RESPONSE TO NATIONAL HIGHWAYS
Land South of Chiswell Green Lane

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1.0 Introduction

1.1 Glanville is providing transport support for the redevelopment of land to the south of Chiswell Green Lane to provide up to 391 dwellings and the allocation of land for a 2 Form Entry Primary School. An Outline planning application was submitted in May 2022 (St Albans District Council reference number 5/2022/0927) which was accompanied by a Transport Assessment, a Residential Travel Plan and a School Travel Plan.

1.2 National Highways has submitted a holding objection to the application following a review of the Transport Assessment and Travel Plan by its consultant, AECOM.

1.3 The comments provided by AECOM requested that the impact of the development on the Strategic Road Network (SRN) junctions are assessed to determine if there is a material impact. In particular, AECOM has requested that the impact is assessed at the M25 Junction 21A, the Park Street roundabout (A405 North Orbital Road / A414 / Watling Street) and at the A405 North Orbital Road / Watford Road roundabout, hereafter referred to as the Noke Hotel roundabout.

1.4 This Technical Note therefore provides a response to the comments received from AECOM on behalf of National Highways.

2.0 National Highways Comments

2.1 A detailed Technical Note has been produced by AECOM which summarises the results of the review and has been provided to Glanville by National Highways. This Technical Note provided various comments which were classed as either 'critical recommendations' required to allow the removal of the holding objection or 'non-critical recommendations' which are desirable but are not required for the removal of the objection.

2.2 The comments comprised the following:

Critical Recommendations

1. Consideration should be given to quantifying the potential impact of the development on the two Strategic Road Network (SRN) junctions within the vicinity of the proposed development.

2. Consideration should be given to widening the study area to include any SRN junctions that are expected to experience a material increase in vehicle trips, in particular the M25 Junction 21a.

3. A capacity assessment should be undertaken for the A405 North Orbital Road / A414 / Watling Street junction (the Noke Hotel Roundabout).

Non-critical Recommendations

a) Reference should be made to 'DfT Circular 02/2013' and Highways England's 'The Strategic Road Network: Planning for the Future (A guide to working with Highways England on planning matters)'.

b) The assessment of the collision data should be expanded to any SRN junction with a material increase in flows.

c) More information / justification is required to support the primary school trip distribution.

d) A 2038 future year should be assessed along with an appropriate opening year.

e) Committed development should be included within the junction capacity assessments and be shown within appropriate flow diagrams.

f) The junction assessments should incorporate any infrastructure changes on the SRN required to support the committed developments.

g) More impactful and significant measures should be included within the Travel Plan and that funding is secured for a period of 5 years after full build out.

h) More concrete suggestions for further promotion of the Travel Plan should be set out in the event that targets are not met.

2.3 This Technical Note focuses on providing a response to the three critical recommendations to determine whether there is a material impact on the SRN and to allow the removal of the holding objection. When addressing these critical comments, responses to some of the desirable comments (namely d, e & f) have also been incorporated within this Technical Note.

3.0 Strategic Traffic Network Flows & Committed Development

3.1 This chapter sets out baseline traffic flows on the SRN and flows from committed developments.

Base Traffic Flows

3.2 As outlined within the Transport Assessment, traffic surveys were undertaken in 2016 for a number of junctions in the vicinity of the site and these surveys were used within the original assessment to avoid the effect of any temporary changes in traffic volume or trip distribution resulting from the COVID pandemic. These traffic surveys included surveys at the following SRN junctions:

- A405 North Orbital Road / Tippendell Lane
- A405 North Orbital Road / Watford Road (Noke Hotel roundabout)
- A405 North Orbital Road / A414 / Watling Street (Park Street roundabout)

3.3 Consequently, the 2016 traffic counts at the above junctions have been used within this assessment. The turning counts are shown within Appendix A.

M25 Junction 21a

3.4 As the 2016 traffic surveys did not include the M25 junction, detailed turning counts are not available. Furthermore, traffic counts cannot be collected until after the school holidays have finished in September 2022. Therefore, link flows for the M25 Junction 21A roundabout approaches have been extracted from WebTRis, the National Highways Traffic Survey database (https://webtris.highways england.co.uk).

3.5 The resultant base traffic flows for the day of the other traffic surveys on Watford Road (19 January 2016) are shown in Table 1 and reflect the approach to the grade separated roundabout but exclude the M25 mainline flow. The traffic flows for the A405 North Orbital Road southbound approach have been taken from the aforementioned turning counts for the A405 North Orbital Road / Watford Road / Noakes Hotel roundabout.

Table 1: M25 Junction 21a Link Counts (19 January 2016)

Link	WebTRis Site Reference	AM Peak	PM Peak
A405 North Orbital Road Southbound	-	1,235	1,577
M25 Anti-clockwise Off-slip	M25/5241L	522	1,084
A405 North Orbital Road Northbound	6133/1	2095	2,096
M25 Clockwise Off-slip	M25/5232J	864	1,152

3.6 The 2016 base traffic has been factored to reflect assessment years of 2027 and 2038. The growth factors have been extracted from TEMPRO 7.2b using the NTM AF15 dataset for area 'E02004943 : St Albans 020'. The Watford Road, Tippendell Lane, and Watling Street traffic flows have been increased using growth factors for a Principal Road as set out within Table 14 of the original Transport Assessment.

3.7 In a change to the Transport Assessment, the A405 traffic flows have been increased using the growth factors for a Trunk Road for the same area outlined within paragraph 3.6. The M25 junction flows have also utilised growth factors for a trunk road. The growth factors used within this assessment are shown in Table 2.

Table 2: Proposed Growth Factors

	Principal Road		Trunk Road (A405 & M25)	
	AM Peak	PM Peak	AM Peak	PM Peak
2016 to 2027	1.0957	1.0977	1.1274	1.1233
2016 to 2038	1.1519	1.1502	1.1775	1.1757

3.8 The factored M25 Junction 21A flows are shown in Table 3 whilst updated traffic flow diagrams have been provided within Appendix A.

Table 3: M25 Junction 21a Link Counts (19 January 2016)

Link	2016		2027		2038	
	AM	PM	AM	PM	AM	PM
A405 North Orbital Road Southbound	1,235	1,577	1,371	1,756	1,437	1,839
M25 Anti-clockwise Off-slip	522	1,084	589	1,218	615	1,274
A405 North Orbital Road Northbound	2,095	2,096	2,362	2,354	2,467	2,464
M25 Clockwise Off-slip	864	1,152	974	1,294	1,017	1,354

3.9 The proposed development flows have been distributed at this junction based on the 2011 Census origin / destination data provided within the Transport Assessment.

Committed Development

3.10 AECOM requested that committed development is included within the junction capacity assessment. It is understood that there are two significant developments in the vicinity of the site which have received planning consent but are yet to be constructed. These are as follows:

- A 150-bed hotel (ref. 5/2012/2055 & 5/2015/0722) at the A405 North Orbital Road / Watford Road roundabout; and
- the Rail Freight Terminal (ref. 5/2009/0708 and appeal ref. 14/07/2014) situated to the east of Park Street and accessed via the A414.

3.11 A review of the above developments has been undertaken based on the information provided as part of the individual planning applications. This is summarised below.

150 Bed Hotel

3.12 The new hotel is proposed for a site to the south-east of the Noke Hotel roundabout on land abutting the A405 North Orbital Road. Vehicular access to the development would be achieved via a new arm onto an enlarged Noke Hotel roundabout. The proposed junction arrangement is shown in Appendix B.

3.13 The development was included within the planning application for the land to the north of Chiswell Green Lane (ref. 5/2021/3194) and so the traffic flows have been extracted

from Figures 5 and 6 of the Transport Assessment. The proposed flows and their distribution onto the highway network are shown within Appendix A.

Rail Freight Terminal

3.14 The Rail Freight Terminal is proposed to be located to the east of Park Street and How Wood with access onto the A414 via a new roundabout between the Park Street roundabout and the London Colney roundabout. The proposals include the part signalisation of the Park Street Roundabout (see Appendix B).

3.15 The trip distribution from the Transport Assessment (Tables 7.6 and 7.8) indicates the following:

- 54% of HGVs will be heading to / from the Park Street roundabout as follows:
  - 27% of HGVs will be heading towards the M25 Junction 21A via the A405 North Orbital Road
  - 27% to the M1 via the A414
- 39% of light vehicles will be travelling to / from the Park Street Roundabout as follows:
  - 1% to / from Park Street
  - 19% via the A405 North Orbital Road
  - 18% to / from M1 via the A414
  - 1% to / from St Albans

3.16 The trip generation has been taken from Tables 7.3 to 7.5 of the Rail Freight Transport Assessment and has been distributed to the highway network based on the above distribution. The resultant traffic flow distribution is shown within Appendix A.

3.17 The committed development was not incorporated within the original Land South of Chiswell Green Lane Transport Assessment as the new hotel results in minimal traffic on Watford Road, whilst the rail freight terminal only impacts the Strategic Road Network which was scoped out of the original assessment.

3.18 The two committed developments have been subject to several planning applications over the past 13 years, including the discharge of conditions, and currently there is no indication as to if or when the developments will commence. Consequently, the highway assessment within this Technical Note has been undertaken both with and without the committed development to assess the impact on the existing junctions if the developments do not come forward.

Development Traffic

3.19 The development flows used within this assessment have been taken from Table 8 of the Transport Assessment produced for the Land to the South of Chiswell Green Lane and produced by Glanville.

3.20 To provide a worst-case assessment, the sensitivity test outlined within the Transport Assessment to reflect the anticipated reduction in vehicular trips resulting from the sustainable transport improvements has not been used. Consequently, the assessment uses the higher trip generation and distribution outlined within Tables 10 and 13 respectively of the Transport Assessment with the trip distribution being shown in Appendix A.

4.0 Strategic Road Network Impact – No Committed Development

4.1 This chapter assesses the impact of the proposed development on the SRN. As outlined within paragraph 3.17, this chapter assumes that the two committed developments and their associated junction mitigation measures do not come forward.

4.2 AECOM has suggested that a material increase in traffic occurs when there is an increase in traffic flows in excess of 30 vehicles. DfT Circular 02/2013, its draft 2022 update, and Highways England's 'The Strategic Road Network: Planning for the Future' have been reviewed and such a requirement is not included within these documents. Consequently, it is therefore considered that the impact should be judged based on severity in accordance with paragraph 111 of the National Planning Policy Framework (NPPF) 2021.

Percentage Impact Assessment

4.3 To understand the impact of the increase in traffic flows and whether there is liable to be a material impact, the percentage increase in traffic at each of the junctions within the assessment area has been identified. The 2027 percentage impact assessment is shown in Table 4.

Table 4: Increase in Two-way Traffic at Local Junctions in 2027 (No Committed Development)

	Without Dev. (Vehs)	With Dev. (Vehs)	Two-way Increase (Vehs)	Two-way Increase (%)
AM Peak (07:15 to 08:15)				
1. Watford Road / Long Fallow	1,454	1,537	83	5.7%
2. Watford Road / Forge End	1,512	1,734	222	14.7%
3a. Watford Road / Chiswell Green Lane	1,707	2,050	343	20.1%
3b Watford Road / Tippendell Lane	2,016	2,168	152	7.5%
4. A405 North Orbital Road / Tippendell Lane	2,084	2,142	58	2.8%
5. A405 North Orbital Road / Watford Road	2,731	2,814	83	3.0%
6. A405 North Orbital Road / A414	4,730	4,776	46	1.0%
7. M25 Junction 21A	5,295	5,378	83	1.6%
PM Peak (17:00 to 18:00)				
1. Watford Road / Long Fallow	1,472	1,541	69	4.7%
2. Watford Road / Forge End	1,511	1,626	115	7.6%
3a. Watford Road / Chiswell Green Lane	1,658	1,791	133	8.0%
3b Watford Road / Tippendell Lane	1,928	2,010	82	4.3%
4. A405 North Orbital Road / Tippendell Lane	2,762	2,804	42	1.5%
5. A405 North Orbital Road / Watford Road	3,553	3,622	69	1.9%
6. A405 North Orbital Road / A414	5,571	5,617	46	0.8%
7. M25 Junction 21A	6,622	6,691	69	1.0%

4.4 Table 4 indicates that in 2027 without the committed development, there would be an increase of between 1.0% and 2.8% on the Strategic Road Network junctions during the AM peak hour. During the PM peak hour, there would be an increase of between 0.8% and 1.5%.

4.5 As requested by AECOM, local junction modelling has been undertaken for the A405 North Orbital Road junctions to assess the impact on the junctions, with the exception of the M25 Junction 21A as traffic data from turning count surveys are not available.

4.6 The M25 Junction 21A would experience an increase in traffic of up to 1.6% in the AM peak hour and 1.0% in the PM peak hour. This is due to the increase of between 69 and 83 two-way flows. The proposed development flows on each arm of the junction are shown within Table 5.

Table 5: Increase in Two-way Traffic at the M25 Junction 21A in 2027 (No Committed Development)

	Without Dev. (Vehs)	With Dev. (Vehs)	Two-way Increase (Vehs)	Two-way Increase (%)
AM Peak (07:15 to 08:15)				
A405 North Orbital Road Southbound	1,371	1431	60	4.4%
M25 Anti-clockwise Off-slip	589	589	0	0.0%
A405 North Orbital Road Northbound	2,362	2376	14	0.6%
M25 Clockwise Off-slip	974	983	9	0.9%
M25 Junction 21A	**5,295**	**5,378**	**83**	**1.6%**
PM Peak (17:00 to 18:00)				
A405 North Orbital Road Southbound	1,756	1778	22	1.3%
M25 Anti-clockwise Off-slip	1218	1220	2	0.2%
A405 North Orbital Road Northbound	2,354	2381	27	1.1%
M25 Clockwise Off-slip	1,294	1312	18	1.4%
M25 Junction 21A	**6,622**	**6,691**	**69**	**1.0%**

4.7 Table 5 shows that the majority of the development flows are using the A405 southbound. In total there would be 60 additional vehicles using this approach across the peak hour which would equate to one vehicle per minute, on average. Similarly, there is a three-lane entry on the A405 southbound approach with two lanes on each exit. The majority of these flows (85%) would be heading south to Watford (55%) or to the M25 clockwise carriageway (30%). Consequently, these traffic flows would be spread across two lanes, whilst 15% of the flows would be using the nearside lane, leaving at the first exit. It is therefore considered that the flows would be spread across the approach to the junction and when combined with the low number of additional vehicles per minute, it is considered that there would not be a material impact on the operation of the junction.

4.8 It should be noted that the Travel Plan aims to reduce the number of vehicle trips associated with the development and therefore the number of development trips on this approach is expected to reduce from 60 to 45 vehicles. Consequently, the impact of the development is anticipated to be lower than that shown in Table 5 as a result of the Travel Plan measures.

4.9 During the PM peak hour, the development traffic is spread across each of the four approaches at the junction with the highest increase of 1.4% being experienced on the M25 clockwise off-slip. It is therefore considered that there is not a material impact on any of the junction approaches in the PM peak hour.

4.10 The percentage impact has been updated to reflect the 2038 future year scenario and is shown within Table 6.

Table 6: Increase in Two-way Traffic at Local Junctions in 2038 (No Committed Development)

		Without Dev. (Vehs)	With Dev. (Vehs)	Two-way Increase (Vehs)	Two-way Increase (%)
AM Peak (07:15 to 08:15)					
1.	Watford Road / Long Fallow	1,529	1,612	83	5.4%
2.	Watford Road / Forge End	1,590	1,812	222	14.0%
3a.	Watford Road / Chiswell Green Lane	1,794	2,137	343	19.1%
3b	Watford Road / Tippendell Lane	2,118	2,270	152	7.2%
4.	A405 North Orbital Road / Tippendell Lane	2,183	2,241	58	2.7%
5.	A405 North Orbital Road / Watford Road	2,863	2,946	83	2.9%
6.	A405 North Orbital Road / A414	4,955	5,001	46	0.9%
7.	M25 Junction 21A	5,536	5,619	83	1.5%
PM Peak (17:00 to 18:00)					
1.	Watford Road / Long Fallow	1,544	1,613	69	4.5%
2.	Watford Road / Forge End	1,583	1,698	115	7.3%
3a.	Watford Road / Chiswell Green Lane	1,737	1,870	133	7.7%
3b	Watford Road / Tippendell Lane	2,021	2,103	82	4.1%
4.	A405 North Orbital Road / Tippendell Lane	2,891	2,933	42	1.5%
5.	A405 North Orbital Road / Watford Road	3,722	3,791	69	1.9%
6.	A405 North Orbital Road / A414	5,835	5,881	46	0.8%
7.	M25 Junction 21A	6,932	7,000	69	1.0%

4.11 Table 6 indicates that in 2038 without the committed development, there would be an increase of between 0.9% and 2.9% on the Strategic Road Network junctions during the AM peak hour. During the PM peak hour, there would be an increase of between 0.8% and 1.5%.

4.12 The M25 Junction 21A would experience an increase in traffic of up to 1.5% in the AM peak hour and 1.0% in the PM peak hour. This is due to the increase in trips of between 69 and 83 two-way flows. The proposed development impact on each arm of the junction is shown within Table 7.

Table 7: Increase in Two-way Traffic at the M25 Junction 21A in 2038 (No Committed Development)

	Without Dev. (Vehs)	With Dev. (Vehs)	Two-way Increase (Vehs)	Two-way Increase (%)
AM Peak (07:15 to 08:15)				
A405 North Orbital Road Southbound	1,437	1,497	60	4.2%
M25 Anti-clockwise Off-slip	615	615	0	0.0%
A405 North Orbital Road Northbound	2,467	2,481	14	0.6%
M25 Clockwise Off-slip	1,017	1,026	9	0.9%
M25 Junction 21A	5,536	5,619	83	1.5%
PM Peak (17:00 to 18:00)				
A405 North Orbital Road Southbound	1,839	1,861	22	1.2%
M25 Anti-clockwise Off-slip	1,274	1,276	2	0.2%
A405 North Orbital Road Northbound	2,464	2,491	27	1.1%
M25 Clockwise Off-slip	1,354	1,372	18	1.3%
M25 Junction 21A	6,931	7,000	69	1.0%

4.13 Table 7 shows that the impact at the M25 Junction 21A is similar to the 2027 scenario and consequently the assessment outlined in paragraphs 4.7 to 4.9 remains valid and the impact is not material.

Junction Capacity Assessment

4.14 To assess the full impact of the development at the SRN junctions for which turning counts are available, junction capacity models have been produced using Junctions 9. As the junctions are roundabouts, the models have been developed using the ARCADY module. Geometric parameters have been determined from Ordnance Survey digital mapping.

4.15 The 2016 traffic surveys did not include queue length surveys and so the junctions cannot be validated against queue lengths. However, it is considered that the difference between the 'with' and 'without' development scenarios would remain constant, with or without queue length validation and therefore valid comparisons can be made between the scenarios.

4.16 The ARCADY modelling software presents the key results in terms of the Ratio of Flow to Capacity (RFC), queue lengths and predicted delay. It is generally accepted that RFC values of 0.85 or less indicate that a junction is operating within capacity as this gives some margin for error in the prediction of capacity and variations in traffic flow. Therefore, junctions are only identified as operating over capacity if this value is exceeded.

Park Street Roundabout

4.17 The roundabout has been modelled within ARCADY. Whilst the roundabout is relatively large, it is less than 130m in diameter, is not a grade separated roundabout, and does not serve a motorway. Consequently, in accordance with Section 13.3 of the Junctions 9 user manual, the roundabout has not been modelled as a large roundabout.

4.18 The roundabout has been assessed for both the 2027 and 2038 scenarios without the committed development flows. The ARCADY results are shown within Table 8 and the ARCADY outputs have been provided within Appendix D.

Table 8: Park Street Roundabout – Existing Layout ARCADY Results (No Committed Development)

Scenario	Approach	AM Peak			PM Peak		
		RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2016 Survey	A414 East	0.67	2.0	4.25	0.88	7.2	12.06
	Watling Street South	0.54	1.2	7.04	0.69	2.2	14.90
	A405 North Orbital Road	0.58	1.4	6.81	0.74	2.8	11.46
	A414 West	0.36	0.6	2.29	0.46	0.9	2.74
	Watling Street North	0.69	2.2	10.85	0.77	3.2	16.57
	Junction Delay (s)	5.65			10.90		
2027 without Dev't	A414 East	0.76	3.1	5.94	1.00	36.4	51.42
	Watling Street South	0.66	1.9	10.52	0.90	7.0	46.18
	A405 North Orbital Road	0.71	2.4	10.50	0.89	7.2	27.72
	A414 West	0.42	0.7	2.64	0.54	1.2	3.33
	Watling Street North	0.84	4.7	22.29	0.96	12.8	61.56
	Junction Delay (s)	9.09			38.45		
2027 with Dev't	A414 East	0.76	3.2	6.08	1.01	39.6	54.95
	Watling Street South	0.66	1.9	10.76	0.91	7.3	47.81
	A405 North Orbital Road	0.74	2.8	11.75	0.93	9.5	35.30
	A414 West	0.43	0.8	2.69	0.55	1.2	3.40
	Watling Street North	0.85	5.2	24.76	0.98	15.4	72.53
	Junction Delay (s)	9.76			42.65		
2038 without Dev't	A414 East	0.80	3.9	7.25	1.05	79.1	96.65
	Watling Street South	0.73	2.6	13.75	0.97	12.1	73.43
	A405 North Orbital Road	0.77	3.3	13.96	0.95	12.3	44.62
	A414 West	0.45	0.8	2.85	0.57	1.3	3.66
	Watling Street North	0.92	8.9	40.75	1.07	36.0	144.41
	Junction Delay (s)	13.38			72.79		
2038 with Dev't	A414 East	0.81	4.1	7.43	1.05	83.0	100.74
	Watling Street South	0.73	2.7	14.11	0.97	12.3	74.95
	A405 North Orbital Road	0.80	3.9	16.18	0.98	17.4	59.24
	A414 West	0.47	0.9	2.99	0.58	1.4	3.74
	Watling Street North	0.95	12.3	55.45	1.09	41.2	163.53
	Junction Delay (s)	15.99			79.32		

4.19 The junction capacity results shown in Table 8, indicates that the junction would exceed capacity in the 'without development' scenarios as a result of background traffic growth. When the development flows are added, there would be small increases in RFC values, queue lengths and delay but these increases would be minimal. It is therefore considered that the impact of the proposed development on the Park Street roundabout cannot be considered as severe in accordance with the NPPF paragraph 111 and is acceptable.

A405 North Orbital Road / Tippendell Lane Roundabout

4.20 The existing A405 North Orbital Road / Tippendell Lane has been modelled within Junctions 9 using the ARCADY module. As with the previous junction, the roundabout has been assessed for both the 2027 and 2038 scenarios without the committed development. The ARCADY results are shown within Table 9 and the ARCADY outputs have been provided within Appendix D.

Table 9: A405 North Orbital Road / Tippendell Lane – Existing Layout ARCADY Results (No Committed Development)

Scenario	Approach	AM Peak			PM Peak		
		RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2016 Survey	A405 North	0.32	0.5	2.49	0.54	1.2	3.69
	Tippendell Lane East	0.46	0.9	6.96	0.44	0.8	8.66
	A405 South	0.35	0.5	2.83	0.45	0.8	3.12
	Tippendell Lane West	0.22	0.3	4.33	0.33	0.5	5.79
	Junction Delay	3.74			4.31		
2027 without Dev't	A405 North	0.36	0.6	2.67	0.61	1.6	4.46
	Tippendell Lane East	0.53	1.1	8.46	0.54	1.1	11.70
	A405 South	0.40	0.7	3.11	0.51	1.0	3.54
	Tippendell Lane West	0.25	0.3	4.78	0.40	0.7	6.94
	Junction Delay	4.25			5.24		
2027 with Dev't	A405 North	0.37	0.6	2.71	0.63	1.7	4.63
	Tippendell Lane East	0.55	1.2	8.75	0.56	1.2	12.51
	A405 South	0.41	0.7	3.15	0.52	1.1	3.62
	Tippendell Lane West	0.30	0.4	5.08	0.41	0.7	7.13
	Junction Delay	4.38			5.46		
2038 without Dev't	A405 North	0.38	0.6	2.77	0.65	1.8	4.91
	Tippendell Lane East	0.58	1.3	9.49	0.59	1.4	14.01
	A405 South	0.43	0.7	3.27	0.54	1.2	3.76
	Tippendell Lane West	0.27	0.4	5.03	0.43	0.8	7.67
	Junction Delay	4.58			5.86		
2038 with Dev't	A405 North	0.39	0.6	2.81	0.66	1.9	5.12
	Tippendell Lane East	0.59	1.4	9.85	0.62	1.6	15.17
	A405 South	0.43	0.7	3.31	0.54	1.2	3.86
	Tippendell Lane West	0.32	0.5	5.35	0.45	0.8	7.91
	Junction Delay	4.73			6.15		

4.21 The junction capacity results shown in Table 9, indicates that the junction would operate within capacity in both the 'with' and 'without' development scenarios. When the development flows are added, there would be small increases in RFC values, queue lengths and delay but these increases would be minimal, and the junction would continue to operate within capacity. It is therefore considered that the impact of the proposed development on the A405 / Tippendell Lane roundabout cannot be considered as severe in accordance with the NPPF paragraph 111 and is acceptable.

Noke Hotel Roundabout (A405 North Orbital Road / Watford Road)

4.22 The existing Noke Hotel roundabout has been modelled within ARCADY. It is understood that queueing typically extends back from the M25 Junction 21A which impacts on the operation of this roundabout, but this cannot be replicated within a standalone ARCADY model.

4.23 As with the previous junctions, the roundabout has been assessed for both the 2027 and 2038 scenarios without the committed development. The ARCADY results are shown within Table 10 and the ARCADY outputs have been provided within Appendix D.

Table 10: A405 North Orbital Road / Watford Road – Existing Layout ARCADY Results (No Committed Development)

Scenario	Approach	AM Peak			PM Peak		
		RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2016 Survey	Watford Road	0.54	1.2	5.48	0.54	1.2	6.41
	A405 North	0.43	0.7	4.00	0.67	2.0	6.58
	A405 South	0.59	1.4	4.13	0.81	4.0	8.61
	Noakes Hotel	0.02	0.0	12.10	0.00	0.0	0.00
	Junction Delay	4.50			7.55		
2027 without Dev't	Watford Road	0.62	1.6	6.78	0.64	1.7	8.52
	A405 North	0.49	1.0	4.66	0.77	3.3	9.71
	A405 South	0.66	1.9	4.95	0.90	8.0	15.74
	Noakes Hotel	0.03	0.0	15.13	0.00	0.0	0.00
	Junction Delay	5.40			12.46		
2027 with Dev't	Watford Road	0.66	1.9	7.74	0.66	1.9	9.02
	A405 North	0.51	1.0	4.92	0.78	3.5	10.13
	A405 South	0.67	2.0	5.12	0.92	10.2	19.68
	Noakes Hotel	0.03	0.0	15.81	0.00	0.0	0.00
	Junction Delay	5.85			14.66		
2038 without Dev't	Watford Road	0.66	1.9	7.71	0.68	2.1	10.12
	A405 North	0.52	1.1	5.04	0.82	4.4	12.38
	A405 South	0.69	2.2	5.45	0.94	12.8	24.38
	Noakes Hotel	0.03	0.0	17.14	0.00	0.0	0.00
	Junction Delay	6.00			17.87		
2038 with Dev't	Watford Road	0.71	2.4	8.98	0.70	2.3	10.78
	A405 North	0.54	1.2	5.35	0.83	4.6	13.07
	A405 South	0.70	2.3	5.66	0.96	17.7	32.71
	Noakes Hotel	0.03	0.0	18.01	0.00	0.0	0.00
	Junction Delay	6.57			22.37		

4.24 The junction capacity results shown in Table 10, indicates that the junction would exceed capacity in the 'without development' scenarios as a result of the background traffic. When the development flows are added, there would be small increases in RFC values, queue lengths and delay but these increases would be minimal. It is therefore considered that the impact of the proposed development on the Noke Hotel roundabout cannot be considered as severe in accordance with the NPPF paragraph 111 and is acceptable.

5.0 Highway Impact Assessment Plus Committed Development

5.1 As outlined within paragraph 3.17, a highway impact assessment has been undertaken to assess the impact on the SRN junctions if the committed development outlined in Chapter 3 is constructed. Both committed developments identified will incorporate junction mitigation and this is discussed further within this chapter.

Percentage Impact Assessment

5.2 The percentage impact assessment has been updated to include the committed development flows and this updated assessment for 2027 is shown within Table 11.

Table 11: Increase in Two-way Traffic at Local Junctions in 2027 (With Committed Development)

		Without Dev. (Vehs)	With Dev. (Vehs)	Two-way Increase (Vehs)	Two-way Increase (%)
AM Peak (07:15 to 08:15)					
1.	Watford Road / Long Fallow	1,458	1,541	83	5.7%
2.	Watford Road / Forge End	1,516	1,738	222	14.6%
3a.	Watford Road / Chiswell Green Lane	1,711	2,054	343	20.0%
3b	Watford Road / Tippendell Lane	2,020	2,172	152	7.5%
4.	A405 North Orbital Road / Tippendell Lane	2,288	2,346	58	2.5%
5.	A405 North Orbital Road / Watford Road	3,065	3,148	83	2.7%
6.	A405 North Orbital Road / A414	5,087	5,133	46	0.9%
7.	M25 Junction 21A	5,573	5656	83	1.5%
PM Peak (17:00 to 18:00)					
1.	Watford Road / Long Fallow	1,477	1,546	69	4.7%
2.	Watford Road / Forge End	1,516	1,631	115	7.6%
3a.	Watford Road / Chiswell Green Lane	1,663	1,796	133	8.0%
3b	Watford Road / Tippendell Lane	1,933	2,015	82	4.2%
4.	A405 North Orbital Road / Tippendell Lane	2,950	2,992	42	1.4%
5.	A405 North Orbital Road / Watford Road	3,846	3,915	69	1.8%
6.	A405 North Orbital Road / A414	5,886	5,932	46	0.8%
7.	M25 Junction 21A	6,866	6,935	69	1.0%

5.3 Table 11 indicates that in 2027 there would be an increase of between 0.9% and 2.7% on the Strategic Road Network junctions during the AM peak hour. During the PM peak hour, there would be an increase of between 0.8% and 1.8%. When compared to the 'without committed development' shown within Table 4 there would be a slight reduction in percentage impact when compared to the assessment without the committed development as the base flows are slightly higher.

5.4 As requested by AECOM, local junction modelling has been undertaken for the A405 North Orbital Road junctions with the exception of the M25 Junction 21A as turning count surveys are not available.

5.5 The M25 Junction 21A would experience an increase in traffic of up to 1.6% in the AM peak hour and 1.0% in the PM peak hour. This is due to the increase in trips of between 69 and 83 two-way flows. The proposed development on each arm of the junction is shown within Table 12.

Table 12: Increase in Two-way Traffic at the M25 Junction 21A in 2027 (With Committed Development)

	Without Dev. (Vehs)	With Dev. (Vehs)	Two-way Increase (Vehs)	Two-way Increase (%)
AM Peak (07:15 to 08:15)				
A405 North Orbital Road Southbound	1,465	1525	60	4.1%
M25 Anti-clockwise Off-slip	625	625	0	0.0%
A405 North Orbital Road Northbound	2,457	2471	14	0.6%
M25 Clockwise Off-slip	1026	1035	9	0.9%
M25 Junction 21A	**5,573**	**5,656**	**83**	**1.5%**
PM Peak (17:00 to 18:00)				
A405 North Orbital Road Southbound	1,914	1936	22	1.1%
M25 Anti-clockwise Off-slip	1246	1248	2	0.2%
A405 North Orbital Road Northbound	2,382	2409	27	1.1%
M25 Clockwise Off-slip	1,324	1342	18	1.4%
M25 Junction 21A	**6,866**	**6,935**	**69**	**1.0%**

5.6 Table 12 shows that the majority of the development flows are using the A405 southbound. In total there would be 60 additional vehicles using this approach across the peak hour which would equate to one vehicle per minute. As outlined within paragraph 4.7, the flows would be spread over three lanes on the approach to the junction and when combined with the low number of vehicles per minute, it is considered that there would not be a material impact on the operation of the junction.

5.7 Similarly, the number of development trips on the A405 southbound are expected to reduce to 45 as a result of the Travel Plan measures and so the impact will in reality be lower than shown in Table 12.

5.8 During the PM peak hour, the development traffic is spread over each of the four approaches at the junction and therefore it is not considered that there is a material impact on any of the approaches.

5.9 The percentage impact has been updated to reflect the 2038 future year scenario and is shown within Table 13.

Table 13: Increase in Two-way Traffic at Local Junctions in 2038 (With Committed Development)

		Without Dev. (Vehs)	With Dev. (Vehs)	Two-way Increase (Vehs)	Two-way Increase (%)
AM Peak (07:15 to 08:15)					
1.	Watford Road / Long Fallow	1,533	1,616	83	5.4%
2.	Watford Road / Forge End	1,594	1,816	222	13.9%
3a.	Watford Road / Chiswell Green Lane	1,798	2,141	343	19.1%
3b	Watford Road / Tippendell Lane	2,122	2,274	152	7.2%
4.	A405 North Orbital Road / Tippendell Lane	2,386	2,444	58	2.4%
5.	A405 North Orbital Road / Watford Road	3,197	3,280	83	2.6%
6.	A405 North Orbital Road / A414	5,312	5,358	46	0.9%
7.	M25 Junction 21A	5,814	5,897	83	1.4%
PM Peak (17:00 to 18:00)					
1.	Watford Road / Long Fallow	1,549	1,618	69	4.5%
2.	Watford Road / Forge End	1,588	1,703	115	7.2%
3a.	Watford Road / Chiswell Green Lane	1,742	1,875	133	7.6%
3b	Watford Road / Tippendell Lane	2,026	2,108	82	4.0%
4.	A405 North Orbital Road / Tippendell Lane	3,080	3,122	42	1.4%
5.	A405 North Orbital Road / Watford Road	4,014	4,083	69	1.7%
6.	A405 North Orbital Road / A414	6,150	6,196	46	0.7%
7.	M25 Junction 21A	7,176	7,245	69	1.0%

5.10 Table 13 indicates that in 2038 there would be an increase of between 0.9% and 2.6% on the Strategic Road Network junctions during the AM peak hour. During the PM peak hour, there would be an increase of between 0.8% and 1.8%. As with the 2027 assessment, when compared to the 'without committed development' shown within Table 5, there would be a slight reduction in percentage impact when compared to the assessment without the committed development as the base flows are slightly higher.

