Warning	Geometry	Junction 2 - Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	18.01	C
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	20.87	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Junction	Arm	Name	Description
1	1	A27 On-Slip	
	2	Emsworth Road (S)	
	3	A27 Off-Slip	
	4	untitled	
2	1	A27 Off-Slip	
	2	Havant Road	
	3	Church Lane	
	4	A27 On-Slip	
	5	Emsworth Road	

Roundabout Geometry

Junction	Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	1							✓
	2	3.70	3.70	0.0	12.2	35.0	53.0	
	3	7.30	7.30	0.0	24.3	35.0	49.0	
	4	4.17	5.20	0.5	23.6	35.0	46.0	
2	1	6.08	6.08	0.0	19.0	40.0	27.1	
	2	3.69	6.74	42.0	13.0	40.0	26.5	
	3	3.14	6.18	4.0	12.0	40.0	46.0	
	4							✓
	5	5.06	7.40	12.0	15.0	40.0	48.9	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1	1		
	2	0.475	997
	3	0.712	2085
	4	0.544	1242
2	1	0.675	1856
	2	0.666	1841
	3	0.498	1112
	4		
	5	0.639	1808

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	1	Evenly split	10.00
	2	Evenly split	10.00
	3	Evenly split	10.00
	4	Evenly split	10.00
2	1	Evenly split	10.00
	2	Evenly split	10.00
	3	Evenly split	10.00
	4	Evenly split	10.00
	5	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	2	1 [Give-way line]	1	1,2,4	✓	7.00	0	99999
	3	1 [Give-way line]	1	1,2,4	✓	58.00	0	99999
			2	1,2,4	✓	58.00	0	99999
		2	1	(1,2,3,4)		Infinity		
	4	1 [Give-way line]	1	1,2,4		Infinity	0	99999
2	1	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	2	1 [Give-way line]	1	2,3,4,5	✓	10.43	0	99999
			2	2,3,4,5	✓	9.57	0	99999
		2	1	(1,2,3,4,5)		Infinity		
	3	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	5	1 [Give-way line]	1	2,3,4,5	✓	4.00	0	99999
			2	2,3,4,5	✓	4.00	0	99999
		2	1	(1,2,3,4,5)	✓	3.00		

Entry Lane slope and intercept

Junction	Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1	2	1 [Give-way line]	1	0.475	997
	3	1 [Give-way line]	1	0.356	1043
			2	0.356	1043
	4	1 [Give-way line]	1	0.544	1242
2	1	1 [Give-way line]	1	0.675	1856
	2	1 [Give-way line]	1	0.333	921
			2	0.333	921
	3	1 [Give-way line]	1	0.498	1112
	5	1 [Give-way line]	1	0.319	904
			2	0.319	904

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm			
				1	2	3	4
1	2	1 [Give-way line]	1	✓	✓		✓
	3	1 [Give-way line]	1	✓	✓		✓
			2	✓	✓		✓
		2	1	✓	✓	✓	✓
	4	1 [Give-way line]	1	✓	✓		✓

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm				
				1	2	3	4	5
2	1	1 [Give-way line]	1		✓	✓	✓	✓
	2	1 [Give-way line]	1		✓	✓	✓	✓
			2		✓	✓	✓	✓
		2	1	✓	✓	✓	✓	✓
	3	1 [Give-way line]	1		✓	✓	✓	✓
	5	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	2021	AM	ONE HOUR	07:45	09:15	15	✓

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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	5	Simple (vertical queueing)	Normal	0	100.00	
2	5	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1	1					
	2	✓				
	3		ONE HOUR	✓	1027	100.000
	4		ONE HOUR	✓	594	100.000
2	1		ONE HOUR	✓	72	100.000
	2		ONE HOUR	✓	1228	100.000
	3		ONE HOUR	✓	4	100.000
	4					
	5	✓				

Origin-Destination Data

Junction 1

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	24	0	0	241
	3	2	712	0	313
	4	52	541	0	1

Junction 2

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	31	0	2	39
	2	0	2	1	1005	220
	3	0	0	0	3	1
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	869	4	374	1

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	5	0	0	2
	3	50	4	0	3
	4	4	3	0	0

Junction 2

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	0	0	0	0
	2	0	0	0	3	2
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	2	0	2	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	1					
	2	5.20	0.4	A	238	357
	3	7.39	2.5	A	942	1413
	4	41.79	8.2	E	549	823
2	1	4.36	0.1	A	67	100
	2	32.23	12.3	D	1131	1697
	3	0.00	0.0	A	0	0
	4					
	5	10.70	4.4	B	1153	1729

Main Results for each time segment

07:45 - 08:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		59				
	2	194	49	0.72	194	947	0.0	0.3	4.551	A
	3	776	194	195	776	0	0.0	1.2	4.884	A
	4	449	112	558	449	413	0.0	1.1	7.558	A
2	1	56	14	947	56	0	0.0	0.0	2.917	A
	2	919	230	315	921	688	0.0	1.7	7.350	A
	3	0	0	1232	0	3	0.0	0.0	0.000	A
	4			0		1036				
	5	947	237	2	945	194	0.0	1.7	6.245	A

08:00 - 08:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		69				
	2	234	59	0.64	234	1130	0.3	0.3	4.896	A
	3	925	231	234	926	0	1.2	1.5	5.597	A
	4	535	134	668	532	493	1.1	2.2	11.931	B
2	1	66	17	1130	66	0	0.0	0.1	3.503	A
	2	1106	277	376	1106	820	1.7	3.3	10.419	B
	3	0	0	1477	0	4	0.0	0.0	0.000	A
	4			0		1241				
	5	1130	282	2	1128	234	1.7	2.3	7.409	A

08:15 - 08:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		83				
	2	284	71	1	284	1383	0.3	0.4	5.174	A
	3	1139	285	285	1139	0	1.5	2.4	7.287	A
	4	658	164	817	651	608	2.2	6.8	29.082	D
2	1	81	20	1384	81	0	0.1	0.1	4.362	A
	2	1368	342	469	1347	997	3.3	11.7	23.861	C
	3	0	0	1811	0	5	0.0	0.0	0.000	A
	4			0		1525				
	5	1383	346	2	1382	284	2.3	4.1	10.171	B

08:30 - 08:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		84				
	2	286	71	1	286	1384	0.4	0.4	5.199	A
	3	1118	279	287	1120	0	2.4	2.2	7.391	A
	4	666	167	808	661	600	6.8	8.3	41.792	E
2	1	78	19	1382	78	0	0.1	0.1	4.342	A
	2	1358	339	464	1356	996	11.7	12.2	32.231	D
	3	0	0	1814	0	6	0.0	0.0	0.000	A
	4			0		1526				
	5	1384	346	2	1380	286	4.1	4.4	10.702	B

08:45 - 09:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		73				
	2	232	58	0.98	231	1124	0.4	0.3	4.809	A
	3	916	229	232	918	0	2.2	1.4	5.714	A
	4	539	135	656	541	494	8.3	1.7	18.742	C
2	1	63	16	1128	64	0	0.1	0.0	3.837	A
	2	1108	277	377	1109	815	12.2	3.0	14.390	B
	3	0	0	1482	0	4	0.0	0.0	0.000	A
	4			0		1248				
	5	1124	281	1	1126	232	4.4	2.4	8.071	A

09:00 - 09:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		59				
	2	199	50	0.68	198	948	0.3	0.2	4.660	A
	3	777	194	199	776	0	1.4	1.1	5.020	A
	4	448	112	559	448	416	1.7	1.1	8.649	A
2	1	55	14	947	55	0	0.0	0.1	3.311	A
	2	928	232	314	926	688	3.0	2.1	7.696	A
	3	0	0	1237	0	3	0.0	0.0	0.000	A
	4			0		1037				
	5	948	237	1	945	199	2.4	1.8	6.279	A

Lane Results

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

Lanes: Main Results for each time segment

07:45 - 08:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		59			59	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	194	979	0.199	194	0.0	0.3	4.551	A
		Exit	1	1		947			947	0.0	0.0	0.014	A
	3	Entry	1	1	1,2,4	385	940	0.410	386	0.0	0.6	4.874	A
				2	1,2,4	391	936	0.418	390	0.0	0.6	4.895	A
			2	1	(1,2,3,4)	776			776	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	449	897	0.500	449	0.0	1.1	7.558	A
		Exit	1	1		413			413	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	56	1193	0.047	56	0.0	0.0	2.917	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	456	788	0.578	458	0.0	0.8	7.379	A
				2	2,3,4,5	463	791	0.585	463	0.0	0.9	7.314	A
			2	1	(1,2,3,4,5)	919			919	0.0	0.0	0.003	A
		Exit	1	1		688			688	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	480	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		1036			1036	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	473	872	0.542	472	0.0	0.9	6.195	A
				2	2,3,4,5	474	873	0.543	474	0.0	0.8	6.161	A
			2	1	(1,2,3,4,5)	947			947	0.0	0.0	0.067	A
		Exit	1	1		194			194	0.0	0.0	0.000	A

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		69			69	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	234	980	0.239	234	0.3	0.3	4.896	A
		Exit	1	1		1130			1130	0.0	0.0	0.047	A
	3	Entry	1	1	1,2,4	464	923	0.503	465	0.6	0.7	5.569	A
				2	1,2,4	461	924	0.499	461	0.6	0.8	5.626	A
			2	1	(1,2,3,4)	925			925	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	535	837	0.639	532	1.1	2.2	11.931	B
		Exit	1	1		493			493	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	66	1066	0.062	66	0.0	0.1	3.503	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	552	770	0.716	552	0.8	1.6	10.505	B
				2	2,3,4,5	555	770	0.720	554	0.9	1.7	10.250	B
			2	1	(1,2,3,4,5)	1106			1106	0.0	0.0	0.042	A
		Exit	1	1		820			820	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	356	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		1241			1241	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	561	871	0.644	561	0.9	1.2	7.241	A
				2	2,3,4,5	568	874	0.650	568	0.8	1.1	7.219	A
			2	1	(1,2,3,4,5)	1130			1130	0.0	0.0	0.178	A
		Exit	1	1		234			234	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		83			83	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	284	977	0.290	284	0.3	0.4	5.174	A
		Exit	1	1		1383			1383	0.0	0.2	0.533	A
	3	Entry	1	1	1,2,4	572	904	0.632	571	0.7	1.3	7.296	A
				2	1,2,4	567	905	0.627	568	0.8	1.2	7.278	A
			2	1	(1,2,3,4)	1139			1139	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	658	756	0.870	651	2.2	6.8	29.082	D
		Exit	1	1		608			608	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	81	888	0.092	81	0.1	0.1	4.362	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	686	740	0.928	680	1.6	5.0	21.610	C
				2	2,3,4,5	672	736	0.912	667	1.7	4.7	20.867	C
			2	1	(1,2,3,4,5)	1368			1358	0.0	2.0	2.472	A
		Exit	1	1		997			997	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	184	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4	Exit	1	1		1525			1525	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	691	873	0.792	691	1.2	1.9	9.329	A
				2	2,3,4,5	691	871	0.793	691	1.1	1.8	9.382	A
			2	1	(1,2,3,4,5)	1383			1382	0.0	0.4	0.806	A
		Exit	1	1		284			284	0.0	0.0	0.004	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		84			84	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	286	980	0.292	286	0.4	0.4	5.199	A
		Exit	1	1		1384			1384	0.2	0.3	0.631	A
	3	Entry	1	1	1,2,4	552	906	0.609	554	1.3	1.1	7.450	A
				2	1,2,4	566	906	0.624	566	1.2	1.1	7.333	A
			2	1	(1,2,3,4)	1118			1118	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	666	761	0.874	661	6.8	8.3	41.792	E
		Exit	1	1		600			600	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	78	890	0.088	78	0.1	0.1	4.342	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	687	740	0.928	685	5.0	5.0	26.288	D
				2	2,3,4,5	671	741	0.906	670	4.7	4.6	24.938	C
			2	1	(1,2,3,4,5)	1358			1358	2.0	2.6	6.583	A
		Exit	1	1		996			996	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	183	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		6			6	0.0	0.0	0.000	A
	4	Exit	1	1		1526			1526	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	690	873	0.790	688	1.9	1.9	9.727	A
				2	2,3,4,5	694	873	0.794	692	1.8	2.0	9.788	A
			2	1	(1,2,3,4,5)	1384			1383	0.4	0.4	0.946	A
		Exit	1	1		286			286	0.0	0.0	0.003	A

08:45 - 09:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		73			73	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	232	980	0.237	231	0.4	0.3	4.809	A
		Exit	1	1		1124			1124	0.3	0.0	0.192	A
	3	Entry	1	1	1,2,4	459	927	0.495	461	1.1	0.7	5.675	A
				2	1,2,4	457	926	0.493	458	1.1	0.7	5.753	A
			2	1	(1,2,3,4)	916			916	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	539	844	0.639	541	8.3	1.7	18.742	C
		Exit	1	1		494			494	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	63	1068	0.059	64	0.1	0.0	3.837	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	554	769	0.720	555	5.0	1.5	13.560	B
				2	2,3,4,5	554	768	0.721	553	4.6	1.5	13.358	B
			2	1	(1,2,3,4,5)	1108			1108	2.6	0.0	1.239	A
		Exit	1	1		815			815	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	352	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		1248			1248	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	562	875	0.642	563	1.9	1.2	7.758	A
				2	2,3,4,5	563	872	0.645	563	2.0	1.1	7.716	A
			2	1	(1,2,3,4,5)	1124			1125	0.4	0.0	0.346	A
		Exit	1	1		232			232	0.0	0.0	0.001	A

09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		59			59	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	199	980	0.203	198	0.3	0.2	4.660	A
		Exit	1	1		948			948	0.0	0.0	0.023	A
	3	Entry	1	1	1,2,4	386	934	0.413	385	0.7	0.5	5.009	A
				2	1,2,4	392	935	0.419	392	0.7	0.5	5.031	A
			2	1	(1,2,3,4)	777			777	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	448	896	0.500	448	1.7	1.1	8.649	A
		Exit	1	1		416			416	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	55	1193	0.046	55	0.0	0.1	3.311	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	465	790	0.589	464	1.5	1.0	7.707	A
				2	2,3,4,5	463	788	0.588	462	1.5	1.0	7.685	A
			2	1	(1,2,3,4,5)	928			928	0.0	0.0	0.000	A
		Exit	1	1		688			688	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	478	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		1037			1037	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	477	873	0.547	475	1.2	1.0	6.186	A
				2	2,3,4,5	470	871	0.540	470	1.1	0.8	6.237	A
			2	1	(1,2,3,4,5)	948			948	0.0	0.0	0.070	A
		Exit	1	1		199			199	0.0	0.0	0.000	A

2021 Baseline - 2021, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2021 Baseline [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.
Warning	Geometry	Junction 2 - Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	27.60	D
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	10.70	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2021	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	5	Simple (vertical queueing)	Normal	0	100.00	
2	5	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1	1					
	2	✓				
	3		ONE HOUR	✓	1453	100.000
	4		ONE HOUR	✓	489	100.000
2	1		ONE HOUR	✓	127	100.000
	2		ONE HOUR	✓	837	100.000
	3		ONE HOUR	✓	0	100.000
	4					
	5	✓				

Origin-Destination Data

Junction 1

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	32	0	0	251
	3	9	1002	0	442
	4	72	416	0	1

Junction 2

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	44	0	0	83
	2	0	2	2	643	190
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	1189	2	231	1

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	4	0	0	2
	3	0	1	0	1
	4	0	2	0	0

Junction 2

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	3	0	0	4
	2	0	0	0	2	3
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	1	0	1	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	1					
	2	5.54	0.5	A	251	377
	3	19.76	9.7	C	1336	2004
	4	63.30	10.0	F	449	674
2	1	5.84	0.3	A	118	177
	2	7.72	2.0	A	770	1155
	3	0.00	0.0	A	0	0
	4					
	5	12.92	6.2	B	1303	1954

Main Results for each time segment

16:45 - 17:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		84				
	2	209	52	0.56	210	1071	0.0	0.3	4.728	A
	3	1089	272	211	1091	0	0.0	1.8	5.949	A
	4	368	92	787	368	515	0.0	1.0	7.930	A
2	1	101	25	1075	101	0	0.0	0.1	3.431	A
	2	640	160	239	639	936	0.0	1.0	5.339	A
	3	0	0	875	0	3	0.0	0.0	0.000	A
	4			0		664				
	5	1071	268	2	1073	209	0.0	1.9	6.821	A

17:00 - 17:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		104				
	2	251	63	0.93	251	1273	0.3	0.3	5.108	A
	3	1307	327	252	1307	0	1.8	2.9	7.952	A
	4	441	110	941	437	618	1.0	1.8	12.586	B
2	1	117	29	1273	117	0	0.1	0.2	4.333	A
	2	753	188	281	753	1109	1.0	1.3	6.028	A
	3	0	0	1031	0	3	0.0	0.0	0.000	A
	4			0		778				
	5	1273	318	2	1271	251	1.9	3.0	8.291	A

17:15 - 17:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		118				
	2	296	74	1	296	1554	0.3	0.5	5.313	A
	3	1602	401	297	1597	0	2.9	8.5	16.599	C
	4	543	136	1145	526	749	1.8	8.1	39.174	E
2	1	140	35	1562	140	0	0.2	0.3	5.534	A
	2	919	230	347	916	1354	1.3	2.0	7.334	A
	3	0	0	1259	0	4	0.0	0.0	0.000	A
	4			0		962				
	5	1554	388	2	1560	296	3.0	5.3	12.337	B

17:30 - 17:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		123				
	2	300	75	0.87	299	1561	0.5	0.4	5.540	A
	3	1605	401	300	1609	0	8.5	9.7	19.757	C
	4	537	134	1156	532	753	8.1	10.0	63.299	F
2	1	138	35	1557	138	0	0.3	0.2	5.837	A
	2	915	229	344	914	1350	2.0	2.0	7.719	A
	3	0	0	1253	0	5	0.0	0.0	0.000	A
	4			0		952				
	5	1561	390	2	1555	300	5.3	6.1	12.924	B

17:45 - 18:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		104				
	2	244	61	0.93	245	1282	0.4	0.3	5.026	A
	3	1308	327	246	1311	0	9.7	2.7	9.290	A
	4	441	110	943	443	613	10.0	1.9	26.068	D
2	1	114	29	1286	115	0	0.2	0.1	4.694	A
	2	750	187	290	751	1110	2.0	1.2	6.248	A
	3	0	0	1038	0	4	0.0	0.0	0.000	A
	4			0		791				
	5	1282	320	2	1284	244	6.1	3.0	9.932	A

18:00 - 18:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		88				
	2	209	52	0.99	211	1076	0.3	0.2	4.765	A
	3	1104	276	212	1106	0	2.7	1.8	6.155	A
	4	366	92	800	365	518	1.9	1.0	9.531	A
2	1	96	24	1075	96	0	0.1	0.1	3.982	A
	2	643	161	243	643	928	1.2	0.9	5.440	A
	3	0	0	884	0	2	0.0	0.0	0.000	A
	4			0		673				
	5	1076	269	2	1073	209	3.0	2.1	6.914	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

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		84			84	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	209	962	0.217	210	0.0	0.3	4.728	A
		Exit	1	1		1071			1071	0.0	0.0	0.023	A
	3	Entry	1	1	1,2,4	547	956	0.572	548	0.0	0.9	5.919	A
				2	1,2,4	542	957	0.567	543	0.0	0.9	5.979	A
			2	1	(1,2,3,4)	1089			1089	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	368	795	0.462	368	0.0	1.0	7.930	A
		Exit	1	1		515			515	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	101	1085	0.093	101	0.0	0.1	3.431	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	318	822	0.387	318	0.0	0.5	5.299	A
				2	2,3,4,5	322	820	0.392	321	0.0	0.5	5.379	A
			2	1	(1,2,3,4,5)	640			640	0.0	0.0	0.000	A
		Exit	1	1		936			936	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	667	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		664			664	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	539	893	0.603	539	0.0	1.0	6.723	A
				2	2,3,4,5	532	892	0.597	534	0.0	0.9	6.683	A
			2	1	(1,2,3,4,5)	1071			1071	0.0	0.0	0.118	A
		Exit	1	1		209			209	0.0	0.0	0.003	A

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		104			104	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	251	967	0.259	251	0.3	0.3	5.108	A
		Exit	1	1		1273			1273	0.0	0.0	0.169	A
	3	Entry	1	1	1,2,4	655	942	0.695	655	0.9	1.4	7.991	A
				2	1,2,4	652	941	0.693	652	0.9	1.5	7.913	A
			2	1	(1,2,3,4)	1307			1307	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	441	713	0.619	437	1.0	1.8	12.586	B
		Exit	1	1		618			618	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	117	953	0.124	117	0.1	0.2	4.333	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	376	807	0.466	376	0.5	0.7	6.088	A
				2	2,3,4,5	377	806	0.468	377	0.5	0.7	5.967	A
			2	1	(1,2,3,4,5)	753			753	0.0	0.0	0.000	A
		Exit	1	1		1109			1109	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	588	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		778			778	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	637	894	0.712	636	1.0	1.4	7.884	A
				2	2,3,4,5	637	892	0.714	635	0.9	1.5	7.994	A
			2	1	(1,2,3,4,5)	1273			1274	0.0	0.1	0.350	A
		Exit	1	1		251			251	0.0	0.0	0.007	A

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		118			118	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	296	969	0.305	296	0.3	0.5	5.313	A
		Exit	1	1		1552			1554	0.0	0.6	1.182	A
	3	Entry	1	1	1,2,4	804	925	0.870	804	1.4	4.2	16.630	C
				2	1,2,4	798	924	0.864	794	1.5	4.2	16.568	C
			2	1	(1,2,3,4)	1602			1602	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	543	603	0.901	526	1.8	8.1	39.174	E
		Exit	1	1		749			749	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	140	761	0.184	140	0.2	0.3	5.534	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	459	786	0.584	459	0.7	1.0	7.316	A
				2	2,3,4,5	460	787	0.585	458	0.7	1.0	7.352	A
			2	1	(1,2,3,4,5)	919			919	0.0	0.0	0.001	A
		Exit	1	1		1354			1354	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	472	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		962			962	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	771	892	0.865	774	1.4	2.3	10.894	B
				2	2,3,4,5	783	893	0.877	786	1.5	2.2	10.774	B
			2	1	(1,2,3,4,5)	1554			1555	0.1	0.7	1.496	A
		Exit	1	1		296			296	0.0	0.0	0.005	A

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		123			123	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	300	964	0.311	299	0.5	0.4	5.540	A
		Exit	1	1		1564			1561	0.6	0.7	1.489	A
	3	Entry	1	1	1,2,4	800	924	0.866	802	4.2	4.8	19.736	C
				2	1,2,4	805	924	0.871	807	4.2	4.9	19.777	C
			2	1	(1,2,3,4)	1605			1605	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	537	596	0.901	532	8.1	10.0	63.299	F
		Exit	1	1		753			753	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	138	765	0.181	138	0.3	0.2	5.837	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	465	786	0.591	466	1.0	1.0	7.642	A
				2	2,3,4,5	449	786	0.572	448	1.0	1.0	7.797	A
			2	1	(1,2,3,4,5)	915			915	0.0	0.0	0.000	A
		Exit	1	1		1350			1350	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	475	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4	Exit	1	1		952			952	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	775	892	0.868	774	2.3	2.6	11.192	B
				2	2,3,4,5	784	893	0.877	781	2.2	2.6	11.235	B
			2	1	(1,2,3,4,5)	1561			1559	0.7	0.9	1.706	A
		Exit	1	1		300			300	0.0	0.0	0.003	A

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		104			104	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	244	961	0.254	245	0.4	0.3	5.026	A
		Exit	1	1		1282			1282	0.7	0.1	0.550	A
	3	Entry	1	1	1,2,4	655	941	0.696	656	4.8	1.4	9.312	A
				2	1,2,4	652	943	0.692	655	4.9	1.3	9.268	A
			2	1	(1,2,3,4)	1308			1308	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	441	712	0.620	443	10.0	1.9	26.068	D
		Exit	1	1		613			613	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	114	941	0.121	115	0.2	0.1	4.694	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	372	802	0.463	372	1.0	0.6	6.314	A
				2	2,3,4,5	378	804	0.469	379	1.0	0.6	6.181	A
			2	1	(1,2,3,4,5)	750			750	0.0	0.0	0.001	A
		Exit	1	1		1110			1110	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	584	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		791			791	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	644	893	0.721	645	2.6	1.4	9.147	A
				2	2,3,4,5	638	892	0.715	639	2.6	1.5	9.180	A
			2	1	(1,2,3,4,5)	1282			1282	0.9	0.1	0.785	A
		Exit	1	1		244			244	0.0	0.0	0.000	A

18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		88			88	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	209	962	0.218	211	0.3	0.2	4.765	A
		Exit	1	1		1076			1076	0.1	0.0	0.073	A
	3	Entry	1	1	1,2,4	546	955	0.572	547	1.4	0.9	6.179	A
				2	1,2,4	558	954	0.585	559	1.3	0.9	6.131	A
			2	1	(1,2,3,4)	1104			1104	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	366	785	0.466	365	1.9	1.0	9.531	A
		Exit	1	1		518			518	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	96	1073	0.089	96	0.1	0.1	3.982	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	322	819	0.393	322	0.6	0.5	5.449	A
				2	2,3,4,5	321	820	0.392	321	0.6	0.5	5.431	A
			2	1	(1,2,3,4,5)	643			643	0.0	0.0	0.000	A
		Exit	1	1		928			928	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	663	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		2			2	0.0	0.0	0.000	A
	4	Exit	1	1		673			673	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	534	891	0.599	533	1.4	1.0	6.854	A
				2	2,3,4,5	541	891	0.608	540	1.5	1.0	6.676	A
			2	1	(1,2,3,4,5)	1076			1076	0.1	0.0	0.156	A
		Exit	1	1		209			209	0.0	0.0	0.000	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2026 Base + Dev + Mitigation using entry lane analysis.j9
Path: Z:\Projects\040-049\041 Barratt Homes\041.0025 Warblington Meadows, Havant\Reports\MODELLING\Modelling January 2017\A27 Roundabouts\2026 with dev + miti
Report generation date: 11/01/2017 15:18:20

»2026 + Dev + Mitigation - 2026 + Dev + Miti, AM
»2026 + Dev + Mitigation - 2026 + Dev + Miti, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2026 + Dev + Mitigation [Lane Simulation] - 2026 + Dev + Miti							
1 - A27/ Emsworth Road - 2 - Emsworth Road (S)	0.5	5.53		A	0.5	5.73		A
1 - A27/ Emsworth Road - 3 - A27 Off-Slip	3.2	7.96		A	21.2	40.68		E
1 - A27/ Emsworth Road - 4 - untitled	17.0	80.51		F	30.4	166.95		F
2 - A27/ Church Lane - 1 - A27 Off-Slip	0.1	5.01		A	0.3	6.67		A
2 - A27/ Church Lane - 2 - Havant Road	9.7	24.41		C	1.9	6.63		A
2 - A27/ Church Lane - 3 - Church Lane	0.0	0.00		A	0.0	0.00		A
2 - A27/ Church Lane - 5 - Emsworth Road	3.8	8.87		A	4.9	11.36		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	2026 + Dev + Mtigation
Location	A27 Roundabouts, Havant
Site number	
Date	31/10/2016
Version	
Status	(new file)
Identifier	
Client	Barratts
Jobnumber	041.0039
Enumerator	Shannon
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	Veh	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	✓	163811440	238	114.87

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	2026 + Dev + Miti	AM	ONE HOUR	07:45	09:15	15	✓
D2	2026 + Dev + Miti	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	2026 + Dev + Mitigation	✓	✓	100.000	100.000

2026 + Dev + Mitigation - 2026 + Dev + Miti, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2026 + Dev + Mitigation [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.
Warning	Linked junction	2 - A27/ Church Lane - 5 - Emsworth Road	Linked arm: Junction 2 Arm 5 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	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	30.39	D
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	16.28	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Junction	Arm	Name	Description
1 - A27/ Emsworth Road	1	A27 On-Slip	
	2	Emsworth Road (S)	
	3	A27 Off-Slip	
	4	untitled	
2 - A27/ Church Lane	1	A27 Off-Slip	
	2	Havant Road	
	3	Church Lane	
	4	A27 On-Slip	
	5	Emsworth Road	

Roundabout Geometry

Junction	Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A27/ Emsworth Road	1 - A27 On-Slip							✓
	2 - Emsworth Road (S)	3.70	3.70	0.0	12.2	35.0	53.0	
	3 - A27 Off-Slip	7.30	7.30	0.0	24.3	35.0	49.0	
	4 - untitled	4.17	5.20	0.5	23.6	35.0	46.0	
2 - A27/ Church Lane	1 - A27 Off-Slip	6.08	6.08	0.0	19.0	40.0	27.1	
	2 - Havant Road	6.00	7.00	24.0	13.0	40.0	26.5	
	3 - Church Lane	3.14	6.18	4.0	12.0	40.0	46.0	
	4 - A27 On-Slip							✓
	5 - Emsworth Road	6.00	8.00	12.0	15.0	40.0	48.9	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1 - A27/ Emsworth Road	1 - A27 On-Slip		
	2 - Emsworth Road (S)	0.475	997
	3 - A27 Off-Slip	0.712	2085
	4 - untitled	0.544	1242
2 - A27/ Church Lane	1 - A27 Off-Slip	0.675	1856
	2 - Havant Road	0.709	2056
	3 - Church Lane	0.498	1112
	4 - A27 On-Slip		
	5 - Emsworth Road	0.683	2032

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 - A27/ Emsworth Road	1 - A27 On-Slip	Evenly split	10.00
	2 - Emsworth Road (S)	Evenly split	10.00
	3 - A27 Off-Slip	Evenly split	10.00
	4 - untitled	Evenly split	10.00
2 - A27/ Church Lane	1 - A27 Off-Slip	Evenly split	10.00
	2 - Havant Road	Evenly split	10.00
	3 - Church Lane	Evenly split	10.00
	4 - A27 On-Slip	Evenly split	10.00
	5 - Emsworth Road	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 - A27/ Emsworth Road	2 - Emsworth Road (S)	1 [Give-way line]	1	1,2,4	✓	7.00	0	99999
	3 - A27 Off-Slip	1 [Give-way line]	1	1,2,4	✓	58.00	0	99999
			2	1,2,4	✓	58.00	0	99999
		2	1	(1,2,3,4)		Infinity		
	4 - untitled	1 [Give-way line]	1	1,2,4		Infinity	0	99999
2 - A27/ Church Lane	1 - A27 Off-Slip	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	2 - Havant Road	1 [Give-way line]	1	2,3,4,5	✓	10.43	0	99999
			2	2,3,4,5	✓	9.57	0	99999
		2	1	(1,2,3,4,5)		Infinity		
	3 - Church Lane	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	5 - Emsworth Road	1 [Give-way line]	1	2,3,4,5	✓	13.00	0	99999
			2	2,3,4,5	✓	13.00	0	99999

Entry Lane slope and intercept

Junction	Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1 - A27/ Emsworth Road	2 - Emsworth Road (S)	1 [Give-way line]	1	0.475	997
	3 - A27 Off-Slip	1 [Give-way line]	1	0.356	1043
			2	0.356	1043
	4 - untitled	1 [Give-way line]	1	0.544	1242
2 - A27/ Church Lane	1 - A27 Off-Slip	1 [Give-way line]	1	0.675	1856
	2 - Havant Road	1 [Give-way line]	1	0.354	1028
			2	0.354	1028
	3 - Church Lane	1 [Give-way line]	1	0.498	1112
	5 - Emsworth Road	1 [Give-way line]	1	0.342	1016
			2	0.342	1016

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm			
				A27 On-Slip	Emsworth Road (S)	A27 Off-Slip	untitled
1 - A27/ Emsworth Road	2 - Emsworth Road (S)	1 [Give-way line]	1	✓	✓		✓
	3 - A27 Off-Slip	1 [Give-way line]	1	✓	✓		✓
			2	✓	✓		✓
		2	1	✓	✓	✓	✓
	4 - untitled	1 [Give-way line]	1	✓	✓		✓

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm				
				A27 Off-Slip	Havant Road	Church Lane	A27 On-Slip	Emsworth Road
2 - A27/ Church Lane	1 - A27 Off-Slip	1 [Give-way line]	1		✓	✓	✓	✓
	2 - Havant Road	1 [Give-way line]	1		✓	✓	✓	✓
			2		✓	✓	✓	✓
		2	1	✓	✓	✓	✓	✓
	3 - Church Lane	1 [Give-way line]	1		✓	✓	✓	✓
	5 - Emsworth Road	1 [Give-way line]	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	2026 + Dev + Miti	AM	ONE HOUR	07:45	09:15	15	✓