5.11 The M25 Junction 21A would experience an increase in traffic of up to 1.4% in the AM peak hour and 1.0% in the PM peak hour. This is due to the increase in trips of between 69 and 83 two-way flows. The proposed development impact on each arm of the junction is shown within Table 14.

Table 14: Increase in Two-way Traffic at the M25 Junction 21A in 2038 (With Committed Development)

	Without Dev. (Vehs)	With Dev. (Vehs)	Two-way Increase (Vehs)	Two-way Increase (%)
AM Peak (07:15 to 08:15)				
A405 North Orbital Road Southbound	1,531	1,591	60	3.9%
M25 Anti-clockwise Off-slip	651	651	0	0.0%
A405 North Orbital Road Northbound	2,562	2,576	14	0.5%
M25 Clockwise Off-slip	1,069	1,078	9	0.8%
M25 Junction 21A	**5,813**	**5,896**	**83**	**1.4%**
PM Peak (17:00 to 18:00)				
A405 North Orbital Road Southbound	1,997	2,019	22	1.1%
M25 Anti-clockwise Off-slip	1,303	1,305	2	0.2%
A405 North Orbital Road Northbound	2,492	2,519	27	1.1%
M25 Clockwise Off-slip	1,384	1,402	18	1.3%
M25 Junction 21A	**7,176**	**7,245**	**69**	**1.0%**

5.12 Table 14 shows that the impact at the M25 Junction 21A is similar to the 2027 scenario and consequently the assessment outlined in paragraphs 5.6 to 5.8 remains valid.

Junction Capacity Assessment

Park Street Roundabout

5.13 As part of the consented Rail Terminal development, it is proposed to upgrade the existing unsignalised Park Street Roundabout to part signalisation. It is understood that it is proposed to signalise the two A414 approaches and the A405 approach.

5.14 The planning application documents have been reviewed but no detailed junction modelling outputs have been found. Consequently, a LinSig model has been developed based on the junction arrangement shown in David Tucker Associates' drawing 6035-23 Rev. D (see Appendix C). It should be noted, however, that no information has been identified online which confirms the saturation flows, phasing, staging and cycle time used and so various assumptions have been made based on past experience with similar large part signalised roundabout that may not reflect the modelling provided within the consented application in every respect. It should be noted, however, that the slope and intercept for the two give way approaches have been calculated using ARCADY.

5.15 Whilst the model may not reflect the consented layout and LinSig model in every respect, it is considered that the model still provides an accurate comparison of the impact of the proposed development traffic as the same assumptions have been used for both the 'with' and 'without' development scenarios.

5.16 As the junction incorporates traffic signals, the junction is considered to be operating over capacity when the Degree of Saturation (DoS) exceeds 90%. To model the junction within LinSig, the traffic flows have been converted to Passenger Car Units (PCUs) by double counting the Heavy Vehicles. The PCU flows are shown within Appendix A.

5.17 The 2027 Base + Committed scenario both 'with' and 'without' the proposed development flows has been assessed within LinSig and the results are shown within Table 15 for the AM peak hour and Table 16 for the PM peak hour. The LinSig outputs have been provided within Appendix E.

5.18 The AM peak hour modelling results in Table 15 show that the improved junction would exceed capacity in the 'without development' scenario particularly on the A405 circulatory. The A414 East approach would be approaching capacity with a Degree of Saturation of 84.7% and 84%. When development flows are included, these approaches would exceed capacity, however, there are only small increases in queue length and delay and so the development is not considered to result in a severe impact. It is also possible that once the junction is refined to remove the assumptions made (see paragraph 5.13) then this will improve the operation of these links.

5.19 In addition to the above, when the Practical Reserve Capacity and the total delay is compared between the scenarios, the difference is small therefore confirming that the impact can not be considered as severe.

5.20 It is considered, however that the mitigated junction would incorporate MOVA (Microprocessor Optimised Vehicle Actuation) which would adjust the signal timings in real time based on queueing observed on site. This is liable to improve the operation of the junction further but cannot be modelled within LinSig.

Table 15: Park Street Roundabout – 2027 AM Peak Hour

Link Number	Approach	2027 Base + Committed (without Development)			2027 Base + Committed + Development		
		DoS (%)	MMQ (pcu)	Delay (s/pcu)	DoS (%)	MMQ (pcu)	Delay (s/pcu)
1/1 &1/2	A414 East (NS & Middle)	48.1	3.9	7.5	41.8	3.1	6.7
1/3	A414 East (OS)	84.7	18.1	17.7	90.9	22.6	22.7
2/1	Watling Street South (NS)	5.7	0.0	1.8	5.7	0.0	1.8
2/2	Watling Street South (OS)	27.6	0.2	1.2	27.5	0.2	1.2
3/1 & 3/2	A405 (NS)	70.6	7.5	27.3	69.5	7.7	25.8
3/3	A405 (OS)	74.2	8.1	30.9	71.7	8.0	28.5
4/1 & 4/2	A414 West (NS & Middle)	68.4	6.8	24.0	67.7	6.6	23.8
4/3	A414 West (OS)	47.9	4.4	23.5	49.5	4.6	23.8
5/1 & 5/2	Watling Street North	45.2	2.2	3.3	45.6	2.2	3.3
6/1	A414 East Circulatory (NS)	84.0	8.5	40.7	90.0	9.9	54.1
6/2	A414 East Circulatory (Middle)	0.0	0.0	0.0	1.4	0.0	5.4
6/3	A414 East Circulatory (OS)	60.8	4.5	25.4	64.3	4.6	28.0
7/1	Watling South Circulatory (NS)	41.9	0.4	1.6	40.1	0.3	1.6
7/2	Watling South Circulatory (Middle)	23.0	0.1	1.2	19.6	0.1	1.2
7/3	Watling South Circulatory (OS)	75.8	3.3	5.1	81.8	4.4	6.8
8/1	A405 Exit Circulatory (NS)	13.6	0.1	1.1	11.8	0.1	1.1
8/2	A405 Exit Circulatory (Middle)	8.1	0.3	1.5	36.1	0.3	1.5
8/3	A405 Exit Circulatory (OS)	90.2	11.2	13.8	94.6	10.6	18.0
9/1	A405 Circulatory (NS)	59.4	6.7	9.1	59.3	7.1	12.1
9/2	A405 Circulatory (Middle)	60.5	6.7	10.6	61.1	7.7	12.8
9/3	A405 Circulatory (OS)	47.3	5.8	11.5	51.6	6.0	11.4
10/1	A414 West Exit Circulatory (NS)	45.0	1.2	2.1	43.5	1.2	2.1
10/2	A414 West Exit Circulatory (Middle)	51.3	1.0	2.1	52.4	1.1	2.1
10/3	A414 West Exit Circulatory (OS)	51.2	1.0	2.1	53.4	1.1	2.2
11/1	A414 West Circulatory (NS)	21.7	1.8	8.2	18.9	1.4	8.1
11/2	A414 West Circulatory (Middle)	64.8	4.7	8.0	71.1	11.3	10.3
11/3	A414 West Circulatory (OS)	54.0	2.2	6.1	53.1	2.2	5.8
12/1	Watling North Circulatory (NS)	32.0	0.2	1.4	32.2	0.2	1.4
12/2	Watling North Circulatory (Middle)	31.3	0.6	1.6	32.7	0.6	1.6
12/3	Watling North Circulatory (OS)	46.7	0.6	1.8	46.7	0.7	1.8
13/1	A414 East Circulatory (NS)	39.9	0.3	1.6	40.3	0.3	1.6
13/2	A414 East Circulatory (Middle)	49.3	5.3	1.9	50.5	5.3	1.9
13/3	A414 East Circulatory (OS)	60.1	0.8	2.4	60.1	0.8	2.4
Practical Reserve Capacity – All Lanes (%)		-0.2			-5.1		
Total Delay (pcuHr)		52.51			60.69		
Cycle Time (S)		60			60		

Table 16: Park Street Roundabout – 2027 PM Peak Hour

Link Number	Approach	2027 Base + Committed (without Development)			2027 Base + Committed + Development		
		DoS (%)	MMQ (pcu)	Delay (s/pcu)	DoS (%)	MMQ (pcu)	Delay (s/pcu)
1/1 &1/2	A414 East (NS & Middle)	73.8	7.1	9.8	74.4	7.2	9.9
1/3	A414 East (OS)	96.2	30.3	35.6	96.2	30.3	35.6
2/1	Watling Street South (NS)	1.9	0.0	3.0	1.9	0.0	3.1
2/2	Watling Street South (OS)	28.0	0.2	1.3	28.0	0.2	1.3
3/1 & 3/2	A405 (NS)	78.5	9.0	30.9	77.5	9.1	29.1
3/3	A405 (OS)	79.9	9.3	34.3	76.5	8.9	30.8
4/1 & 4/2	A414 West (NS & Middle)	78.1	8.6	25.0	78.4	8.6	26.0
4/3	A414 West (OS)	50.3	5.0	22.0	54.8	5.5	23.8
5/1 & 5/2	Watling Street North	41.3	2.1	3.4	41.6	2.1	3.5
6/1	A414 East Circulatory (NS)	91.8	10.9	61.4	91.8	11.1	65.8
6/2	A414 East Circulatory (Middle)	0.0	0.0	0.0	0.2	0.0	9.7
6/3	A414 East Circulatory (OS)	84.8	8.6	45.2	85.0	8.7	44.0
7/1	Watling South Circulatory (NS)	54.9	0.6	2.1	55.2	0.6	2.1
7/2	Watling South Circulatory (Middle)	35.0	0.3	1.5	35.4	0.3	1.5
7/3	Watling South Circulatory (OS)	90.5	7.1	11.4	90.6	7.1	11.5
8/1	A405 Exit Circulatory (NS)	25.7	0.2	1.3	25.9	0.2	1.3
8/2	A405 Exit Circulatory (Middle)	55.2	0.8	2.2	54.9	0.8	2.2
8/3	A405 Exit Circulatory (OS)	98.2	22.4	33.0	98.8	26.0	37.1
9/1	A405 Circulatory (NS)	69.4	8.2	13.1	70.5	9.3	13.3
9/2	A405 Circulatory (Middle)	70.6	9.9	14.7	72.4	10.4	15.5
9/3	A405 Circulatory (OS)	42.0	4.7	8.9	44.5	5.4	10.4
10/1	A414 West Exit Circulatory (NS)	51.9	1.5	2.5	52.7	1.9	2.9
10/2	A414 West Exit Circulatory (Middle)	58.9	1.3	2.5	58.8	1.3	2.5
10/3	A414 West Exit Circulatory (OS)	49.9	1.1	2.1	50.9	1.1	2.2
11/1	A414 West Circulatory (NS)	21.3	1.3	7.3	19.5	1.1	6.6
11/2	A414 West Circulatory (Middle)	65.7	3.6	8.1	67.3	3.7	8.0
11/3	A414 West Circulatory (OS)	58.5	2.3	7.0	57.0	2.5	7.1
12/1	Watling North Circulatory (NS)	32.8	0.2	1.4	32.5	0.2	1.4
12/2	Watling North Circulatory (Middle)	36.4	0.8	1.7	37.6	0.8	1.8
12/3	Watling North Circulatory (OS)	50.0	0.8	1.9	50.7	0.8	2.0
13/1	A414 East Circulatory (NS)	40.5	0.3	1.6	40.4	0.3	1.6
13/2	A414 East Circulatory (Middle)	50.6	6.3	1.9	51.6	1.6	2.0
13/3	A414 East Circulatory (OS)	65.9	1.0	2.8	66.7	1.0	2.8
Practical Reserve Capacity – All Lanes (%)		-9.1			-9.8		
Total Delay (pcuHr)		87.60			91.01		
Cycle Time (S)		60			60		

5.21 The PM peak modelling results shown in Table 16 indicates that the improved junction would exceed capacity in the 'without development' scenario particularly on the A414 approaches and the A405 circulatory. When the development flows are included, these approaches would continue to exceed capacity, however, there are only small increases in Degree of Saturation, queue length and delay and so it is not considered to be a severe impact.

5.22 In addition to the above, when the Practical Reserve Capacity and the total delay is compared between the two scenarios, the difference is small, therefore confirming that the impact can not be considered as severe.

5.23 The 2038 Base + Committed scenario both 'with' and 'without' development has been assessed within LinSig and the results are shown within Table 17 for the AM peak hour and Table 18 for the PM peak hour.

Table 17: Park Street Roundabout – 2038 AM Peak Hour

Link Number	Approach	2038 Base + Committed (without Development)			2038 Base + Committed + Development		
		DoS (%)	MMQ (pcu)	Delay (s/pcu)	DoS (%)	MMQ (pcu)	Delay (s/pcu)
1/1 &1/2	A414 East (NS & Middle)	50.1	4.2	7.7	50.8	4.2	7.7
1/3	A414 East (OS)	88.4	20.3	20.6	88.4	20.3	20.6
2/1	Watling Street South (NS)	6.2	0.0	1.9	6.2	0.0	1.9
2/2	Watling Street South (OS)	29.2	0.2	1.3	29.2	0.2	1.3
3/1 & 3/2	A405 (NS)	75.4	8.3	29.2	71.4	7.9	26.4
3/3	A405 (OS)	78.4	9.0	33.2	75.1	8.7	30.1
4/1 & 4/2	A414 West (NS & Middle)	70.6	7.0	24.5	71.6	7.1	24.8
4/3	A414 West (OS)	52.2	4.9	24.3	49.4	4.5	23.8
5/1 & 5/2	Watling Street North	49.2	2.5	3.7	49.2	2.5	3.7
6/1	A414 East Circulatory (NS)	88.4	10.0	48.2	88.4	9.8	48.1
6/2	A414 East Circulatory (Middle)	0.2	0.0	5.3	2.1	0.1	4.8
6/3	A414 East Circulatory (OS)	63.4	4.7	26.2	61.9	4.6	26.1
7/1	Watling South Circulatory (NS)	43.9	0.4	1.7	44.2	0.4	1.7
7/2	Watling South Circulatory (Middle)	23.9	0.2	1.2	24.8	0.2	1.3
7/3	Watling South Circulatory (OS)	79.1	3.9	5.9	78.7	3.8	5.9
8/1	A405 Exit Circulatory (NS)	14.3	0.1	1.1	14.5	0.1	1.1
8/2	A405 Exit Circulatory (Middle)	40.1	0.3	1.6	39.1	0.3	1.6
8/3	A405 Exit Circulatory (OS)	93.8	16.0	18.8	95.3	12.2	20.2
9/1	A405 Circulatory (NS)	63.3	7.9	10.6	66.4	8.7	14.3
9/2	A405 Circulatory (Middle)	63.9	7.5	12.0	66.6	8.6	13.1
9/3	A405 Circulatory (OS)	47.1	5.9	11.0	47.1	5.5	11.2
10/1	A414 West Exit Circulatory (NS)	47.4	1.3	2.3	47.7	1.4	2.4
10/2	A414 West Exit Circulatory (Middle)	54.9	1.1	2.3	56.1	1.1	2.3
10/3	A414 West Exit Circulatory (OS)	52.7	1.1	2.2	51.9	1.1	2.2
11/1	A414 West Circulatory (NS)	25.0	1.8	7.6	27.0	2.8	10.9
11/2	A414 West Circulatory (Middle)	67.0	10.6	8.0	66.5	6.4	8.2
11/3	A414 West Circulatory (OS)	56.8	2.3	5.9	56.0	2.5	6.6
12/1	Watling North Circulatory (NS)	33.1	0.2	1.4	32.7	0.2	1.4
12/2	Watling North Circulatory (Middle)	32.8	0.6	1.6	34.5	0.7	1.6
12/3	Watling North Circulatory (OS)	49.7	0.7	1.9	48.4	0.7	1.9
13/1	A414 East Circulatory (NS)	41.4	0.4	1.6	41.3	0.4	1.6
13/2	A414 East Circulatory (Middle)	51.6	5.3	2.0	52.8	5.3	2.0
13/3	A414 East Circulatory (OS)	63.8	0.9	2.6	62.6	0.9	2.5
Practical Reserve Capacity – All Lanes (%)		-4.2			-5.8		
Total Delay (pcuHr)		61.46			62.94		
Cycle Time (S)		60			60		

Table 18: Park Street Roundabout – 2038 PM Peak Hour

Link Number	Approach	2038 Base + Committed (without Development)			2038 Base + Committed + Development		
		DoS (%)	MMQ (pcu)	Delay (s/pcu)	DoS (%)	MMQ (pcu)	Delay (s/pcu)
1/1 &1/2	A414 East (NS & Middle)	78.6	8.3	10.9	79.2	8.5	11.1
1/3	A414 East (OS)	100.4	43.6	63.1	100.4	43.6	63.1
2/1	Watling Street South (NS)	2.2	0.0	3.4	2.3	0.0	3.5
2/2	Watling Street South (OS)	29.6	0.2	1.4	29.7	0.2	1.4
3/1 & 3/2	A405 (NS)	83.2	10.2	34.2	80.8	9.9	31.0
3/3	A405 (OS)	82.0	9.9	36.0	79.7	9.7	32.8
4/1 & 4/2	A414 West (NS & Middle)	83.8	9.8	29.7	81.3	9.1	27.3
4/3	A414 West (OS)	64.5	6.5	27.2	60.4	6.2	25.0
5/1 & 5/2	Watling Street North	46.9	2.7	4.1	46.2	2.4	3.9
6/1	A414 East Circulatory (NS)	95.2	12.9	72.9	95.2	12.9	74.0
6/2	A414 East Circulatory (Middle)	17.1	1.3	20.6	15.8	1.2	20.0
6/3	A414 East Circulatory (OS)	71.5	6.1	33.5	73.3	6.3	34.5
7/1	Watling South Circulatory (NS)	58.5	0.7	2.3	58.8	0.7	2.3
7/2	Watling South Circulatory (Middle)	39.1	0.3	1.6	39.0	0.3	1.6
7/3	Watling South Circulatory (OS)	90.2	7.3	11.6	90.6	7.5	12.0
8/1	A405 Exit Circulatory (NS)	28.1	0.2	1.3	28.4	0.2	1.3
8/2	A405 Exit Circulatory (Middle)	61.2	0.9	2.5	61.6	1.0	2.5
8/3	A405 Exit Circulatory (OS)	97.2	16.5	27.4	97.2	16.5	27.4
9/1	A405 Circulatory (NS)	70.0	8.6	13.6	74.9	9.5	15.4
9/2	A405 Circulatory (Middle)	70.7	9.9	15.0	77.2	11.8	17.8
9/3	A405 Circulatory (OS)	49.0	5.5	9.8	43.1	4.7	9.6
10/1	A414 West Exit Circulatory (NS)	53.0	1.7	2.6	54.8	1.7	2.8
10/2	A414 West Exit Circulatory (Middle)	59.5	1.4	2.6	63.2	1.5	2.8
10/3	A414 West Exit Circulatory (OS)	54.6	1.2	2.3	51.2	1.2	2.2
11/1	A414 West Circulatory (NS)	16.1	0.6	4.3	23.7	1.6	8.0
11/2	A414 West Circulatory (Middle)	71.7	5.0	8.2	71.5	7.7	8.2
11/3	A414 West Circulatory (OS)	55.5	2.5	6.7	55.0	2.5	7.1
12/1	Watling North Circulatory (NS)	33.3	0.2	1.4	35.3	0.3	1.5
12/2	Watling North Circulatory (Middle)	38.3	0.8	1.8	29.2	0.8	1.8
12/3	Watling North Circulatory (OS)	52.8	0.9	2.1	51.5	0.9	2.0
13/1	A414 East Circulatory (NS)	42.4	0.4	1.6	43.5	0.4	1.7
13/2	A414 East Circulatory (Middle)	53.5	6.4	2.0	54.5	6.4	2.1
13/3	A414 East Circulatory (OS)	68.2	1.1	3.0	67.6	1.1	2.9
Practical Reserve Capacity – All Lanes (%)		-11.5			-11.5		
Total Delay (pcuHr)		101.61			102.26		
Cycle Time (S)		60			60		

5.24 As with the 2027 modelling, the 2038 junction capacity results shown in Tables 17 and 18 indicates that some of the approaches would exceed capacity (above 90% Degree of Saturation) in the 'without development' scenario. When the proposed development flows are added, the impact would be minimal and therefore the development would not have a severe impact on the operation of the junction in 2038. This is confirmed through the small differences in Practical Reserve Capacity and Total Delay during both peak hours.

5.25 As outlined within paragraph 5.19, the implementation of MOVA will further improve the operation of the junction but this cannot be modelled within LinSig.

A405 North Orbital Road / Tippendell Lane Roundabout

5.26 The committed development flows have been added to the ARCADY model representing the A405 North Orbital Road / Tippendell Lane roundabout. No mitigation was proposed at this junction as part of the consented applications and so the modelling is based on the existing junction layout.

5.27 The capacity results are shown in Table 19, whilst the ARCADY outputs have been provided within Appendix E.

Table 19: A405 North Orbital Road / Tippendell Lane – Existing Layout ARCADY Results (With Committed Development)

Scenario	Approach	AM Peak			PM Peak		
		RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2016 Survey	A405 North	0.32	0.5	2.49	0.54	1.2	3.69
	Tippendell Lane East	0.46	0.9	6.96	0.44	0.8	8.66
	A405 South	0.35	0.5	2.83	0.45	0.8	3.12
	Tippendell Lane West	0.22	0.3	4.33	0.33	0.5	5.79
	Junction Delay	3.74			4.31		
2027 without Dev't	A405 North	0.42	0.7	2.99	0.69	2.2	5.56
	Tippendell Lane East	0.58	1.3	10.00	0.62	1.6	16.43
	A405 South	0.49	0.9	3.70	0.56	1.3	4.03
	Tippendell Lane West	0.28	0.4	5.56	0.43	0.7	7.94
	Junction Delay	4.80			6.41		
2027 with Dev't	A405 North	0.42	0.7	3.04	0.70	2.3	5.82
	Tippendell Lane East	0.59	1.4	10.39	0.65	1.8	18.05
	A405 South	0.49	1.0	3.75	0.57	1.3	4.14
	Tippendell Lane West	0.33	0.5	5.94	0.45	0.8	8.20
	Junction Delay	4.95			6.77		
2038 without Dev't	A405 North	0.43	0.8	3.10	0.72	2.5	6.26
	Tippendell Lane East	0.62	1.6	11.45	0.69	2.1	21.26
	A405 South	0.51	1.0	3.90	0.59	1.4	4.31
	Tippendell Lane West	0.30	0.4	5.87	0.47	0.9	8.91
	Junction Delay	5.22			7.44		
2038 with Dev't	A405 North	0.44	0.8	3.15	0.73	2.7	6.59
	Tippendell Lane East	0.63	1.7	11.97	0.72	2.4	24.01
	A405 South	0.51	1.0	3.96	0.59	1.4	4.43
	Tippendell Lane West	0.35	0.5	6.32	0.49	0.9	9.23
	Junction Delay	5.42			7.96		

5.28 The modelling results shown in Table 19 indicates that the roundabout would continue to operate within capacity with minimal queues and delay if both the consented developments and the proposed development on Chiswell Green Lane are built.

Noke Hotel Roundabout (A405 North Orbital Road / Watford Road)

5.29 As part of the consented Hotel development, it is proposed to provide mitigation at the Noke Hotel roundabout and provide a fifth arm onto the roundabout to provide vehicular access to the new hotel. This mitigation comprises changes to the roundabout including enlarging the central island and making changes to the flare length and entry widths at each of the junction approaches.

5.30 The planning application documents have been reviewed but no detailed junction modelling outputs have been found. Consequently, an ARCADY model has been developed based measuring the geometric parameters from the junction arrangement shown in Stride Treglown Bell's drawing 20913 P201 Rev. B (see Appendix B).

5.31 It should be noted, however, that these parameters have been measured from a pdf and therefore may not accurately reflect the consented layout / modelling provided as part of the planning application. It is considered, however, that the model still provides an accurate comparison to assess the impact of the proposed development traffic as the same assumptions have been used for both the 'with' and 'without development scenarios.

5.32 The 2027 Base + Committed scenario both 'with' and 'without' development has been assessed within ARCADY and the results are shown within Table 20 and the ARCADY outputs have been provided within Appendix E.

Table 20: A405 North Orbital Road / Watford Road – Proposed Layout ARCADY Results (With Committed Development)

Scenario	Approach	AM Peak			PM Peak		
		RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2027 without Dev't	Watford Road	0.64	1.7	7.35	0.62	1.6	7.90
	A405 North	0.49	0.9	4.11	0.74	2.8	7.36
	New Hotel Access	0.07	0.1	3.36	0.11	0.1	4.68
	A405 South	0.70	2.3	5.31	0.87	6.6	12.19
	Noakes Hotel	0.05	0.1	30.29	0.00	0.0	0.00
	Junction Delay	5.50			9.73		
2027 with Dev't	Watford Road	0.50	1.0	3.86	0.64	1.7	8.33
	A405 North	0.50	1.0	4.31	0.75	2.9	7.60
	New Hotel Access	0.08	0.1	3.50	0.11	0.1	4.77
	A405 South	0.71	2.5	5.49	0.90	8.0	14.58
	Noakes Hotel	0.01	0.0	7.84	0.00	0.0	0.00
	Junction Delay	5.96			11.06		
2038 without Dev't	Watford Road	0.68	2.1	8.43	0.66	1.9	9.20
	A405 North	0.51	1.0	4.37	0.78	3.5	8.78
	New Hotel Access	0.08	0.1	3.52	0.12	0.1	5.08
	A405 South	0.73	2.7	5.84	0.91	9.4	16.90
	Noakes Hotel	0.07	0.1	39.29	0.00	0.0	0.00
	Junction Delay	6.10			12.69		
2038 with Dev't	Watford Road	0.70	2.3	8.67	0.68	2.1	9.41
	A405 North	0.51	1.0	4.29	0.78	3.4	8.59
	New Hotel Access	0.08	0.1	3.67	0.12	0.1	5.10
	A405 South	0.74	2.8	6.06	0.91	9.1	15.93
	Noakes Hotel	0.05	0.1	30.31	0.00	0.0	0.00
	Junction Delay	6.70			12.19		

5.33 The junction capacity results shown in Table 20 indicates that the junction would exceed capacity without the proposed development flows due to the increase in background traffic. This may be because the roundabout layout received planning consent in 2013 and may therefore need to be amended to accommodate the increase in traffic since planning consent was received whilst the creation of the ARCADY model from the scanned pdf drawing may also have reduce the capacity of the proposed junction model.

5.34 The 'with development' scenario, however, indicates that the impact of the proposed development would be minimal. There are small increases in RFC values, queue lengths and delay but it is considered that these can not be classed as severe in accordance with NPPF paragraph 111 and are acceptable.

6.0 Summary and Conclusions

6.1 This Technical Note has been prepared by Glanville to provide a response to the comments received from AECOM on behalf of National Highways on the proposed residential development on land to the south of Chiswell Green Lane in Chiswell Green (ref. 5/2022/0927).

6.2 National Highways requested that a holding objection is placed on the application until an assessment is undertaken to determine the impact of the proposed development on the Strategic Road Network (SRN). In particular, National Highways wanted to understand the impact on the M25 Junction 21A to the south of the development and the Park Street roundabout (A405 North Orbital Road / A414) to the north.

6.3 A summary of the findings of this assessment is outlined below:

- Traffic surveys had previously been undertaken in 2016 for all of the SRN junctions except for the M25 Junction 21A. Link flows for the motorway junction were obtained from the National Highways online database for the same day as the turning count surveys.

- The 2016 flows were increased to 2027 and 2038 using TEMPRO growth factors for a Trunk Road (A405, A414 and M25 slip roads) and a Principal Road (all non trunk roads).

- Local committed developments have been identified and the associated traffic flows added to the base flows. The committed development includes a new 150-bed hotel at the Noke Roundabout and the proposed rail freight terminal to the east of Park Street. The committed developments included improvements at both the Noke Roundabout and the Park Street Roundabout which have been taken into account.

- Two assessments were undertaken for each junction, one with the committed development and one without.

- The percentage impact assessment shows that the SRN junctions would experience increases in flow of between 1.0% and 3.0%. This is considered to be a non-material impact and was why the junctions were scoped out of the original Transport Assessment. Junction capacity assessments have therefore been undertaken for the three SRN junctions except for the M25 Junction 21A where turning counts are currently not available.

- The existing Park Street Roundabout would exceed capacity in the 2027 and 2038 'without development' without committed development scenarios. When the development flows are added, the junction would continue to exceed capacity but the increases in queue length and delay would be small and so the impact cannot be considered as severe. When the junction mitigation is undertaken to accommodate committed development flows, the junction would exceed capacity in the 'without development' scenario, which would continue once the development flows are added, but again it is considered that the impact would not be severe.

- The existing A405 / Tippendell Lane junction would operate within capacity both with and without committed development and with the addition of the proposed development flows.

- The existing Noke Hotel Roundabout would exceed capacity in the 2027 and 2038 'without development' without committed development scenarios in the PM peak hour. When the development flows are added, the junction would continue to exceed capacity but the increases in queue length and delay would be small and so the impact cannot be considered as severe. When the junction mitigation is undertaken to accommodate committed development flows, the junction would exceed capacity in the 'without development' PM peak scenario, which would continue once the development flows are added, but again it is considered that the impact would not be severe.

- The A405 Southbound would experience the largest increase in flows at the M25 Junction 21A. There would be an increase of one vehicle every minute, on average, but these flows would be spread over a three-lane entry. It is therefore considered that there would not be a material impact on this approach. Similarly, the implementation of the proposed Travel Plan measures will reduce the trip on this approach from 60 to 45 in the AM peak thereby further reducing the impact on the junction.

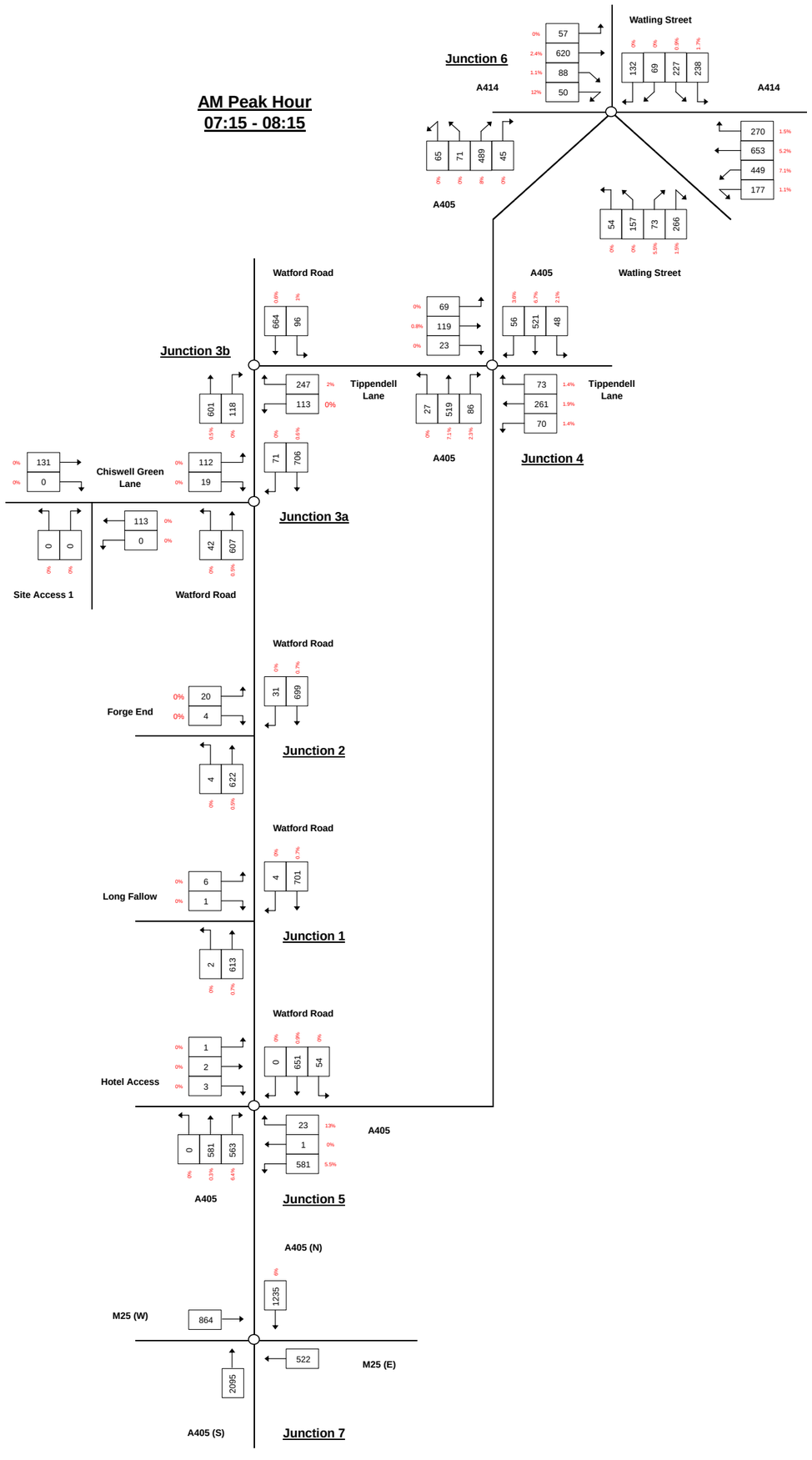
6.4 Given the above, it is concluded that the impact of the development proposals on the Strategic Road Network and its associated junctions would fall short of severe in the context of paragraph 111 of the NPPF and is therefore considered acceptable in transport terms. Therefore, National Highways should be able to remove its holding objection and make a positive recommendation to the Local Planning Authority in respect of the Outline application for the proposed development.