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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - A27/ Emsworth Road	2 - Emsworth Road (S)	2	5	Simple (vertical queueing)	Normal	0	100.00	
2 - A27/ Church Lane	5 - Emsworth Road	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A27/ Emsworth Road	1 - A27 On-Slip					
	2 - Emsworth Road (S)	✓				
	3 - A27 Off-Slip		ONE HOUR	✓	1106	100.000
	4 - untitled		ONE HOUR	✓	639	100.000
2 - A27/ Church Lane	1 - A27 Off-Slip		ONE HOUR	✓	78	100.000
	2 - Havant Road		ONE HOUR	✓	1352	100.000
	3 - Church Lane		ONE HOUR	✓	4	100.000
	4 - A27 On-Slip					
	5 - Emsworth Road	✓				

Origin-Destination Data

1 - A27/ Emsworth Road

Demand (Veh/hr)

		To			
		1 - A27 On-Slip	2 - Emsworth Road (S)	3 - A27 Off-Slip	4 - untitled
From	1 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only
	2 - Emsworth Road (S)	30	0	0	293
	3 - A27 Off-Slip	2	770	0	334
	4 - untitled	53	585	0	1

2 - A27/ Church Lane

Demand (Veh/hr)

		To				
		1 - A27 Off-Slip	2 - Havant Road	3 - Church Lane	4 - A27 On-Slip	5 - Emsworth Road
From	1 - A27 Off-Slip	0	34	0	2	42
	2 - Havant Road	0	2	1	1107	242
	3 - Church Lane	0	0	0	3	1
	4 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5 - Emsworth Road	0	943	4	400	1

Vehicle Mix

1 - A27/ Emsworth Road

Heavy Vehicle Percentages

		To			
		1 - A27 On-Slip	2 - Emsworth Road (S)	3 - A27 Off-Slip	4 - untitled
From	1 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only
	2 - Emsworth Road (S)	5	0	0	2
	3 - A27 Off-Slip	50	4	0	3
	4 - untitled	4	3	0	0

2 - A27/ Church Lane

Heavy Vehicle Percentages

		To				
		1 - A27 Off-Slip	2 - Havant Road	3 - Church Lane	4 - A27 On-Slip	5 - Emsworth Road
From	1 - A27 Off-Slip	0	0	0	0	0
	2 - Havant Road	0	0	0	3	2
	3 - Church Lane	0	0	0	0	0
	4 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5 - Emsworth Road	0	2	0	2	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A27/ Emsworth Road	1 - A27 On-Slip					
	2 - Emsworth Road (S)	5.53	0.5	A	260	390
	3 - A27 Off-Slip	7.96	3.2	A	1016	1524
	4 - untitled	80.51	17.0	F	586	879
2 - A27/ Church Lane	1 - A27 Off-Slip	5.01	0.1	A	72	108
	2 - Havant Road	24.41	9.7	C	1237	1856
	3 - Church Lane	0.00	0.0	A	0	0
	4 - A27 On-Slip					
	5 - Emsworth Road	8.87	3.8	A	1238	1858

Main Results for each time segment

07:45 - 08:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		61				
	2 - Emsworth Road (S)	213	53	0.55	212	1035	0.0	0.3	4.638	A
	3 - A27 Off-Slip	844	211	213	845	0	0.0	1.2	5.076	A
	4 - untitled	487	122	610	486	448	0.0	1.3	8.582	A
2 - A27/ Church Lane	1 - A27 Off-Slip	60	15	1035	60	0	0.0	0.1	2.992	A
	2 - Havant Road	1019	255	348	1015	747	0.0	2.0	6.421	A
	3 - Church Lane	0	0	1360	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1146				
	5 - Emsworth Road	1035	259	1	1034	213	0.0	1.6	5.373	A

08:00 - 08:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		73				
	2 - Emsworth Road (S)	257	64	1	256	1214	0.3	0.3	5.029	A
	3 - A27 Off-Slip	993	248	258	993	0	1.2	1.6	5.956	A
	4 - untitled	575	144	713	574	537	1.3	2.4	13.847	B
2 - A27/ Church Lane	1 - A27 Off-Slip	69	17	1214	69	0	0.1	0.1	3.893	A
	2 - Havant Road	1221	305	402	1220	881	2.0	3.1	9.110	A
	3 - Church Lane	0	0	1617	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1359				
	5 - Emsworth Road	1214	303	2	1212	257	1.6	2.3	6.242	A

08:15 - 08:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		86				
	2 - Emsworth Road (S)	311	78	1	311	1467	0.3	0.5	5.365	A
	3 - A27 Off-Slip	1232	308	312	1231	0	1.6	2.7	7.905	A
	4 - untitled	702	175	889	665	653	2.4	12.6	45.111	E
2 - A27/ Church Lane	1 - A27 Off-Slip	86	22	1471	86	0	0.1	0.1	4.616	A
	2 - Havant Road	1484	371	487	1472	1069	3.1	9.6	19.708	C
	3 - Church Lane	0	0	1955	0	5	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1641				
	5 - Emsworth Road	1467	367	2	1468	311	2.3	3.8	8.533	A

08:30 - 08:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		90				
	2 - Emsworth Road (S)	319	80	0.71	320	1472	0.5	0.5	5.532	A
	3 - A27 Off-Slip	1206	302	321	1198	0	2.7	3.2	7.956	A
	4 - untitled	706	176	870	692	648	12.6	17.0	80.512	F
2 - A27/ Church Lane	1 - A27 Off-Slip	89	22	1478	88	0	0.1	0.1	5.009	A
	2 - Havant Road	1490	372	495	1491	1071	9.6	9.7	24.412	C
	3 - Church Lane	0	0	1981	0	6	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1660				
	5 - Emsworth Road	1472	368	2	1476	319	3.8	3.4	8.865	A

08:45 - 09:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		76				
	2 - Emsworth Road (S)	257	64	0.55	256	1229	0.5	0.4	5.096	A
	3 - A27 Off-Slip	991	248	256	991	0	3.2	1.8	6.198	A
	4 - untitled	569	142	719	587	529	17.0	3.7	43.944	E
2 - A27/ Church Lane	1 - A27 Off-Slip	69	17	1233	69	0	0.1	0.1	4.228	A
	2 - Havant Road	1210	303	408	1204	894	9.7	3.5	11.346	B
	3 - Church Lane	0	0	1608	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1349				
	5 - Emsworth Road	1229	307	2	1231	257	3.4	2.2	7.054	A

09:00 - 09:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		62				
	2 - Emsworth Road (S)	206	51	0.91	206	1014	0.4	0.3	4.658	A
	3 - A27 Off-Slip	832	208	207	832	0	1.8	1.2	5.204	A
	4 - untitled	479	120	595	482	444	3.7	1.2	10.593	B
2 - A27/ Church Lane	1 - A27 Off-Slip	59	15	1011	59	0	0.1	0.0	3.485	A
	2 - Havant Road	997	249	343	997	728	3.5	1.8	6.617	A
	3 - Church Lane	0	0	1336	0	3	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1129				
	5 - Emsworth Road	1014	254	2	1010	206	2.2	1.7	5.362	A

Lane Results

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

Lanes: Main Results for each time segment

07:45 - 08:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		61			61	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	213	983	0.216	212	0.0	0.3	4.638	A
		Exit	1	1		1035			1035	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	421	933	0.452	421	0.0	0.6	5.076	A
				2	1,2,4	422	929	0.455	424	0.0	0.6	5.075	A
			2	1	(1,2,3,4)	844			844	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	487	868	0.561	486	0.0	1.3	8.582	A
		Exit	1	1		448			448	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	60	1131	0.053	60	0.0	0.1	2.992	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	510	876	0.582	508	0.0	1.0	6.446	A
				2	2,3,4,5	510	875	0.582	508	0.0	1.0	6.394	A
			2	1	(1,2,3,4,5)	1019			1019	0.0	0.0	0.001	A
		Exit	1	1		747			747	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	415	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1146			1146	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	518	979	0.529	517	0.0	0.8	5.336	A
				2	2,3,4,5	517	979	0.528	517	0.0	0.8	5.410	A
		Exit	1	1		213			213	0.0	0.0	0.000	A

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		73			73	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	257	979	0.262	256	0.3	0.3	5.029	A
		Exit	1	1		1214			1214	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	498	913	0.546	499	0.6	0.8	5.943	A
				2	1,2,4	495	914	0.541	494	0.6	0.8	5.970	A
			2	1	(1,2,3,4)	993			993	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	575	815	0.705	574	1.3	2.4	13.847	B
		Exit	1	1		537			537	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	69	1007	0.069	69	0.1	0.1	3.893	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	606	857	0.708	605	1.0	1.5	9.159	A
				2	2,3,4,5	615	860	0.716	615	1.0	1.6	8.995	A
			2	1	(1,2,3,4,5)	1221			1221	0.0	0.0	0.033	A
		Exit	1	1		881			881	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	285	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1359			1359	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	605	981	0.617	605	0.8	1.2	6.268	A
				2	2,3,4,5	608	980	0.620	607	0.8	1.2	6.216	A
		Exit	1	1		257			257	0.0	0.0	0.001	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		86			86	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	311	980	0.317	311	0.3	0.5	5.365	A
		Exit	1	1		1467			1467	0.0	0.0	0.002	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	617	893	0.691	617	0.8	1.3	7.876	A
				2	1,2,4	614	892	0.689	614	0.8	1.4	7.934	A
			2	1	(1,2,3,4)	1232			1232	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	702	714	0.982	665	2.4	12.6	45.111	E
		Exit	1	1		653			653	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	86	824	0.105	86	0.1	0.1	4.616	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	744	827	0.900	741	1.5	4.1	17.991	C
				2	2,3,4,5	734	826	0.888	731	1.6	4.0	17.470	C
			2	1	(1,2,3,4,5)	1484			1478	0.0	1.5	1.880	A
		Exit	1	1		1069			1069	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	113	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1641			1641	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	730	976	0.748	731	1.2	1.8	8.598	A
				2	2,3,4,5	737	978	0.753	737	1.2	2.0	8.468	A
		Exit	1	1		311			311	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		90			90	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	319	979	0.325	320	0.5	0.5	5.532	A
		Exit	1	1		1472			1472	0.0	0.0	0.002	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	602	890	0.676	598	1.3	1.6	8.019	A
				2	1,2,4	604	890	0.679	600	1.4	1.6	7.893	A
			2	1	(1,2,3,4)	1206			1206	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	706	726	0.972	692	12.6	17.0	80.512	F
		Exit	1	1		648			648	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	89	821	0.108	88	0.1	0.1	5.009	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	745	822	0.906	748	4.1	4.2	21.240	C
				2	2,3,4,5	741	825	0.899	743	4.0	4.0	20.351	C
			2	1	(1,2,3,4,5)	1490			1486	1.5	1.4	3.622	A
		Exit	1	1		1071			1071	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	98	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		6			6	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1660			1660	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	732	980	0.747	735	1.8	1.7	8.890	A
				2	2,3,4,5	740	979	0.756	740	2.0	1.7	8.841	A
		Exit	1	1		318			319	0.0	0.0	0.008	A

08:45 - 09:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		76			76	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	257	981	0.262	256	0.5	0.4	5.096	A
		Exit	1	1		1229			1229	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	496	915	0.542	495	1.6	0.9	6.212	A
				2	1,2,4	495	914	0.542	496	1.6	0.8	6.184	A
			2	1	(1,2,3,4)	991			991	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	569	811	0.701	587	17.0	3.7	43.944	E
		Exit	1	1		529			529	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	69	994	0.070	69	0.1	0.1	4.228	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	605	856	0.707	602	4.2	1.7	11.074	B
				2	2,3,4,5	605	853	0.709	603	4.0	1.7	11.084	B
			2	1	(1,2,3,4,5)	1210			1210	1.4	0.0	0.411	A
		Exit	1	1		894			894	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	285	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1349			1349	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	614	978	0.628	616	1.7	1.1	7.102	A
				2	2,3,4,5	614	982	0.625	615	1.7	1.2	7.005	A
		Exit	1	1		257			257	0.0	0.0	0.000	A

09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		62			62	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	206	980	0.210	206	0.4	0.3	4.658	A
		Exit	1	1		1014			1014	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	419	933	0.449	418	0.9	0.6	5.158	A
				2	1,2,4	413	932	0.443	414	0.8	0.6	5.251	A
			2	1	(1,2,3,4)	832			832	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	479	879	0.546	482	3.7	1.2	10.593	B
		Exit	1	1		444			444	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	59	1150	0.051	59	0.1	0.0	3.485	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	501	878	0.571	500	1.7	0.9	6.692	A
				2	2,3,4,5	496	878	0.566	497	1.7	0.8	6.543	A
			2	1	(1,2,3,4,5)	997			997	0.0	0.0	0.000	A
		Exit	1	1		728			728	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	428	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1129			1129	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	509	980	0.520	506	1.1	0.9	5.361	A
				2	2,3,4,5	505	983	0.514	503	1.2	0.8	5.362	A
		Exit	1	1		206			206	0.0	0.0	0.000	A

2026 + Dev + Mitigation - 2026 + Dev + Miti, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2026 + Dev + Mitigation [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.
Warning	Linked junction	2 - A27/ Church Lane - 5 - Emsworth Road	Linked arm: Junction 2 Arm 5 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	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	64.09	F
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	9.43	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2026 + Dev + Miti	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - A27/ Emsworth Road	2 - Emsworth Road (S)	2	5	Simple (vertical queueing)	Normal	0	100.00	
2 - A27/ Church Lane	5 - Emsworth Road	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A27/ Emsworth Road	1 - A27 On-Slip					
	2 - Emsworth Road (S)	✓				
	3 - A27 Off-Slip		ONE HOUR	✓	1585	100.000
	4 - untitled		ONE HOUR	✓	534	100.000
2 - A27/ Church Lane	1 - A27 Off-Slip		ONE HOUR	✓	137	100.000
	2 - Havant Road		ONE HOUR	✓	918	100.000
	3 - Church Lane		ONE HOUR	✓	0	100.000
	4 - A27 On-Slip					
	5 - Emsworth Road	✓				

Origin-Destination Data

1 - A27/ Emsworth Road

Demand (Veh/hr)

		To			
		1 - A27 On-Slip	2 - Emsworth Road (S)	3 - A27 Off-Slip	4 - untitled
From	1 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only
	2 - Emsworth Road (S)	36	0	0	287
	3 - A27 Off-Slip	10	1101	0	474
	4 - untitled	77	456	0	1

2 - A27/ Church Lane

Demand (Veh/hr)

		To				
		1 - A27 Off-Slip	2 - Havant Road	3 - Church Lane	4 - A27 On-Slip	5 - Emsworth Road
From	1 - A27 Off-Slip	0	48	0	0	89
	2 - Havant Road	0	2	2	705	209
	3 - Church Lane	0	0	0	0	0
	4 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5 - Emsworth Road	0	1311	2	248	1

Vehicle Mix

1 - A27/ Emsworth Road

Heavy Vehicle Percentages

		To			
		1 - A27 On-Slip	2 - Emsworth Road (S)	3 - A27 Off-Slip	4 - untitled
From	1 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only
	2 - Emsworth Road (S)	4	0	0	2
	3 - A27 Off-Slip	0	1	0	1
	4 - untitled	0	2	0	0

2 - A27/ Church Lane

Heavy Vehicle Percentages

		To				
		1 - A27 Off-Slip	2 - Havant Road	3 - Church Lane	4 - A27 On-Slip	5 - Emsworth Road
From	1 - A27 Off-Slip	0	3	0	0	4
	2 - Havant Road	0	0	0	2	3
	3 - Church Lane	0	0	0	0	0
	4 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5 - Emsworth Road	0	1	0	1	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A27/ Emsworth Road	1 - A27 On-Slip					
	2 - Emsworth Road (S)	5.73	0.5	A	274	410
	3 - A27 Off-Slip	40.68	21.2	E	1462	2192
	4 - untitled	166.95	30.4	F	488	732
2 - A27/ Church Lane	1 - A27 Off-Slip	6.67	0.3	A	126	189
	2 - Havant Road	6.63	1.9	A	843	1264
	3 - Church Lane	0.00	0.0	A	0	0
	4 - A27 On-Slip					
	5 - Emsworth Road	11.36	4.9	B	1422	2133

Main Results for each time segment

16:45 - 17:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		88				
	2 - Emsworth Road (S)	224	56	0.51	224	1183	0.0	0.3	4.872	A
	3 - A27 Off-Slip	1203	301	225	1204	0	0.0	2.2	6.599	A
	4 - untitled	404	101	868	404	561	0.0	1.1	8.982	A
2 - A27/ Church Lane	1 - A27 Off-Slip	105	26	1185	105	0	0.0	0.1	3.584	A
	2 - Havant Road	687	172	258	689	1033	0.0	0.8	4.744	A
	3 - Church Lane	0	0	943	0	3	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		718				
	5 - Emsworth Road	1183	296	1	1184	224	0.0	2.0	5.880	A

17:00 - 17:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		110				
	2 - Emsworth Road (S)	268	67	1	269	1404	0.3	0.4	5.235	A
	3 - A27 Off-Slip	1426	356	270	1426	0	2.2	3.8	9.434	A
	4 - untitled	476	119	1033	483	664	1.1	2.5	18.862	C
2 - A27/ Church Lane	1 - A27 Off-Slip	126	31	1402	126	0	0.1	0.2	4.829	A
	2 - Havant Road	823	206	310	824	1218	0.8	1.3	5.478	A
	3 - Church Lane	0	0	1130	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		860				
	5 - Emsworth Road	1404	351	2	1400	268	2.0	3.2	7.426	A

17:15 - 17:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		126				
	2 - Emsworth Road (S)	326	82	1	327	1648	0.4	0.5	5.730	A
	3 - A27 Off-Slip	1756	439	328	1709	0	3.8	17.6	27.054	D
	4 - untitled	587	147	1238	536	799	2.5	18.2	77.251	F
2 - A27/ Church Lane	1 - A27 Off-Slip	151	38	1651	152	0	0.2	0.2	5.972	A
	2 - Havant Road	1004	251	364	1005	1439	1.3	1.8	6.518	A
	3 - Church Lane	0	0	1365	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1037				
	5 - Emsworth Road	1648	412	2	1649	326	3.2	4.9	10.356	B

17:30 - 17:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		125				
	2 - Emsworth Road (S)	329	82	1	330	1661	0.5	0.5	5.533	A
	3 - A27 Off-Slip	1750	438	331	1736	0	17.6	21.2	40.680	E
	4 - untitled	583	146	1250	536	817	18.2	30.4	166.949	F
2 - A27/ Church Lane	1 - A27 Off-Slip	153	38	1674	152	0	0.2	0.3	6.665	A
	2 - Havant Road	1015	254	370	1013	1457	1.8	1.9	6.630	A
	3 - Church Lane	0	0	1378	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1047				
	5 - Emsworth Road	1661	415	2	1672	329	4.9	4.9	11.364	B

17:45 - 18:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		122				
	2 - Emsworth Road (S)	272	68	0.90	272	1460	0.5	0.5	5.363	A
	3 - A27 Off-Slip	1439	360	273	1440	0	21.2	4.3	17.325	C
	4 - untitled	477	119	1037	546	676	30.4	10.9	128.543	F
2 - A27/ Church Lane	1 - A27 Off-Slip	124	31	1474	124	0	0.3	0.2	5.691	A
	2 - Havant Road	838	210	319	838	1278	1.9	1.3	5.511	A
	3 - Church Lane	0	0	1153	0	5	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		879				
	5 - Emsworth Road	1460	365	2	1472	272	4.9	2.9	9.445	A

18:00 - 18:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		93				
	2 - Emsworth Road (S)	222	55	0.47	222	1176	0.5	0.3	4.893	A
	3 - A27 Off-Slip	1195	299	223	1195	0	4.3	2.3	6.903	A
	4 - untitled	403	101	860	409	557	10.9	1.1	23.391	C
2 - A27/ Church Lane	1 - A27 Off-Slip	99	25	1178	99	0	0.2	0.1	4.337	A
	2 - Havant Road	689	172	259	688	1019	1.3	1.0	4.909	A
	3 - Church Lane	0	0	944	0	3	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		720				
	5 - Emsworth Road	1176	294	2	1176	222	2.9	2.1	6.305	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

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		88			88	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	224	962	0.233	224	0.0	0.3	4.872	A
		Exit	1	1		1183			1183	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	601	952	0.632	601	0.0	1.1	6.640	A
				2	1,2,4	602	950	0.633	603	0.0	1.1	6.559	A
			2	1	(1,2,3,4)	1203			1203	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	404	752	0.537	404	0.0	1.1	8.982	A
		Exit	1	1		561			561	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	105	1006	0.105	105	0.0	0.1	3.584	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	341	912	0.374	342	0.0	0.4	4.735	A
				2	2,3,4,5	345	918	0.377	347	0.0	0.4	4.753	A
			2	1	(1,2,3,4,5)	687			687	0.0	0.0	0.000	A
		Exit	1	1		1033			1033	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	633	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		718			718	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	592	1003	0.590	593	0.0	1.0	5.871	A
				2	2,3,4,5	591	1004	0.588	591	0.0	1.0	5.889	A
		Exit	1	1		224			224	0.0	0.0	0.000	A

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		110			110	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	268	964	0.278	269	0.3	0.4	5.235	A
		Exit	1	1		1404			1404	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	712	935	0.762	712	1.1	1.9	9.434	A
				2	1,2,4	714	935	0.763	714	1.1	1.9	9.434	A
			2	1	(1,2,3,4)	1426			1426	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	476	661	0.720	483	1.1	2.5	18.862	C
		Exit	1	1		664			664	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	126	866	0.145	126	0.1	0.2	4.829	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	413	898	0.460	413	0.4	0.6	5.497	A
				2	2,3,4,5	411	896	0.458	410	0.4	0.6	5.460	A
			2	1	(1,2,3,4,5)	823			823	0.0	0.0	0.000	A
		Exit	1	1		1218			1218	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	538	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		860			860	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	707	1002	0.706	705	1.0	1.6	7.411	A
				2	2,3,4,5	697	1002	0.696	695	1.0	1.6	7.442	A
		Exit	1	1		268			268	0.0	0.0	0.001	A

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		126			126	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	326	963	0.338	327	0.4	0.5	5.730	A
		Exit	1	1		1648			1648	0.0	0.0	0.005	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	878	913	0.962	856	1.9	8.8	27.032	D
				2	1,2,4	877	912	0.961	854	1.9	8.9	27.077	D
			2	1	(1,2,3,4)	1756			1756	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	587	551	1.065	536	2.5	18.2	77.251	F
		Exit	1	1		799			799	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	151	703	0.215	152	0.2	0.2	5.972	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	500	875	0.572	501	0.6	0.9	6.517	A
				2	2,3,4,5	503	878	0.574	504	0.6	0.9	6.519	A
			2	1	(1,2,3,4,5)	1004			1004	0.0	0.0	0.000	A
		Exit	1	1		1439			1439	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	418	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1037			1037	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	821	1002	0.819	821	1.6	2.4	10.387	B
				2	2,3,4,5	827	1002	0.825	828	1.6	2.4	10.325	B
		Exit	1	1		326			326	0.0	0.0	0.019	A

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		125			125	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	329	961	0.342	330	0.5	0.5	5.533	A
		Exit	1	1		1660			1661	0.0	0.0	0.008	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	871	913	0.954	863	8.8	10.7	40.692	E
				2	1,2,4	880	912	0.966	874	8.9	10.5	40.668	E
			2	1	(1,2,3,4)	1750			1750	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	583	546	1.068	536	18.2	30.4	166.949	F
		Exit	1	1		817			817	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	153	686	0.222	152	0.2	0.3	6.665	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	512	873	0.586	511	0.9	0.9	6.626	A
				2	2,3,4,5	503	873	0.577	502	0.9	1.0	6.633	A
			2	1	(1,2,3,4,5)	1015			1015	0.0	0.0	0.000	A
		Exit	1	1		1457			1457	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	410	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1047			1047	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	824	1003	0.821	831	2.4	2.4	11.392	B
				2	2,3,4,5	837	1004	0.833	841	2.4	2.5	11.336	B
		Exit	1	1		329			329	0.0	0.0	0.002	A

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		122			122	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	272	964	0.282	272	0.5	0.5	5.363	A
		Exit	1	1		1460			1460	0.0	0.0	0.003	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	720	934	0.771	719	10.7	2.2	17.327	C
				2	1,2,4	720	933	0.771	721	10.5	2.1	17.322	C
			2	1	(1,2,3,4)	1439			1439	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	477	662	0.721	546	30.4	10.9	128.543	F
		Exit	1	1		676			676	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	124	814	0.152	124	0.3	0.2	5.691	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	420	895	0.469	420	0.9	0.6	5.521	A
				2	2,3,4,5	418	891	0.469	418	1.0	0.7	5.501	A
			2	1	(1,2,3,4,5)	838			838	0.0	0.0	0.000	A
		Exit	1	1		1278			1278	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	526	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		879			879	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	731	1004	0.728	737	2.4	1.4	9.428	A
				2	2,3,4,5	729	1002	0.728	735	2.5	1.4	9.462	A
		Exit	1	1		272			272	0.0	0.0	0.015	A

18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		93			93	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	222	967	0.229	222	0.5	0.3	4.893	A
		Exit	1	1		1176			1176	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	595	951	0.626	595	2.2	1.2	6.876	A
				2	1,2,4	600	951	0.631	600	2.1	1.1	6.930	A
			2	1	(1,2,3,4)	1195			1195	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	403	757	0.532	409	10.9	1.1	23.391	C
		Exit	1	1		557			557	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	99	1015	0.098	99	0.2	0.1	4.337	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	341	915	0.372	340	0.6	0.5	4.915	A
				2	2,3,4,5	348	916	0.380	348	0.7	0.5	4.904	A
			2	1	(1,2,3,4,5)	689			689	0.0	0.0	0.000	A
		Exit	1	1		1019			1019	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	633	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		720			720	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	585	1003	0.584	586	1.4	1.0	6.253	A
				2	2,3,4,5	591	1002	0.589	591	1.4	1.0	6.358	A
		Exit	1	1		222			222	0.0	0.0	0.001	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2026 Base using entry lane analysis.j9
Path: Z:\Projects\040-049\041 Barratt Homes\041.0025 Warblington Meadows, Havant\Reports\MODELLING\Modelling January 2017\A27 Roundabouts\2026 Baseline
Report generation date: 11/01/2017 15:16:50

»2026 Baseline - 2026, AM
»2026 Baseline - 2026, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2026 Baseline [Lane Simulation] - 2026							
Junction 1 - Arm 2	0.4	5.26		A	0.5	5.73		A
Junction 1 - Arm 3	3.1	8.51		A	24.1	44.17		E
Junction 1 - Arm 4	17.0	81.72		F	26.0	146.14		F
Junction 2 - Arm 1	0.1	4.90		A	0.3	6.37		A
Junction 2 - Arm 2	26.0	60.79		F	2.3	8.57		A
Junction 2 - Arm 3	0.0	0.00		A	0.0	0.00		A
Junction 2 - Arm 5	4.8	11.93		B	6.8	14.73		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	2021 Baseline
Location	A27 Roundabouts, Havant
Site number	
Date	31/10/2016
Version	
Status	(new file)
Identifier	
Client	Barratts
Jobnumber	041.0039
Enumerator	Shannon
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	Veh	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	✓	882523366	279	136.38

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	2026	AM	ONE HOUR	07:45	09:15	15	✓
D2	2026	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	2026 Baseline	✓	✓	100.000	100.000

2026 Baseline - 2026, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2026 Baseline [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.
Warning	Geometry	Junction 2 - Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	30.95	D
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	35.20	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Junction	Arm	Name	Description
1	1	A27 On-Slip	
	2	Emsworth Road (S)	
	3	A27 Off-Slip	
	4	untitled	
2	1	A27 Off-Slip	
	2	Havant Road	
	3	Church Lane	
	4	A27 On-Slip	
	5	Emsworth Road	

Roundabout Geometry

Junction	Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	1							✓
	2	3.70	3.70	0.0	12.2	35.0	53.0	
	3	7.30	7.30	0.0	24.3	35.0	49.0	
	4	4.17	5.20	0.5	23.6	35.0	46.0	
2	1	6.08	6.08	0.0	19.0	40.0	27.1	
	2	3.69	6.74	42.0	13.0	40.0	26.5	
	3	3.14	6.18	4.0	12.0	40.0	46.0	
	4							✓
	5	5.06	7.40	12.0	15.0	40.0	48.9	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1	1		
	2	0.475	997
	3	0.712	2085
	4	0.544	1242
2	1	0.675	1856
	2	0.666	1841
	3	0.498	1112
	4		
	5	0.639	1808

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	1	Evenly split	10.00
	2	Evenly split	10.00
	3	Evenly split	10.00
	4	Evenly split	10.00
2	1	Evenly split	10.00
	2	Evenly split	10.00
	3	Evenly split	10.00
	4	Evenly split	10.00
	5	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	2	1 [Give-way line]	1	1,2,4	✓	7.00	0	99999
	3	1 [Give-way line]	1	1,2,4	✓	58.00	0	99999
			2	1,2,4	✓	58.00	0	99999
		2	1	(1,2,3,4)		Infinity		
	4	1 [Give-way line]	1	1,2,4		Infinity	0	99999
2	1	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	2	1 [Give-way line]	1	2,3,4,5	✓	10.43	0	99999
			2	2,3,4,5	✓	9.57	0	99999
		2	1	(1,2,3,4,5)		Infinity		
	3	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	5	1 [Give-way line]	1	2,3,4,5	✓	4.00	0	99999
			2	2,3,4,5	✓	4.00	0	99999
		2	1	(1,2,3,4,5)	✓	3.00		

Entry Lane slope and intercept

Junction	Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1	2	1 [Give-way line]	1	0.475	997
	3	1 [Give-way line]	1	0.356	1043
			2	0.356	1043
	4	1 [Give-way line]	1	0.544	1242
2	1	1 [Give-way line]	1	0.675	1856
	2	1 [Give-way line]	1	0.333	921
			2	0.333	921
	3	1 [Give-way line]	1	0.498	1112
	5	1 [Give-way line]	1	0.319	904
			2	0.319	904

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm			
				1	2	3	4
1	2	1 [Give-way line]	1	✓	✓		✓
	3	1 [Give-way line]	1	✓	✓		✓
			2	✓	✓		✓
		2	1	✓	✓	✓	✓
	4	1 [Give-way line]	1	✓	✓		✓

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm				
				1	2	3	4	5
2	1	1 [Give-way line]	1		✓	✓	✓	✓
	2	1 [Give-way line]	1		✓	✓	✓	✓
			2		✓	✓	✓	✓
		2	1	✓	✓	✓	✓	✓
	3	1 [Give-way line]	1		✓	✓	✓	✓
	5	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	2026	AM	ONE HOUR	07:45	09:15	15	✓

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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	5	Simple (vertical queueing)	Normal	0	100.00	
2	5	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1	1					
	2	✓				
	3		ONE HOUR	✓	1097	100.000
	4		ONE HOUR	✓	632	100.000
2	1		ONE HOUR	✓	77	100.000
	2		ONE HOUR	✓	1312	100.000
	3		ONE HOUR	✓	4	100.000
	4					
	5	✓				

Origin-Destination Data

Junction 1

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	26	0	0	257
	3	2	761	0	334
	4	53	578	0	1

Junction 2

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	33	0	2	42
	2	0	2	1	1074	235
	3	0	0	0	3	1
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	928	4	400	1

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	5	0	0	2
	3	50	4	0	3
	4	4	3	0	0

Junction 2

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	0	0	0	0
	2	0	0	0	3	2
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	2	0	2	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	1					
	2	5.26	0.4	A	252	378
	3	8.51	3.1	A	1011	1516
	4	81.72	17.0	F	576	864
2	1	4.90	0.1	A	69	103
	2	60.79	26.0	F	1201	1801
	3	0.00	0.0	A	0	0
	4					
	5	11.93	4.8	B	1223	1835

Main Results for each time segment

07:45 - 08:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		61				
	2	207	52	0.86	207	1005	0.0	0.3	4.706	A
	3	833	208	208	833	0	0.0	1.2	5.075	A
	4	469	117	599	468	442	0.0	1.1	8.034	A
2	1	56	14	1008	56	0	0.0	0.0	3.011	A
	2	988	247	330	988	734	0.0	2.4	7.906	A
	3	0	0	1314	0	3	0.0	0.0	0.000	A
	4			0		1106				
	5	1005	251	2	1006	207	0.0	1.8	6.562	A

08:00 - 08:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		72				
	2	247	62	0.65	247	1198	0.3	0.3	4.907	A
	3	989	247	248	987	0	1.2	1.7	5.899	A
	4	565	141	708	562	526	1.1	2.5	14.521	B
2	1	68	17	1199	69	0	0.0	0.1	3.768	A
	2	1187	297	404	1177	863	2.4	4.8	12.433	B
	3	0	0	1575	0	5	0.0	0.0	0.000	A
	4			0		1327				
	5	1198	299	2	1197	247	1.8	2.7	7.976	A