Appendices

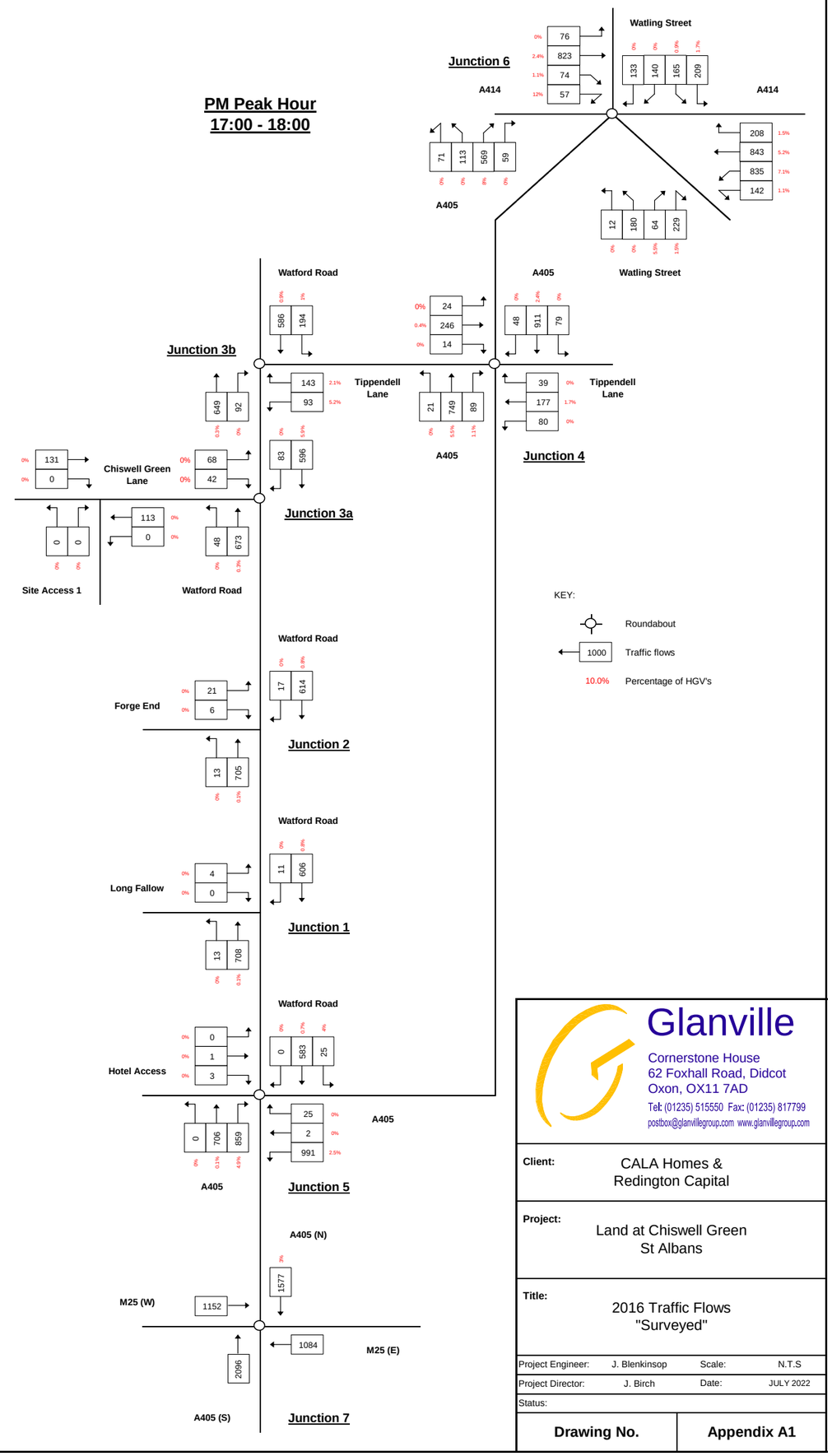
Appendix A

Traffic Flow Diagrams

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



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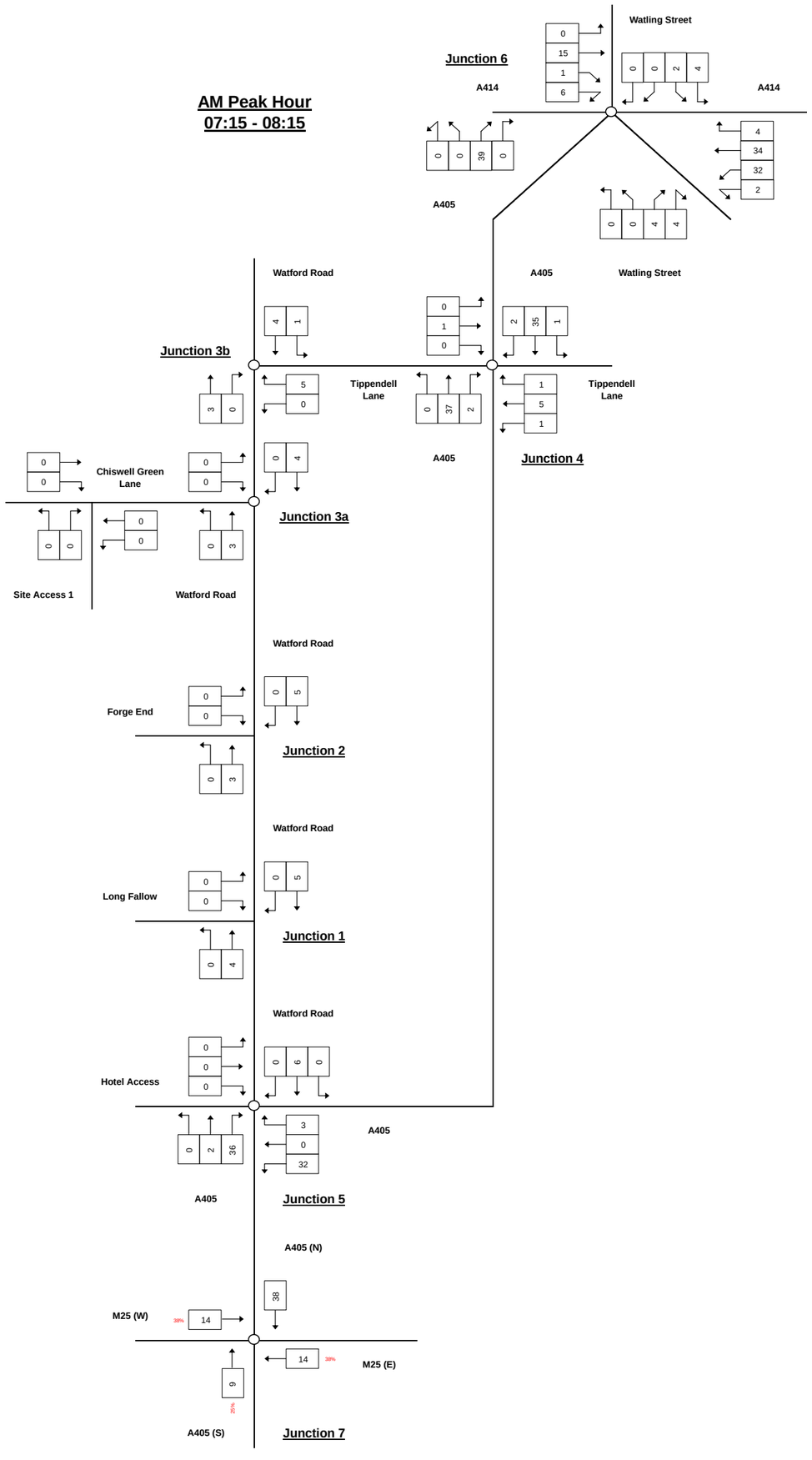
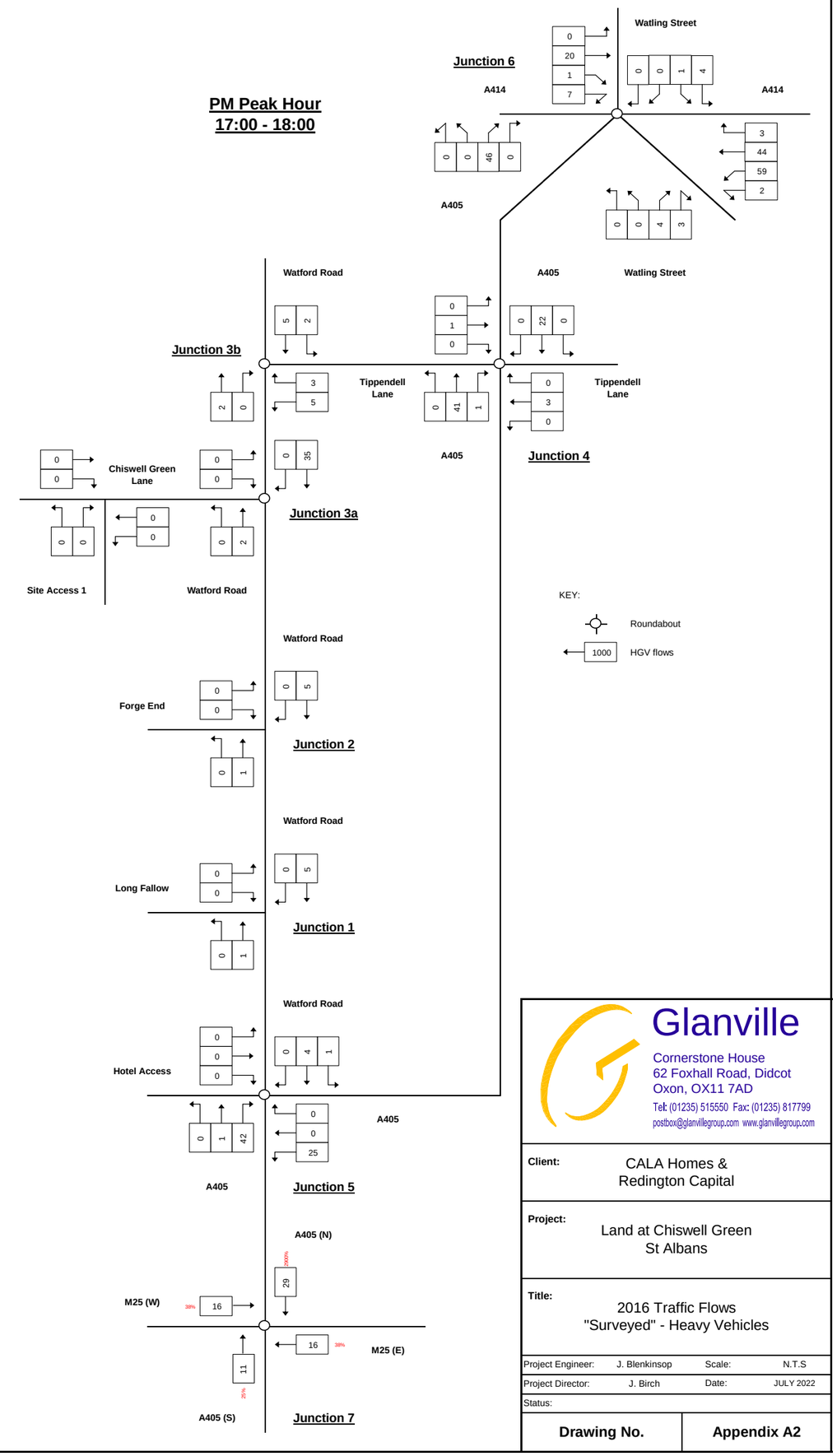
Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	2016 Traffic Flows "Surveyed"
Project Engineer: J. Blenkinsop	Scale: N.T.S
Project Director: J. Birch	Date: JULY 2022
Status:	
Drawing No.	**Appendix A1**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



KEY:

Roundabout

1000 HGV flows

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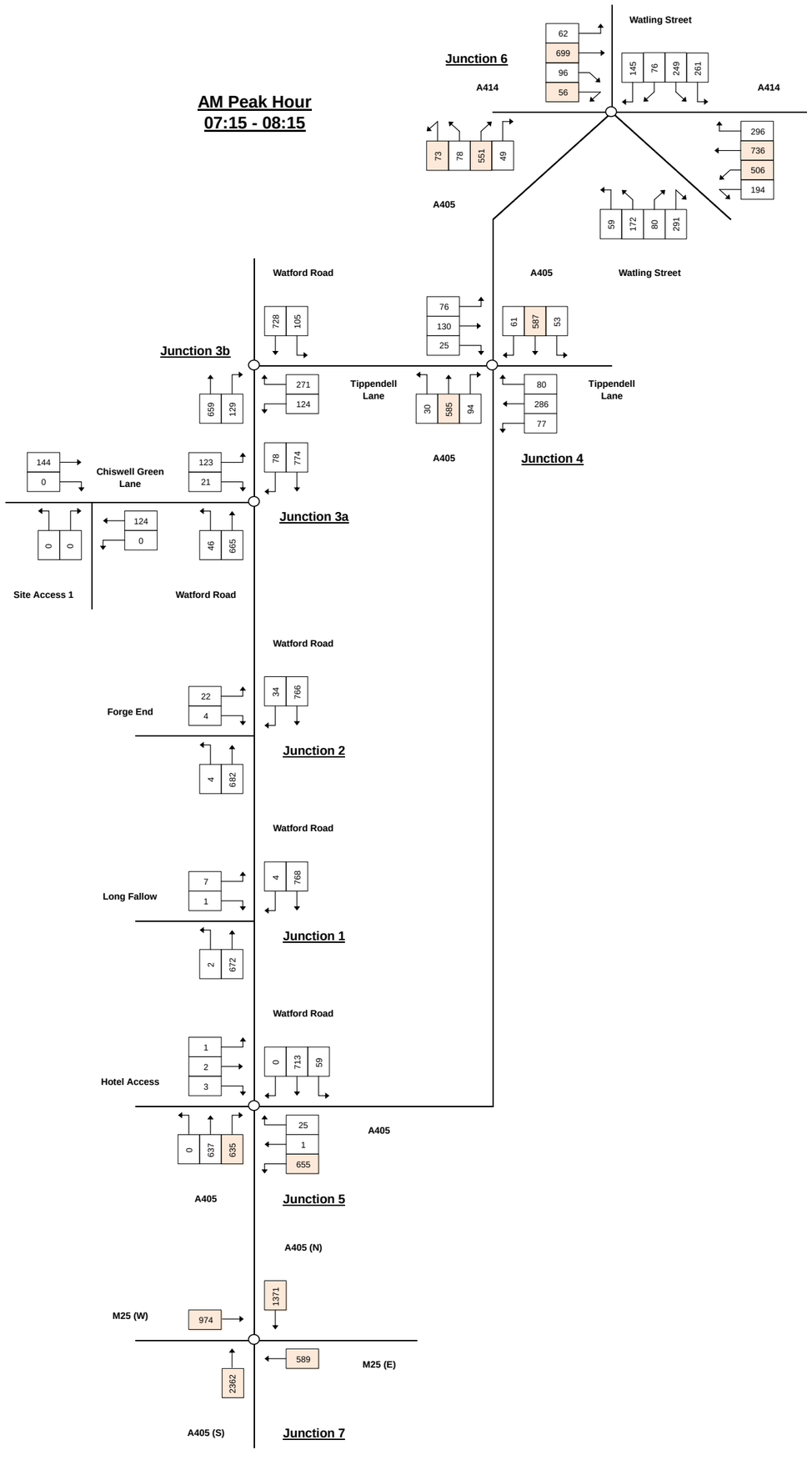
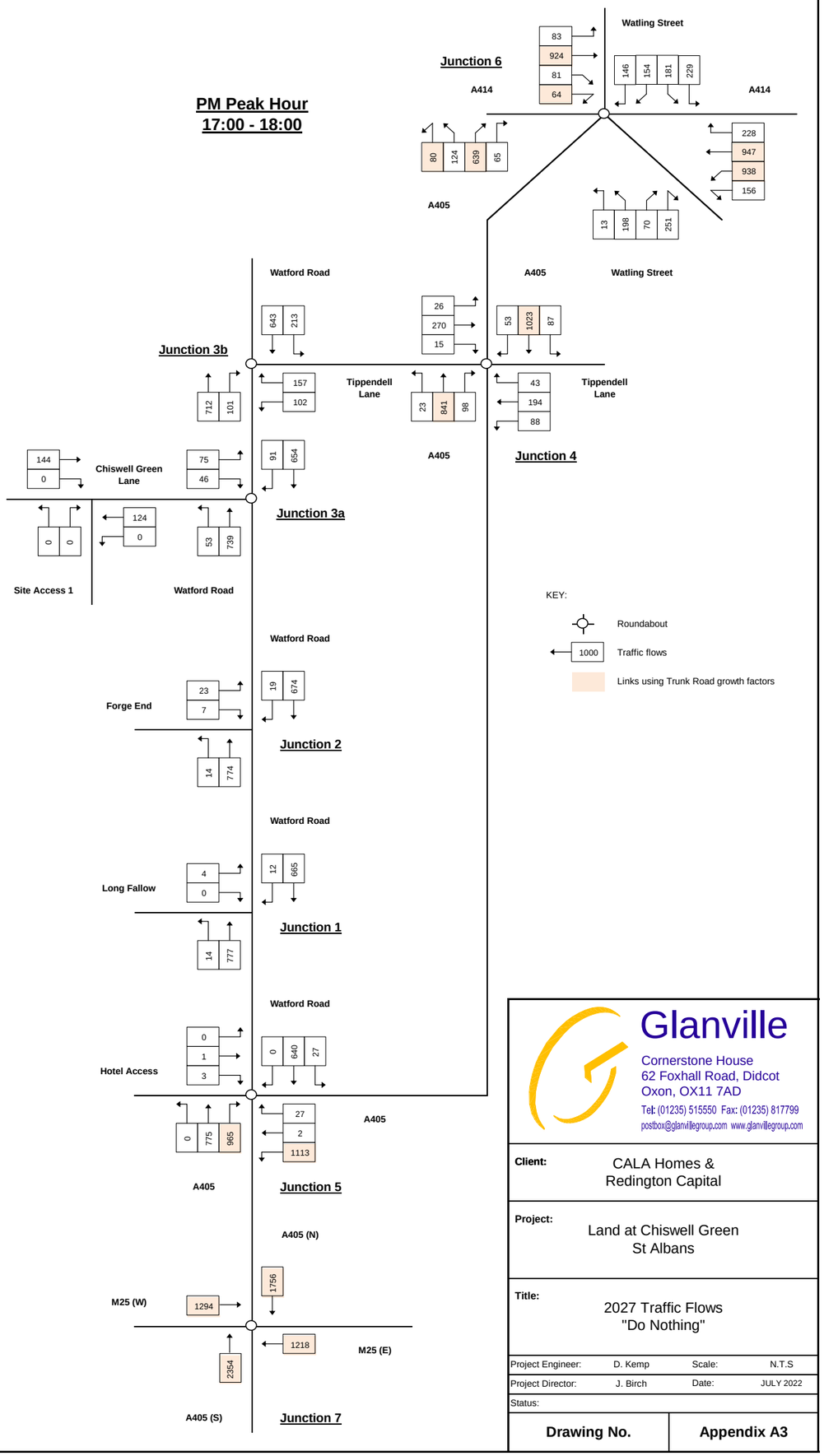
Project:	Land at Chiswell Green St Albans
Title:	2016 Traffic Flows "Surveyed" - Heavy Vehicles
Project Engineer: J. Blenkinsop	Scale: N.T.S
Project Director: J. Birch	Date: JULY 2022
Status:	
Drawing No.	**Appendix A2**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



KEY:

- Roundabout
- 1000 — Traffic flows
- Links using Trunk Road growth factors

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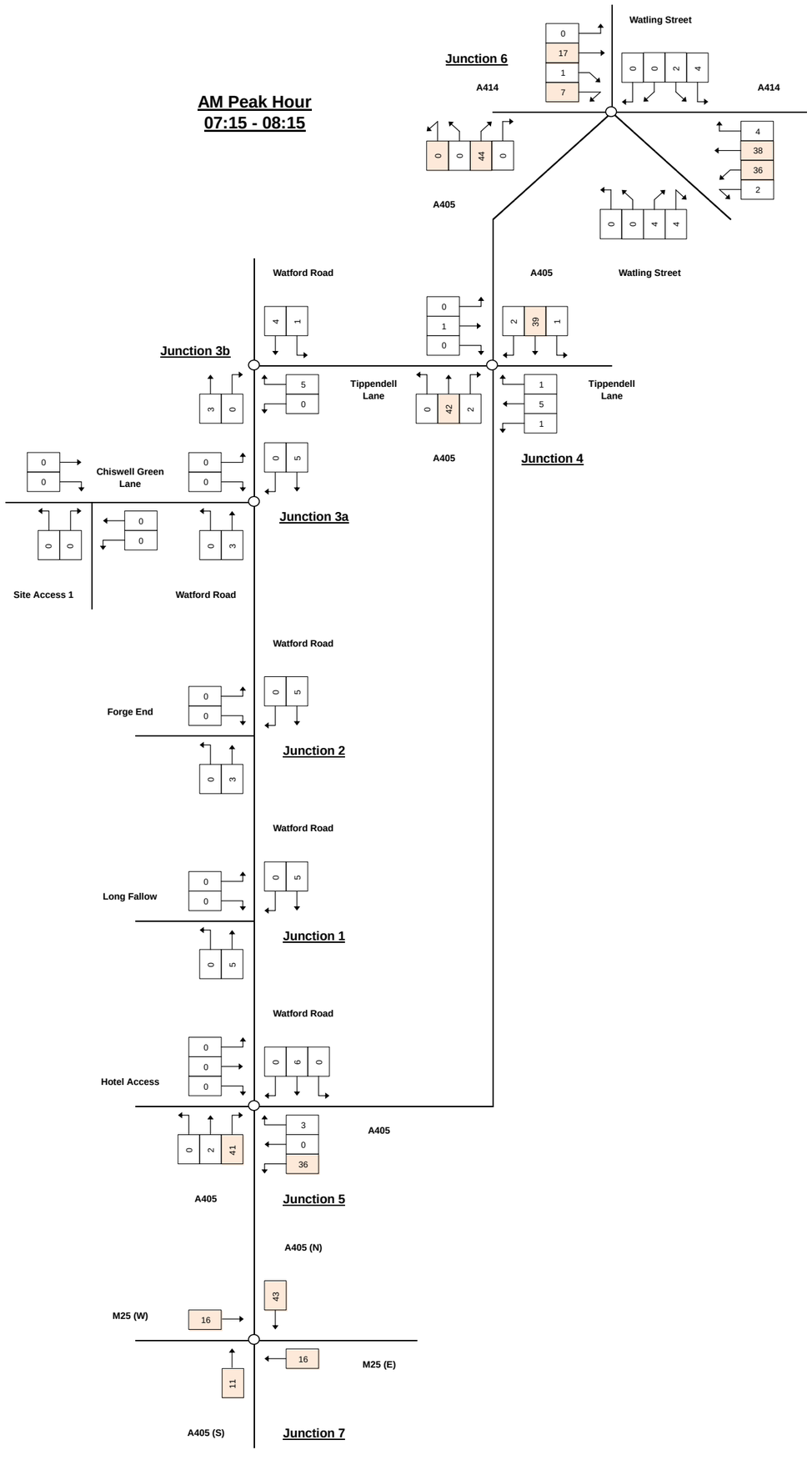
Project: Land at Chiswell Green St Albans

Title: 2027 Traffic Flows "Do Nothing"

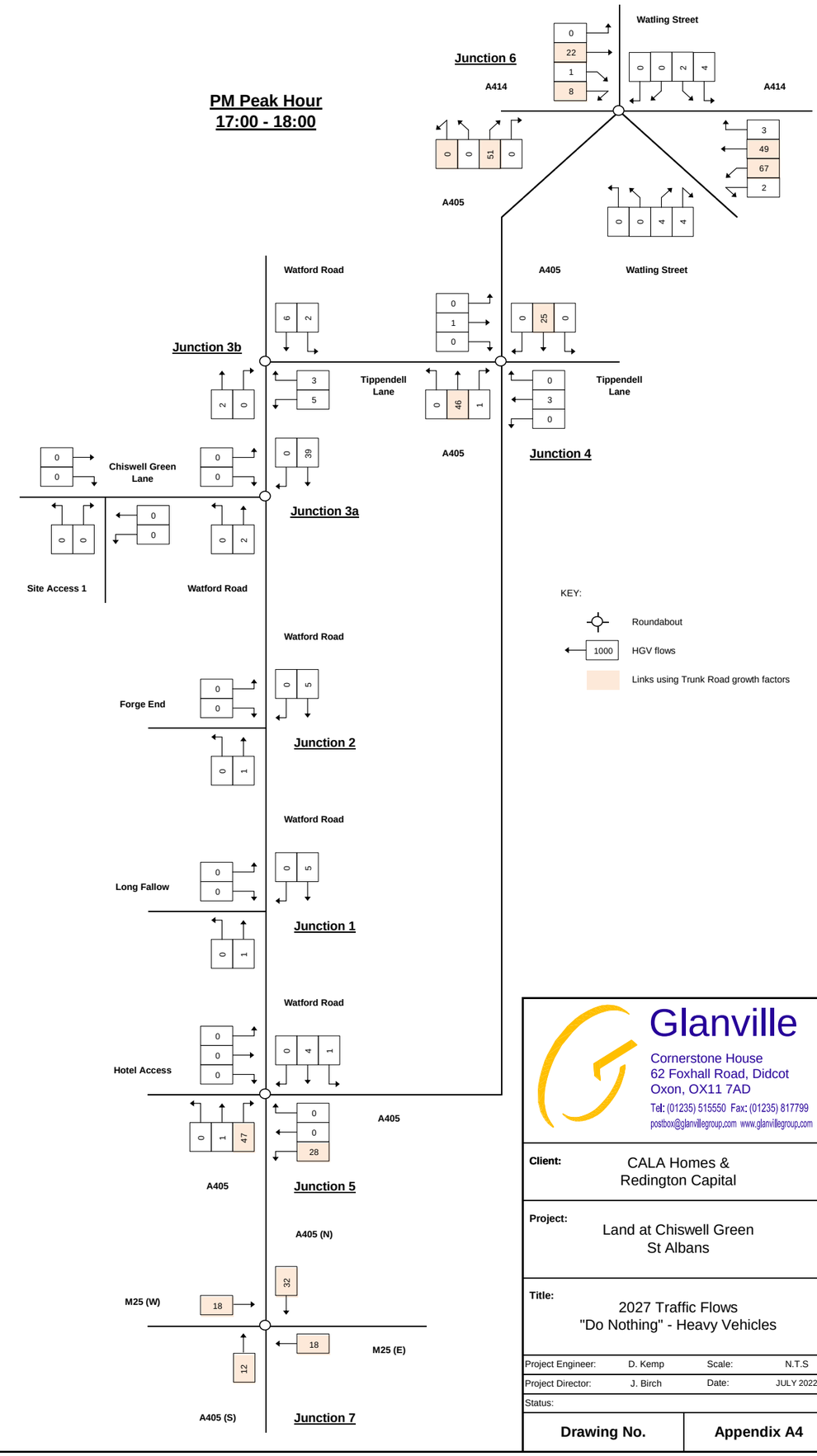
Project Engineer:	D. Kemp	Scale:	N.T.S
Project Director:	J. Birch	Date:	JULY 2022
Status:			

Drawing No. | **Appendix A3**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



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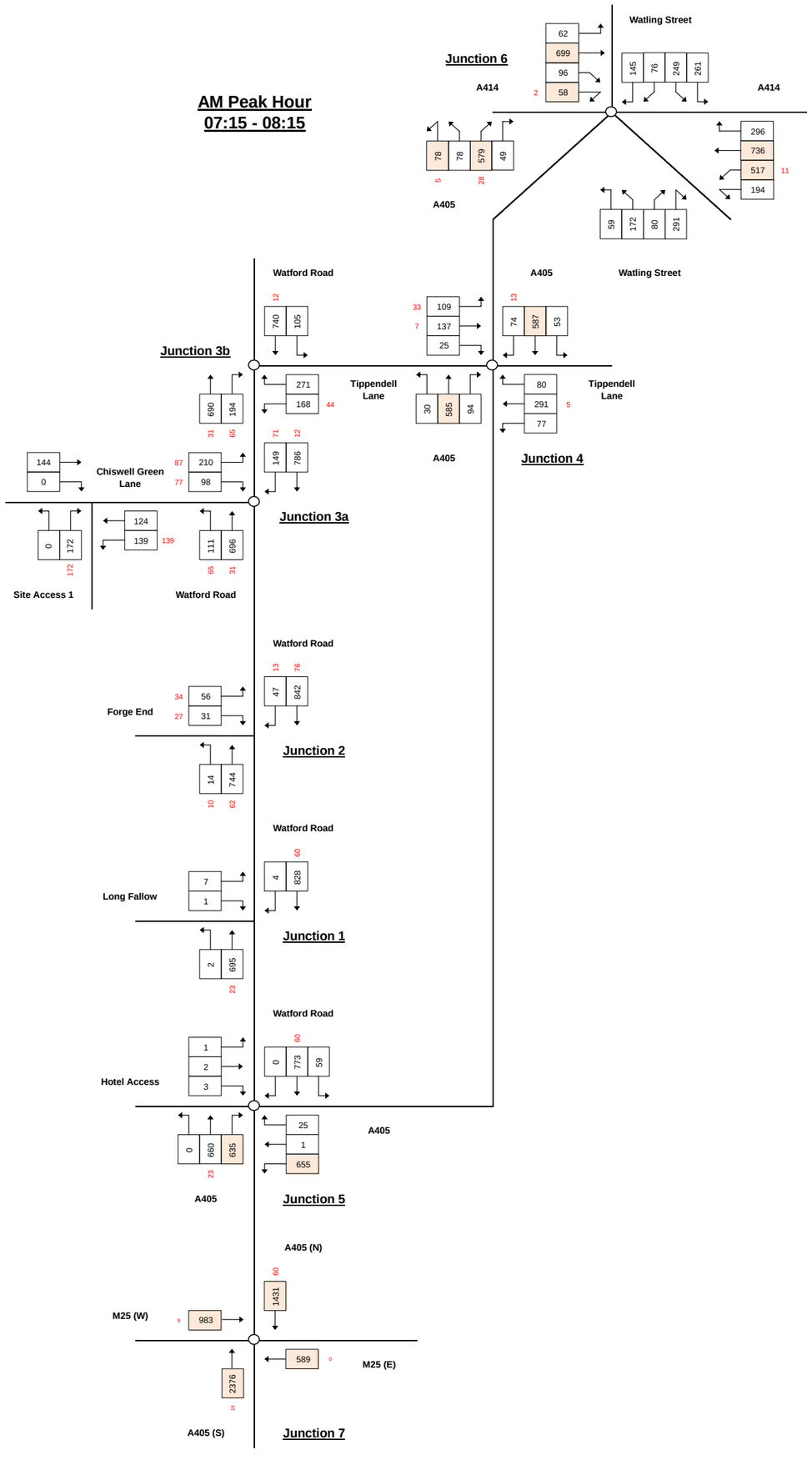
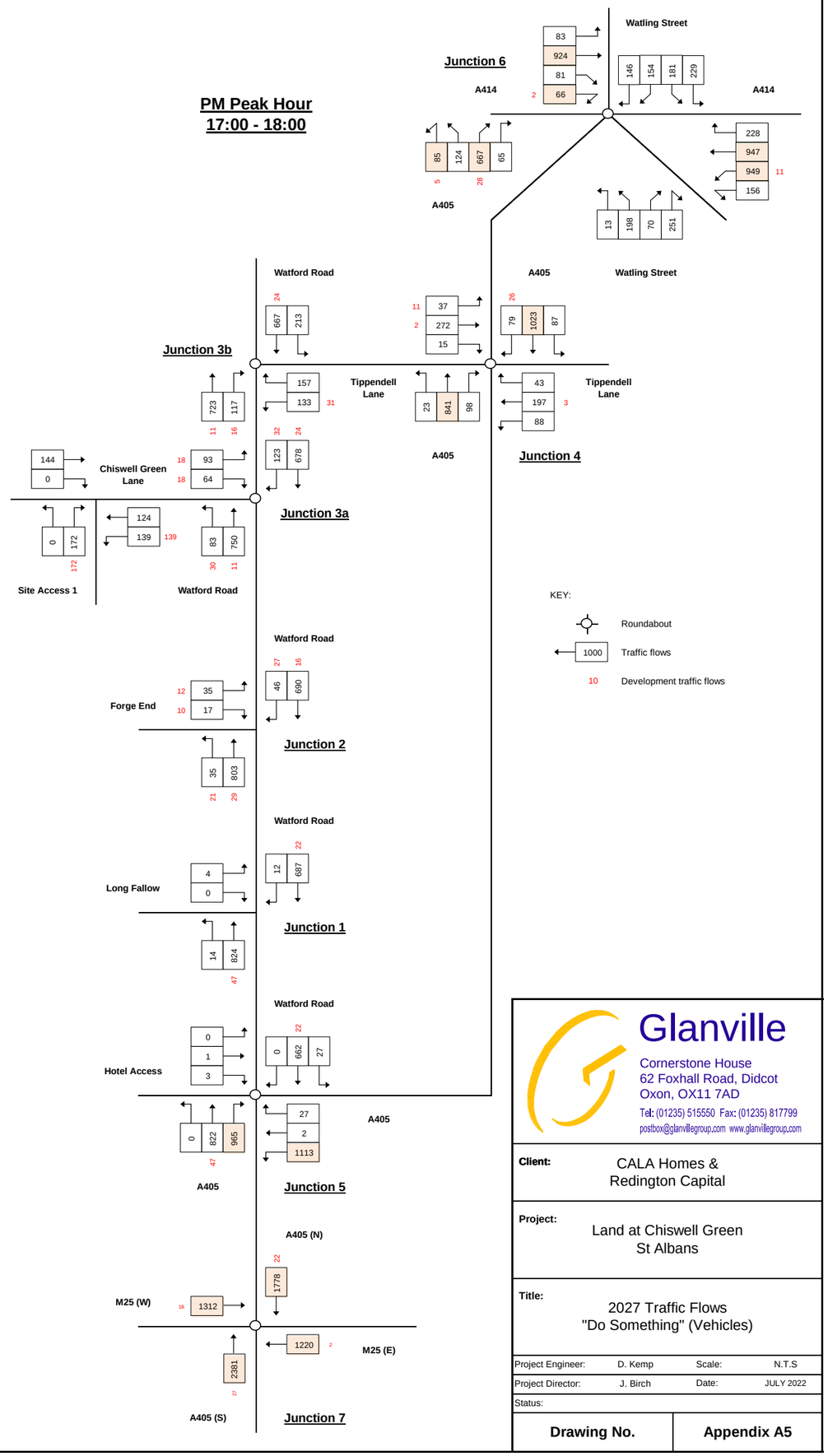
Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	2027 Traffic Flows "Do Nothing" - Heavy Vehicles
Project Engineer: D. Kemp	Scale: N.T.S
Project Director: J. Birch	Date: JULY 2022
Status:	
Drawing No.	**Appendix A4**





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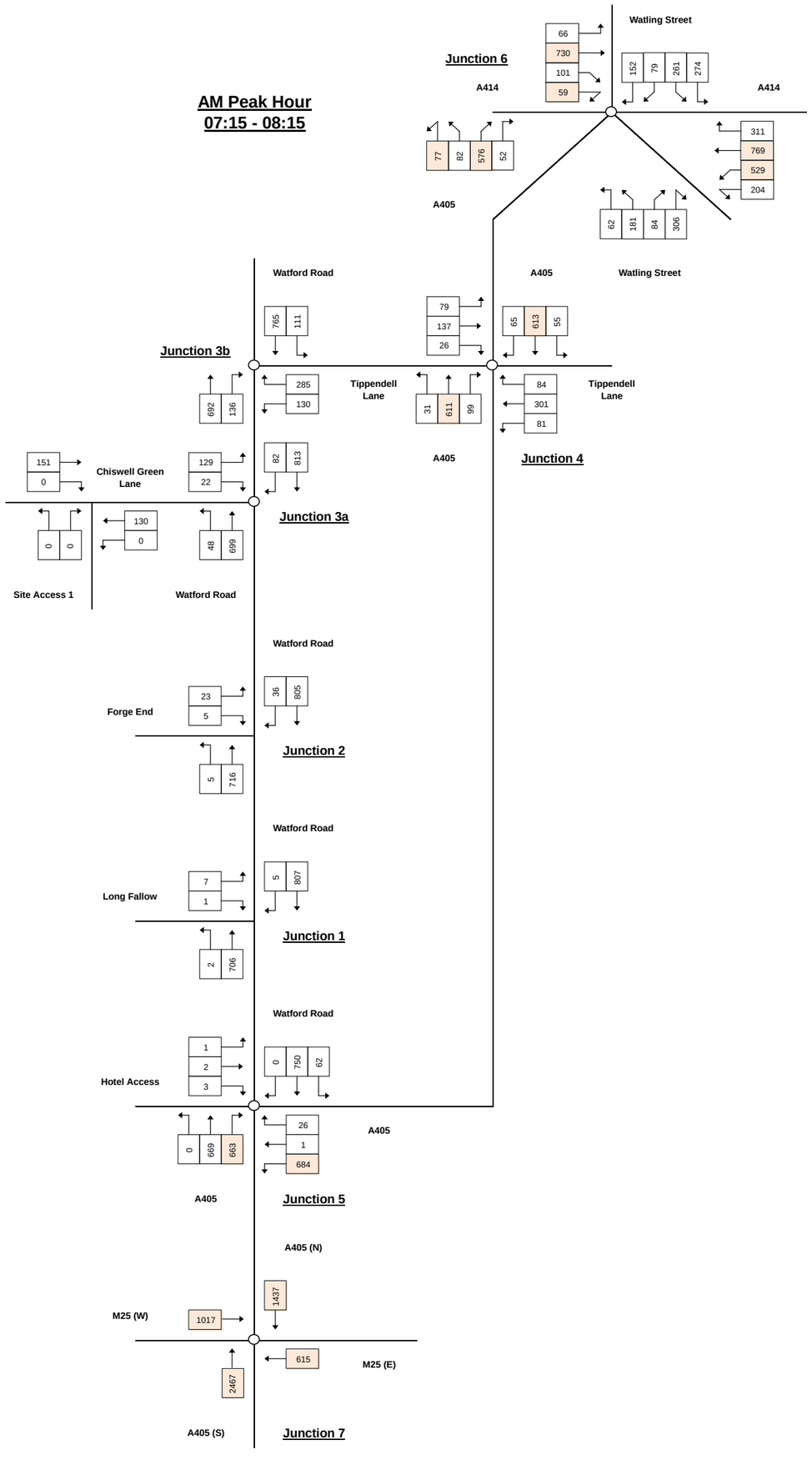
Project: Land at Chiswell Green St Albans

Title: 2027 Traffic Flows "Do Something" (Vehicles)

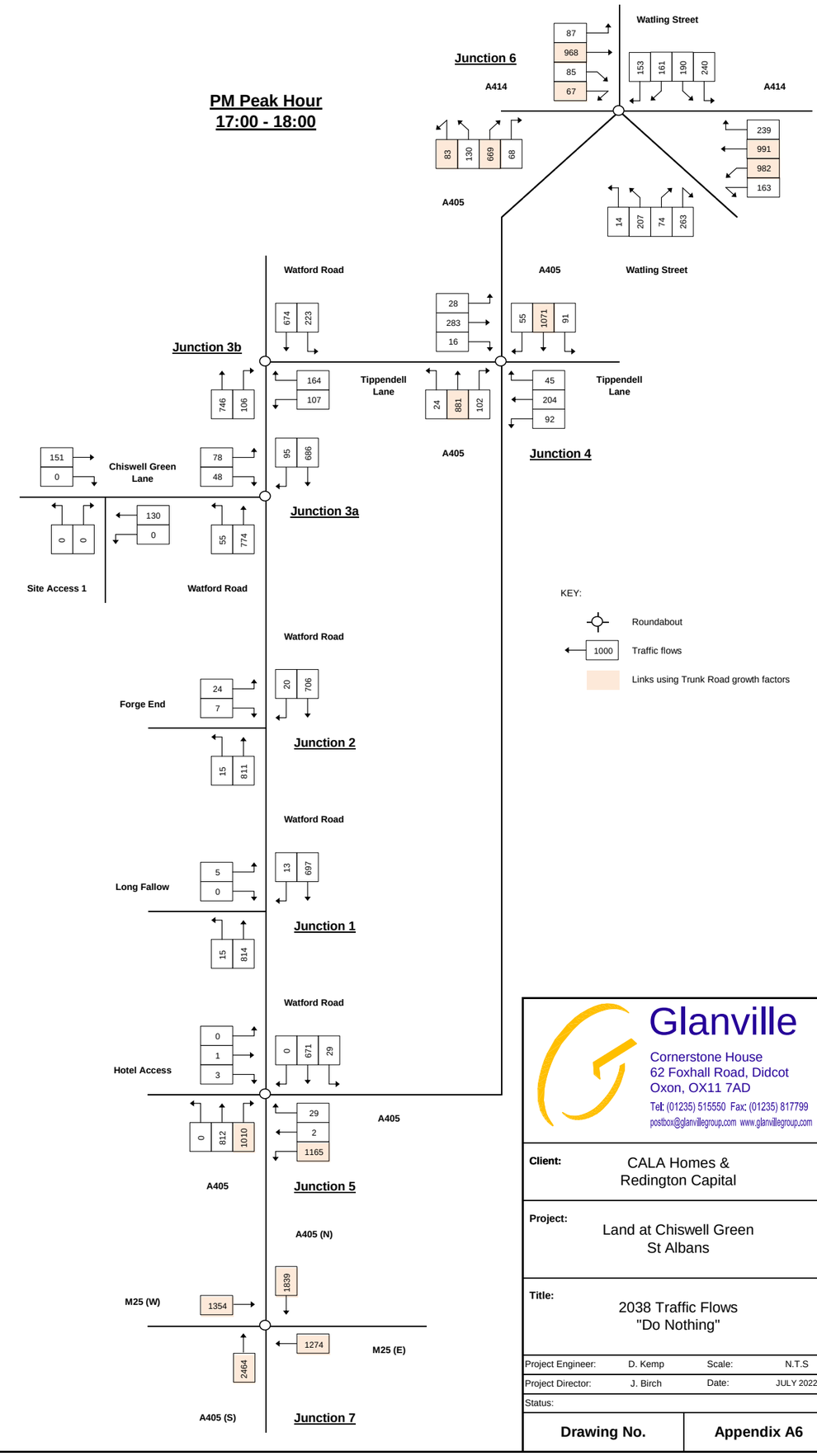
Project Engineer:	D. Kemp	Scale:	N.T.S
Project Director:	J. Birch	Date:	JULY 2022
Status:			

Drawing No. | **Appendix A5**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



KEY:

- Roundabout
- 1000 — Traffic flows
- Links using Trunk Road growth factors

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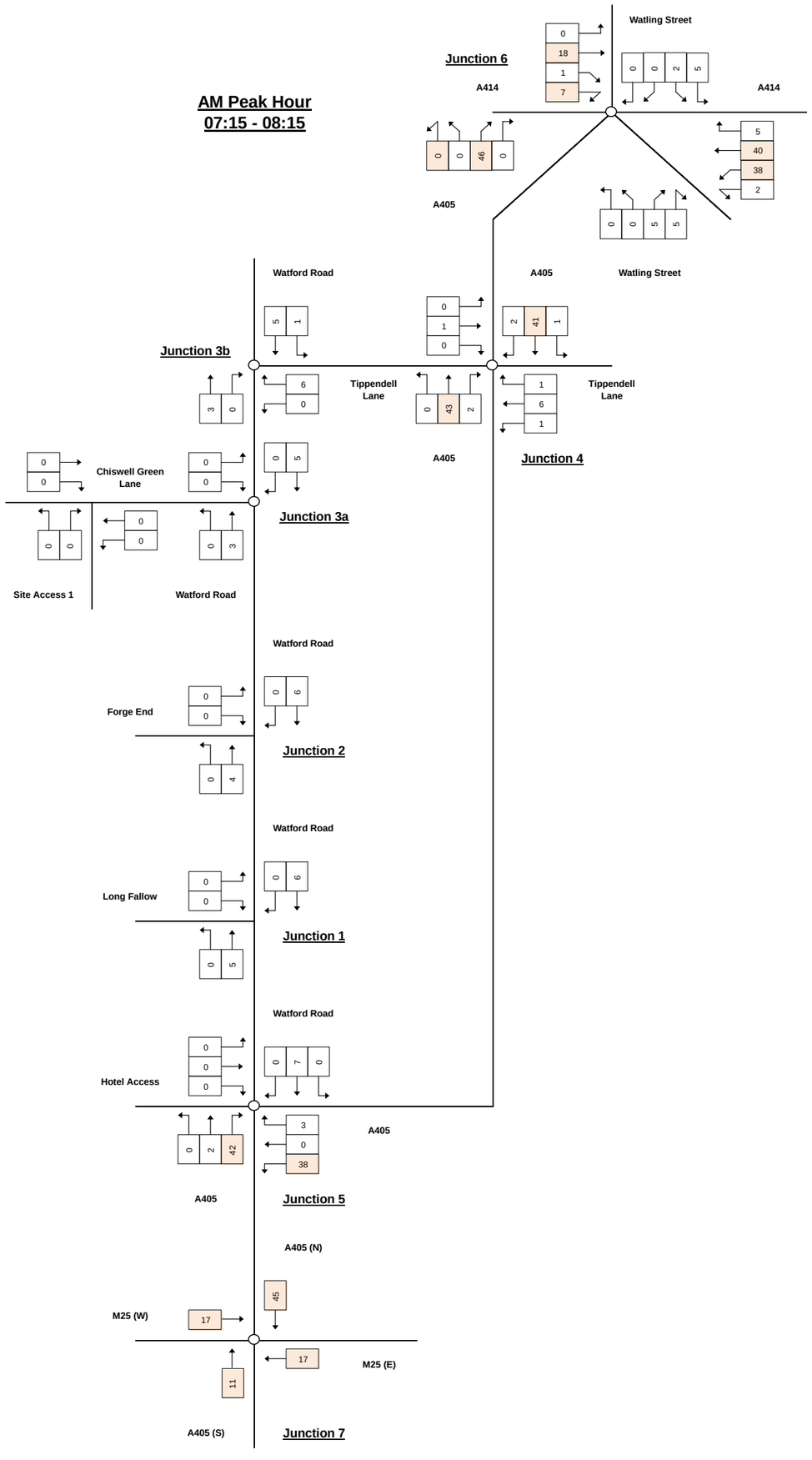
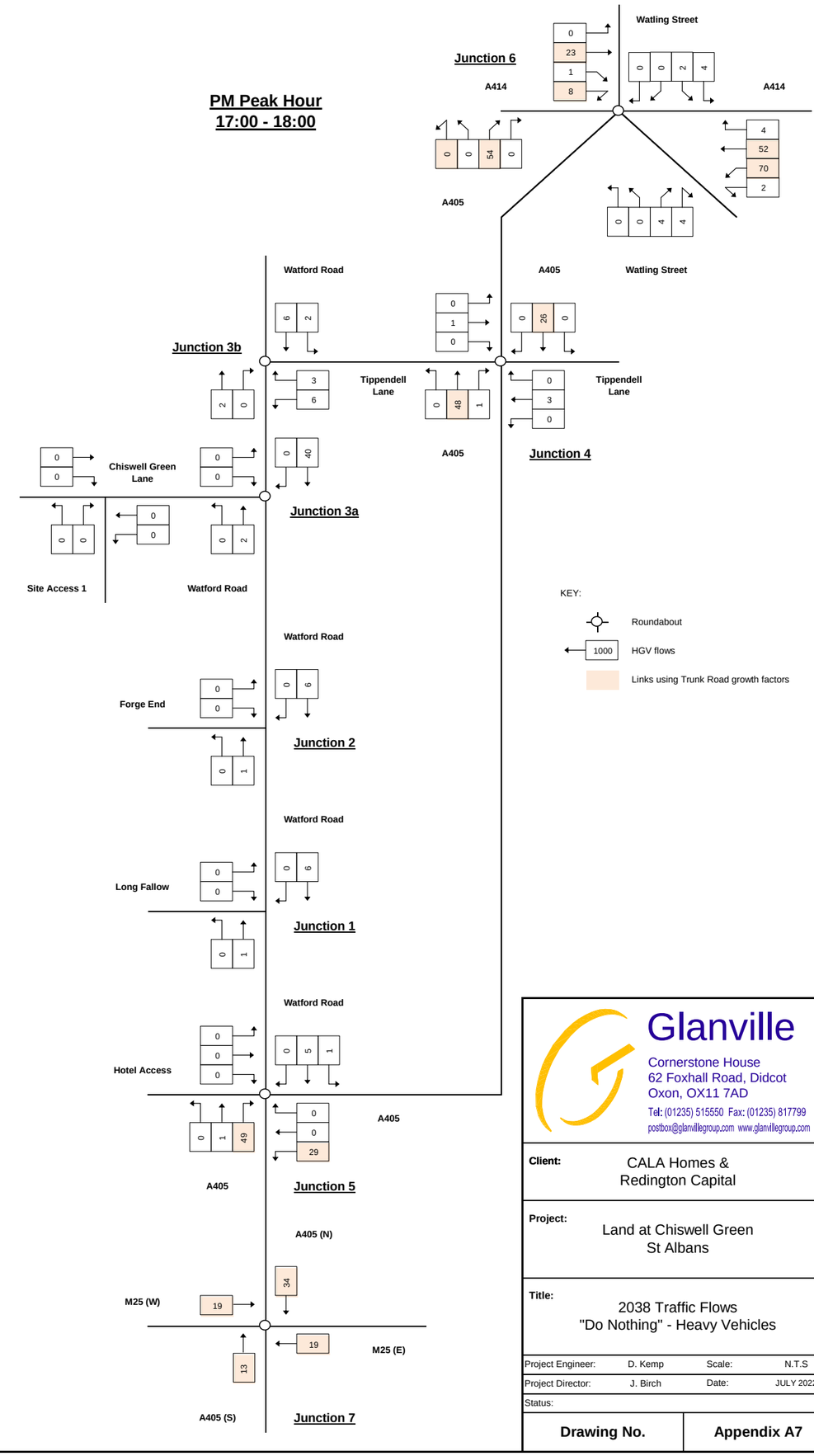
Project:	Land at Chiswell Green St Albans
Title:	2038 Traffic Flows "Do Nothing"
Project Engineer: D. Kemp	Scale: N.T.S
Project Director: J. Birch	Date: JULY 2022
Status:	
Drawing No.	**Appendix A6**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



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Cornerstone House
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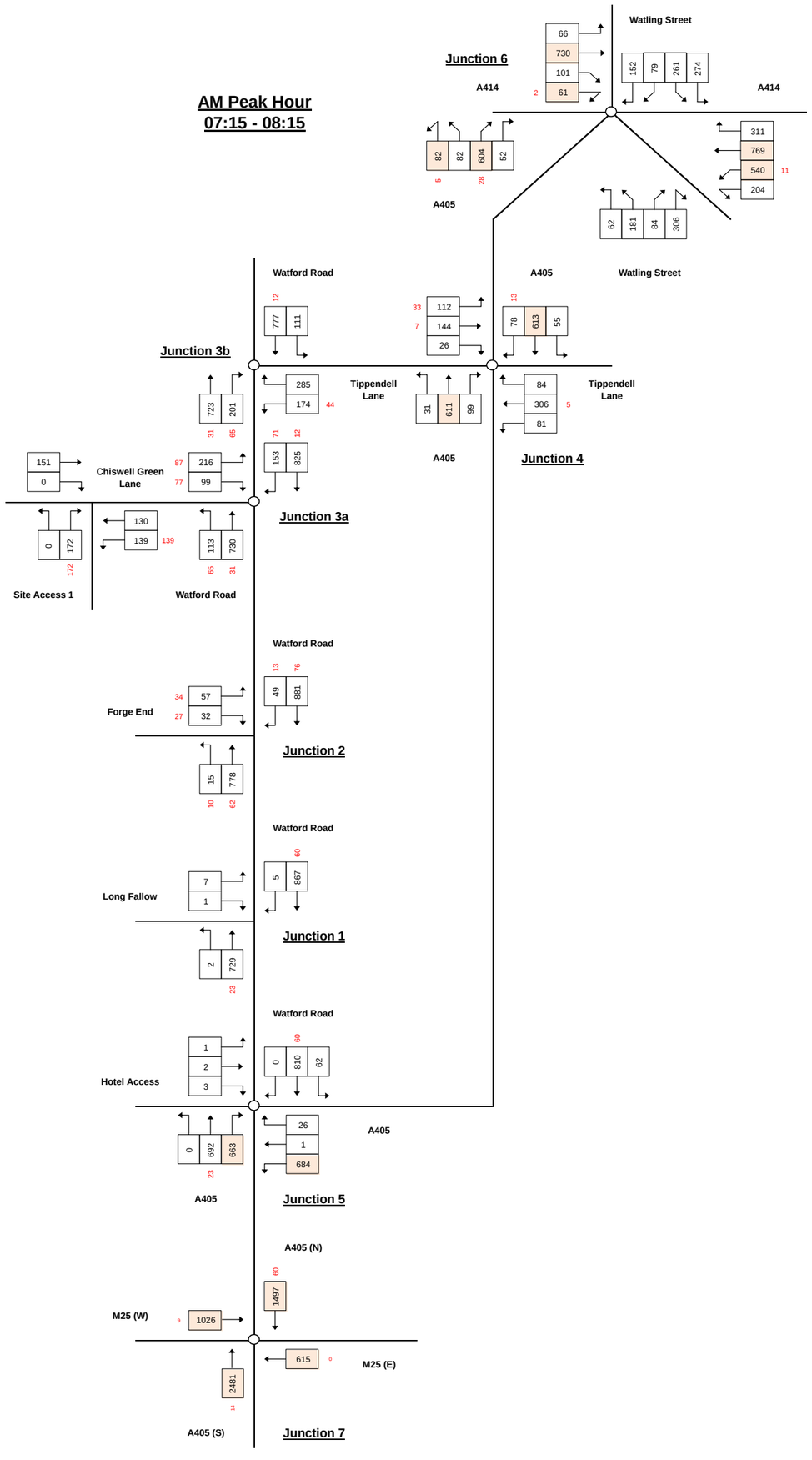
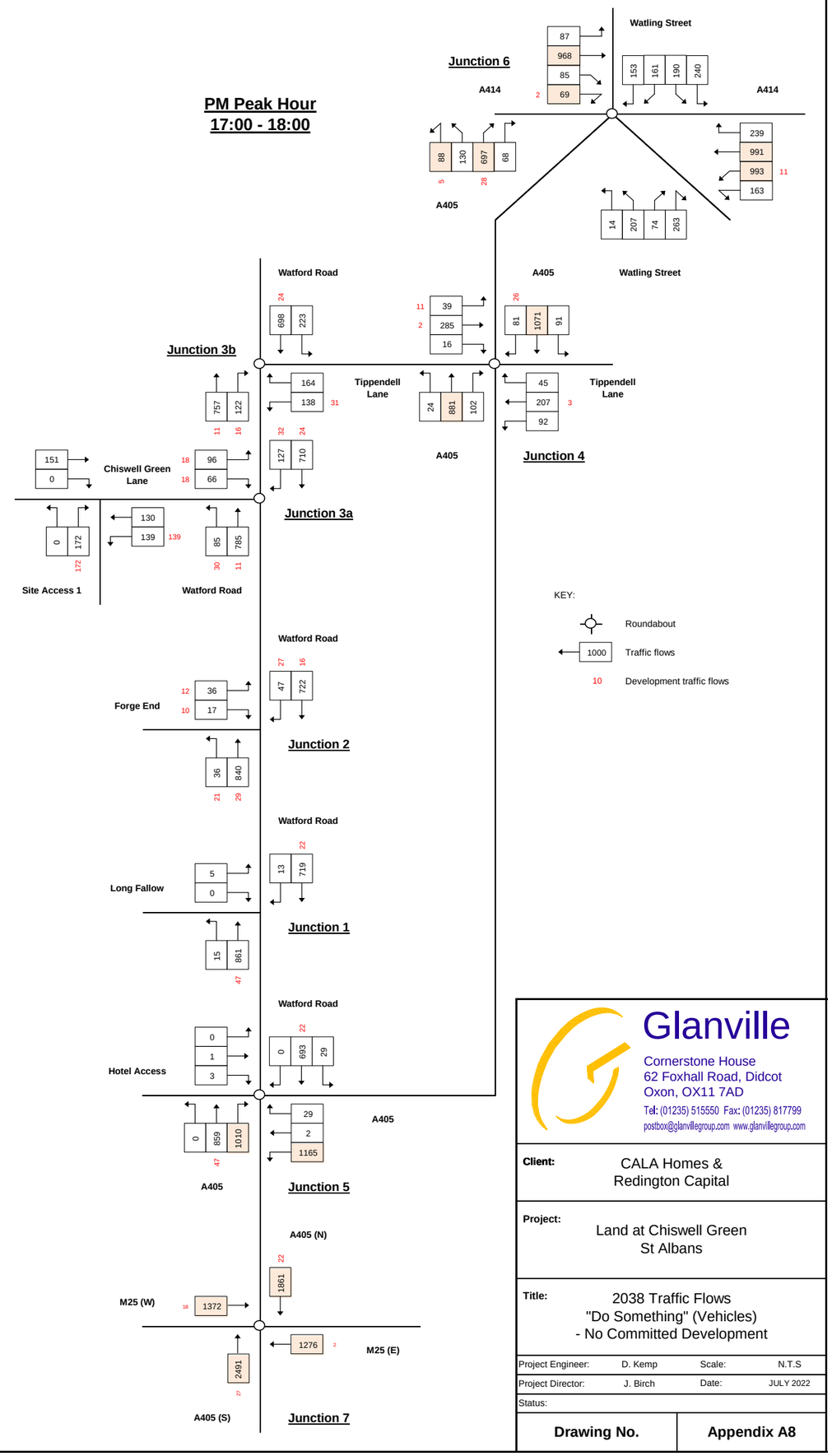
Tel: (01235) 515550 Fax: (01235) 817799
postbox@glanvillegroup.com www.glanvillegroup.com

Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	2038 Traffic Flows "Do Nothing" - Heavy Vehicles

Project Engineer:	D. Kemp	Scale:	N.T.S
Project Director:	J. Birch	Date:	JULY 2022
Status:			

Drawing No. | **Appendix A7**





Glanville
Cornerstone House
62 Foxhall Road, Didcot
Oxon, OX11 7AD
Tel: (01235) 515550 Fax: (01235) 817799
postbox@glanvillegroup.com www.glanvillegroup.com

Client: CALA Homes & Redington Capital

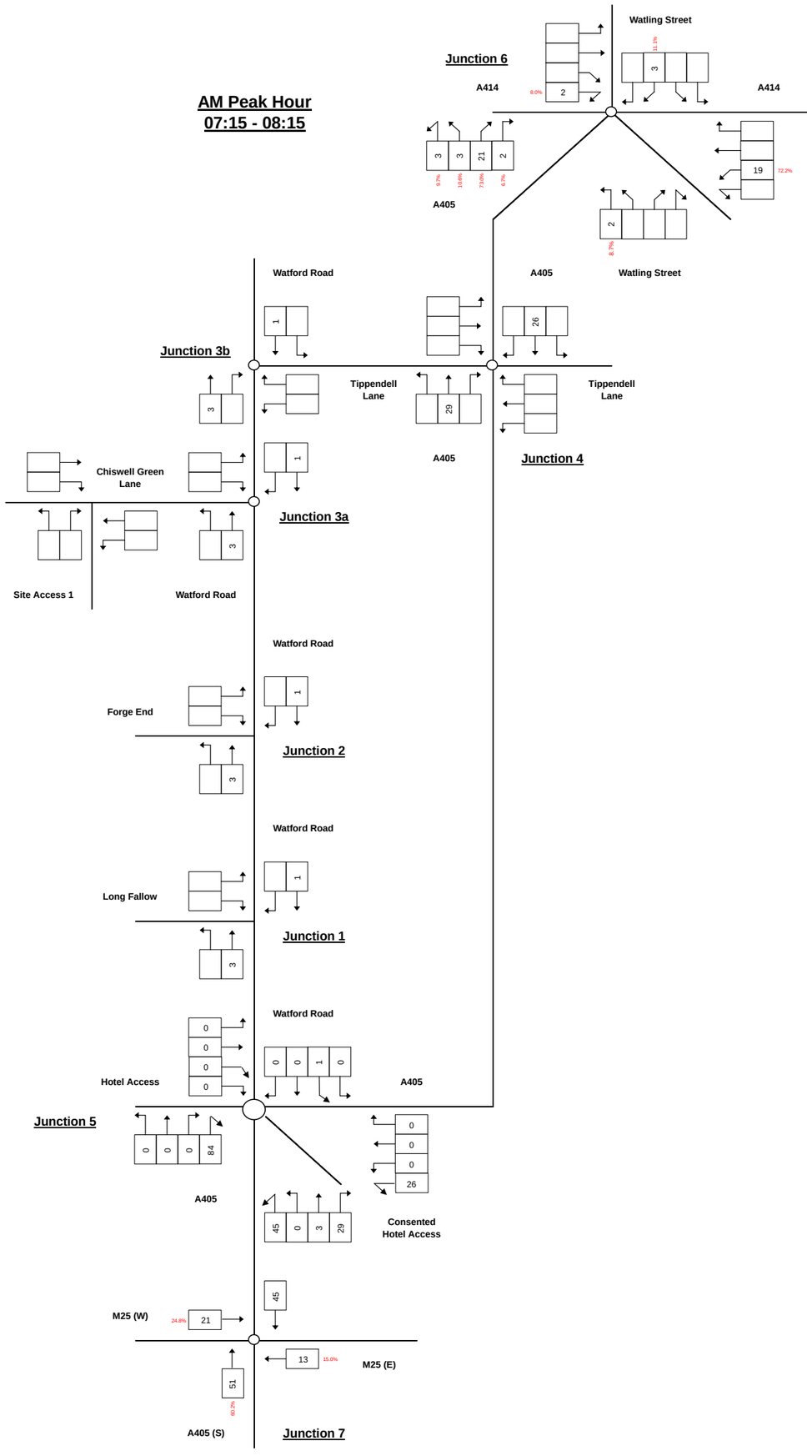
Project: Land at Chiswell Green St Albans

Title: 2038 Traffic Flows "Do Something" (Vehicles) - No Committed Development

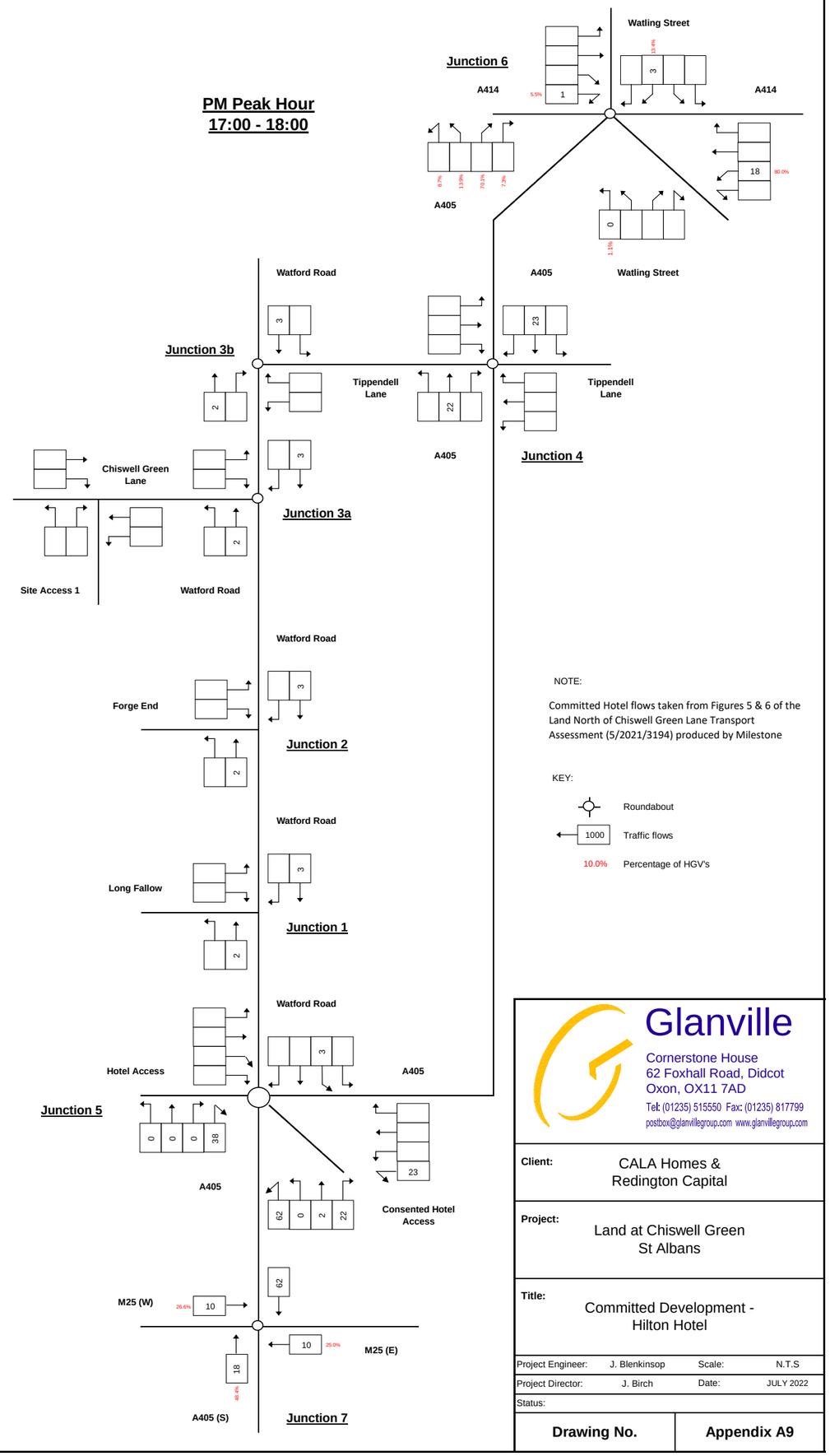
Project Engineer:	D. Kemp	Scale:	N.T.S
Project Director:	J. Birch	Date:	JULY 2022
Status:			

Drawing No. | **Appendix A8**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



NOTE:

Committed Hotel flows taken from Figures 5 & 6 of the Land North of Chiswell Green Lane Transport Assessment (5/2021/3194) produced by Milestone

KEY:

- Roundabout
- 1000 Traffic flows
- 10.0% Percentage of HGV's

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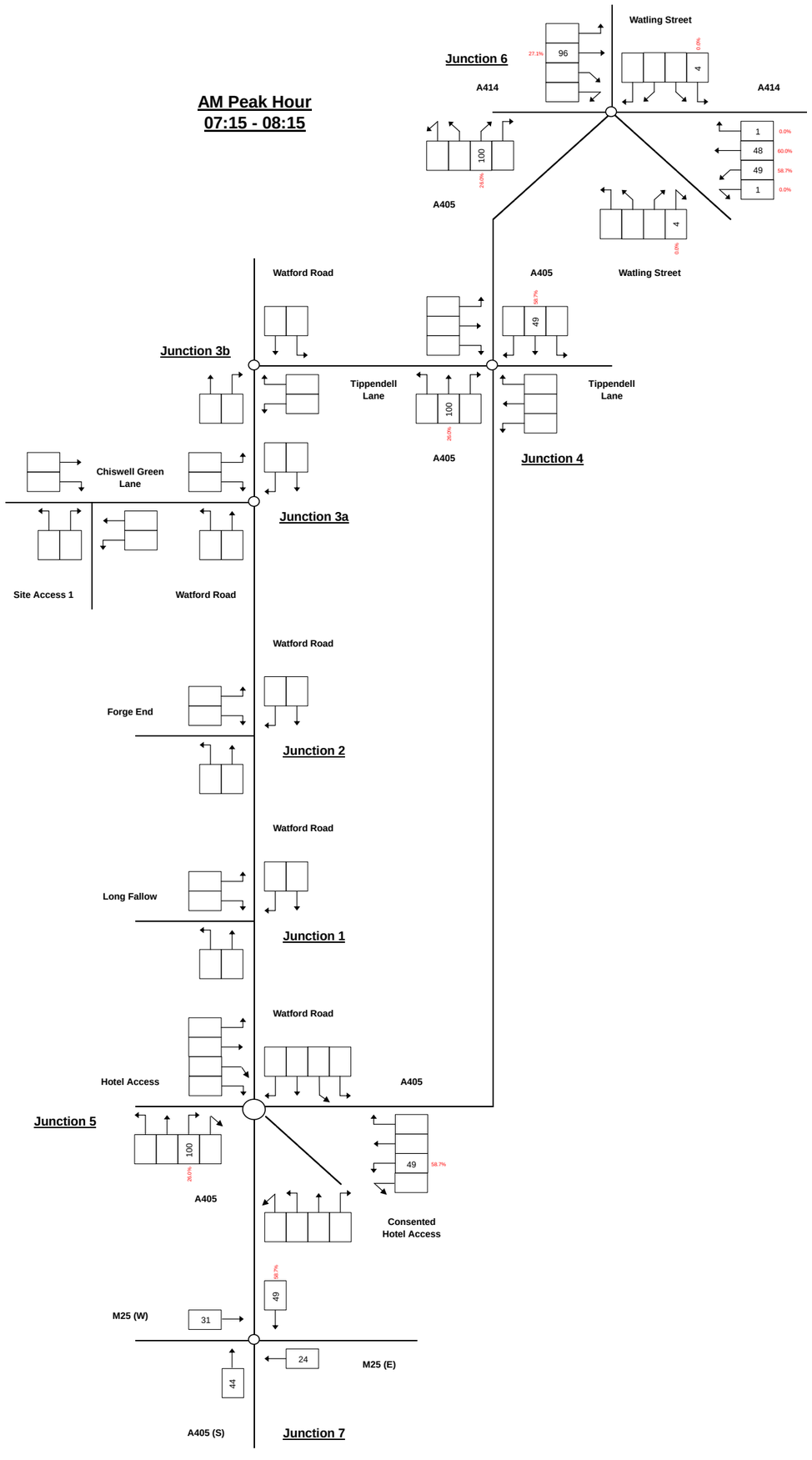
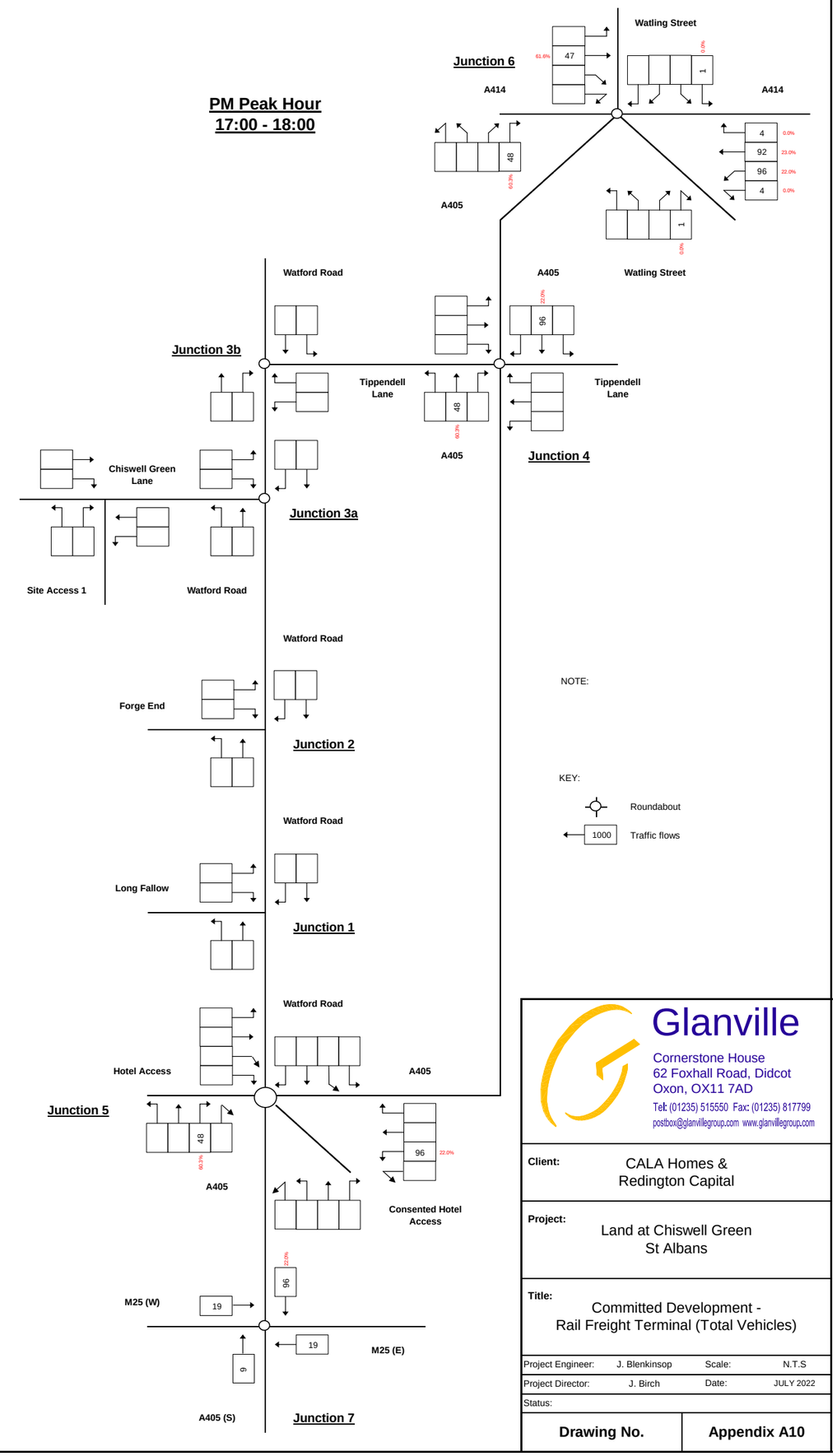
Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	Committed Development - Hilton Hotel
Project Engineer:	J. Blenkinsop
Scale:	N.T.S
Project Director:	J. Birch
Date:	JULY 2022
Status:	
Drawing No.	Appendix A9

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



NOTE:

KEY:

Roundabout

1000 Traffic flows

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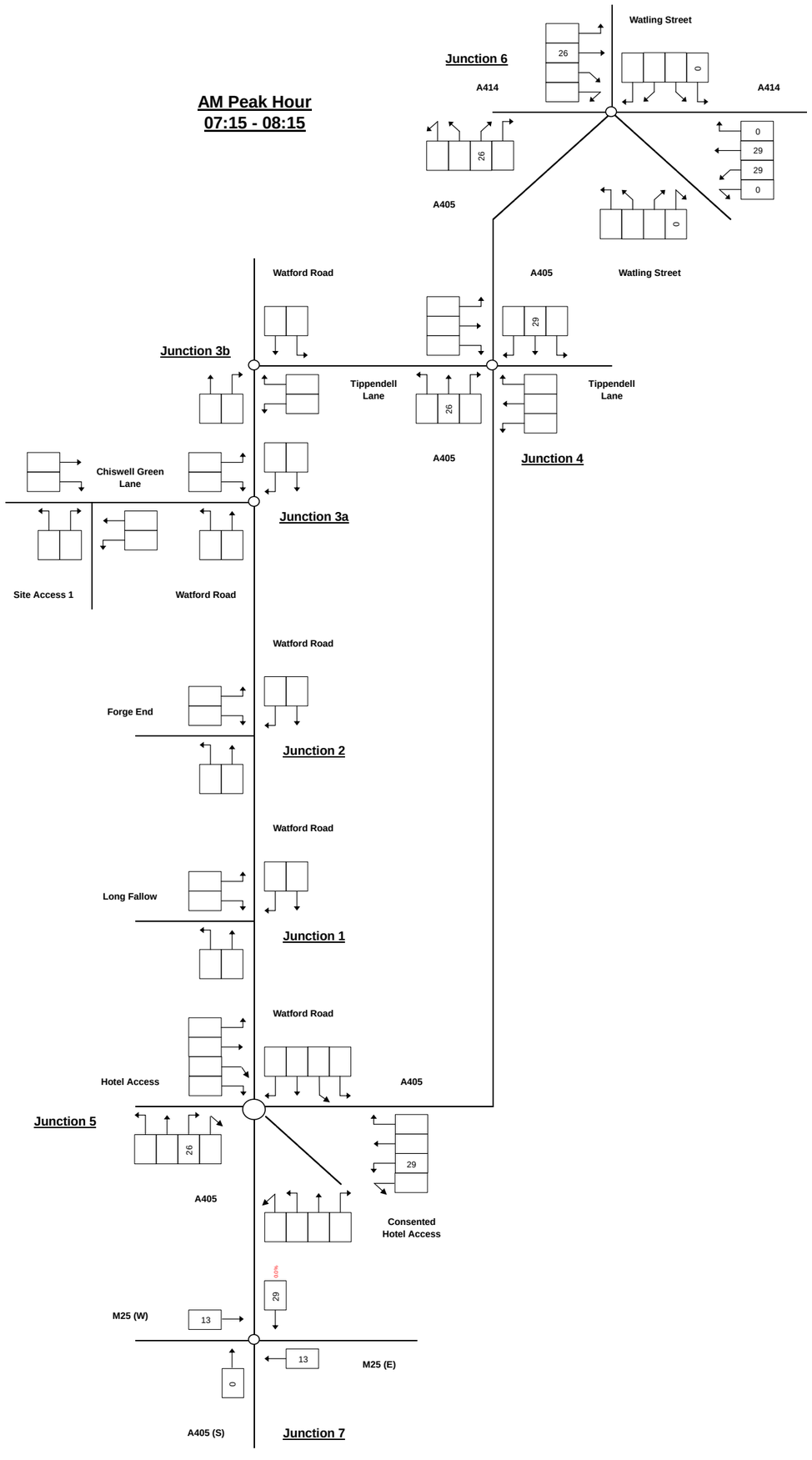
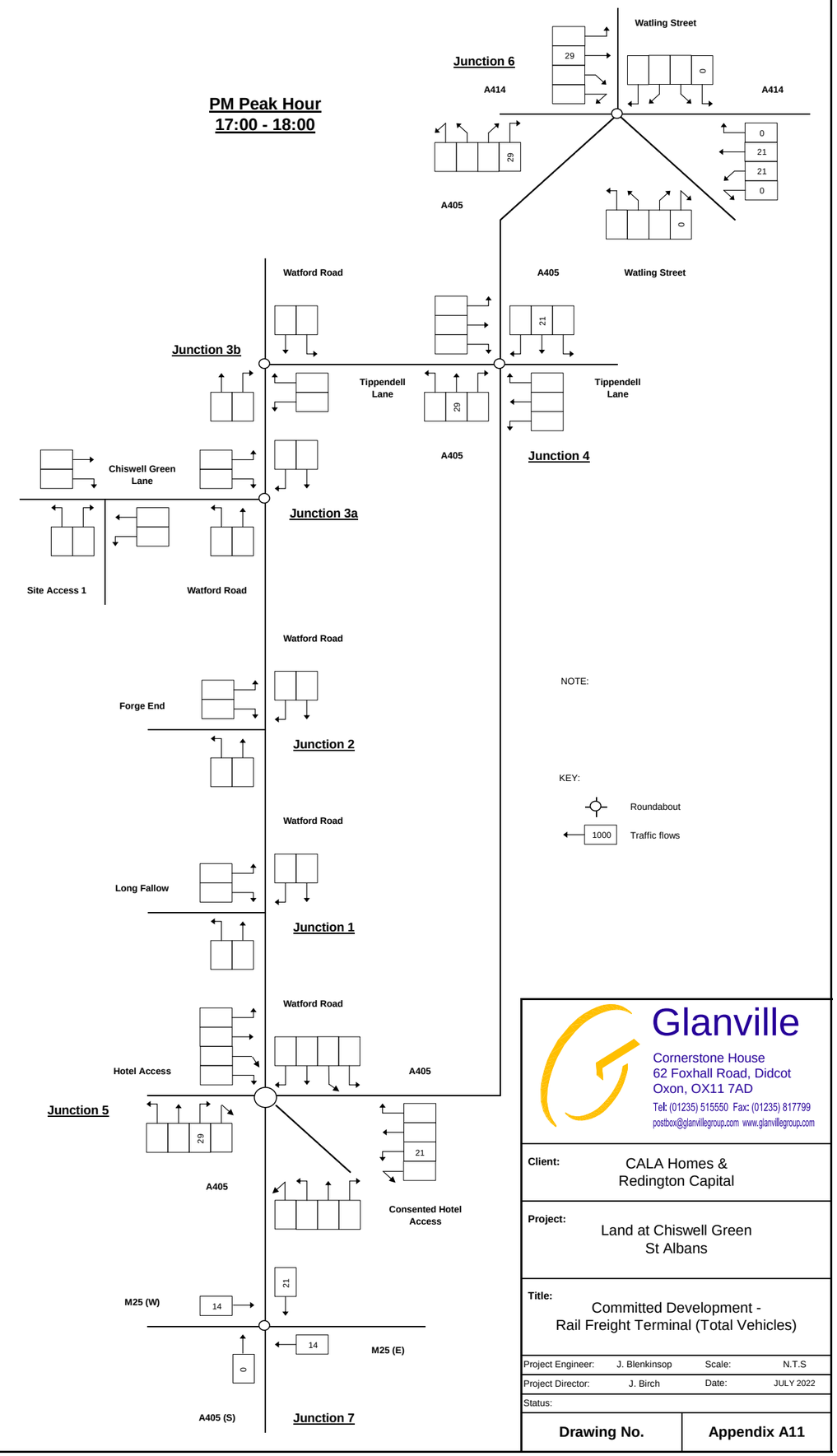
postbox@glanvillegroup.com www.glanvillegroup.com

Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	Committed Development - Rail Freight Terminal (Total Vehicles)
Project Engineer: J. Blenkinsop	Scale: N.T.S
Project Director: J. Birch	Date: JULY 2022
Status:	
Drawing No.	**Appendix A10**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



NOTE:

KEY:

Roundabout

1000 Traffic flows

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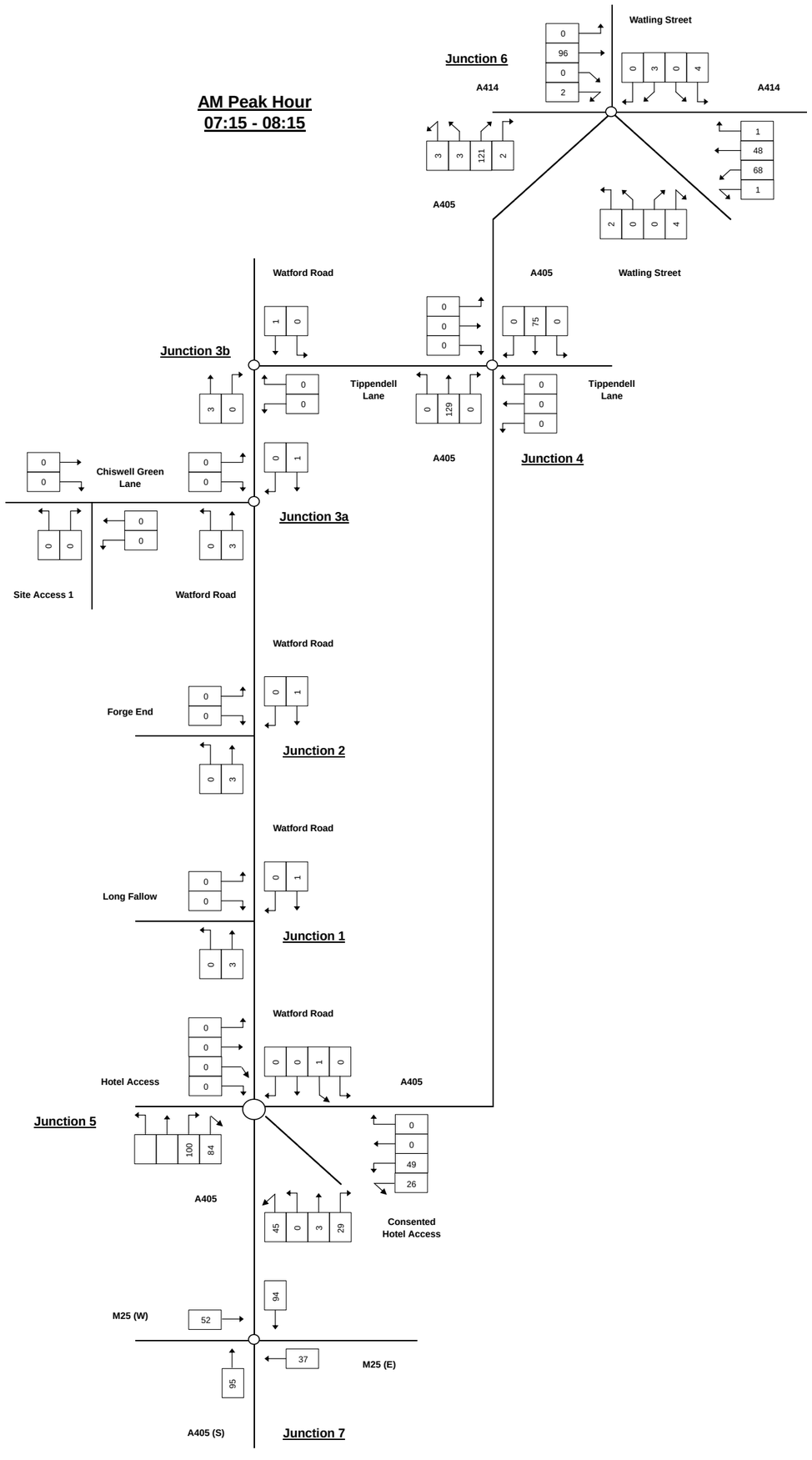
Tel: (01235) 515550 Fax: (01235) 817799
postbox@glanvillegroup.com www.glanvillegroup.com

Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	Committed Development - Rail Freight Terminal (Total Vehicles)

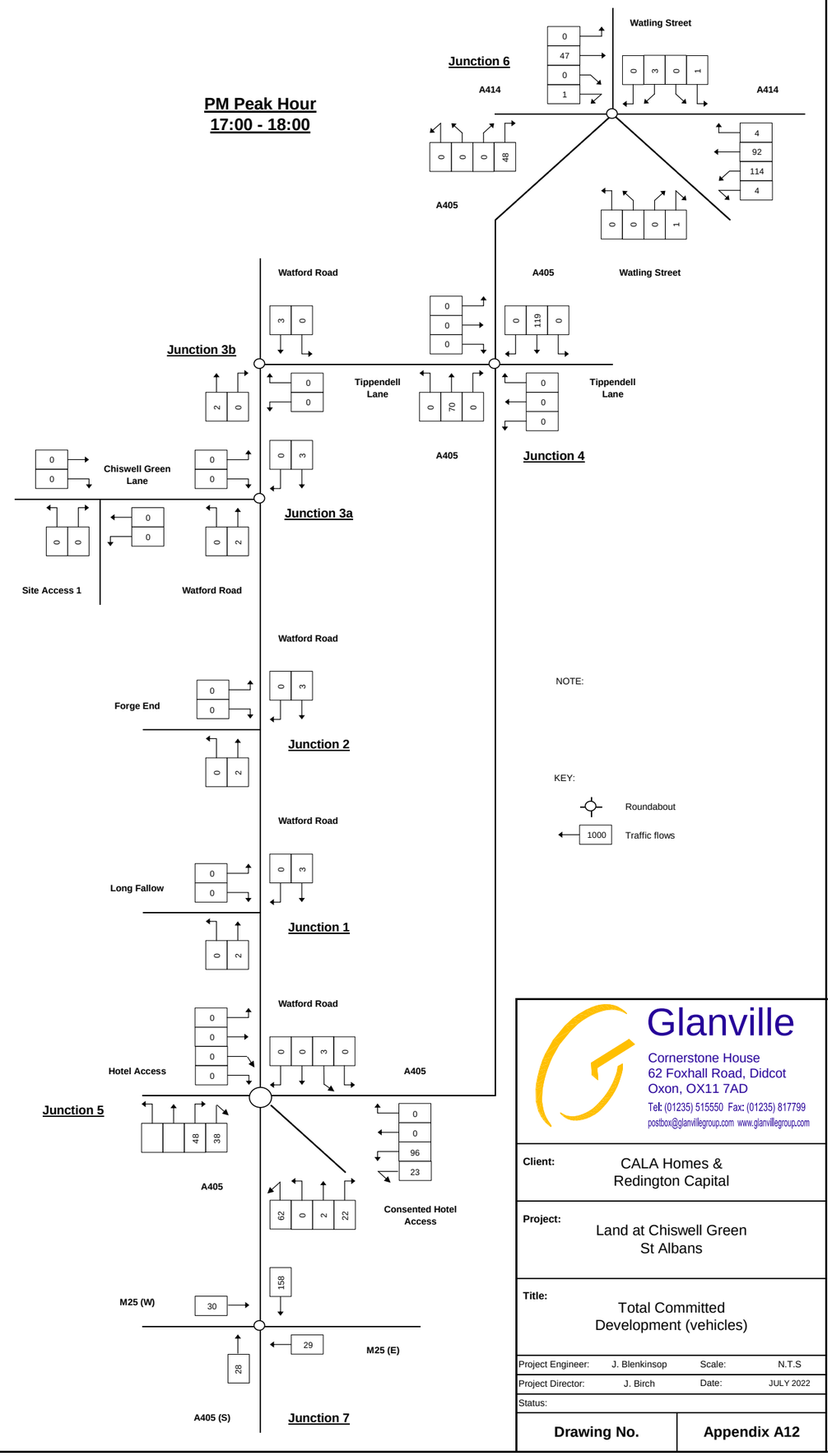
Project Engineer:	J. Blenkinsop	Scale:	N.T.S
Project Director:	J. Birch	Date:	JULY 2022
Status:			

Drawing No. | **Appendix A11**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



NOTE:

KEY:

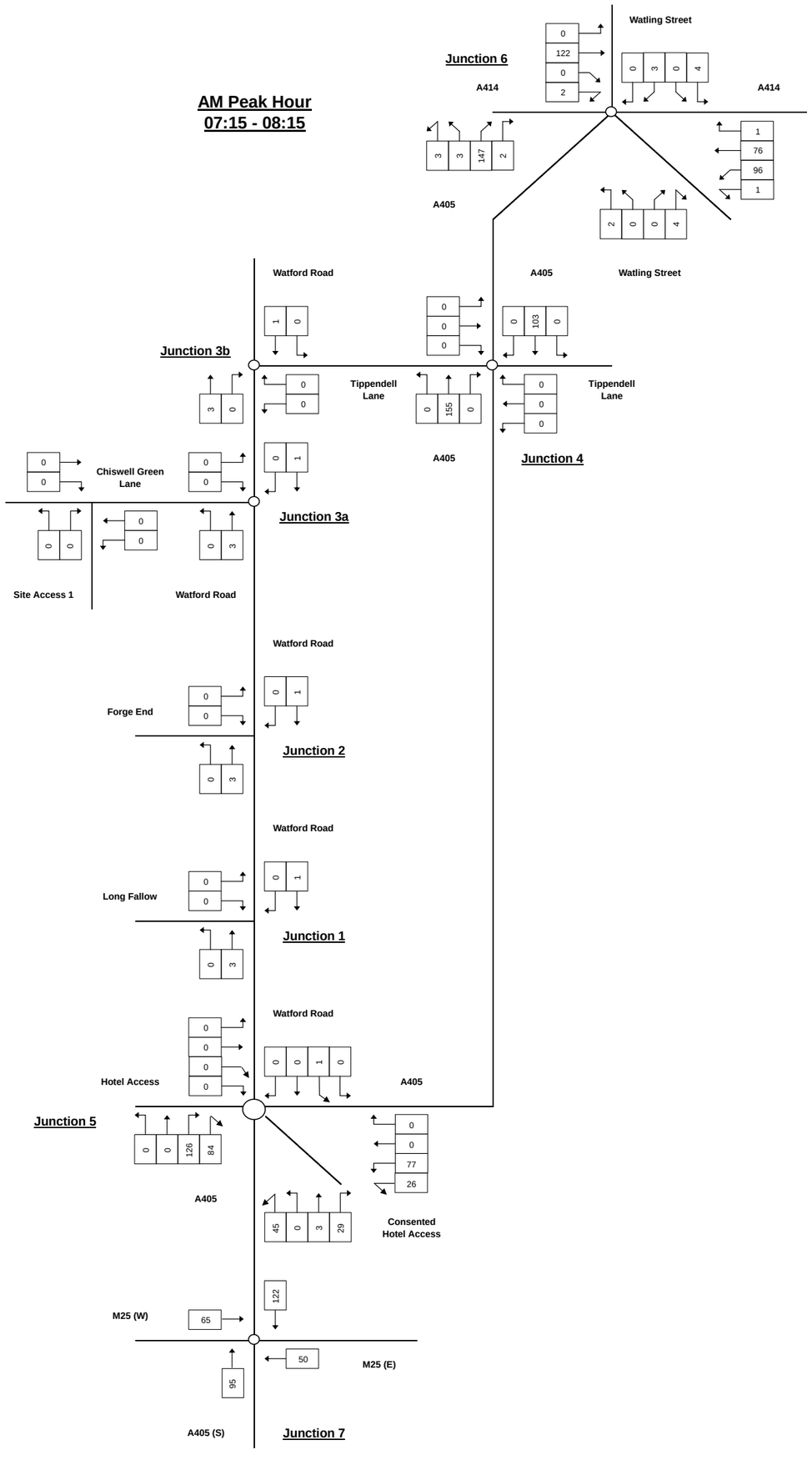
Roundabout

1000 Traffic flows

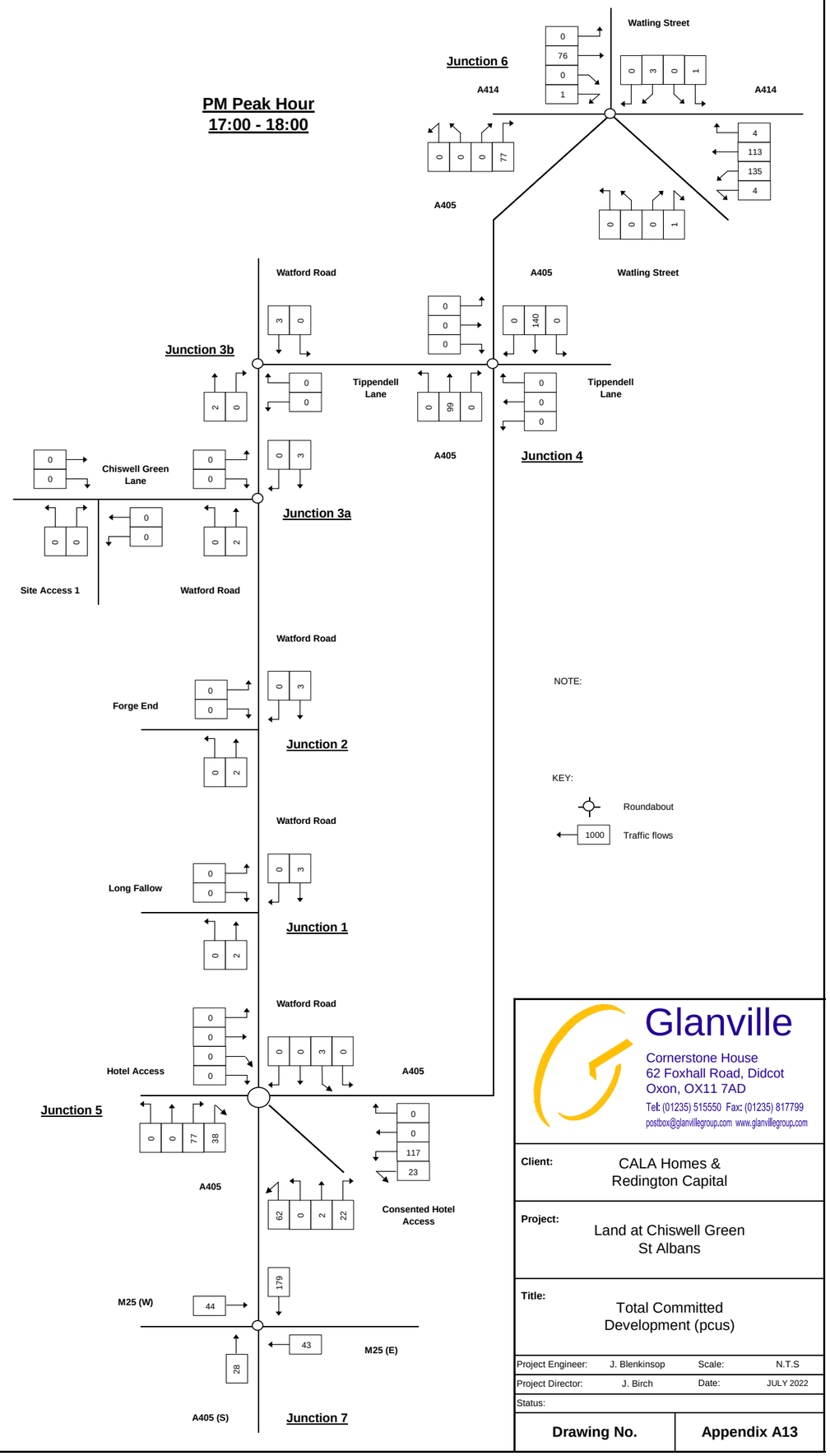
Glanville
Cornerstone House
62 Foxhall Road, Didcot
Oxon, OX11 7AD
Tel: (01235) 515550 Fax: (01235) 817799
postbox@glanvillegroup.com www.glanvillegroup.com

Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	Total Committed Development (vehicles)
Project Engineer: J. Blenkinsop	Scale: N.T.S
Project Director: J. Birch	Date: JULY 2022
Status:	
Drawing No.	**Appendix A12**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



NOTE:

KEY:

Roundabout

1000 Traffic flows

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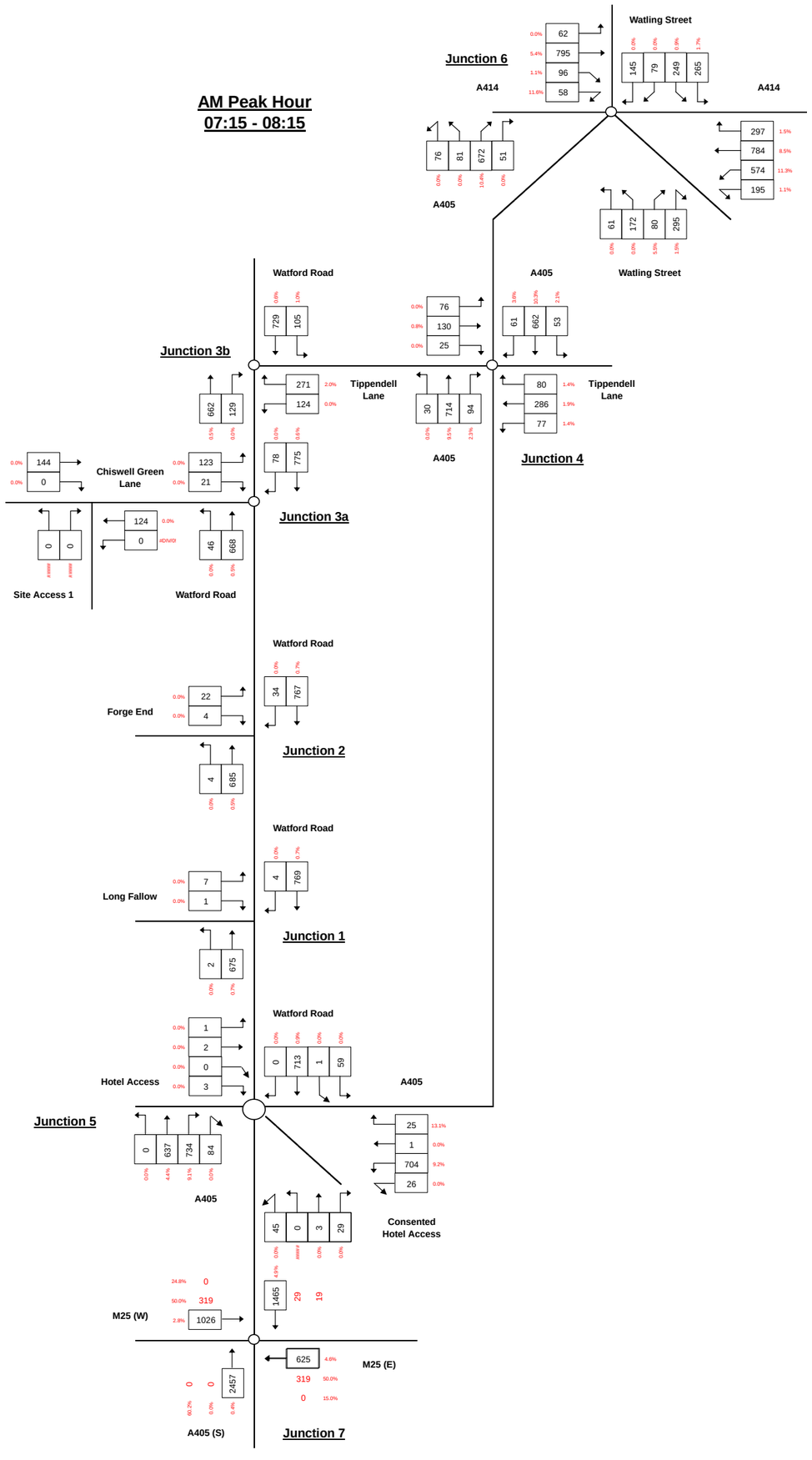
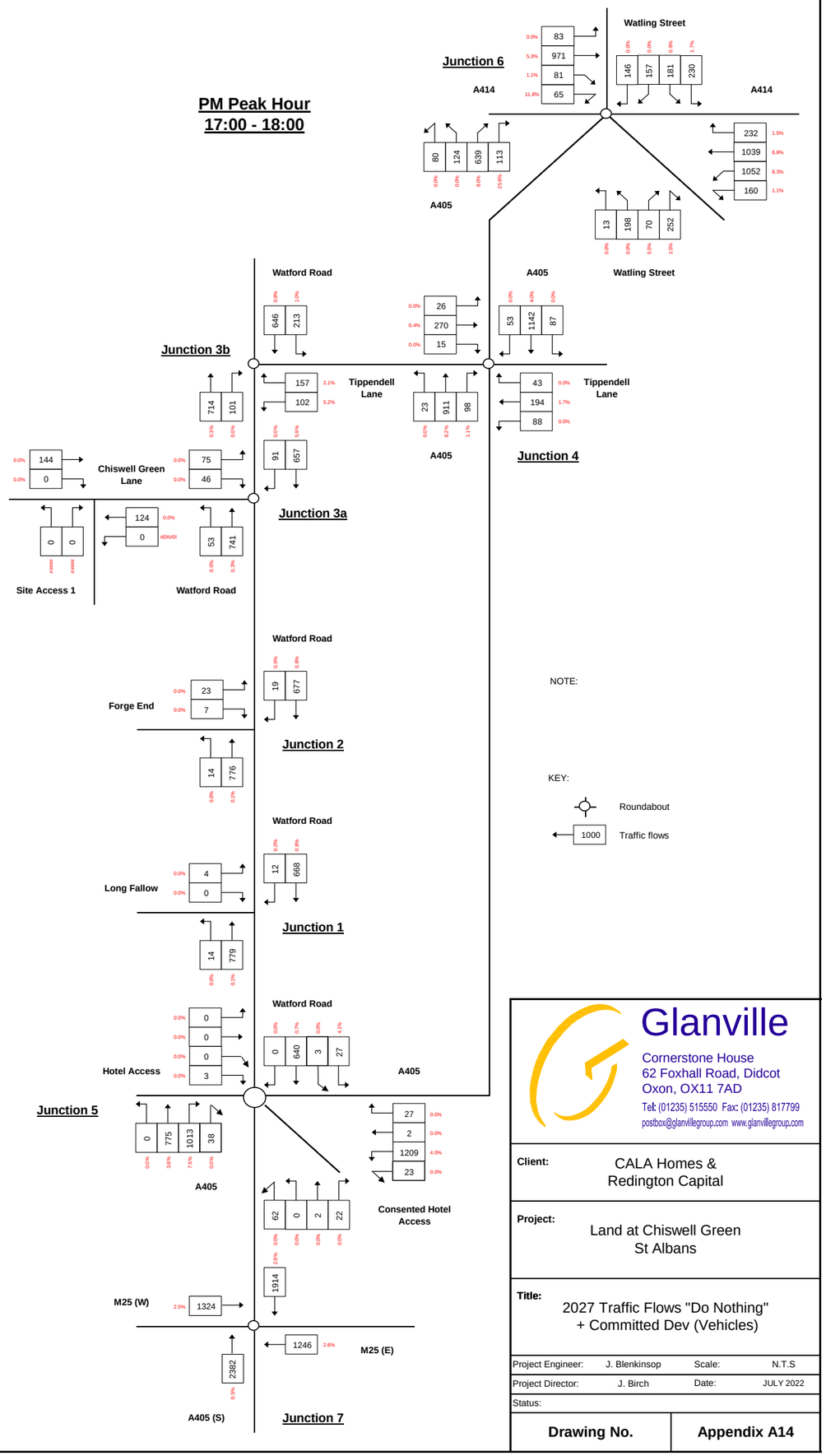
Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	Total Committed Development (pcus)