08:15 - 08:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		85				
	2	299	75	1	300	1450	0.3	0.4	5.261	A
	3	1211	303	301	1209	0	1.7	3.0	8.149	A
	4	699	175	869	666	640	2.5	12.8	46.323	E
2	1	83	21	1451	83	0	0.1	0.1	4.592	A
	2	1441	360	485	1403	1050	4.8	20.7	37.854	E
	3	0	0	1883	0	5	0.0	0.0	0.000	A
	4			0		1582				
	5	1450	362	2	1449	299	2.7	4.8	11.221	B

08:30 - 08:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		89				
	2	299	75	0.95	300	1457	0.4	0.4	5.243	A
	3	1214	303	301	1210	0	3.0	3.0	8.512	A
	4	692	173	867	679	644	12.8	16.9	81.723	F
2	1	83	21	1461	82	0	0.1	0.1	4.905	A
	2	1429	357	484	1419	1060	20.7	26.0	60.787	F
	3	0	0	1898	0	5	0.0	0.0	0.000	A
	4			0		1598				
	5	1457	364	2	1459	299	4.8	4.8	11.927	B

08:45 - 09:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		75				
	2	253	63	0.95	253	1214	0.4	0.3	5.062	A
	3	987	247	254	990	0	3.0	1.5	6.247	A
	4	560	140	711	578	533	16.9	2.7	38.513	E
2	1	66	17	1221	67	0	0.1	0.1	4.124	A
	2	1175	294	414	1202	873	26.0	5.4	31.964	D
	3	0	0	1612	0	4	0.0	0.0	0.000	A
	4			0		1358				
	5	1214	303	2	1219	253	4.8	2.6	9.415	A

09:00 - 09:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		58				
	2	207	52	0.90	207	1016	0.3	0.2	4.660	A
	3	833	208	208	835	0	1.5	1.1	5.171	A
	4	471	118	603	471	440	2.7	1.2	9.913	A
2	1	56	14	1018	56	0	0.1	0.1	3.439	A
	2	987	247	342	983	732	5.4	2.4	9.224	A
	3	0	0	1321	0	3	0.0	0.0	0.000	A
	4			0		1113				
	5	1016	254	1	1017	207	2.6	1.9	6.672	A

Lane Results

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

Lanes: Main Results for each time segment

07:45 - 08:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		61			61	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	207	979	0.211	207	0.0	0.3	4.706	A
		Exit	1	1		1006			1005	0.0	0.0	0.021	A
	3	Entry	1	1	1,2,4	415	934	0.445	415	0.0	0.6	5.074	A
				2	1,2,4	418	933	0.448	418	0.0	0.6	5.075	A
			2	1	(1,2,3,4)	833			833	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	469	876	0.536	468	0.0	1.1	8.034	A
		Exit	1	1		442			442	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	56	1152	0.049	56	0.0	0.0	3.011	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	493	786	0.628	493	0.0	1.2	7.883	A
				2	2,3,4,5	495	784	0.631	494	0.0	1.3	7.928	A
			2	1	(1,2,3,4,5)	988			988	0.0	0.0	0.000	A
		Exit	1	1		734			734	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	439	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		1106			1106	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	501	875	0.573	502	0.0	0.9	6.522	A
				2	2,3,4,5	504	872	0.578	505	0.0	0.9	6.443	A
			2	1	(1,2,3,4,5)	1005			1005	0.0	0.0	0.079	A
		Exit	1	1		207			207	0.0	0.0	0.000	A

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		72			72	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	247	981	0.252	247	0.3	0.3	4.907	A
		Exit	1	1		1198			1198	0.0	0.1	0.116	A
	3	Entry	1	1	1,2,4	497	917	0.543	496	0.6	0.9	5.858	A
				2	1,2,4	491	921	0.533	491	0.6	0.8	5.940	A
			2	1	(1,2,3,4)	989			989	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	565	816	0.692	562	1.1	2.5	14.521	B
		Exit	1	1		526			526	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	68	1018	0.067	69	0.0	0.1	3.768	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	587	761	0.772	583	1.2	2.4	12.490	B
				2	2,3,4,5	599	762	0.787	594	1.3	2.4	12.241	B
			2	1	(1,2,3,4,5)	1187			1187	0.0	0.0	0.066	A
		Exit	1	1		863			863	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	306	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4	Exit	1	1		1327			1327	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	600	873	0.688	600	0.9	1.3	7.708	A
				2	2,3,4,5	598	872	0.685	597	0.9	1.3	7.676	A
			2	1	(1,2,3,4,5)	1198			1198	0.0	0.1	0.282	A
		Exit	1	1		247			247	0.0	0.0	0.001	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		85			85	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	299	979	0.305	300	0.3	0.4	5.261	A
		Exit	1	1		1449			1450	0.1	0.4	0.792	A
	3	Entry	1	1	1,2,4	605	898	0.674	604	0.9	1.5	8.156	A
				2	1,2,4	606	899	0.674	605	0.8	1.5	8.142	A
			2	1	(1,2,3,4)	1211			1211	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	699	725	0.964	666	2.5	12.8	46.323	E
		Exit	1	1		640			640	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	83	839	0.099	83	0.1	0.1	4.592	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	701	732	0.957	697	2.4	6.7	28.613	D
				2	2,3,4,5	712	734	0.968	706	2.4	6.3	27.108	D
			2	1	(1,2,3,4,5)	1441			1413	0.0	7.6	9.662	A
		Exit	1	1		1050			1050	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	147	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4	Exit	1	1		1582			1582	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	724	869	0.833	724	1.3	2.1	10.056	B
				2	2,3,4,5	725	873	0.831	725	1.3	2.1	10.184	B
			2	1	(1,2,3,4,5)	1450			1450	0.1	0.5	1.096	A
		Exit	1	1		299			299	0.0	0.0	0.001	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		89			89	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	299	979	0.305	300	0.4	0.4	5.243	A
		Exit	1	1		1456			1457	0.4	0.4	1.063	A
	3	Entry	1	1	1,2,4	608	898	0.678	607	1.5	1.4	8.504	A
				2	1,2,4	605	900	0.672	603	1.5	1.5	8.521	A
			2	1	(1,2,3,4)	1214			1214	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	692	731	0.948	679	12.8	16.9	81.723	F
		Exit	1	1		644			644	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	83	836	0.099	82	0.1	0.1	4.905	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	710	734	0.967	710	6.7	7.1	35.697	E
				2	2,3,4,5	707	736	0.960	709	6.3	6.5	33.007	D
			2	1	(1,2,3,4,5)	1429			1417	7.6	12.4	26.269	D
		Exit	1	1		1060			1060	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	142	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4	Exit	1	1		1598			1598	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	727	873	0.833	728	2.1	2.1	10.582	B
				2	2,3,4,5	731	875	0.835	731	2.1	2.1	10.569	B
			2	1	(1,2,3,4,5)	1457			1457	0.5	0.5	1.351	A
		Exit	1	1		299			299	0.0	0.0	0.000	A

08:45 - 09:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		75			75	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	253	979	0.258	253	0.4	0.3	5.062	A
		Exit	1	1		1213			1214	0.4	0.0	0.452	A
	3	Entry	1	1	1,2,4	490	915	0.535	491	1.4	0.8	6.280	A
				2	1,2,4	498	916	0.542	499	1.5	0.7	6.215	A
			2	1	(1,2,3,4)	987			987	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	560	818	0.685	578	16.9	2.7	38.513	E
		Exit	1	1		533			533	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	66	1004	0.066	67	0.1	0.1	4.124	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	599	758	0.790	606	7.1	2.4	22.441	C
				2	2,3,4,5	592	759	0.780	596	6.5	2.4	21.410	C
			2	1	(1,2,3,4,5)	1175			1190	12.4	0.6	10.969	B
		Exit	1	1		873			873	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	286	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		1358			1358	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	608	875	0.695	611	2.1	1.3	8.767	A
				2	2,3,4,5	607	874	0.695	609	2.1	1.3	8.764	A
			2	1	(1,2,3,4,5)	1214			1215	0.5	0.1	0.658	A
		Exit	1	1		253			253	0.0	0.0	0.001	A

09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		58			58	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	207	981	0.211	207	0.3	0.2	4.660	A
		Exit	1	1		1016			1016	0.0	0.0	0.026	A
	3	Entry	1	1	1,2,4	417	930	0.448	418	0.8	0.5	5.172	A
				2	1,2,4	417	929	0.448	417	0.7	0.6	5.170	A
			2	1	(1,2,3,4)	833			833	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	471	870	0.541	471	2.7	1.2	9.913	A
		Exit	1	1		440			440	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	56	1142	0.049	56	0.1	0.1	3.439	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	494	780	0.633	490	2.4	1.2	9.030	A
				2	2,3,4,5	494	780	0.633	492	2.4	1.2	9.056	A
			2	1	(1,2,3,4,5)	987			987	0.6	0.0	0.248	A
		Exit	1	1		732			732	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	434	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		1113			1113	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	507	868	0.584	507	1.3	0.9	6.573	A
				2	2,3,4,5	509	872	0.584	510	1.3	1.0	6.572	A
			2	1	(1,2,3,4,5)	1016			1016	0.1	0.0	0.105	A
		Exit	1	1		207			207	0.0	0.0	0.000	A

2026 Baseline - 2026, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2026 Baseline [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.
Warning	Geometry	Junction 2 - Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	61.75	F
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	12.10	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2026	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	5	Simple (vertical queueing)	Normal	0	100.00	
2	5	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1	1					
	2	✓				
	3		ONE HOUR	✓	1559	100.000
	4		ONE HOUR	✓	524	100.000
2	1		ONE HOUR	✓	136	100.000
	2		ONE HOUR	✓	898	100.000
	3		ONE HOUR	✓	0	100.000
	4					
	5	✓				

Origin-Destination Data

Junction 1

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	34	0	0	269
	3	10	1075	0	474
	4	77	446	0	1

Junction 2

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	47	0	0	89
	2	0	2	2	690	204
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	1276	2	248	1

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	Exit-only	Exit-only	Exit-only	Exit-only
	2	4	0	0	2
	3	0	1	0	1
	4	0	2	0	0

Junction 2

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	3	0	0	4
	2	0	0	0	2	3
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	1	0	1	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	1					
	2	5.73	0.5	A	270	405
	3	44.17	24.1	E	1430	2145
	4	146.14	26.0	F	478	717
2	1	6.37	0.3	A	124	186
	2	8.57	2.3	A	825	1238
	3	0.00	0.0	A	0	0
	4					
	5	14.73	6.8	B	1389	2084

Main Results for each time segment

16:45 - 17:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		92				
	2	224	56	0.62	224	1146	0.0	0.3	4.889	A
	3	1165	291	225	1165	0	0.0	2.1	6.312	A
	4	404	101	836	403	554	0.0	1.1	8.888	A
2	1	103	26	1145	104	0	0.0	0.1	3.536	A
	2	682	170	254	681	995	0.0	1.0	5.407	A
	3	0	0	932	0	3	0.0	0.0	0.000	A
	4			0		707				
	5	1146	287	1	1144	224	0.0	2.5	7.208	A

17:00 - 17:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		106				
	2	269	67	0.70	268	1363	0.3	0.4	5.226	A
	3	1398	350	269	1395	0	2.1	3.9	9.517	A
	4	470	118	1000	469	664	1.1	2.6	17.256	C
2	1	121	30	1364	122	0	0.1	0.2	4.570	A
	2	815	204	302	815	1184	1.0	1.5	6.395	A
	3	0	0	1113	0	4	0.0	0.0	0.000	A
	4			0		843				
	5	1363	341	2	1362	269	2.5	3.8	9.625	A

17:15 - 17:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		124				
	2	325	81	1	326	1616	0.4	0.5	5.728	A
	3	1723	431	327	1687	0	3.9	16.6	25.318	D
	4	570	142	1214	530	801	2.6	15.4	68.190	F
2	1	151	38	1619	152	0	0.2	0.2	5.941	A
	2	989	247	365	988	1405	1.5	2.3	7.973	A
	3	0	0	1348	0	5	0.0	0.0	0.000	A
	4			0		1021				
	5	1616	404	3	1616	325	3.8	6.2	13.468	B

17:30 - 17:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		124				
	2	319	80	0.97	319	1621	0.5	0.5	5.630	A
	3	1721	430	320	1694	0	16.6	24.1	44.165	E
	4	567	142	1212	531	801	15.4	26.0	146.138	F
2	1	149	37	1619	149	0	0.2	0.3	6.375	A
	2	992	248	366	991	1401	2.3	2.3	8.567	A
	3	0	0	1353	0	4	0.0	0.0	0.000	A
	4			0		1032				
	5	1621	405	2	1617	319	6.2	6.8	14.734	B

17:45 - 18:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		115				
	2	264	66	0.77	264	1436	0.5	0.4	5.159	A
	3	1402	350	265	1410	0	24.1	4.3	20.697	C
	4	464	116	1019	530	656	26.0	9.3	113.311	F
2	1	117	29	1444	117	0	0.3	0.2	5.638	A
	2	810	202	309	810	1251	2.3	1.4	6.536	A
	3	0	0	1116	0	3	0.0	0.0	0.000	A
	4			0		850				
	5	1436	359	2	1442	264	6.8	4.3	12.329	B

18:00 - 18:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1			0		91				
	2	221	55	0.70	221	1153	0.4	0.3	4.867	A
	3	1174	293	222	1177	0	4.3	1.9	6.966	A
	4	394	99	844	401	555	9.3	1.1	20.471	C
2	1	102	25	1154	102	0	0.2	0.1	4.278	A
	2	665	166	259	667	997	1.4	1.0	5.713	A
	3	0	0	922	0	3	0.0	0.0	0.000	A
	4			0		700				
	5	1153	288	1	1153	221	4.3	2.4	7.807	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

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		92			92	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	224	963	0.233	224	0.0	0.3	4.889	A
		Exit	1	1		1147			1146	0.0	0.0	0.052	A
	3	Entry	1	1	1,2,4	587	951	0.617	587	0.0	1.1	6.270	A
				2	1,2,4	578	952	0.607	578	0.0	1.1	6.354	A
			2	1	(1,2,3,4)	1165			1165	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	404	770	0.524	403	0.0	1.1	8.888	A
		Exit	1	1		554			554	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	103	1034	0.100	104	0.0	0.1	3.536	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	342	815	0.419	340	0.0	0.5	5.455	A
				2	2,3,4,5	340	817	0.417	341	0.0	0.5	5.359	A
			2	1	(1,2,3,4,5)	682			682	0.0	0.0	0.000	A
		Exit	1	1		995			995	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	638	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		707			707	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	572	893	0.640	571	0.0	1.2	7.079	A
				2	2,3,4,5	574	894	0.642	573	0.0	1.2	7.018	A
			2	1	(1,2,3,4,5)	1146			1146	0.0	0.1	0.158	A
		Exit	1	1		224			224	0.0	0.0	0.000	A

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		106			106	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	269	965	0.278	268	0.3	0.4	5.226	A
		Exit	1	1		1362			1363	0.0	0.1	0.427	A
	3	Entry	1	1	1,2,4	698	934	0.748	697	1.1	1.9	9.500	A
				2	1,2,4	700	934	0.749	698	1.1	2.0	9.534	A
			2	1	(1,2,3,4)	1398			1398	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	470	681	0.691	469	1.1	2.6	17.256	C
		Exit	1	1		664			664	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	121	893	0.136	122	0.1	0.2	4.570	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	404	800	0.505	404	0.5	0.7	6.383	A
				2	2,3,4,5	411	801	0.513	411	0.5	0.8	6.408	A
			2	1	(1,2,3,4,5)	815			815	0.0	0.0	0.000	A
		Exit	1	1		1184			1184	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	546	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		843			843	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	680	893	0.761	678	1.2	1.8	8.956	A
				2	2,3,4,5	685	891	0.769	684	1.2	1.8	8.964	A
			2	1	(1,2,3,4,5)	1363			1364	0.1	0.2	0.662	A
		Exit	1	1		269			269	0.0	0.0	0.004	A

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		124			124	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	325	964	0.337	326	0.4	0.5	5.728	A
		Exit	1	1		1619			1616	0.1	0.9	1.577	A
	3	Entry	1	1	1,2,4	865	914	0.946	847	1.9	8.3	25.358	D
				2	1,2,4	858	913	0.940	841	2.0	8.3	25.278	D
			2	1	(1,2,3,4)	1723			1723	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	570	565	1.009	530	2.6	15.4	68.190	F
		Exit	1	1		801			801	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	151	722	0.210	152	0.2	0.2	5.941	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	497	778	0.638	496	0.7	1.1	7.935	A
				2	2,3,4,5	492	779	0.632	491	0.8	1.2	8.011	A
			2	1	(1,2,3,4,5)	989			989	0.0	0.0	0.000	A
		Exit	1	1		1405			1405	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	426	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4	Exit	1	1		1021			1021	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	803	892	0.900	803	1.8	2.6	11.648	B
				2	2,3,4,5	813	893	0.911	813	1.8	2.6	11.597	B
			2	1	(1,2,3,4,5)	1616			1616	0.2	1.0	1.835	A
		Exit	1	1		325			325	0.0	0.0	0.008	A