Project Engineer:	J. Blenkinsop	Scale:	N.T.S
Project Director:	J. Birch	Date:	JULY 2022
Status:			

Drawing No. **Appendix A13**





NOTE:

KEY:

Roundabout

1000 Traffic flows

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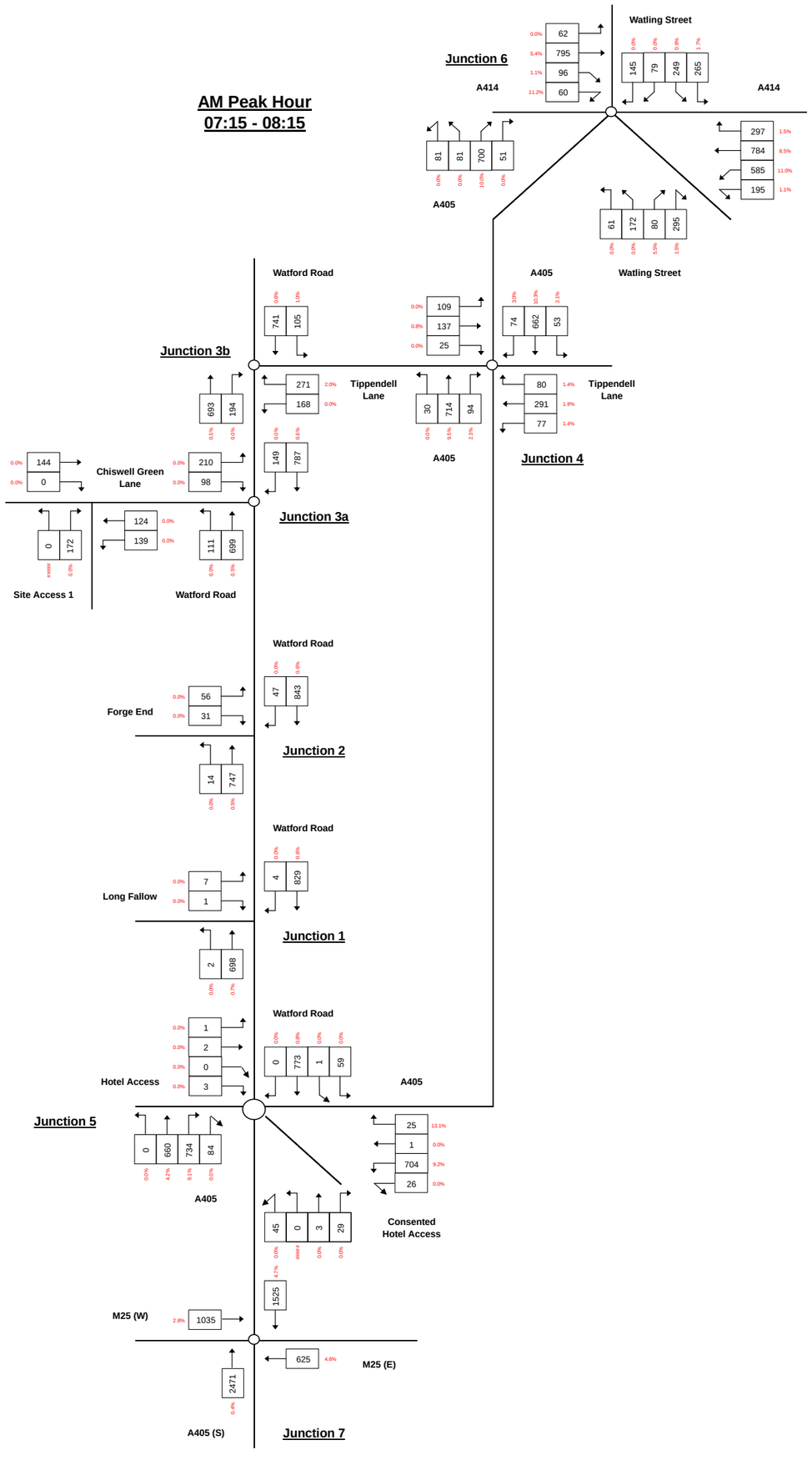
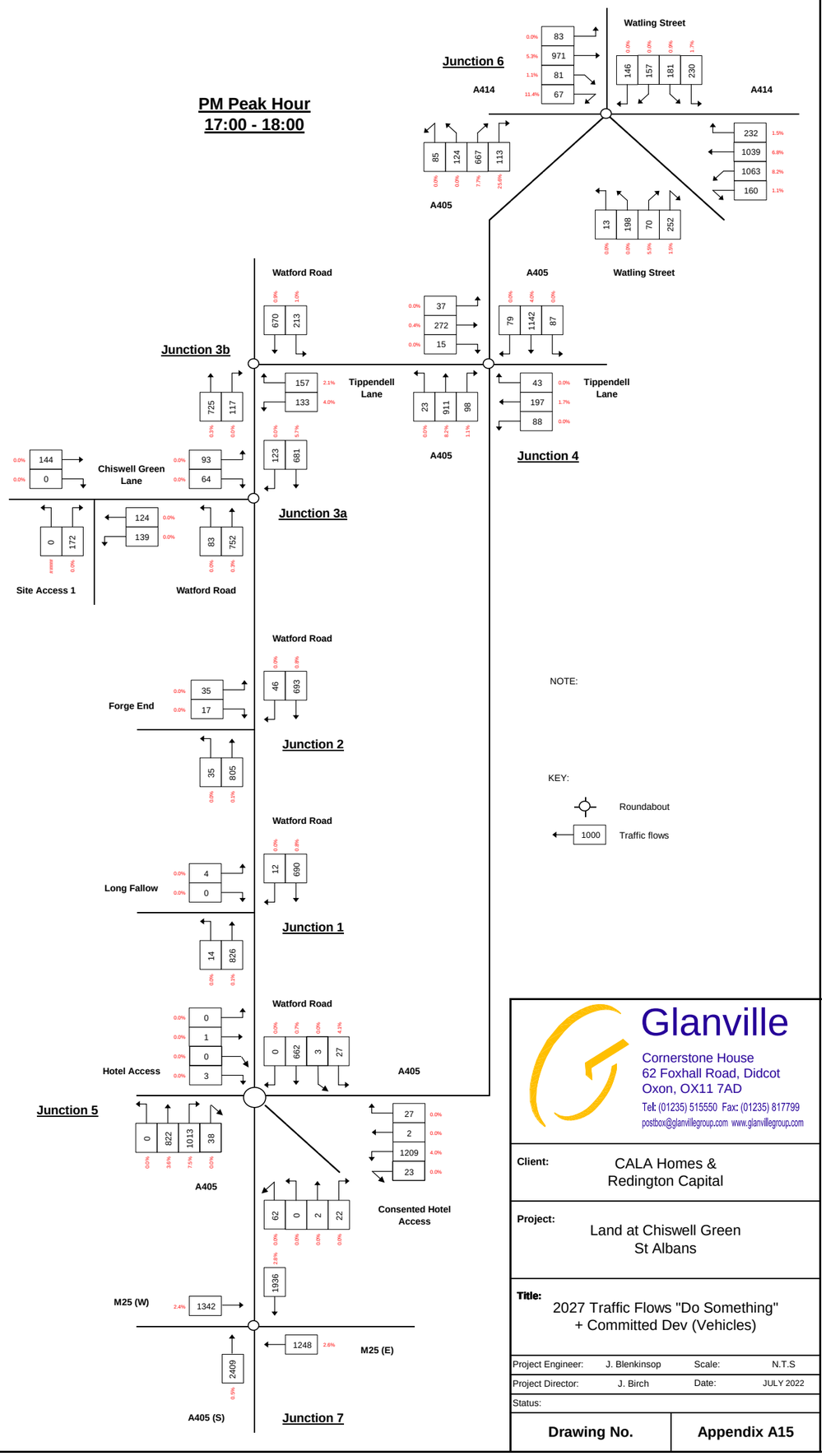
postbox@glanvillegroup.com www.glanvillegroup.com

Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	2027 Traffic Flows "Do Nothing" + Committed Dev (Vehicles)
Project Engineer: J. Blenkinsop	Scale: N.T.S
Project Director: J. Birch	Date: JULY 2022
Status:	
Drawing No.	**Appendix A14**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



NOTE:

KEY:

Roundabout

1000 Traffic flows

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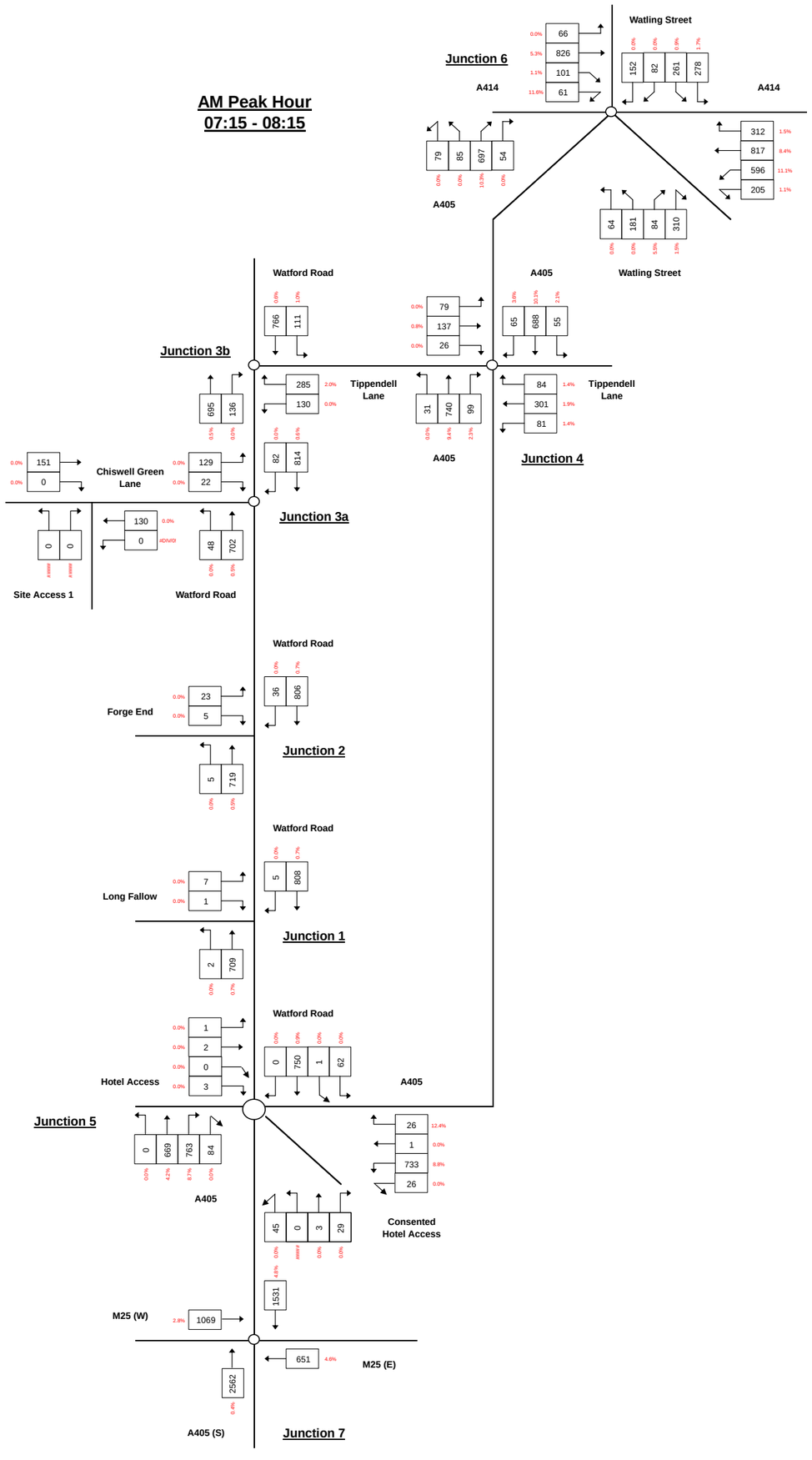
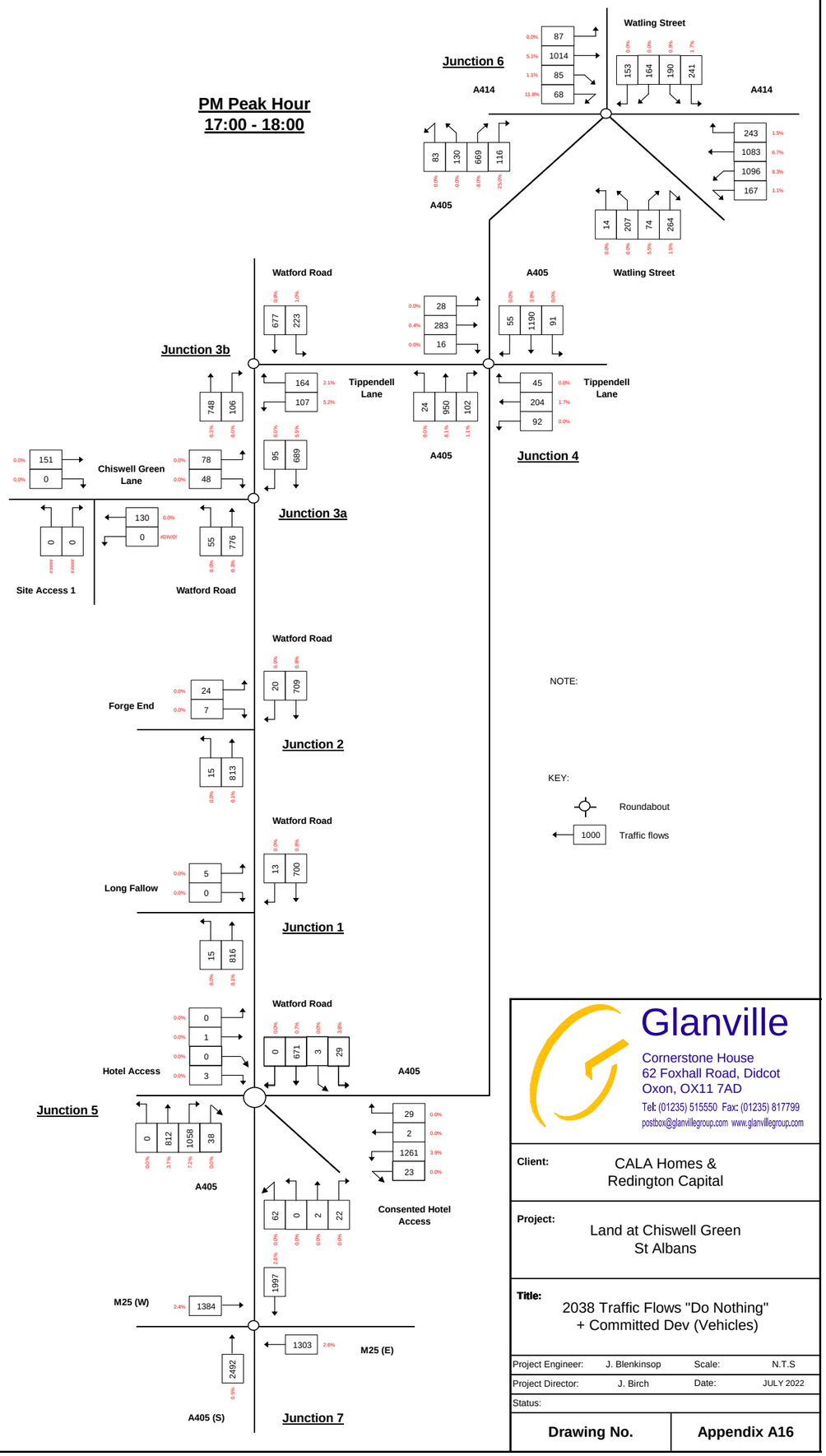
Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	2027 Traffic Flows "Do Something" + Committed Dev (Vehicles)
Project Engineer:	J. Blenkinsop
Scale:	N.T.S
Project Director:	J. Birch
Date:	JULY 2022
Status:	
Drawing No.	**Appendix A15**





NOTE:

KEY:

Roundabout

1000 Traffic flows

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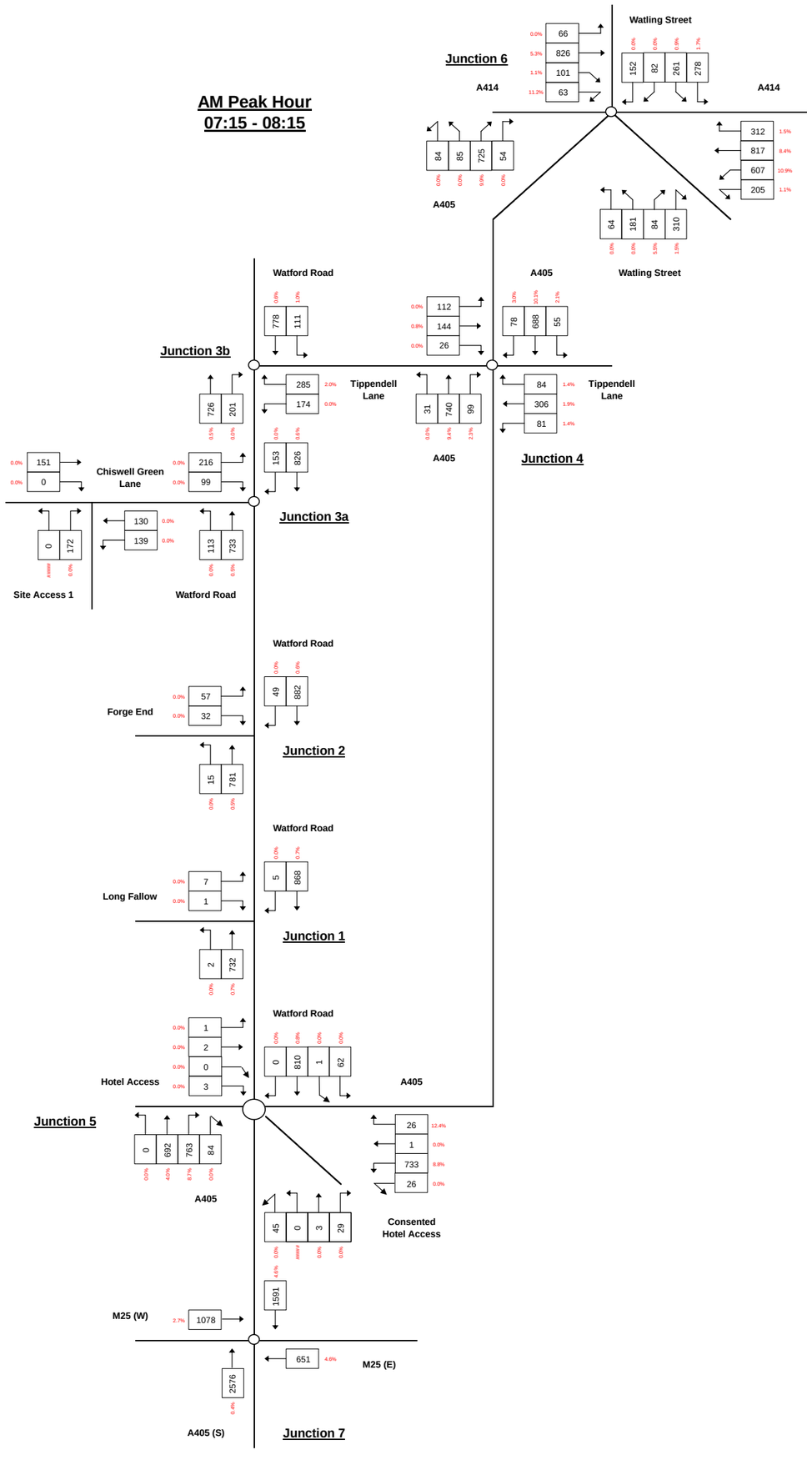
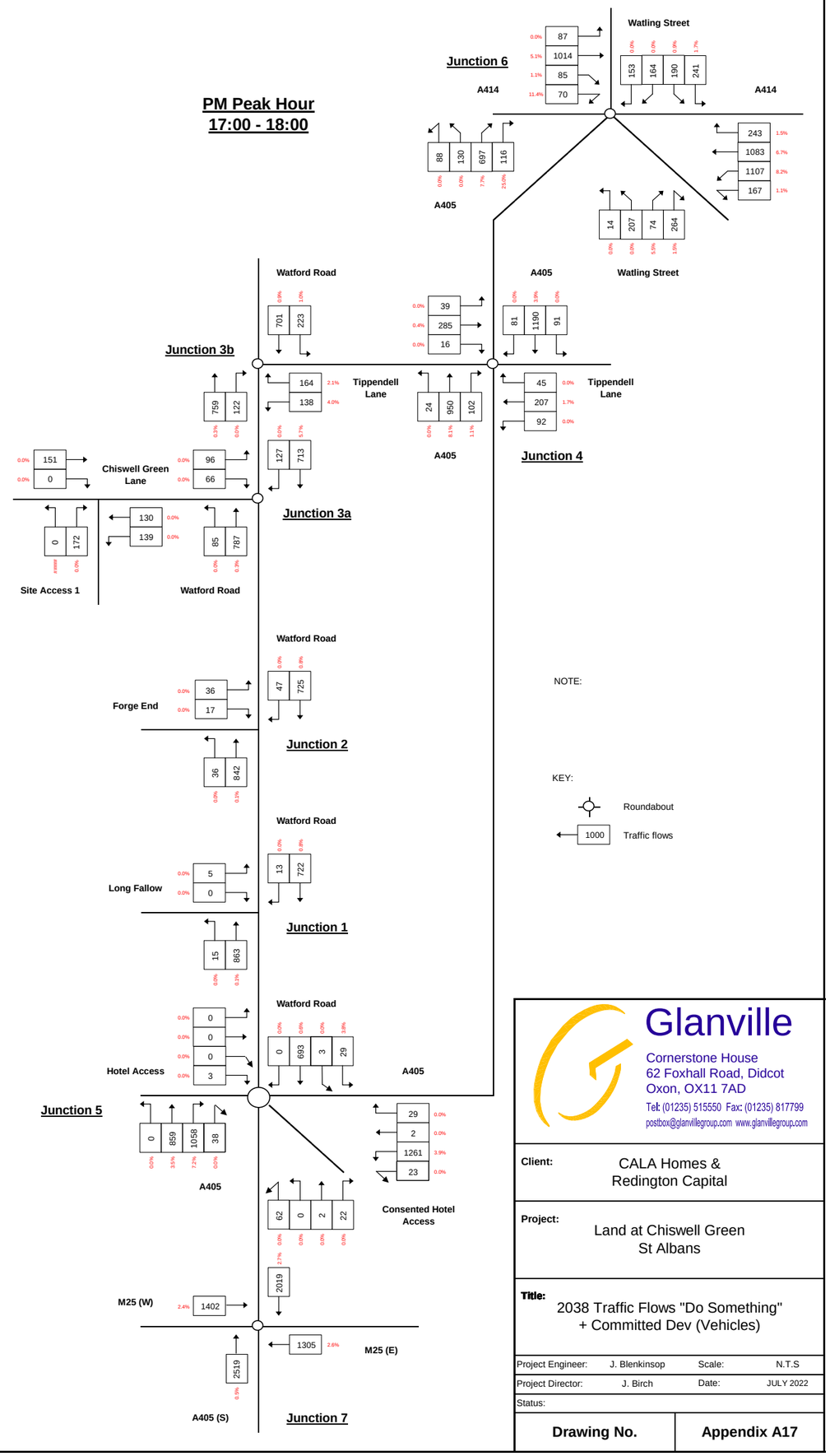
postbox@glanvillegroup.com www.glanvillegroup.com

Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	2038 Traffic Flows "Do Nothing" + Committed Dev (Vehicles)
Project Engineer: J. Blenkinsop	Scale: N.T.S
Project Director: J. Birch	Date: JULY 2022
Status:	
Drawing No.	**Appendix A16**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



NOTE:

KEY:

Roundabout

1000 Traffic flows

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Cornerstone House
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Oxon, OX11 7AD
Tel: (01235) 515550 Fax: (01235) 817799
postbox@glanvillegroup.com www.glanvillegroup.com

Client: CALA Homes & Redington Capital

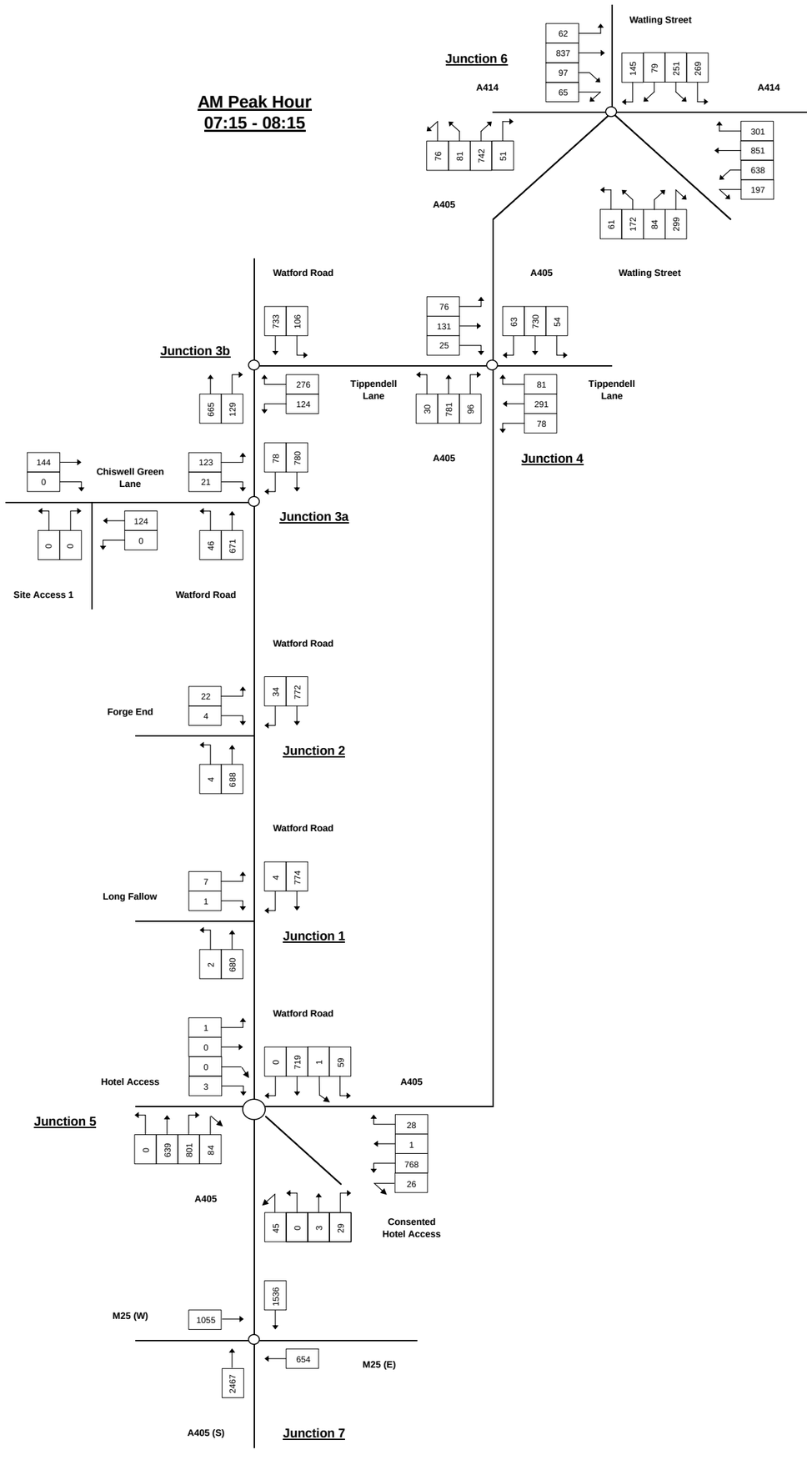
Project: Land at Chiswell Green St Albans

Title: 2038 Traffic Flows "Do Something" + Committed Dev (Vehicles)

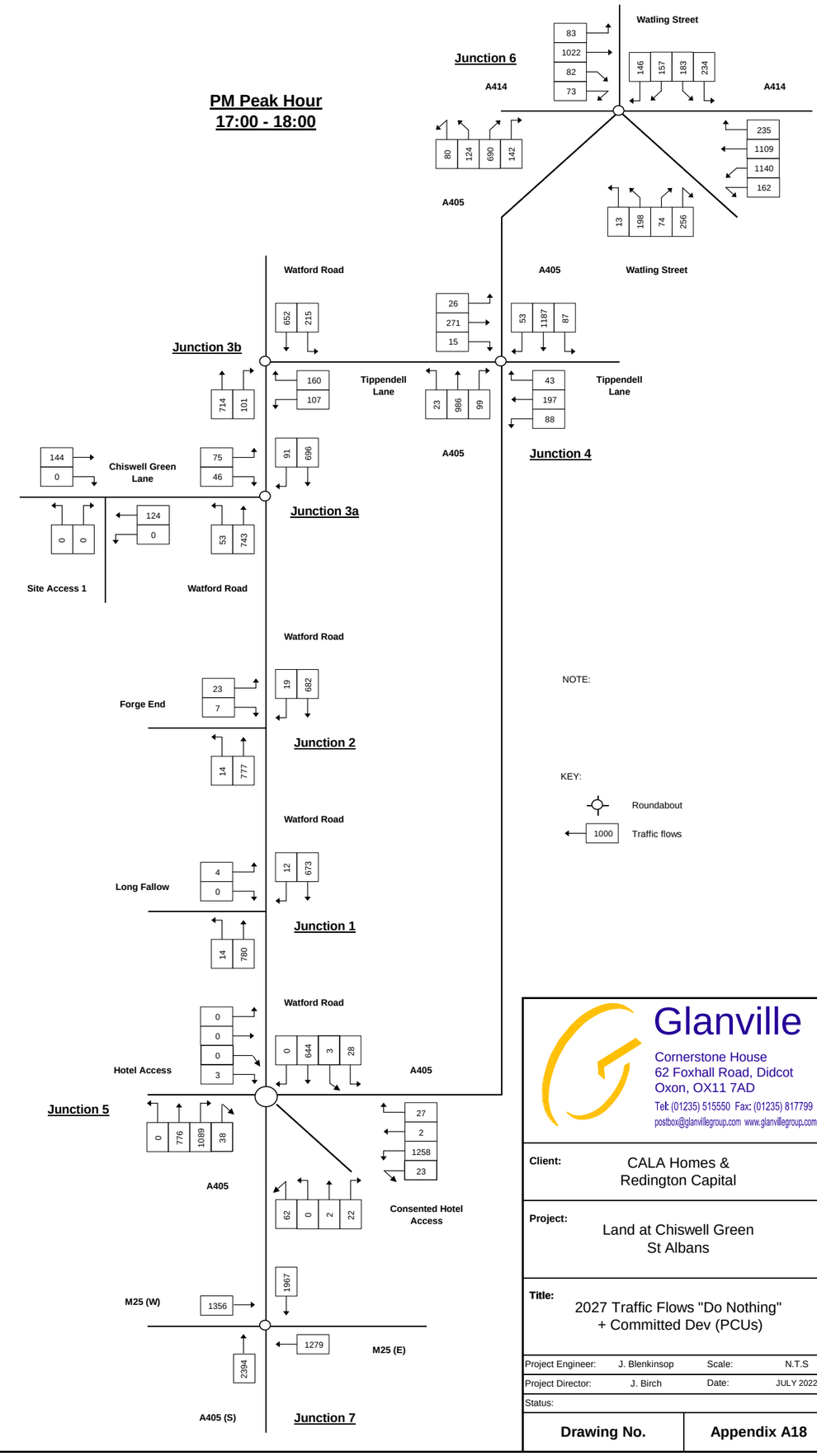
Project Engineer:	J. Blenkinsop	Scale:	N.T.S
Project Director:	J. Birch	Date:	JULY 2022
Status:			

Drawing No. | **Appendix A17**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



NOTE:

KEY:

Roundabout

1000 Traffic flows

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Oxon, OX11 7AD
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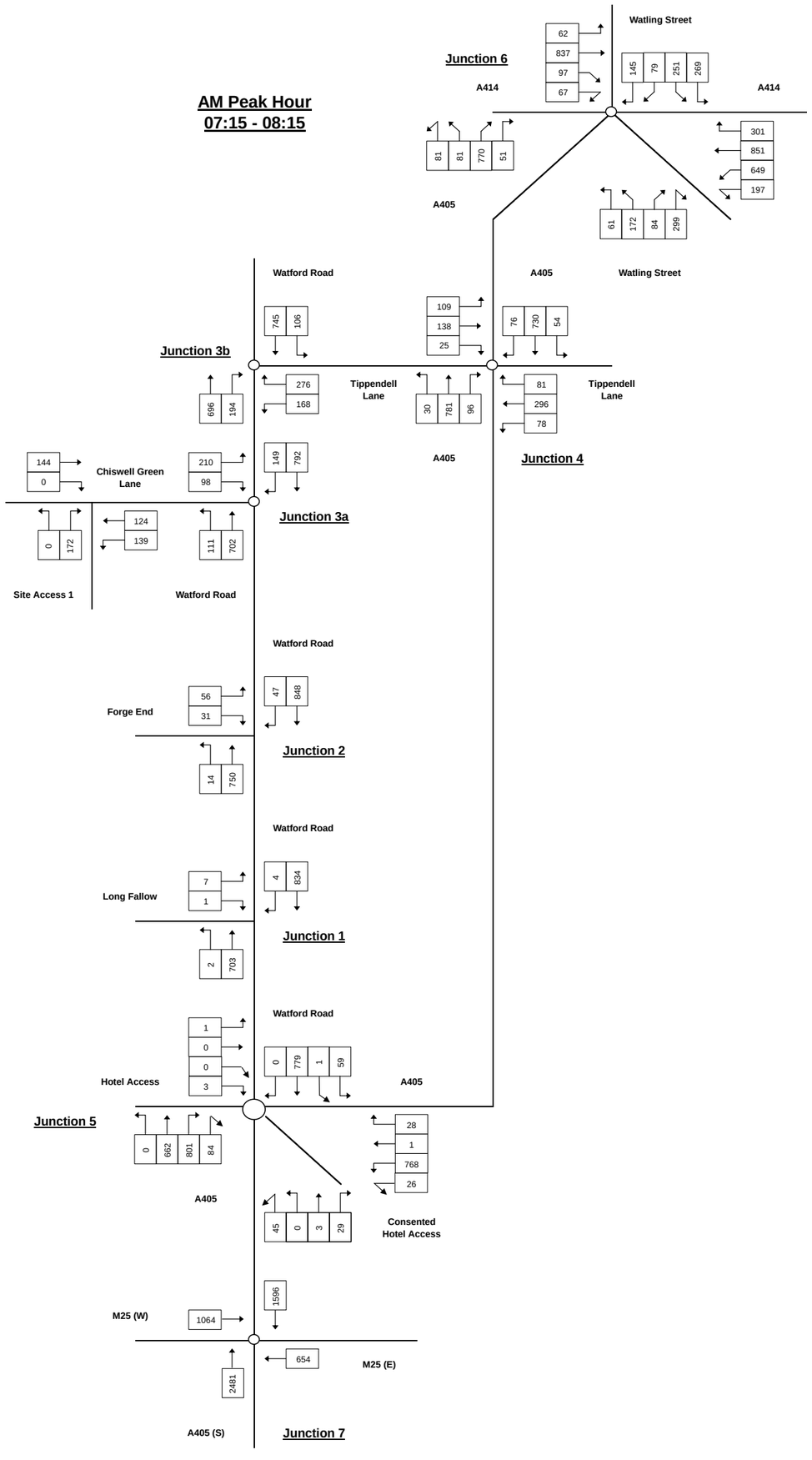
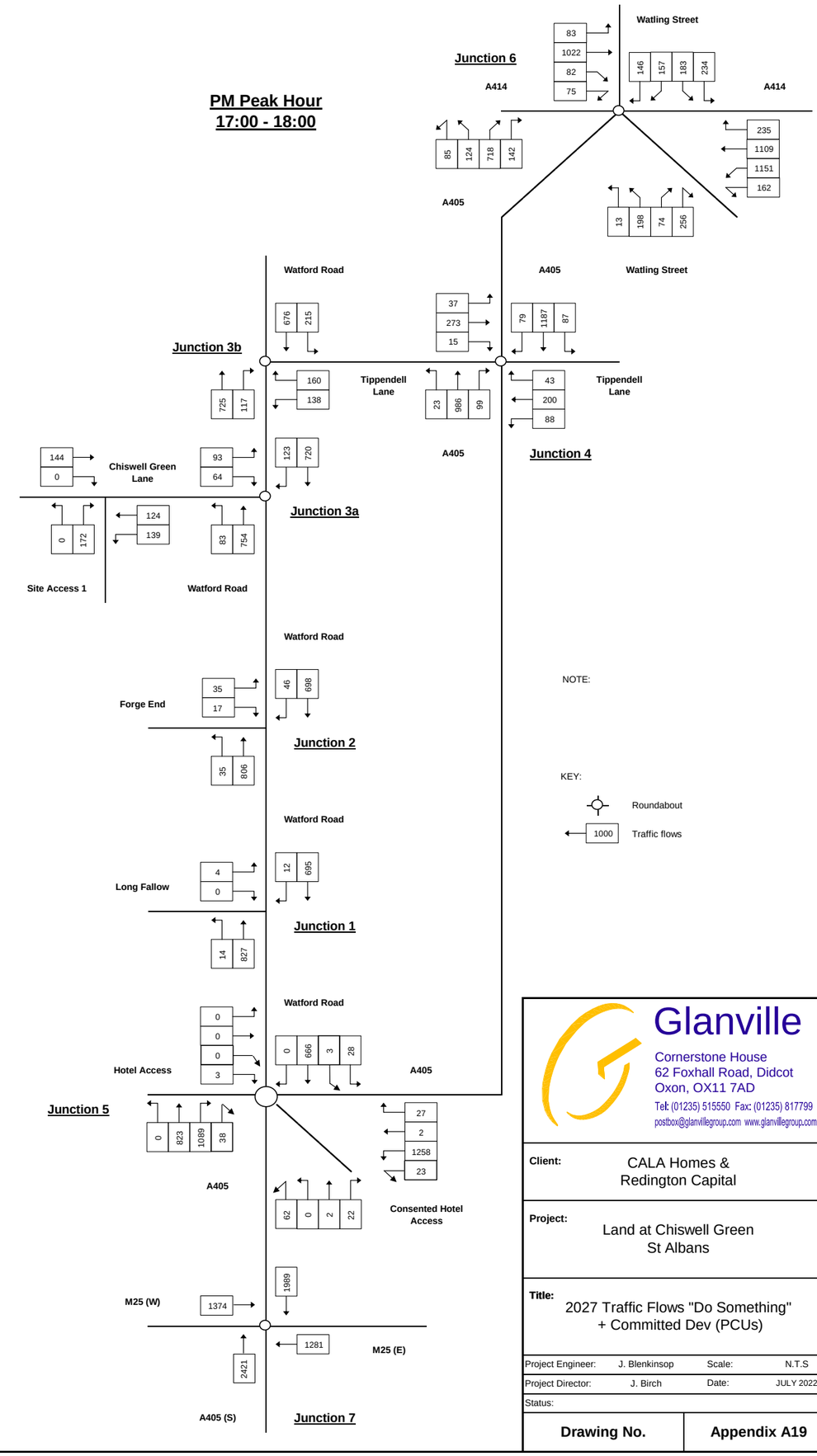
postbox@glanvillegroup.com www.glanvillegroup.com

Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	2027 Traffic Flows "Do Nothing" + Committed Dev (PCUs)
Project Engineer: J. Blenkinsop	Scale: N.T.S
Project Director: J. Birch	Date: JULY 2022
Status:	
Drawing No.	**Appendix A18**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



NOTE:

KEY:

Roundabout

1000 Traffic flows

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Oxon, OX11 7AD
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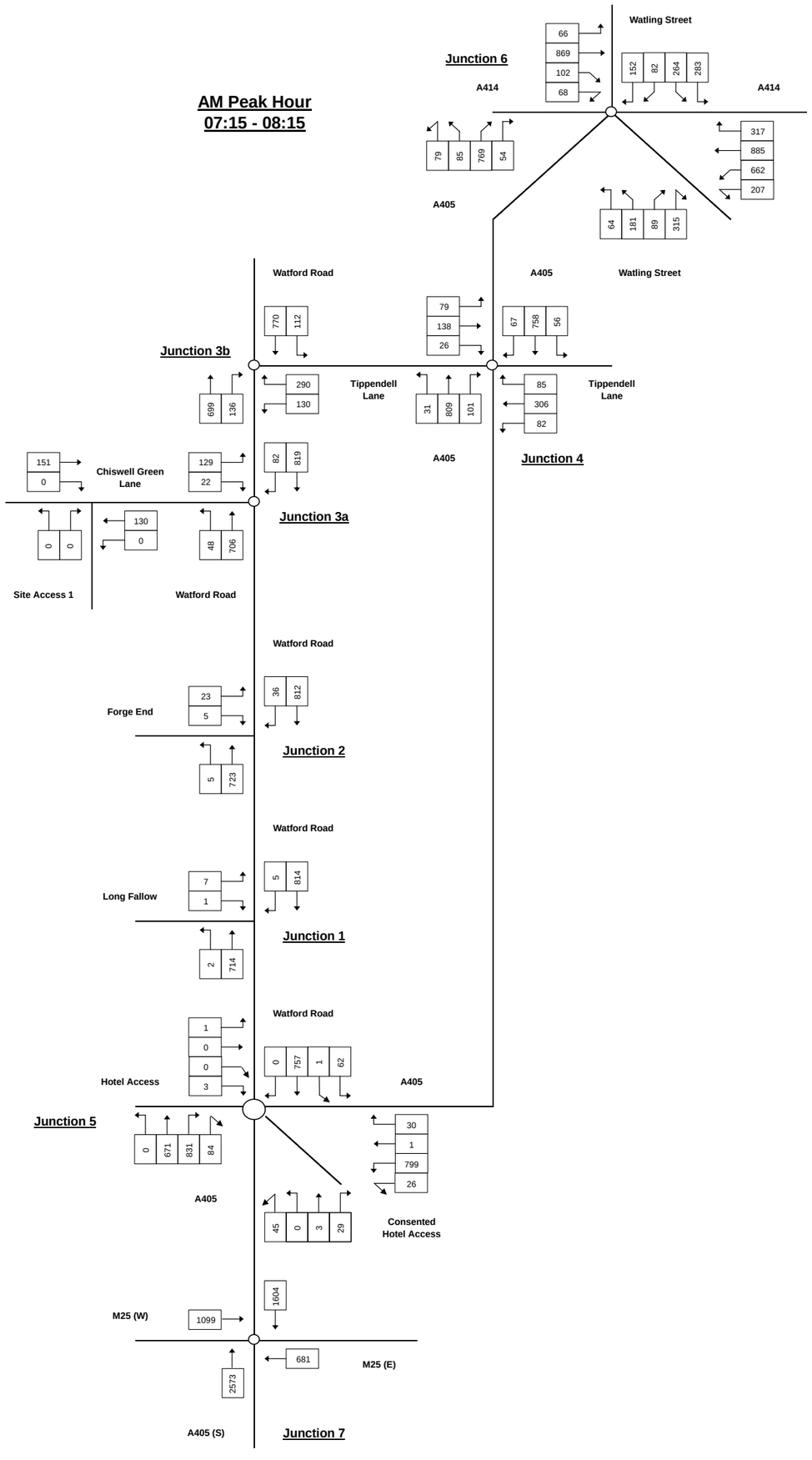
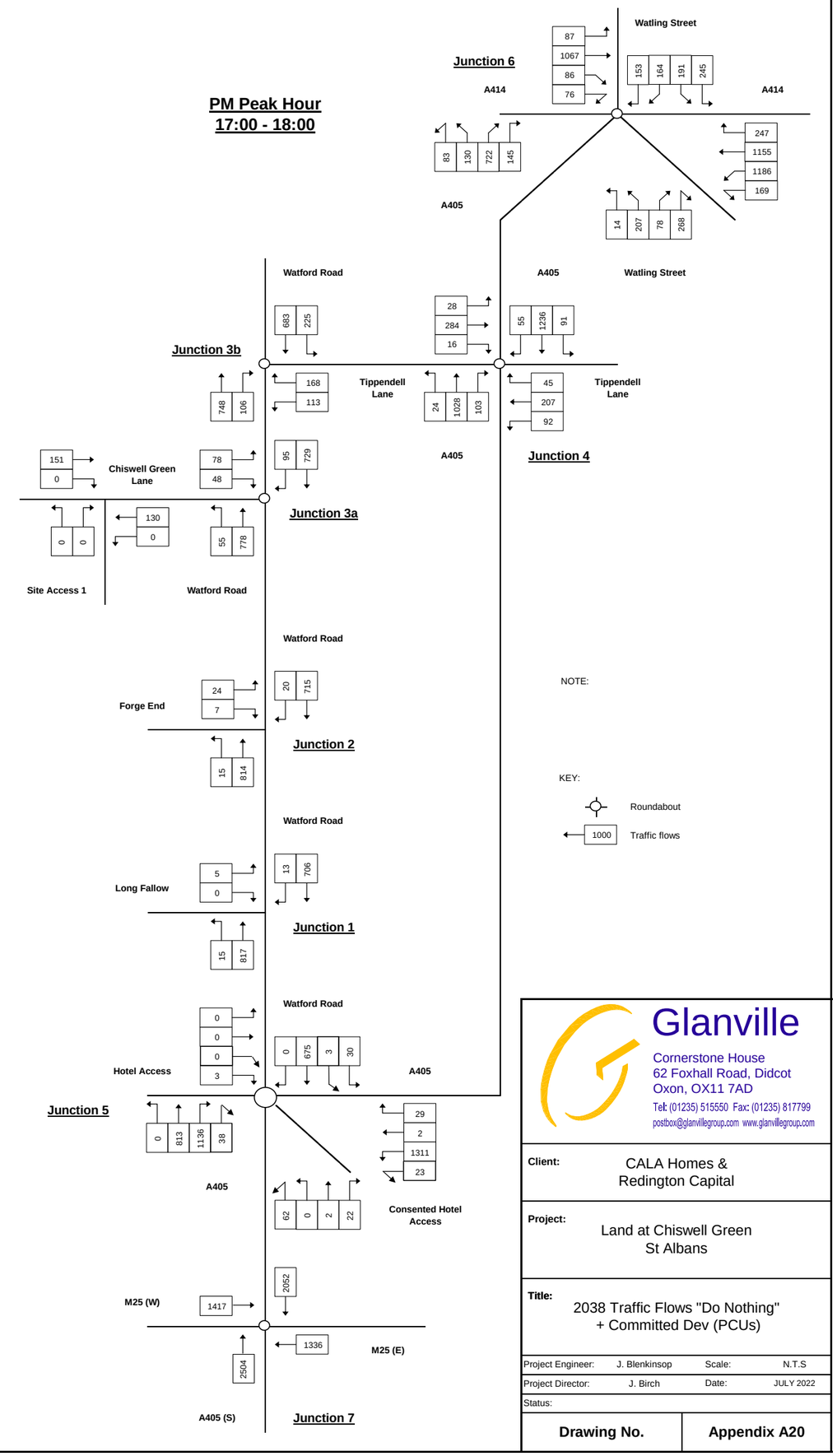
postbox@glanvillegroup.com www.glanvillegroup.com

Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	2027 Traffic Flows "Do Something" + Committed Dev (PCUs)
Project Engineer: J. Blenkinsop	Scale: N.T.S
Project Director: J. Birch	Date: JULY 2022
Status:	
Drawing No.	**Appendix A19**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



NOTE:

KEY:

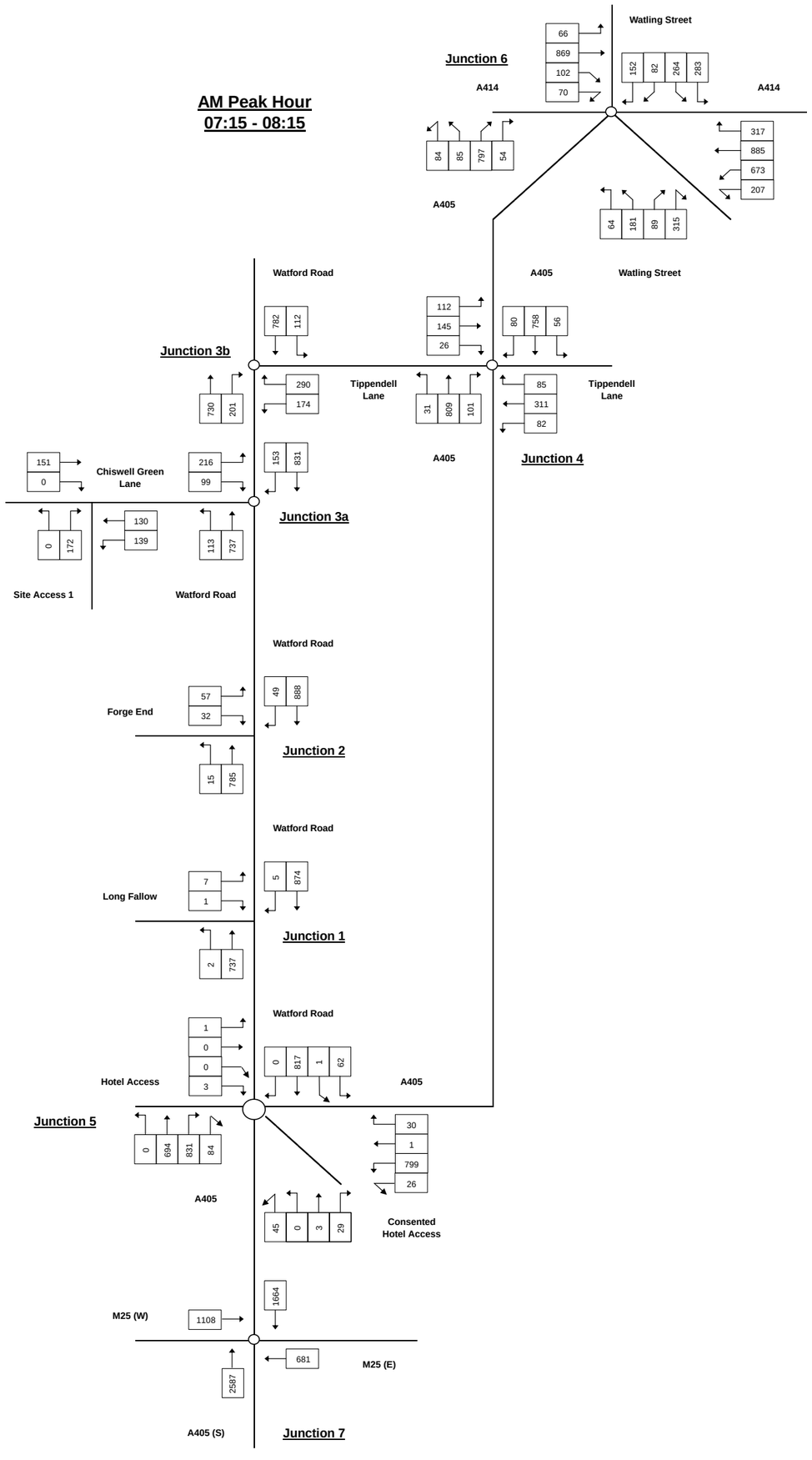
Roundabout

1000 Traffic flows

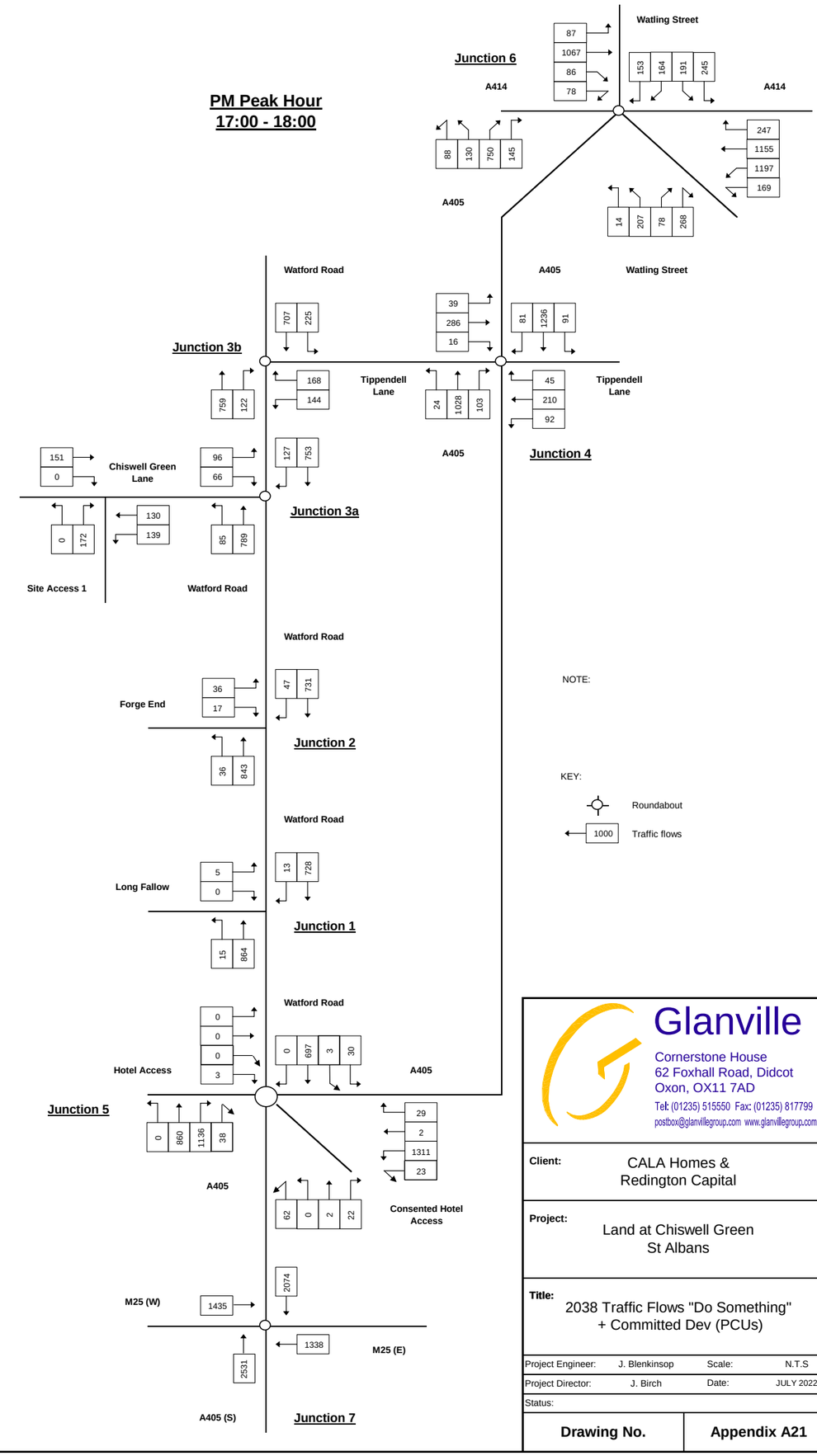
Glanville
Cornerstone House
62 Foxhall Road, Didcot
Oxon, OX11 7AD
Tel: (01235) 515550 Fax: (01235) 817799
postbox@glanvillegroup.com www.glanvillegroup.com

Client:	CALA Homes & Redington Capital
Project:	Land at Chiswell Green St Albans
Title:	2038 Traffic Flows "Do Nothing" + Committed Dev (PCUs)
Project Engineer: J. Blenkinsop	Scale: N.T.S
Project Director: J. Birch	Date: JULY 2022
Status:	
Drawing No.	**Appendix A20**

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



NOTE:

KEY:

Roundabout

1000 Traffic flows

Glanville
Cornerstone House
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Oxon, OX11 7AD
Tel: (01235) 515550 Fax: (01235) 817799
postbox@glanvillegroup.com www.glanvillegroup.com

Client: CALA Homes & Redington Capital

Project: Land at Chiswell Green St Albans

Title: 2038 Traffic Flows "Do Something" + Committed Dev (PCUs)

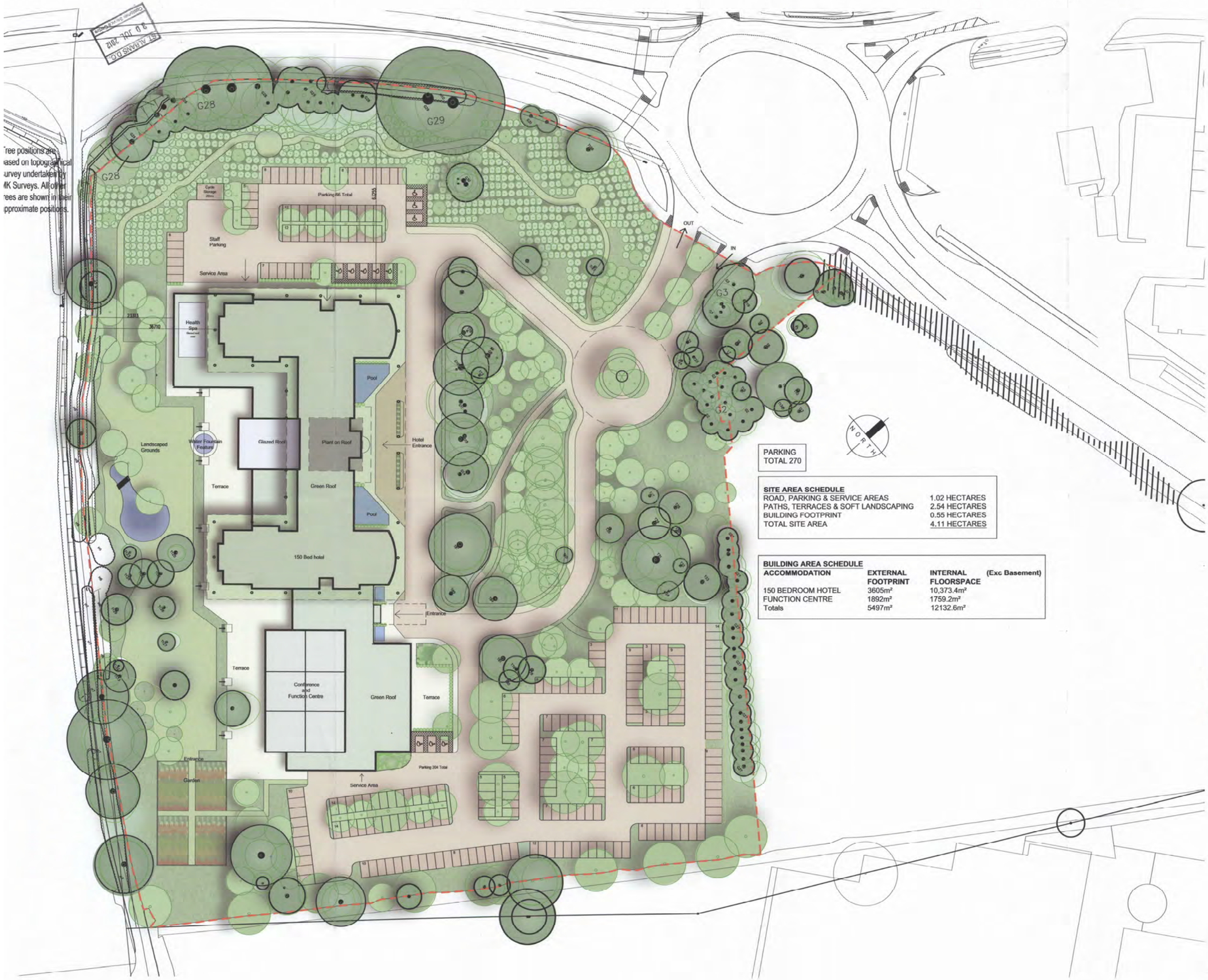
Project Engineer:	J. Blenkinsop	Scale:	N.T.S
Project Director:	J. Birch	Date:	JULY 2022
Status:			

Drawing No. | **Appendix A21**

Appendix B

Noke Hotel Roundabout Improvements

Tree positions are based on topographical survey undertaken by MK Surveys. All other trees are shown in their approximate positions.



PARKING TOTAL 270

SITE AREA SCHEDULE

ROAD, PARKING & SERVICE AREAS	1.02 HECTARES
PATHS, TERRACES & SOFT LANDSCAPING	2.54 HECTARES
BUILDING FOOTPRINT	0.55 HECTARES
TOTAL SITE AREA	4.11 HECTARES

BUILDING AREA SCHEDULE

ACCOMMODATION	EXTERNAL FOOTPRINT	INTERNAL FLOORSPACE (Exc Basement)
150 BEDROOM HOTEL	3605m²	10,373.4m²
FUNCTION CENTRE	1892m²	1759.2m²
Totals	5497m²	12132.6m²

this drawing. All construction information should be taken from figured dimensions only.

A1

date	rev	name	chk	note
04/07/2012	B	JBL	AB	Additional soft landscaping and tree's added, Labelling added, column position modified. Roof plant shown.
27/06/2012	A	JBL	AB	Additional soft landscaping and tree's added to match DCCLA landscape masterplan

CLIENT

51PEGASUS

Stride Treglown Bell

Architecture Town Planning Interior Design Building Surveying Landscape Architecture Graphic Design
3 Cosser Street, London, SE1 7BU
T 020 7401 0700 F 020 7401 0701 www.stridetreglown.co.uk

PROJECT

4- Star Hotel and Conference/Function Centre
Copsewood
St. Albans

DRAWING TITLE

Proposed Site Plan

DATE	SCALE	DRAWN BY	CHECKED BY
14/06/2012	1:500 @A1	JBL	AB

DRAWING NUMBER

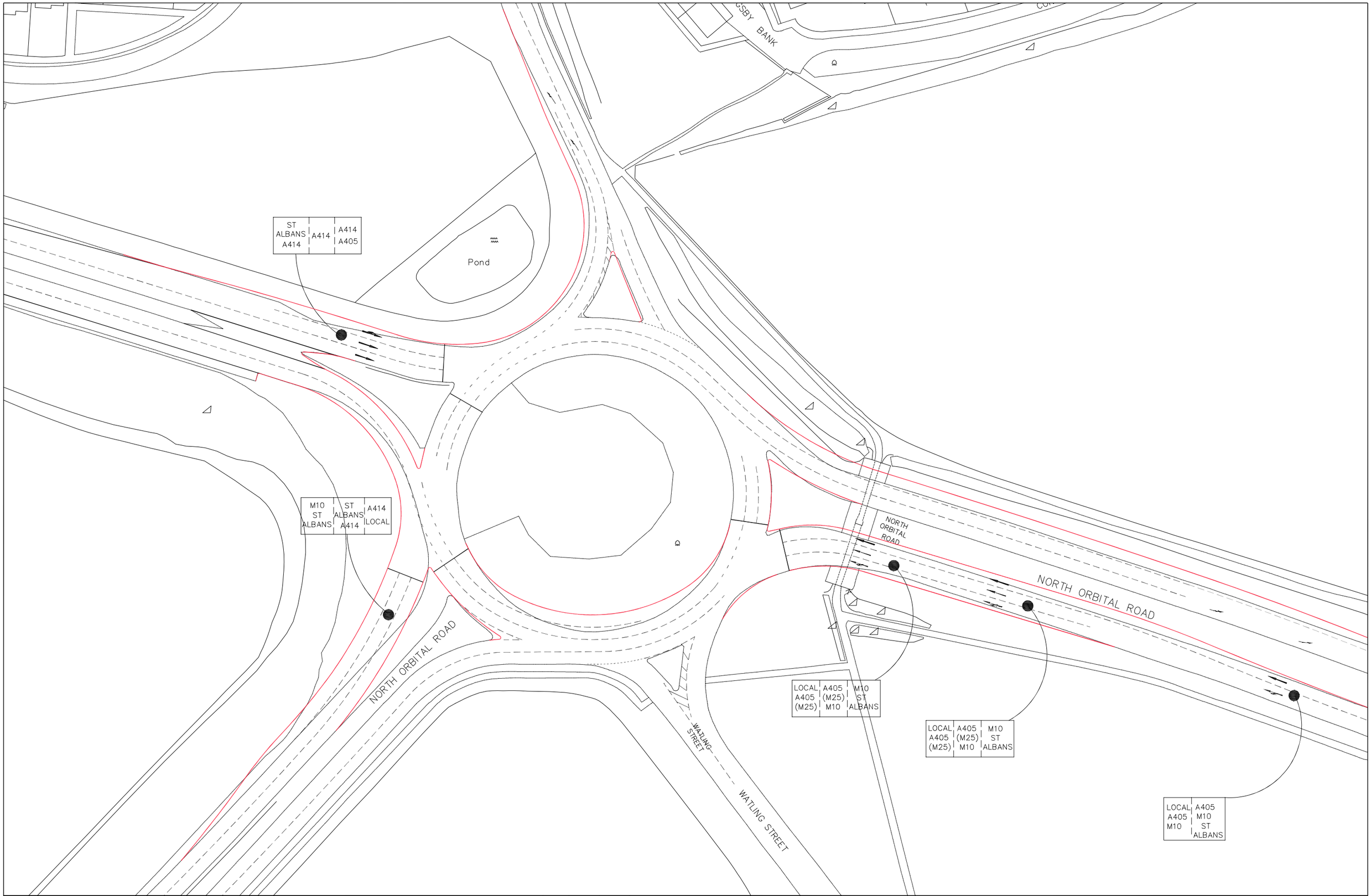
20913 P201

REVISION NO.