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		124			124	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	319	962	0.332	319	0.5	0.5	5.630	A
		Exit	1	1		1618			1621	0.9	1.0	2.217	A
	3	Entry	1	1	1,2,4	856	914	0.936	843	8.3	12.1	44.272	E
				2	1,2,4	865	915	0.945	851	8.3	12.0	44.058	E
			2	1	(1,2,3,4)	1721			1721	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	567	565	1.004	531	15.4	26.0	146.138	F
		Exit	1	1		801			801	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	149	719	0.207	149	0.2	0.3	6.375	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	497	778	0.640	497	1.1	1.1	8.536	A
				2	2,3,4,5	494	779	0.635	494	1.2	1.1	8.572	A
			2	1	(1,2,3,4,5)	992			992	0.0	0.0	0.011	A
		Exit	1	1		1401			1401	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	423	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4	Exit	1	1		1032			1032	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	811	891	0.910	808	2.6	2.9	12.399	B
				2	2,3,4,5	809	893	0.906	808	2.6	2.7	12.386	B
			2	1	(1,2,3,4,5)	1621			1620	1.0	1.1	2.343	A
		Exit	1	1		319			319	0.0	0.0	0.003	A

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		115			115	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	264	968	0.273	264	0.5	0.4	5.159	A
		Exit	1	1		1433			1436	1.0	0.2	1.331	A
	3	Entry	1	1	1,2,4	700	935	0.748	704	12.1	2.1	20.592	C
				2	1,2,4	702	937	0.750	706	12.0	2.2	20.803	C
			2	1	(1,2,3,4)	1402			1402	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	464	670	0.694	530	26.0	9.3	113.311	F
		Exit	1	1		656			656	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	117	839	0.139	117	0.3	0.2	5.638	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	405	798	0.508	405	1.1	0.7	6.543	A
				2	2,3,4,5	405	798	0.507	405	1.1	0.7	6.532	A
			2	1	(1,2,3,4,5)	810			810	0.0	0.0	0.001	A
		Exit	1	1		1251			1251	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	545	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		850			850	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	721	891	0.809	722	2.9	2.0	10.759	B
				2	2,3,4,5	717	892	0.805	720	2.7	2.0	10.838	B
			2	1	(1,2,3,4,5)	1436			1439	1.1	0.3	1.540	A
		Exit	1	1		264			264	0.0	0.0	0.003	A

18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1	Exit	1	1		91			91	0.0	0.0	0.000	A
	2	Entry	1	1	1,2,4	221	971	0.228	221	0.4	0.3	4.867	A
		Exit	1	1		1153			1153	0.2	0.0	0.156	A
	3	Entry	1	1	1,2,4	588	952	0.617	589	2.1	1.0	6.938	A
				2	1,2,4	586	952	0.616	588	2.2	0.9	6.995	A
			2	1	(1,2,3,4)	1174			1174	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4	Entry	1	1	1,2,4	394	765	0.515	401	9.3	1.1	20.471	C
		Exit	1	1		555			555	0.0	0.0	0.000	A
2	1	Entry	1	1	2,3,4,5	102	1035	0.098	102	0.2	0.1	4.278	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2	Entry	1	1	2,3,4,5	332	818	0.406	332	0.7	0.6	5.740	A
				2	2,3,4,5	333	814	0.409	334	0.7	0.5	5.685	A
			2	1	(1,2,3,4,5)	665			665	0.0	0.0	0.000	A
		Exit	1	1		997			997	0.0	0.0	0.000	A
	3	Entry	1	1	2,3,4,5	0	644	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4	Exit	1	1		700			700	0.0	0.0	0.000	A
	5	Entry	1	1	2,3,4,5	578	892	0.648	578	2.0	1.2	7.479	A
				2	2,3,4,5	575	892	0.644	575	2.0	1.1	7.552	A
			2	1	(1,2,3,4,5)	1153			1153	0.3	0.0	0.300	A
		Exit	1	1		221			221	0.0	0.0	0.000	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2021 Base + Dev + Mitigation using entry lane analysis.j9
Path: Z:\Projects\040-049\041 Barratt Homes\041.0025 Warblington Meadows, Havant\Reports\MODELLING\Modelling January 2017\A27 Roundabouts\2021 with dev + miti
Report generation date: 10/02/2017 11:29:48

»2021 + Dev + Mitigation - 2021 + Dev + Miti, AM
»2021 + Dev + Mitigation - 2021 + Dev + Miti, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	2021 + Dev + Mitigation [Lane Simulation] - 2021 + Dev + Miti							
1 - A27/ Emsworth Road - 2 - Emsworth Road (S)	0.4	5.34		A	0.5	5.57		A
1 - A27/ Emsworth Road - 3 - A27 Off-Slip	2.4	7.27		A	9.6	20.04		C
1 - A27/ Emsworth Road - 4 - untitled	7.2	38.00		E	12.3	72.98		F
2 - A27/ Church Lane - 1 - A27 Off-Slip	0.1	4.61		A	0.2	6.13		A
2 - A27/ Church Lane - 2 - Havant Road	6.5	16.42		C	1.7	6.13		A
2 - A27/ Church Lane - 3 - Church Lane	0.0	0.00		A	0.0	0.00		A
2 - A27/ Church Lane - 5 - Emsworth Road	3.2	8.03		A	4.6	9.93		A

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Arm and junction delays are averages for all movements, including movements with zero delay.

File summary

File Description

Title	2021 + Dev + Mtigation
Location	A27 Roundabouts, Havant
Site number	
Date	31/10/2016
Version	
Status	(new file)
Identifier	
Client	Barratts
Jobnumber	041.0039
Enumerator	Shannon
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	Veh	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	✓	883473852	485	184.20

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	2021 + Dev + Miti	AM	ONE HOUR	07:45	09:15	15	✓
D2	2021 + Dev + Miti	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	2021 + Dev + Mitigation	✓	✓	100.000	100.000

2021 + Dev + Mitigation - 2021 + Dev + Miti, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2021 + Dev + Mitigation [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.
Warning	Linked junction	2 - A27/ Church Lane - 5 - Emsworth Road	Linked arm: Junction 2 Arm 5 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	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	16.66	C
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	12.00	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Junction	Arm	Name	Description
1 - A27/ Emsworth Road	1	A27 On-Slip	
	2	Emsworth Road (S)	
	3	A27 Off-Slip	
	4	untitled	
2 - A27/ Church Lane	1	A27 Off-Slip	
	2	Havant Road	
	3	Church Lane	
	4	A27 On-Slip	
	5	Emsworth Road	

Roundabout Geometry

Junction	Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A27/ Emsworth Road	1 - A27 On-Slip							✓
	2 - Emsworth Road (S)	3.70	3.70	0.0	12.2	35.0	53.0	
	3 - A27 Off-Slip	7.30	7.30	0.0	24.3	35.0	49.0	
	4 - untitled	4.17	5.20	0.5	23.6	35.0	46.0	
2 - A27/ Church Lane	1 - A27 Off-Slip	6.08	6.08	0.0	19.0	40.0	27.1	
	2 - Havant Road	6.00	7.00	24.0	13.0	40.0	26.5	
	3 - Church Lane	3.14	6.18	4.0	12.0	40.0	46.0	
	4 - A27 On-Slip							✓
	5 - Emsworth Road	6.00	8.00	12.0	15.0	40.0	48.9	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1 - A27/ Emsworth Road	1 - A27 On-Slip		
	2 - Emsworth Road (S)	0.475	997
	3 - A27 Off-Slip	0.712	2085
	4 - untitled	0.544	1242
2 - A27/ Church Lane	1 - A27 Off-Slip	0.675	1856
	2 - Havant Road	0.709	2056
	3 - Church Lane	0.498	1112
	4 - A27 On-Slip		
	5 - Emsworth Road	0.683	2032

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 - A27/ Emsworth Road	1 - A27 On-Slip	Evenly split	10.00
	2 - Emsworth Road (S)	Evenly split	10.00
	3 - A27 Off-Slip	Evenly split	10.00
	4 - untitled	Evenly split	10.00
2 - A27/ Church Lane	1 - A27 Off-Slip	Evenly split	10.00
	2 - Havant Road	Evenly split	10.00
	3 - Church Lane	Evenly split	10.00
	4 - A27 On-Slip	Evenly split	10.00
	5 - Emsworth Road	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 - A27/ Emsworth Road	2 - Emsworth Road (S)	1 [Give-way line]	1	1,2,4	✓	7.00	0	99999
	3 - A27 Off-Slip	1 [Give-way line]	1	1,2,4	✓	58.00	0	99999
			2	1,2,4	✓	58.00	0	99999
		2	1	(1,2,3,4)		Infinity		
	4 - untitled	1 [Give-way line]	1	1,2,4		Infinity	0	99999
2 - A27/ Church Lane	1 - A27 Off-Slip	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	2 - Havant Road	1 [Give-way line]	1	2,3,4,5	✓	10.43	0	99999
			2	2,3,4,5	✓	9.57	0	99999
		2	1	(1,2,3,4,5)		Infinity		
	3 - Church Lane	1 [Give-way line]	1	2,3,4,5		Infinity	0	99999
	5 - Emsworth Road	1 [Give-way line]	1	2,3,4,5	✓	13.00	0	99999
			2	2,3,4,5	✓	13.00	0	99999

Entry Lane slope and intercept

Junction	Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1 - A27/ Emsworth Road	2 - Emsworth Road (S)	1 [Give-way line]	1	0.475	997
	3 - A27 Off-Slip	1 [Give-way line]	1	0.356	1043
			2	0.356	1043
	4 - untitled	1 [Give-way line]	1	0.544	1242
2 - A27/ Church Lane	1 - A27 Off-Slip	1 [Give-way line]	1	0.675	1856
	2 - Havant Road	1 [Give-way line]	1	0.354	1028
			2	0.354	1028
	3 - Church Lane	1 [Give-way line]	1	0.498	1112
	5 - Emsworth Road	1 [Give-way line]	1	0.342	1016
			2	0.342	1016

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm			
				A27 On-Slip	Emsworth Road (S)	A27 Off-Slip	untitled
1 - A27/ Emsworth Road	2 - Emsworth Road (S)	1 [Give-way line]	1	✓	✓		✓
	3 - A27 Off-Slip	1 [Give-way line]	1	✓	✓		✓
			2	✓	✓		✓
		2	1	✓	✓	✓	✓
	4 - untitled	1 [Give-way line]	1	✓	✓		✓

Lane Movements

Junction	Arm	Lane Level	Lane	Destination arm				
				A27 Off-Slip	Havant Road	Church Lane	A27 On-Slip	Emsworth Road
2 - A27/ Church Lane	1 - A27 Off-Slip	1 [Give-way line]	1		✓	✓	✓	✓
	2 - Havant Road	1 [Give-way line]	1		✓	✓	✓	✓
			2		✓	✓	✓	✓
		2	1	✓	✓	✓	✓	✓
	3 - Church Lane	1 [Give-way line]	1		✓	✓	✓	✓
	5 - Emsworth Road	1 [Give-way line]	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	2021 + Dev + Miti	AM	ONE HOUR	07:45	09:15	15	✓

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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - A27/ Emsworth Road	2 - Emsworth Road (S)	2	5	Simple (vertical queueing)	Normal	0	100.00	
2 - A27/ Church Lane	5 - Emsworth Road	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A27/ Emsworth Road	1 - A27 On-Slip					
	2 - Emsworth Road (S)	✓				
	3 - A27 Off-Slip		ONE HOUR	✓	1036	100.000
	4 - untitled		ONE HOUR	✓	601	100.000
2 - A27/ Church Lane	1 - A27 Off-Slip		ONE HOUR	✓	73	100.000
	2 - Havant Road		ONE HOUR	✓	1268	100.000
	3 - Church Lane		ONE HOUR	✓	4	100.000
	4 - A27 On-Slip					
	5 - Emsworth Road	✓				

Origin-Destination Data

1 - A27/ Emsworth Road

Demand (Veh/hr)

		To			
		1 - A27 On-Slip	2 - Emsworth Road (S)	3 - A27 Off-Slip	4 - untitled
From	1 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only
	2 - Emsworth Road (S)	28	0	0	277
	3 - A27 Off-Slip	2	721	0	313
	4 - untitled	52	548	0	1

2 - A27/ Church Lane

Demand (Veh/hr)

		To				
		1 - A27 Off-Slip	2 - Havant Road	3 - Church Lane	4 - A27 On-Slip	5 - Emsworth Road
From	1 - A27 Off-Slip	0	32	0	2	39
	2 - Havant Road	0	2	1	1038	227
	3 - Church Lane	0	0	0	3	1
	4 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5 - Emsworth Road	0	884	4	374	1

Vehicle Mix

1 - A27/ Emsworth Road

Heavy Vehicle Percentages

		To			
		1 - A27 On-Slip	2 - Emsworth Road (S)	3 - A27 Off-Slip	4 - untitled
From	1 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only
	2 - Emsworth Road (S)	5	0	0	2
	3 - A27 Off-Slip	50	4	0	3
	4 - untitled	4	3	0	0

2 - A27/ Church Lane

Heavy Vehicle Percentages

		To				
		1 - A27 Off-Slip	2 - Havant Road	3 - Church Lane	4 - A27 On-Slip	5 - Emsworth Road
From	1 - A27 Off-Slip	0	0	0	0	0
	2 - Havant Road	0	0	0	3	2
	3 - Church Lane	0	0	0	0	0
	4 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5 - Emsworth Road	0	2	0	2	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A27/ Emsworth Road	1 - A27 On-Slip					
	2 - Emsworth Road (S)	5.34	0.4	A	246	369
	3 - A27 Off-Slip	7.27	2.4	A	950	1425
	4 - untitled	38.00	7.2	E	550	825
2 - A27/ Church Lane	1 - A27 Off-Slip	4.61	0.1	A	68	101
	2 - Havant Road	16.42	6.5	C	1164	1746
	3 - Church Lane	0.00	0.0	A	0	0
	4 - A27 On-Slip					
	5 - Emsworth Road	8.03	3.2	A	1162	1744

Main Results for each time segment

07:45 - 08:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		59				
	2 - Emsworth Road (S)	202	50	0.67	202	956	0.0	0.3	4.693	A
	3 - A27 Off-Slip	778	195	202	780	0	0.0	1.0	4.893	A
	4 - untitled	451	113	564	451	419	0.0	1.1	7.447	A
2 - A27/ Church Lane	1 - A27 Off-Slip	55	14	957	55	0	0.0	0.1	2.931	A
	2 - Havant Road	953	238	318	951	693	0.0	1.8	5.963	A
	3 - Church Lane	0	0	1266	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1063				
	5 - Emsworth Road	956	239	2	955	202	0.0	1.3	5.090	A

08:00 - 08:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		69				
	2 - Emsworth Road (S)	238	60	0.79	238	1140	0.3	0.3	4.801	A
	3 - A27 Off-Slip	937	234	238	937	0	1.0	1.4	5.662	A
	4 - untitled	536	134	672	538	503	1.1	2.0	12.188	B
2 - A27/ Church Lane	1 - A27 Off-Slip	66	16	1143	65	0	0.1	0.1	3.641	A
	2 - Havant Road	1132	283	381	1137	827	1.8	2.4	7.911	A
	3 - Church Lane	0	0	1514	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1274				
	5 - Emsworth Road	1140	285	2	1141	238	1.3	1.9	5.949	A

08:15 - 08:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		87				
	2 - Emsworth Road (S)	295	74	0.96	296	1388	0.3	0.4	5.342	A
	3 - A27 Off-Slip	1137	284	297	1137	0	1.4	2.4	7.222	A
	4 - untitled	661	165	823	653	611	2.0	7.2	30.863	D
2 - A27/ Church Lane	1 - A27 Off-Slip	81	20	1389	81	0	0.1	0.1	4.293	A
	2 - Havant Road	1396	349	467	1395	1003	2.4	6.2	14.216	B
	3 - Church Lane	0	0	1857	0	5	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1560				
	5 - Emsworth Road	1388	347	2	1387	295	1.9	3.0	7.827	A

08:30 - 08:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		85				
	2 - Emsworth Road (S)	296	74	1	296	1392	0.4	0.4	5.248	A
	3 - A27 Off-Slip	1141	285	297	1141	0	2.4	2.3	7.268	A
	4 - untitled	653	163	824	654	614	7.2	6.8	38.003	E
2 - A27/ Church Lane	1 - A27 Off-Slip	82	21	1393	83	0	0.1	0.1	4.615	A
	2 - Havant Road	1397	349	461	1403	1014	6.2	6.5	16.420	C
	3 - Church Lane	0	0	1858	0	6	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1560				
	5 - Emsworth Road	1392	348	2	1391	296	3.0	3.1	8.027	A

08:45 - 09:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		70				
	2 - Emsworth Road (S)	241	60	1	241	1143	0.4	0.3	4.925	A
	3 - A27 Off-Slip	930	232	242	931	0	2.3	1.4	5.688	A
	4 - untitled	544	136	670	545	504	6.8	2.0	17.638	C
2 - A27/ Church Lane	1 - A27 Off-Slip	68	17	1145	68	0	0.1	0.1	3.895	A
	2 - Havant Road	1147	287	383	1142	830	6.5	2.7	8.943	A
	3 - Church Lane	0	0	1521	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1278				
	5 - Emsworth Road	1143	286	2	1143	241	3.1	1.9	6.324	A

09:00 - 09:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		58				
	2 - Emsworth Road (S)	202	51	0.62	202	955	0.3	0.3	4.601	A
	3 - A27 Off-Slip	776	194	203	779	0	1.4	1.0	4.974	A
	4 - untitled	453	113	561	452	421	2.0	1.1	8.620	A
2 - A27/ Church Lane	1 - A27 Off-Slip	54	13	957	54	0	0.1	0.0	3.270	A
	2 - Havant Road	959	240	316	960	695	2.7	1.6	6.217	A
	3 - Church Lane	0	0	1272	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		1068				
	5 - Emsworth Road	955	239	2	956	202	1.9	1.3	5.171	A

Lane Results

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

Lanes: Main Results for each time segment

07:45 - 08:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		59			59	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	202	976	0.207	202	0.0	0.3	4.693	A
		Exit	1	1		956			956	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	389	934	0.417	390	0.0	0.5	4.895	A
				2	1,2,4	389	935	0.416	390	0.0	0.5	4.892	A
			2	1	(1,2,3,4)	778			778	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	451	896	0.504	451	0.0	1.1	7.447	A
		Exit	1	1		419			419	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	55	1188	0.046	55	0.0	0.1	2.931	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	477	887	0.538	476	0.0	0.9	5.969	A
				2	2,3,4,5	475	887	0.536	475	0.0	0.8	5.956	A
			2	1	(1,2,3,4,5)	953			953	0.0	0.0	0.000	A
		Exit	1	1		693			693	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	464	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1063			1063	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	479	981	0.489	478	0.0	0.7	5.062	A
				2	2,3,4,5	477	982	0.485	477	0.0	0.7	5.118	A
		Exit	1	1		202			202	0.0	0.0	0.000	A

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		69			69	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	238	979	0.243	238	0.3	0.3	4.801	A
		Exit	1	1		1140			1140	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	469	919	0.510	469	0.5	0.7	5.663	A
				2	1,2,4	468	921	0.508	468	0.5	0.7	5.662	A
			2	1	(1,2,3,4)	937			937	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	536	835	0.642	538	1.1	2.0	12.188	B
		Exit	1	1		503			503	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	66	1056	0.062	65	0.1	0.1	3.641	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	568	865	0.657	570	0.9	1.2	7.930	A
				2	2,3,4,5	564	864	0.653	567	0.8	1.2	7.870	A
			2	1	(1,2,3,4,5)	1132			1132	0.0	0.0	0.010	A
		Exit	1	1		827			827	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	336	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1274			1274	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	570	979	0.582	570	0.7	1.0	5.964	A
				2	2,3,4,5	570	980	0.583	572	0.7	0.9	5.934	A
		Exit	1	1		238			238	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		87			87	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	295	978	0.302	296	0.3	0.4	5.342	A
		Exit	1	1		1388			1388	0.0	0.0	0.001	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	569	903	0.630	568	0.7	1.2	7.189	A
				2	1,2,4	568	900	0.631	569	0.7	1.2	7.256	A
			2	1	(1,2,3,4)	1137			1137	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	661	753	0.878	653	2.0	7.2	30.863	D
		Exit	1	1		611			611	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	81	885	0.092	81	0.1	0.1	4.293	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	700	833	0.840	700	1.2	2.9	13.731	B
				2	2,3,4,5	695	834	0.834	695	1.2	2.9	13.574	B
			2	1	(1,2,3,4,5)	1396			1395	0.0	0.4	0.534	A
		Exit	1	1		1003			1003	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	162	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		5			5	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1560			1560	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	694	980	0.708	693	1.0	1.5	7.816	A
				2	2,3,4,5	694	982	0.707	694	0.9	1.5	7.838	A
		Exit	1	1		295			295	0.0	0.0	0.006	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		85			85	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	296	977	0.303	296	0.4	0.4	5.248	A
		Exit	1	1		1392			1392	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	572	902	0.635	573	1.2	1.1	7.260	A
				2	1,2,4	569	901	0.632	568	1.2	1.2	7.277	A
			2	1	(1,2,3,4)	1141			1141	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	653	752	0.868	654	7.2	6.8	38.003	E
		Exit	1	1		614			614	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	82	882	0.093	83	0.1	0.1	4.615	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	694	834	0.832	695	2.9	3.1	15.674	C
				2	2,3,4,5	707	837	0.844	707	2.9	3.1	15.275	C
			2	1	(1,2,3,4,5)	1397			1400	0.4	0.2	0.957	A
		Exit	1	1		1014			1014	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	160	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		6			6	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1560			1560	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	696	979	0.710	695	1.5	1.6	8.009	A
				2	2,3,4,5	696	981	0.709	696	1.5	1.5	8.046	A
		Exit	1	1		296			296	0.0	0.0	0.002	A

08:45 - 09:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		70			70	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	241	980	0.246	241	0.4	0.3	4.925	A
		Exit	1	1		1143			1143	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	463	921	0.503	463	1.1	0.7	5.710	A
				2	1,2,4	467	920	0.508	468	1.2	0.7	5.666	A
			2	1	(1,2,3,4)	930			930	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	544	837	0.649	545	6.8	2.0	17.638	C
		Exit	1	1		504			504	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	68	1056	0.065	68	0.1	0.1	3.895	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	572	864	0.662	570	3.1	1.4	8.956	A
				2	2,3,4,5	575	863	0.666	573	3.1	1.3	8.876	A
			2	1	(1,2,3,4,5)	1147			1147	0.2	0.0	0.052	A
		Exit	1	1		830			830	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	333	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1278			1278	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	571	980	0.582	570	1.6	0.9	6.354	A
				2	2,3,4,5	572	981	0.583	572	1.5	0.9	6.296	A
		Exit	1	1		241			241	0.0	0.0	0.000	A

09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		58			58	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	202	977	0.207	202	0.3	0.3	4.601	A
		Exit	1	1		955			955	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	388	935	0.416	390	0.7	0.5	4.972	A
				2	1,2,4	388	933	0.416	389	0.7	0.5	4.975	A
			2	1	(1,2,3,4)	776			776	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	453	898	0.505	452	2.0	1.1	8.620	A
		Exit	1	1		421			421	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	54	1187	0.045	54	0.1	0.0	3.270	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	482	888	0.543	482	1.4	0.8	6.193	A
				2	2,3,4,5	478	886	0.539	478	1.3	0.8	6.242	A
			2	1	(1,2,3,4,5)	959			959	0.0	0.0	0.000	A
		Exit	1	1		695			695	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	460	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		1068			1068	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	477	981	0.487	477	0.9	0.7	5.181	A
				2	2,3,4,5	478	982	0.487	479	0.9	0.6	5.161	A
		Exit	1	1		202			202	0.0	0.0	0.000	A

2021 + Dev + Mitigation - 2021 + Dev + Miti, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - 2021 + Dev + Mitigation [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.
Warning	Linked junction	2 - A27/ Church Lane - 5 - Emsworth Road	Linked arm: Junction 2 Arm 5 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	A27/ Emsworth Road	Standard Roundabout	1,2,3,4	29.88	D
2	A27/ Church Lane	Standard Roundabout	1,2,3,4,5	8.38	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2021 + Dev + Miti	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - A27/ Emsworth Road	2 - Emsworth Road (S)	2	5	Simple (vertical queueing)	Normal	0	100.00	
2 - A27/ Church Lane	5 - Emsworth Road	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A27/ Emsworth Road	1 - A27 On-Slip					
	2 - Emsworth Road (S)	✓				
	3 - A27 Off-Slip		ONE HOUR	✓	1479	100.000
	4 - untitled		ONE HOUR	✓	499	100.000
2 - A27/ Church Lane	1 - A27 Off-Slip		ONE HOUR	✓	128	100.000
	2 - Havant Road		ONE HOUR	✓	857	100.000
	3 - Church Lane		ONE HOUR	✓	0	100.000
	4 - A27 On-Slip					
	5 - Emsworth Road	✓				

Origin-Destination Data

1 - A27/ Emsworth Road

Demand (Veh/hr)

		To			
		1 - A27 On-Slip	2 - Emsworth Road (S)	3 - A27 Off-Slip	4 - untitled
From	1 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only
	2 - Emsworth Road (S)	34	0	0	269
	3 - A27 Off-Slip	9	1028	0	442
	4 - untitled	72	426	0	1

2 - A27/ Church Lane

Demand (Veh/hr)

		To				
		1 - A27 Off-Slip	2 - Havant Road	3 - Church Lane	4 - A27 On-Slip	5 - Emsworth Road
From	1 - A27 Off-Slip	0	45	0	0	83
	2 - Havant Road	0	2	2	658	195
	3 - Church Lane	0	0	0	0	0
	4 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5 - Emsworth Road	0	1224	2	231	1

Vehicle Mix

1 - A27/ Emsworth Road

Heavy Vehicle Percentages

		To			
		1 - A27 On-Slip	2 - Emsworth Road (S)	3 - A27 Off-Slip	4 - untitled
From	1 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only
	2 - Emsworth Road (S)	4	0	0	2
	3 - A27 Off-Slip	0	1	0	1
	4 - untitled	0	2	0	0

2 - A27/ Church Lane

Heavy Vehicle Percentages

		To				
		1 - A27 Off-Slip	2 - Havant Road	3 - Church Lane	4 - A27 On-Slip	5 - Emsworth Road
From	1 - A27 Off-Slip	0	3	0	0	4
	2 - Havant Road	0	0	0	2	3
	3 - Church Lane	0	0	0	0	0
	4 - A27 On-Slip	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5 - Emsworth Road	0	1	0	1	0

Results

Results Summary for whole modelled period

Junction	Arm	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A27/ Emsworth Road	1 - A27 On-Slip					
	2 - Emsworth Road (S)	5.57	0.5	A	257	385
	3 - A27 Off-Slip	20.04	9.6	C	1354	2031
	4 - untitled	72.98	12.3	F	454	681
2 - A27/ Church Lane	1 - A27 Off-Slip	6.13	0.2	A	118	177
	2 - Havant Road	6.13	1.7	A	787	1180
	3 - Church Lane	0.00	0.0	A	0	0
	4 - A27 On-Slip					
	5 - Emsworth Road	9.93	4.6	A	1325	1987

Main Results for each time segment

16:45 - 17:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		83				
	2 - Emsworth Road (S)	214	54	0.71	214	1092	0.0	0.3	4.730	A
	3 - A27 Off-Slip	1107	277	215	1109	0	0.0	1.7	5.929	A
	4 - untitled	375	94	799	376	524	0.0	0.8	7.828	A
2 - A27/ Church Lane	1 - A27 Off-Slip	97	24	1091	97	0	0.0	0.1	3.364	A
	2 - Havant Road	654	163	237	652	951	0.0	0.9	4.588	A
	3 - Church Lane	0	0	886	0	3	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		670				
	5 - Emsworth Road	1092	273	2	1090	214	0.0	1.8	5.460	A

17:00 - 17:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		96				
	2 - Emsworth Road (S)	255	64	0.89	255	1305	0.3	0.4	5.170	A
	3 - A27 Off-Slip	1328	332	255	1329	0	1.7	2.8	8.168	A
	4 - untitled	438	110	961	441	624	0.8	1.7	13.798	B
2 - A27/ Church Lane	1 - A27 Off-Slip	117	29	1310	117	0	0.1	0.1	4.230	A
	2 - Havant Road	766	191	286	766	1140	0.9	1.1	5.108	A
	3 - Church Lane	0	0	1048	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		791				
	5 - Emsworth Road	1305	326	2	1308	255	1.8	2.3	6.626	A

17:15 - 17:30

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		120				
	2 - Emsworth Road (S)	309	77	0.82	308	1580	0.4	0.5	5.432	A
	3 - A27 Off-Slip	1627	407	309	1618	0	2.8	9.1	16.878	C
	4 - untitled	550	137	1165	536	762	1.7	8.7	42.109	E
2 - A27/ Church Lane	1 - A27 Off-Slip	144	36	1586	144	0	0.1	0.2	5.644	A
	2 - Havant Road	946	236	351	947	1380	1.1	1.5	6.029	A
	3 - Church Lane	0	0	1294	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		983				
	5 - Emsworth Road	1580	395	2	1584	309	2.3	4.2	9.583	A

17:30 - 17:45

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		118				
	2 - Emsworth Road (S)	305	76	1	306	1595	0.5	0.4	5.568	A
	3 - A27 Off-Slip	1633	408	307	1623	0	9.1	9.5	20.042	C
	4 - untitled	548	137	1175	539	755	8.7	12.2	72.985	F
2 - A27/ Church Lane	1 - A27 Off-Slip	140	35	1596	140	0	0.2	0.2	6.128	A
	2 - Havant Road	945	236	344	943	1392	1.5	1.6	6.134	A
	3 - Church Lane	0	0	1283	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		975				
	5 - Emsworth Road	1595	399	2	1594	305	4.2	4.6	9.925	A

17:45 - 18:00

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		102				
	2 - Emsworth Road (S)	248	62	0.75	247	1298	0.4	0.4	4.980	A
	3 - A27 Off-Slip	1324	331	248	1326	0	9.5	3.0	9.538	A
	4 - untitled	443	111	951	449	622	12.2	1.9	34.788	D
2 - A27/ Church Lane	1 - A27 Off-Slip	115	29	1304	114	0	0.2	0.1	4.835	A
	2 - Havant Road	768	192	285	768	1133	1.6	1.1	5.280	A
	3 - Church Lane	0	0	1049	0	4	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		799				
	5 - Emsworth Road	1298	324	2	1301	248	4.6	2.4	7.476	A

18:00 - 18:15

Junction	Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip			0		84				
	2 - Emsworth Road (S)	208	52	0.78	208	1079	0.4	0.3	4.790	A
	3 - A27 Off-Slip	1104	276	209	1104	0	3.0	2.0	6.347	A
	4 - untitled	368	92	794	369	519	1.9	0.9	9.562	A
2 - A27/ Church Lane	1 - A27 Off-Slip	95	24	1082	95	0	0.1	0.1	3.768	A
	2 - Havant Road	643	161	235	641	943	1.1	1.0	4.697	A
	3 - Church Lane	0	0	872	0	3	0.0	0.0	0.000	A
	4 - A27 On-Slip			0		662				
	5 - Emsworth Road	1079	270	2	1080	208	2.4	1.5	5.483	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

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		83			83	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	214	961	0.223	214	0.0	0.3	4.730	A
		Exit	1	1		1092			1092	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	557	954	0.584	558	0.0	0.9	5.947	A
				2	1,2,4	550	953	0.577	551	0.0	0.8	5.912	A
			2	1	(1,2,3,4)	1107			1107	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	375	788	0.475	376	0.0	0.8	7.828	A
		Exit	1	1		524			524	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	97	1070	0.091	97	0.0	0.1	3.364	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	325	921	0.353	325	0.0	0.4	4.577	A
				2	2,3,4,5	329	920	0.358	328	0.0	0.5	4.600	A
			2	1	(1,2,3,4,5)	654			654	0.0	0.0	0.000	A
		Exit	1	1		951			951	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	661	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		670			670	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	545	1002	0.544	544	0.0	0.9	5.450	A
				2	2,3,4,5	547	1002	0.545	546	0.0	0.9	5.471	A
		Exit	1	1		214			214	0.0	0.0	0.000	A

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		96			96	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	255	962	0.266	255	0.3	0.4	5.170	A
		Exit	1	1		1305			1305	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	664	939	0.707	665	0.9	1.4	8.202	A
				2	1,2,4	664	939	0.707	664	0.8	1.4	8.135	A
			2	1	(1,2,3,4)	1328			1328	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	438	700	0.626	441	0.8	1.7	13.798	B
		Exit	1	1		624			624	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	117	926	0.126	117	0.1	0.1	4.230	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	382	905	0.422	382	0.4	0.6	5.145	A
				2	2,3,4,5	383	903	0.424	383	0.5	0.5	5.072	A
			2	1	(1,2,3,4,5)	766			766	0.0	0.0	0.000	A
		Exit	1	1		1140			1140	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	579	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		791			791	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	652	1001	0.652	653	0.9	1.2	6.607	A
				2	2,3,4,5	653	1002	0.651	655	0.9	1.1	6.646	A
		Exit	1	1		255			255	0.0	0.0	0.000	A

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		120			120	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	309	966	0.320	308	0.4	0.5	5.432	A
		Exit	1	1		1580			1580	0.0	0.0	0.003	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	818	920	0.889	813	1.4	4.5	16.852	C
				2	1,2,4	809	920	0.879	804	1.4	4.6	16.905	C
			2	1	(1,2,3,4)	1627			1627	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	550	591	0.930	536	1.7	8.7	42.109	E
		Exit	1	1		762			762	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	144	745	0.193	144	0.1	0.2	5.644	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	469	882	0.531	470	0.6	0.7	6.059	A
				2	2,3,4,5	477	883	0.540	477	0.5	0.8	5.999	A
			2	1	(1,2,3,4,5)	946			946	0.0	0.0	0.000	A
		Exit	1	1		1380			1380	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	455	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		983			983	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	792	1003	0.790	794	1.2	2.1	9.597	A
				2	2,3,4,5	787	1002	0.786	789	1.1	2.1	9.568	A
		Exit	1	1		309			309	0.0	0.0	0.005	A

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		118			118	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	305	965	0.316	306	0.5	0.4	5.568	A
		Exit	1	1		1595			1595	0.0	0.0	0.002	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	811	920	0.882	806	4.5	4.8	20.017	C
				2	1,2,4	822	920	0.893	817	4.6	4.8	20.067	C
			2	1	(1,2,3,4)	1633			1633	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	548	584	0.938	539	8.7	12.2	72.985	F
		Exit	1	1		755			755	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	140	735	0.190	140	0.2	0.2	6.128	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	473	884	0.536	473	0.7	0.8	6.125	A
				2	2,3,4,5	471	883	0.534	470	0.8	0.8	6.143	A
			2	1	(1,2,3,4,5)	945			945	0.0	0.0	0.000	A
		Exit	1	1		1392			1392	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	459	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		975			975	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	791	1002	0.790	791	2.1	2.3	9.972	A
				2	2,3,4,5	803	1000	0.803	803	2.1	2.3	9.879	A
		Exit	1	1		305			305	0.0	0.0	0.008	A

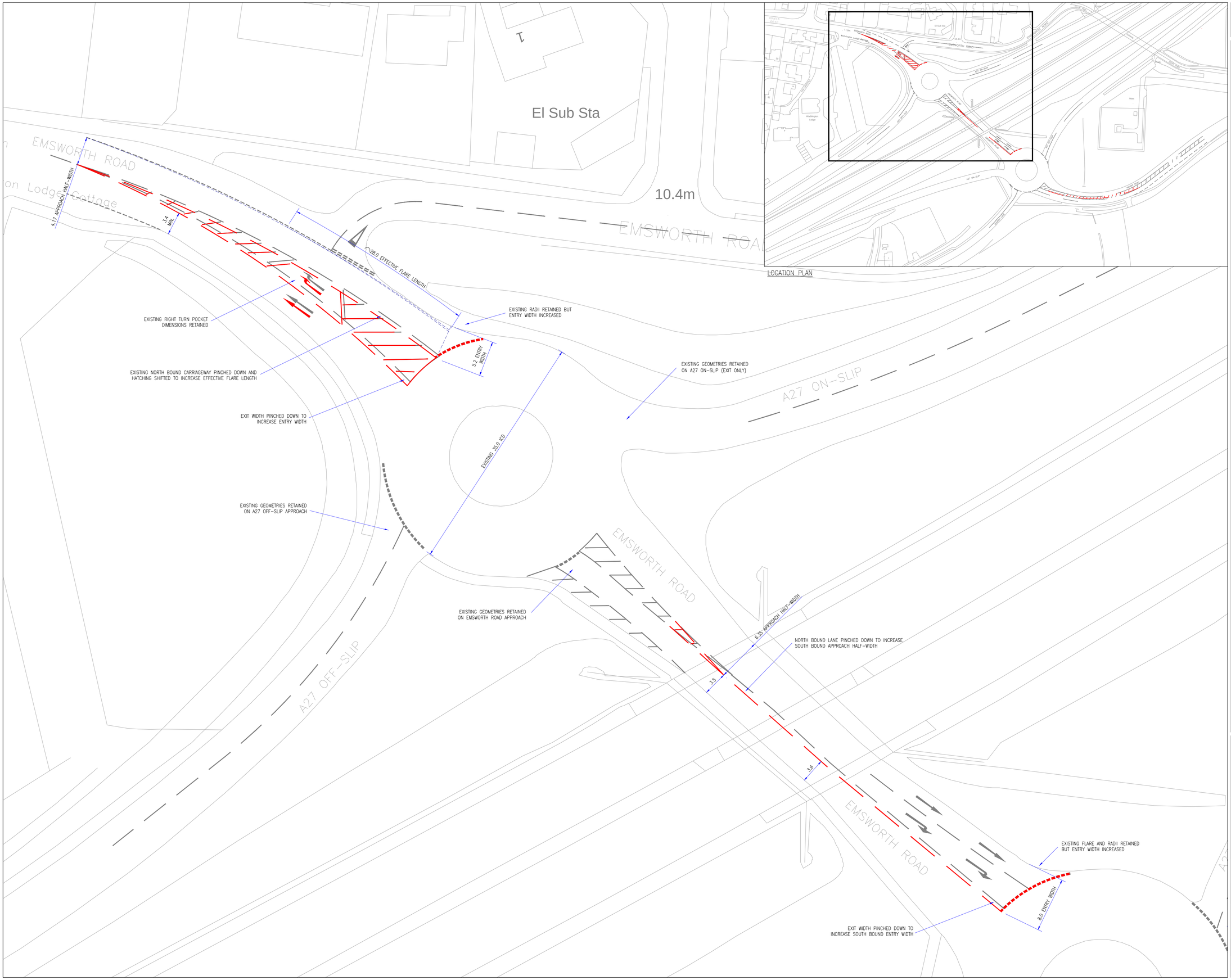
17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		102			102	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	248	961	0.258	247	0.4	0.4	4.980	A
		Exit	1	1		1298			1298	0.0	0.0	0.001	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	659	942	0.699	660	4.8	1.5	9.595	A
				2	1,2,4	665	942	0.706	666	4.8	1.5	9.481	A
			2	1	(1,2,3,4)	1324			1324	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	443	708	0.626	449	12.2	1.9	34.788	D
		Exit	1	1		622			622	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	115	930	0.123	114	0.2	0.1	4.835	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	388	904	0.429	388	0.8	0.6	5.248	A
				2	2,3,4,5	380	904	0.420	380	0.8	0.5	5.313	A
			2	1	(1,2,3,4,5)	768			768	0.0	0.0	0.000	A
		Exit	1	1		1133			1133	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	578	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		4			4	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		799			799	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	646	1003	0.644	647	2.3	1.2	7.517	A
				2	2,3,4,5	652	1003	0.650	654	2.3	1.2	7.434	A
		Exit	1	1		248			248	0.0	0.0	0.006	A

18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A27/ Emsworth Road	1 - A27 On-Slip	Exit	1	1		84			84	0.0	0.0	0.000	A
	2 - Emsworth Road (S)	Entry	1	1	1,2,4	208	966	0.216	208	0.4	0.3	4.790	A
		Exit	1	1		1079			1079	0.0	0.0	0.000	A
	3 - A27 Off-Slip	Entry	1	1	1,2,4	558	958	0.582	558	1.5	1.0	6.352	A
				2	1,2,4	546	957	0.571	547	1.5	1.0	6.342	A
			2	1	(1,2,3,4)	1104			1104	0.0	0.0	0.000	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	4 - untitled	Entry	1	1	1,2,4	368	792	0.465	369	1.9	0.9	9.562	A
		Exit	1	1		519			519	0.0	0.0	0.000	A
2 - A27/ Church Lane	1 - A27 Off-Slip	Entry	1	1	2,3,4,5	95	1080	0.088	95	0.1	0.1	3.768	A
		Exit	1	1		0			0	0.0	0.0	0.000	A
	2 - Havant Road	Entry	1	1	2,3,4,5	321	923	0.348	320	0.6	0.5	4.740	A
				2	2,3,4,5	321	920	0.349	321	0.5	0.5	4.654	A
			2	1	(1,2,3,4,5)	643			643	0.0	0.0	0.000	A
		Exit	1	1		943			943	0.0	0.0	0.000	A
	3 - Church Lane	Entry	1	1	2,3,4,5	0	668	0.000	0	0.0	0.0	0.000	A
		Exit	1	1		3			3	0.0	0.0	0.000	A
	4 - A27 On-Slip	Exit	1	1		662			662	0.0	0.0	0.000	A
	5 - Emsworth Road	Entry	1	1	2,3,4,5	541	1003	0.539	542	1.2	0.8	5.457	A
				2	2,3,4,5	538	1004	0.536	539	1.2	0.8	5.510	A
		Exit	1	1		208			208	0.0	0.0	0.000	A

Appendix K



The drawings, information and data recorded in this document ("the information") is the property of Paul Basham Associates.This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purposes other than which it was supplied by Paul Basham Associates. Paul Basham Associates makes no representation, undertakes no duty and accepts no responsibilities to any third party who may use or rely upon this document or the information.

GENERAL NOTES

1. THIS DRAWING IS INTENDED TO BE VIEWED IN COMBINATION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
3. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES – THIS MUST BE TREATED AS INDICATIVE ONLY.
4. ALL DIMENSIONS AND LEVELS ARE IN METRES. DO NOT SCALE THIS DRAWING, PRINT, PLOT OR DISK.
5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.

NORTH

Rev	Description	Date	By	Chkd
-	-	--.--.--	--	--

Paul Basham Associates Ltd
Lancaster Court
8 Barnes Wallis Road
Fareham Hampshire
PO15 5TU
T +44 (0) 1489 668134
E info@paulbashamassociates.com
W www.paulbashamassociates.com

Client
BARRATT HOMES

Project Name
LAND AT HAVANT ROAD, EMSWORTH

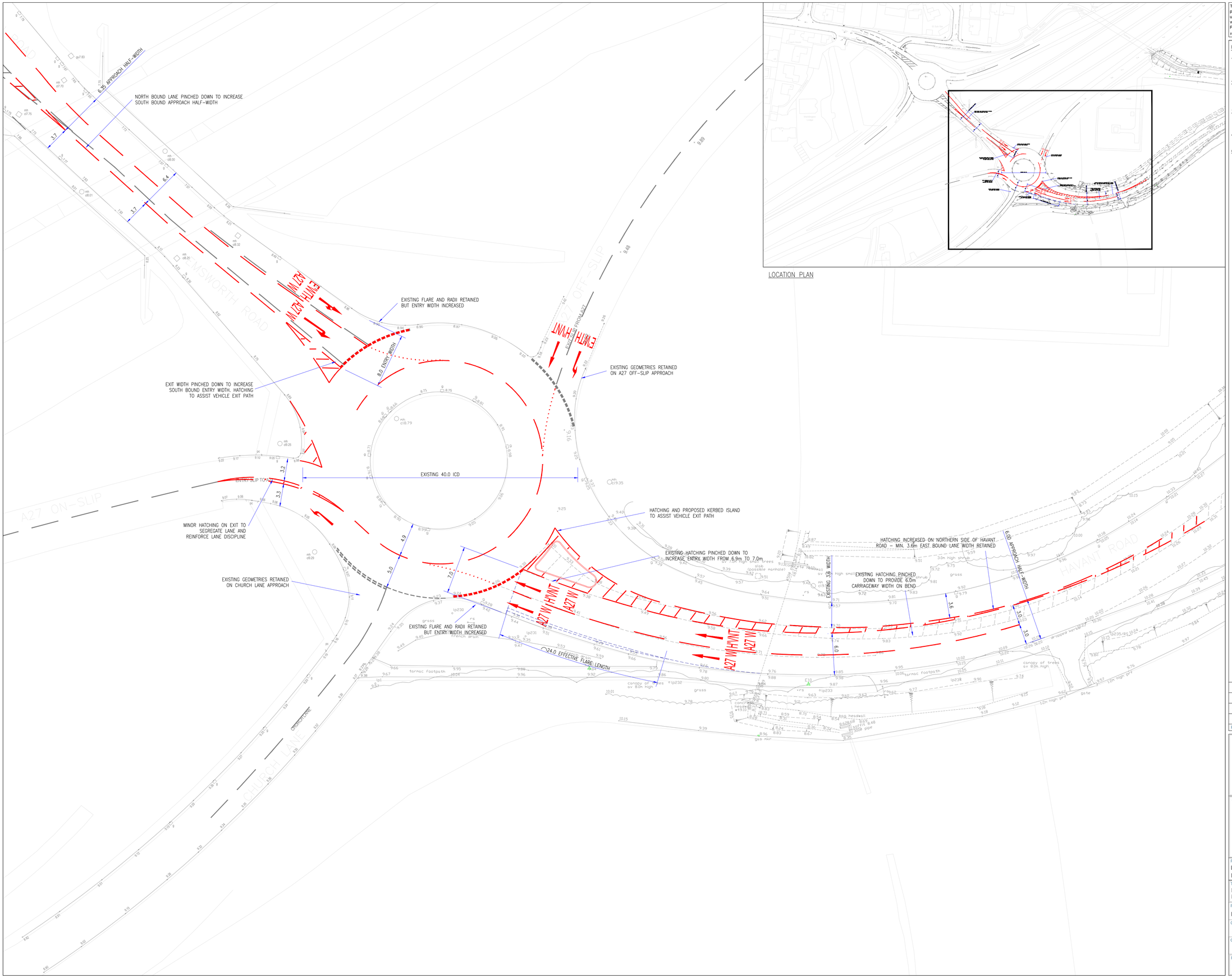
Title
EMSWORTH ROAD / A27 ROUNDABOUT - MITIGATION PROPOSALS

Project Phase
PRELIMINARY

Checked By	Checked Date	Drawn By	Drawn Date
BW	19.07.16	CL	15.07.16

Client Drawing No.	Scale	
-	1:250	(AT A1 SIZE)

PBA Drawing No.	Revision
041.0025.005	-



LOCATION PLAN

The drawings, information and data recorded in this document ("the information") is the property of Paul Basham Associates.This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purposes other than which it was supplied by Paul Basham Associates. Paul Basham Associates makes no representation, undertakes no duty and accepts no responsibilities to any third party who may use or rely upon this document or the information.

GENERAL NOTES

1. THIS DRAWING IS INTENDED TO BE VIEWED IN COMBINATION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
3. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES – THIS MUST BE TREATED AS INDICATIVE ONLY.
4. ALL DIMENSIONS AND LEVELS ARE IN METRES. DO NOT SCALE THIS DRAWING, PRINT, PLOT OR DISK.
5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.

NORTH

Rev	Description	Date	By	Chkd
D	REVISED GEOMETRIES AND MARKINGS	07.11.16	CL	BW
C	TOPOGRAPHICAL SURVEY ADDED	07.10.16	CL	BW
B	REVISED ENTRY WIDTH ON HAVANT RD	30.09.16	CL	BW
A	ADDITIONAL RD MARKINGS	22.09.16	CL	BW

Paul Basham Associates Ltd
Lancaster Court
8 Barnes Wallis Road
Fareham Hampshire
PO15 5TU
T +44 (0) 1489 668134
E info@paulbashamassociates.com
W www.paulbashamassociates.com

Client

BARRATT HOMES

Project Name
LAND AT HAVANT ROAD, EMSWORTH

Title
HAVANT ROAD / CHURCH LANE / A27 ROUNDABOUT - MITIGATION PROPOSALS

Project Phase
PRELIMINARY

Checked By	Checked Date	Drawn By	Drawn Date
BW	19.07.16	CL	15.07.16

Client Drawing No.	Scale
-	1:250 (AT A1 SIZE)

PBA Drawing No.	Revision
041.0025.004	D