B

Appendix C

Park Street Roundabout Improvements



REV	DESCRIPTION	DRAWN	INITIALS	DATE
A	Revised A414/St Albans exit layouts		RJM	Oct07
B	Revised roundabout lane markings		RJM	Nov07
C	Revised M10/St Albans exit layouts		RJM	Nov07
D	Revised M10/St Albans exit layouts		RJM	Nov07

DRAWING STATUS	CHECKED BY	DATE

david tucker associates
transport planning consultants
Forester House, Doctors Lane
Henley-In-Arden
Warwickshire B95 5AW
Tel: +44(0)1564 793598
Fax: +44(0)1564 793983
www.dtatransportation.co.uk

JOB TITLE: Former Aerodrome, North Orbital Rd
CLIENT: Helioslough
DRAWING TITLE: Proposed Park Street Roundabout

SCALE	DRAWN BY	DATE	DRAWING No	REVISION
1:500	MJH	June 2006	6035–23	D

Appendix D

'Without Committed Development' Junction Modelling Outputs

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.2.5947

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Filename: A405_Watford Road.j9
Path: \\gc-did-fs01\CAD\2021\8210856\(6)_Transport\(1)_Planning\(4)_Modelling\SRN
Report generation date: 10/08/2022 12:07:49

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)
	Existing Layout - 2016 Base									
Arm 1	1.2	5.48	0.54	A	4.50	1.2	6.41	0.54	A	7.55
Arm 2	0.7	4.00	0.43	A		2.0	6.58	0.67	A	
Arm 3	1.4	4.13	0.59	A		4.0	8.61	0.81	A	
Arm 4	0.0	12.10	0.02	B		0.0	0.00	0.00	A	
	Existing Layout - 2027 without Dev									
Arm 1	1.6	6.78	0.62	A	5.40	1.7	8.52	0.64	A	12.46
Arm 2	1.0	4.66	0.49	A		3.3	9.71	0.77	A	
Arm 3	1.9	4.95	0.66	A		8.0	15.74	0.90	C	
Arm 4	0.0	15.13	0.03	C		0.0	0.00	0.00	A	
	Existing Layout - 2027 with Dev									
Arm 1	1.9	7.74	0.66	A	5.85	1.9	9.02	0.66	A	14.66
Arm 2	1.0	4.92	0.51	A		3.5	10.13	0.78	B	
Arm 3	2.0	5.12	0.67	A		10.2	19.68	0.92	C	
Arm 4	0.0	15.81	0.03	C		0.0	0.00	0.00	A	
	Existing Layout - 2038 without Dev									
Arm 1	1.9	7.71	0.66	A	6.00	2.1	10.12	0.68	B	17.87
Arm 2	1.1	5.04	0.52	A		4.4	12.38	0.82	B	
Arm 3	2.2	5.45	0.69	A		12.8	24.38	0.94	C	
Arm 4	0.0	17.14	0.03	C		0.0	0.00	0.00	A	
	Existing Layout - 2038 with Dev									
Arm 1	2.4	8.98	0.71	A	6.57	2.3	10.78	0.70	B	22.37
Arm 2	1.2	5.35	0.54	A		4.6	13.07	0.83	B	
Arm 3	2.3	5.66	0.70	A		17.7	32.71	0.96	D	
Arm 4	0.0	18.01	0.03	C		0.0	0.00	0.00	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

Title	J5 - A405 / Watford Road
Location	Chiswell Green
Site number	J5
Date	24/07/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	8210856
Enumerator	UK\dkemp
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	2016 Base	AM	ONE HOUR	07:00	08:30	15
D2	2016 Base	PM	ONE HOUR	16:45	18:15	15
D3	2027 without Dev	AM	ONE HOUR	07:00	08:30	15
D4	2027 without Dev	PM	ONE HOUR	16:45	18:15	15
D5	2027 with Dev	AM	ONE HOUR	07:00	08:30	15
D6	2027 with Dev	PM	ONE HOUR	16:45	18:15	15
D7	2038 without Dev	AM	ONE HOUR	07:00	08:30	15
D8	2038 without Dev	PM	ONE HOUR	16:45	18:15	15
D9	2038 with Dev	AM	ONE HOUR	07:00	08:30	15
D10	2038 with Dev	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Existing Layout	100.000

Existing Layout - 2016 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4	4.50	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Watford Road	
2	A405 (North)	
3	A405 (South)	
4	Hotel Access	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	4.00	8.10	15.0	24.0	53.0	35.0	
2	7.40	8.20	0.7	11.0	53.0	39.0	
3	7.05	7.50	1.3	24.0	48.0	30.0	
4	3.00	3.90	1.7	6.5	48.0	50.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.621	1857
2	0.654	2131
3	0.719	2219
4	0.402	838

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	2016 Base	AM	ONE HOUR	07:00	08:30	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		✓	705	100.000
2		✓	605	100.000
3		✓	1144	100.000
4		✓	6	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	54	651	0
	2	23	0	581	1
	3	581	563	0	0
	4	1	2	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	1	0
	2	13	0	6	0
	3	0	6	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.54	5.48	1.2	A
2	0.43	4.00	0.7	A
3	0.59	4.13	1.4	A
4	0.02	12.10	0.0	B

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	531	426	1563	0.340	529	0.5	3.473	A
2	455	490	1708	0.267	454	0.4	2.868	A
3	861	18	2137	0.403	859	0.7	2.810	A
4	5	876	474	0.010	4	0.0	7.668	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	634	510	1508	0.420	633	0.7	4.111	A
2	544	587	1648	0.330	543	0.5	3.257	A
3	1028	22	2134	0.482	1027	0.9	3.249	A
4	5	1048	402	0.013	5	0.0	9.067	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	776	624	1433	0.542	774	1.2	5.451	A
2	666	718	1566	0.425	665	0.7	3.991	A
3	1260	26	2130	0.591	1258	1.4	4.116	A
4	7	1283	305	0.022	7	0.0	12.062	B

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	776	625	1432	0.542	776	1.2	5.484	A
2	666	720	1565	0.426	666	0.7	4.004	A
3	1260	26	2130	0.591	1260	1.4	4.134	A
4	7	1285	304	0.022	7	0.0	12.099	B

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	634	512	1507	0.421	636	0.7	4.140	A
2	544	590	1647	0.330	545	0.5	3.272	A
3	1028	22	2134	0.482	1030	0.9	3.267	A
4	5	1051	401	0.013	5	0.0	9.099	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	531	428	1562	0.340	532	0.5	3.499	A
2	455	493	1707	0.267	456	0.4	2.881	A
3	861	18	2137	0.403	862	0.7	2.826	A
4	5	880	472	0.010	5	0.0	7.696	A

Existing Layout - 2016 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4	7.55	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	2016 Base	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	608	100.000
2		✓	1018	100.000
3		✓	1565	100.000
4		✓	4	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	25	583	0
	2	25	0	991	2
	3	706	859	0	0
	4	0	1	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	4	1	0
	2	0	0	3	0
	3	0	5	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.54	6.41	1.2	A
2	0.67	6.58	2.0	A
3	0.81	8.61	4.0	A
4	0.00	0.00	0.0	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	458	644	1426	0.321	456	0.5	3.705	A
2	766	437	1799	0.426	763	0.7	3.466	A
3	1178	20	2146	0.549	1173	1.2	3.682	A
4	0	1192	346	0.000	0	0.0	0.000	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	547	771	1344	0.407	546	0.7	4.505	A
2	915	523	1744	0.525	914	1.1	4.331	A
3	1407	24	2144	0.656	1404	1.9	4.851	A
4	0	1427	249	0.000	0	0.0	0.000	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	669	941	1234	0.543	667	1.2	6.334	A
2	1121	640	1669	0.672	1117	2.0	6.487	A
3	1723	30	2140	0.805	1715	4.0	8.309	A
4	0	1742	119	0.000	0	0.0	0.000	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	669	946	1231	0.544	669	1.2	6.408	A
2	1121	642	1667	0.672	1121	2.0	6.583	A
3	1723	30	2140	0.805	1723	4.0	8.610	A
4	0	1750	116	0.000	0	0.0	0.000	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	547	777	1340	0.408	549	0.7	4.560	A
2	915	526	1742	0.525	919	1.1	4.394	A
3	1407	24	2144	0.656	1415	1.9	4.999	A
4	0	1438	245	0.000	0	0.0	0.000	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	458	648	1423	0.322	459	0.5	3.734	A
2	766	440	1797	0.426	768	0.7	3.503	A
3	1178	20	2146	0.549	1181	1.2	3.742	A
4	0	1200	343	0.000	0	0.0	0.000	A

Existing Layout - 2027 without Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4	5.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2027 without Dev	AM	ONE HOUR	07:00	08:30	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		✓	772	100.000
2		✓	681	100.000
3		✓	1272	100.000
4		✓	6	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	59	713	0
	2	25	0	655	1
	3	637	635	0	0
	4	1	2	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	1	0
	2	13	0	6	0
	3	0	6	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.62	6.78	1.6	A
2	0.49	4.66	1.0	A
3	0.66	4.95	1.9	A
4	0.03	15.13	0.0	C

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	581	480	1528	0.380	579	0.6	3.785	A
2	513	537	1680	0.305	511	0.4	3.077	A
3	958	20	2135	0.449	954	0.8	3.043	A
4	5	973	433	0.010	4	0.0	8.394	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	694	575	1466	0.474	693	0.9	4.652	A
2	612	643	1614	0.379	612	0.6	3.591	A
3	1144	23	2132	0.536	1142	1.1	3.633	A
4	5	1165	354	0.015	5	0.0	10.330	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	850	703	1382	0.615	847	1.6	6.701	A
2	750	786	1524	0.492	748	1.0	4.632	A
3	1400	29	2128	0.658	1398	1.9	4.909	A
4	7	1425	246	0.027	7	0.0	15.046	C

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	850	705	1381	0.616	850	1.6	6.781	A
2	750	788	1523	0.492	750	1.0	4.657	A
3	1400	29	2128	0.658	1400	1.9	4.950	A
4	7	1428	244	0.027	7	0.0	15.132	C

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	694	577	1464	0.474	697	0.9	4.708	A
2	612	646	1611	0.380	614	0.6	3.612	A
3	1144	23	2132	0.536	1146	1.2	3.666	A
4	5	1169	352	0.015	5	0.0	10.387	B

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	581	483	1526	0.381	582	0.6	3.818	A
2	513	540	1678	0.306	513	0.4	3.093	A
3	958	20	2135	0.449	959	0.8	3.067	A
4	5	978	431	0.010	5	0.0	8.435	A

Existing Layout - 2027 without Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4	12.46	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)
D4	2027 without Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	667	100.000
2		✓	1142	100.000
3		✓	1740	100.000
4		✓	4	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	27	640	0
	2	27	0	1113	2
	3	775	965	0	0
	4	0	1	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	4	1	0
	2	0	0	3	0
	3	0	5	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.64	8.52	1.7	A
2	0.77	9.71	3.3	A
3	0.90	15.74	8.0	C
4	0.00	0.00	0.0	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	502	723	1375	0.365	500	0.6	4.103	A
2	860	480	1772	0.485	856	0.9	3.916	A
3	1310	22	2145	0.611	1304	1.6	4.249	A
4	0	1324	291	0.000	0	0.0	0.000	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	600	865	1283	0.467	598	0.9	5.249	A
2	1027	574	1711	0.600	1024	1.5	5.228	A
3	1564	26	2142	0.730	1560	2.6	6.138	A
4	0	1584	184	0.000	0	0.0	0.000	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	734	1052	1163	0.632	731	1.7	8.280	A
2	1257	702	1629	0.772	1250	3.2	9.338	A
3	1916	32	2138	0.896	1896	7.5	13.901	B
4	0	1926	43	0.000	0	0.0	0.000	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	734	1061	1156	0.635	734	1.7	8.522	A
2	1257	705	1627	0.773	1257	3.3	9.707	A
3	1916	32	2138	0.896	1914	8.0	15.743	C
4	0	1944	36	0.000	0	0.0	0.000	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	600	879	1274	0.471	603	0.9	5.390	A
2	1027	578	1708	0.601	1034	1.5	5.393	A
3	1564	26	2142	0.730	1585	2.8	6.697	A
4	0	1610	174	0.000	0	0.0	0.000	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	502	729	1371	0.366	503	0.6	4.155	A
2	860	483	1769	0.486	862	1.0	3.978	A
3	1310	22	2145	0.611	1315	1.6	4.363	A
4	0	1335	287	0.000	0	0.0	0.000	A

Existing Layout - 2027 with Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4	5.85	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2027 with Dev	AM	ONE HOUR	07:00	08:30	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		✓	832	100.000
2		✓	681	100.000
3		✓	1295	100.000
4		✓	6	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	59	773	0
	2	25	0	655	1
	3	660	635	0	0
	4	1	2	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	1	0
	2	13	0	6	0
	3	0	6	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.66	7.74	1.9	A
2	0.51	4.92	1.0	A
3	0.67	5.12	2.0	A
4	0.03	15.81	0.0	C

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	626	480	1528	0.410	624	0.7	3.971	A
2	513	582	1652	0.310	511	0.4	3.156	A
3	975	20	2136	0.456	972	0.8	3.083	A
4	5	990	426	0.011	4	0.0	8.530	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	748	575	1466	0.510	747	1.0	4.998	A
2	612	696	1580	0.387	611	0.6	3.715	A
3	1164	23	2133	0.546	1163	1.2	3.706	A
4	5	1185	346	0.016	5	0.0	10.581	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	916	703	1382	0.663	912	1.9	7.617	A
2	750	851	1483	0.505	748	1.0	4.887	A
3	1426	29	2129	0.670	1423	2.0	5.074	A
4	7	1450	236	0.028	7	0.0	15.711	C

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	916	705	1380	0.664	916	1.9	7.745	A
2	750	854	1481	0.506	750	1.0	4.919	A
3	1426	29	2129	0.670	1426	2.0	5.120	A
4	7	1453	234	0.028	7	0.0	15.809	C

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	748	577	1464	0.511	752	1.1	5.076	A
2	612	701	1577	0.388	614	0.6	3.741	A
3	1164	23	2133	0.546	1167	1.2	3.739	A
4	5	1190	344	0.016	5	0.0	10.647	B

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	626	483	1526	0.410	628	0.7	4.014	A
2	513	586	1649	0.311	513	0.5	3.171	A
3	975	20	2136	0.456	976	0.8	3.108	A
4	5	995	424	0.011	5	0.0	8.573	A

Existing Layout - 2027 with Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4	14.66	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)
D6	2027 with Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	689	100.000
2		✓	1142	100.000
3		✓	1787	100.000
4		✓	4	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	27	662	0
	2	27	0	1113	2
	3	822	965	0	0
	4	0	1	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	4	1	0
	2	0	0	3	0
	3	0	5	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.66	9.02	1.9	A
2	0.78	10.13	3.5	B
3	0.92	19.68	10.2	C
4	0.00	0.00	0.0	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	519	723	1375	0.377	516	0.6	4.180	A
2	860	496	1761	0.488	856	0.9	3.961	A
3	1345	22	2146	0.627	1339	1.7	4.421	A
4	0	1359	277	0.000	0	0.0	0.000	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	619	865	1283	0.483	618	0.9	5.402	A
2	1027	594	1698	0.605	1024	1.5	5.324	A
3	1606	26	2143	0.750	1601	2.9	6.581	A
4	0	1626	167	0.000	0	0.0	0.000	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	759	1049	1165	0.651	755	1.8	8.715	A
2	1257	725	1614	0.779	1250	3.4	9.705	A
3	1968	32	2139	0.920	1942	9.3	16.455	C
4	0	1972	25	0.000	0	0.0	0.000	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	759	1061	1157	0.656	758	1.9	9.025	A
2	1257	729	1611	0.780	1257	3.5	10.128	B
3	1968	32	2139	0.920	1964	10.2	19.679	C
4	0	1994	16	0.000	0	0.0	0.000	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	619	883	1272	0.487	623	1.0	5.581	A
2	1027	599	1695	0.606	1034	1.6	5.507	A
3	1606	26	2143	0.750	1635	3.1	7.453	A
4	0	1659	154	0.000	0	0.0	0.000	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	519	729	1371	0.378	520	0.6	4.240	A
2	860	500	1759	0.489	862	1.0	4.025	A
3	1345	22	2146	0.627	1351	1.7	4.558	A
4	0	1371	272	0.000	0	0.0	0.000	A

Existing Layout - 2038 without Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4	6.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2038 without Dev	AM	ONE HOUR	07:00	08:30	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		✓	812	100.000
2		✓	711	100.000
3		✓	1332	100.000
4		✓	6	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	62	750	0
	2	26	0	684	1
	3	669	663	0	0
	4	1	2	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	1	0
	2	13	0	6	0
	3	0	6	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.66	7.71	1.9	A
2	0.52	5.04	1.1	A
3	0.69	5.45	2.2	A
4	0.03	17.14	0.0	C

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	611	501	1514	0.404	609	0.7	3.965	A
2	535	564	1662	0.322	533	0.5	3.183	A
3	1003	20	2134	0.470	999	0.9	3.163	A
4	5	1019	414	0.011	4	0.0	8.779	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	730	600	1449	0.504	729	1.0	4.986	A
2	639	676	1593	0.401	638	0.7	3.767	A
3	1197	24	2131	0.562	1196	1.3	3.842	A
4	5	1219	331	0.016	5	0.0	11.048	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	894	734	1362	0.657	891	1.9	7.588	A
2	783	826	1499	0.522	781	1.1	5.003	A
3	1467	30	2127	0.689	1463	2.2	5.390	A
4	7	1491	218	0.030	7	0.0	17.007	C

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	894	735	1360	0.657	894	1.9	7.713	A
2	783	829	1497	0.523	783	1.1	5.038	A
3	1467	30	2127	0.690	1466	2.2	5.448	A
4	7	1495	217	0.030	7	0.0	17.137	C

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	730	602	1448	0.504	733	1.0	5.064	A
2	639	680	1590	0.402	641	0.7	3.800	A
3	1197	24	2131	0.562	1201	1.3	3.886	A
4	5	1224	329	0.016	5	0.0	11.126	B

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	611	504	1512	0.404	613	0.7	4.008	A
2	535	568	1660	0.322	536	0.5	3.207	A
3	1003	20	2134	0.470	1004	0.9	3.192	A
4	5	1024	412	0.011	5	0.0	8.829	A

Existing Layout - 2038 without Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4	17.87	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2038 without Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	700	100.000
2		✓	1196	100.000
3		✓	1822	100.000
4		✓	4	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	29	671	0
	2	29	0	1165	2
	3	812	1010	0	0
	4	0	1	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	4	1	0
	2	0	0	3	0
	3	0	5	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.68	10.12	2.1	B
2	0.82	12.38	4.4	B
3	0.94	24.38	12.8	C
4	0.00	0.00	0.0	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	527	756	1353	0.389	524	0.6	4.331	A
2	900	503	1757	0.513	896	1.0	4.163	A
3	1372	23	2144	0.640	1365	1.8	4.579	A
4	0	1386	266	0.000	0	0.0	0.000	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	629	905	1257	0.500	628	1.0	5.706	A
2	1075	602	1693	0.635	1073	1.7	5.775	A
3	1638	28	2141	0.765	1632	3.2	7.003	A
4	0	1658	154	0.000	0	0.0	0.000	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	771	1094	1135	0.679	766	2.0	9.655	A
2	1317	735	1608	0.819	1307	4.2	11.593	B
3	2006	34	2136	0.939	1974	11.3	19.149	C
4	0	2005	10	0.000	0	0.0	0.000	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	771	1109	1126	0.685	770	2.1	10.116	B
2	1317	738	1605	0.820	1316	4.4	12.383	B
3	2006	34	2136	0.939	2000	12.8	24.378	C
4	0	2032	0	0.000	0	0.0	0.000	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	629	929	1242	0.507	634	1.0	5.960	A
2	1075	607	1690	0.636	1086	1.8	6.060	A
3	1638	28	2140	0.765	1675	3.4	8.333	A
4	0	1702	136	0.000	0	0.0	0.000	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	527	764	1348	0.391	529	0.6	4.398	A
2	900	507	1754	0.513	903	1.1	4.244	A
3	1372	23	2144	0.640	1378	1.8	4.740	A
4	0	1400	260	0.000	0	0.0	0.000	A

Existing Layout - 2038 with Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4	6.57	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2038 with Dev	AM	ONE HOUR	07:00	08:30	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		✓	872	100.000
2		✓	711	100.000
3		✓	1355	100.000
4		✓	6	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	62	810	0
	2	26	0	684	1
	3	692	663	0	0
	4	1	2	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	1	0
	2	13	0	6	0
	3	0	6	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.71	8.98	2.4	A
2	0.54	5.35	1.2	A
3	0.70	5.66	2.3	A
4	0.03	18.01	0.0	C

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	656	501	1514	0.434	653	0.8	4.170	A
2	535	609	1634	0.328	533	0.5	3.264	A
3	1020	20	2136	0.478	1016	0.9	3.206	A
4	5	1036	408	0.011	4	0.0	8.930	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	784	600	1449	0.541	782	1.2	5.385	A
2	639	729	1559	0.410	638	0.7	3.905	A
3	1218	24	2132	0.571	1216	1.3	3.923	A
4	5	1240	323	0.017	5	0.0	11.335	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	960	734	1362	0.705	955	2.3	8.767	A
2	783	891	1459	0.537	781	1.1	5.299	A
3	1492	30	2128	0.701	1488	2.3	5.588	A
4	7	1517	208	0.032	7	0.0	17.854	C

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	960	735	1360	0.706	960	2.4	8.982	A
2	783	895	1456	0.538	783	1.2	5.346	A
3	1492	30	2128	0.701	1492	2.3	5.655	A
4	7	1520	207	0.032	7	0.0	18.009	C

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	784	602	1447	0.542	789	1.2	5.503	A
2	639	735	1556	0.411	641	0.7	3.942	A
3	1218	24	2132	0.571	1222	1.3	3.972	A
4	5	1245	321	0.017	5	0.0	11.424	B

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	656	504	1512	0.434	658	0.8	4.224	A
2	535	614	1632	0.328	536	0.5	3.290	A
3	1020	20	2135	0.478	1022	0.9	3.239	A
4	5	1041	405	0.011	5	0.0	8.983	A

Existing Layout - 2038 with Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4	22.37	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2038 with Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	722	100.000
2		✓	1196	100.000
3		✓	1869	100.000
4		✓	4	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	29	693	0
	2	29	0	1165	2
	3	859	1010	0	0
	4	0	1	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	4	1	0
	2	0	0	3	0
	3	0	5	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.70	10.78	2.3	B
2	0.83	13.07	4.6	B
3	0.96	32.71	17.7	D
4	0.00	0.00	0.0	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	544	756	1353	0.402	541	0.7	4.417	A
2	900	519	1746	0.516	896	1.1	4.214	A
3	1407	23	2145	0.656	1400	1.9	4.781	A
4	0	1421	252	0.000	0	0.0	0.000	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	649	904	1258	0.516	648	1.1	5.884	A
2	1075	622	1680	0.640	1072	1.7	5.893	A
3	1680	28	2142	0.784	1674	3.5	7.580	A
4	0	1700	137	0.000	0	0.0	0.000	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	795	1088	1139	0.698	790	2.2	10.182	B
2	1317	758	1592	0.827	1306	4.4	12.142	B
3	2058	34	2138	0.963	2013	14.6	23.284	C
4	0	2045	0	0.000	0	0.0	0.000	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	795	1106	1128	0.705	795	2.3	10.777	B
2	1317	763	1590	0.828	1316	4.6	13.067	B
3	2058	34	2138	0.963	2046	17.7	32.712	D
4	0	2078	0	0.000	0	0.0	0.000	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	649	938	1236	0.525	654	1.1	6.235	A
2	1075	628	1676	0.641	1086	1.8	6.214	A
3	1680	28	2142	0.784	1736	3.8	9.999	A
4	0	1762	111	0.000	0	0.0	0.000	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	544	764	1348	0.403	545	0.7	4.493	A
2	900	523	1744	0.516	903	1.1	4.299	A
3	1407	23	2145	0.656	1415	1.9	4.975	A
4	0	1436	245	0.000	0	0.0	0.000	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.2.5947

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 770558 software@trl.co.uk www.trlsoftware.co.uk

Filename: A405_Tippendell Lane.j9
Path: \\gc-did-fs01\CAD\2021\8210856\(6)_Transport\(1)_Planning\(4)_Modelling\SRN
Report generation date: 10/08/2022 12:10:11

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)
	Existing Layout - 2016 Base									
Arm 1	0.5	2.49	0.32	A	3.74	1.2	3.69	0.54	A	4.31
Arm 2	0.9	6.96	0.46	A		0.8	8.66	0.44	A	
Arm 3	0.5	2.83	0.35	A		0.8	3.12	0.45	A	
Arm 4	0.3	4.33	0.22	A		0.5	5.79	0.33	A	
	Existing Layout - 2027 without Dev									
Arm 1	0.6	2.67	0.36	A	4.25	1.6	4.46	0.61	A	5.24
Arm 2	1.1	8.46	0.53	A		1.1	11.70	0.54	B	
Arm 3	0.7	3.11	0.40	A		1.0	3.54	0.51	A	
Arm 4	0.3	4.78	0.25	A		0.7	6.94	0.40	A	
	Existing Layout - 2027 with Dev									
Arm 1	0.6	2.71	0.37	A	4.38	1.7	4.63	0.63	A	5.46
Arm 2	1.2	8.75	0.55	A		1.2	12.51	0.56	B	
Arm 3	0.7	3.15	0.41	A		1.1	3.62	0.52	A	
Arm 4	0.4	5.08	0.30	A		0.7	7.13	0.41	A	
	Existing Layout - 2038 without Dev									
Arm 1	0.6	2.77	0.38	A	4.58	1.8	4.91	0.65	A	5.86
Arm 2	1.3	9.49	0.58	A		1.4	14.01	0.59	B	
Arm 3	0.7	3.27	0.43	A		1.2	3.76	0.54	A	
Arm 4	0.4	5.03	0.27	A		0.8	7.67	0.43	A	
	Existing Layout - 2038 with Dev									
Arm 1	0.6	2.81	0.39	A	4.73	1.9	5.12	0.66	A	6.15
Arm 2	1.4	9.85	0.59	A		1.6	15.17	0.62	C	
Arm 3	0.7	3.31	0.43	A		1.2	3.86	0.54	A	
Arm 4	0.5	5.35	0.32	A		0.8	7.91	0.45	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

Title	J4 - A405 / Tippendell Lane
Location	Chiswell Green
Site number	J4
Date	24/07/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	8210856
Enumerator	UK\dkemp
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	2016 Base	AM	ONE HOUR	07:00	08:30	15
D2	2016 Base	PM	ONE HOUR	16:45	18:15	15
D3	2027 without Dev	AM	ONE HOUR	07:00	08:30	15
D4	2027 without Dev	PM	ONE HOUR	16:45	18:15	15
D5	2027 with Dev	AM	ONE HOUR	07:00	08:30	15
D6	2027 with Dev	PM	ONE HOUR	16:45	18:15	15
D7	2038 without Dev	AM	ONE HOUR	07:00	08:30	15
D8	2038 without Dev	PM	ONE HOUR	16:45	18:15	15
D9	2038 with Dev	AM	ONE HOUR	07:00	08:30	15
D10	2038 with Dev	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Existing Layout	100.000

Existing Layout - 2016 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	3.74	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A405 (North)	
2	Tippendell Lane (East)	
3	A405 (South)	
4	Tippendell Lane (West)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	7.40	8.00	18.6	31.0	44.0	28.0	
2	3.20	5.10	10.3	23.0	44.0	20.0	
3	7.50	8.00	2.3	43.0	44.0	29.0	
4	3.20	6.10	16.0	17.0	44.0	23.5	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.789	2465
2	0.582	1386
3	0.783	2432
4	0.605	1547

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	2016 Base	AM	ONE HOUR	07:00	08:30	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		✓	625	100.000
2		✓	404	100.000
3		✓	632	100.000
4		✓	211	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	48	521	56
	2	73	0	70	261
	3	519	86	0	27
	4	69	119	23	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	7	4
	2	1	0	1	2
	3	7	2	0	0
	4	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.32	2.49	0.5	A
2	0.46	6.96	0.9	A
3	0.35	2.83	0.5	A
4	0.22	4.33	0.3	A

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	471	171	2196	0.214	469	0.3	2.084	A
2	304	451	1089	0.279	303	0.4	4.568	A
3	476	292	2071	0.230	475	0.3	2.254	A
4	159	509	1215	0.131	158	0.1	3.403	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	562	205	2170	0.259	562	0.3	2.237	A
2	363	539	1036	0.351	363	0.5	5.345	A
3	568	350	2027	0.280	568	0.4	2.466	A
4	190	609	1152	0.165	189	0.2	3.741	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	688	251	2136	0.322	688	0.5	2.486	A
2	445	660	962	0.462	444	0.8	6.925	A
3	696	428	1968	0.354	695	0.5	2.826	A
4	232	746	1064	0.218	232	0.3	4.321	A

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	688	251	2135	0.322	688	0.5	2.487	A
2	445	661	962	0.462	445	0.9	6.962	A
3	696	429	1968	0.354	696	0.5	2.830	A
4	232	746	1064	0.218	232	0.3	4.328	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	562	205	2170	0.259	562	0.4	2.239	A
2	363	540	1035	0.351	364	0.5	5.379	A
3	568	352	2026	0.280	569	0.4	2.472	A
4	190	610	1151	0.165	190	0.2	3.750	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	471	172	2195	0.214	471	0.3	2.089	A
2	304	452	1088	0.279	305	0.4	4.598	A
3	476	294	2069	0.230	476	0.3	2.261	A
4	159	511	1214	0.131	159	0.2	3.411	A

Existing Layout - 2016 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	4.31	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	2016 Base	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1038	100.000
2		✓	296	100.000
3		✓	859	100.000
4		✓	284	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	79	911	48
	2	39	0	80	177
	3	749	89	0	21
	4	24	246	14	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	2	0
	2	0	0	0	2
	3	6	1	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.54	3.69	1.2	A
2	0.44	8.66	0.8	A
3	0.45	3.12	0.8	A
4	0.33	5.79	0.5	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	781	262	2212	0.353	779	0.5	2.510	A
2	223	730	942	0.236	222	0.3	4.987	A
3	647	198	2169	0.298	645	0.4	2.361	A
4	214	658	1129	0.189	213	0.2	3.924	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	933	313	2172	0.430	932	0.7	2.903	A
2	266	874	858	0.310	266	0.4	6.073	A
3	772	237	2139	0.361	772	0.6	2.631	A
4	255	788	1047	0.244	255	0.3	4.541	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	1143	384	2118	0.540	1141	1.2	3.680	A
2	326	1070	743	0.439	325	0.8	8.587	A
3	946	290	2099	0.451	945	0.8	3.115	A
4	313	964	935	0.334	312	0.5	5.770	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	1143	384	2117	0.540	1143	1.2	3.694	A
2	326	1071	742	0.439	326	0.8	8.657	A
3	946	291	2098	0.451	946	0.8	3.122	A
4	313	966	935	0.335	313	0.5	5.788	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	933	314	2171	0.430	935	0.8	2.915	A
2	266	876	856	0.311	267	0.5	6.123	A
3	772	238	2138	0.361	773	0.6	2.639	A
4	255	790	1046	0.244	256	0.3	4.561	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	781	263	2211	0.353	782	0.5	2.523	A
2	223	733	941	0.237	223	0.3	5.025	A
3	647	199	2168	0.298	647	0.4	2.370	A
4	214	661	1128	0.190	214	0.2	3.941	A

Existing Layout - 2027 without Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	4.25	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2027 without Dev	AM	ONE HOUR	07:00	08:30	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		✓	701	100.000
2		✓	443	100.000
3		✓	709	100.000
4		✓	231	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	53	587	61
	2	80	0	77	286
	3	585	94	0	30
	4	76	130	25	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	7	4
	2	1	0	1	2
	3	7	2	0	0
	4	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.36	2.67	0.6	A
2	0.53	8.46	1.1	A
3	0.40	3.11	0.7	A
4	0.25	4.78	0.3	A

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	528	187	2183	0.242	526	0.3	2.172	A
2	334	505	1056	0.316	332	0.5	4.959	A
3	534	320	2050	0.260	532	0.4	2.370	A
4	174	570	1177	0.148	173	0.2	3.586	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	630	224	2156	0.292	630	0.4	2.359	A
2	398	605	996	0.400	397	0.7	6.010	A
3	637	383	2002	0.318	637	0.5	2.637	A
4	208	682	1105	0.188	207	0.2	4.009	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	772	274	2118	0.364	771	0.6	2.671	A
2	488	740	913	0.534	486	1.1	8.385	A
3	781	469	1938	0.403	780	0.7	3.107	A
4	254	835	1008	0.252	254	0.3	4.775	A

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	772	274	2118	0.364	772	0.6	2.674	A
2	488	741	913	0.534	488	1.1	8.462	A
3	781	470	1937	0.403	781	0.7	3.113	A
4	254	836	1007	0.253	254	0.3	4.783	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	630	224	2155	0.292	631	0.4	2.362	A
2	398	606	995	0.400	400	0.7	6.070	A
3	637	385	2000	0.319	638	0.5	2.643	A
4	208	683	1104	0.188	208	0.2	4.021	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	528	188	2183	0.242	528	0.3	2.175	A
2	334	507	1055	0.316	334	0.5	5.002	A
3	534	322	2048	0.261	534	0.4	2.380	A
4	174	572	1175	0.148	174	0.2	3.596	A

Existing Layout - 2027 without Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	5.24	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2027 without Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1163	100.000
2		✓	325	100.000
3		✓	962	100.000
4		✓	311	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	87	1023	53
	2	43	0	88	194
	3	841	98	0	23
	4	26	270	15	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	2	0
	2	0	0	0	2
	3	6	1	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.61	4.46	1.6	A
2	0.54	11.70	1.1	B
3	0.51	3.54	1.0	A
4	0.40	6.94	0.7	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	876	287	2192	0.399	873	0.7	2.723	A
2	245	819	890	0.275	243	0.4	5.551	A
3	724	217	2154	0.336	722	0.5	2.511	A
4	234	737	1079	0.217	233	0.3	4.248	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	1046	344	2148	0.487	1044	0.9	3.258	A
2	292	980	796	0.367	291	0.6	7.128	A
3	865	260	2121	0.408	864	0.7	2.862	A
4	280	882	988	0.283	279	0.4	5.078	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	1280	421	2089	0.613	1278	1.6	4.427	A
2	358	1199	666	0.537	356	1.1	11.498	B
3	1059	318	2078	0.510	1058	1.0	3.524	A
4	342	1080	862	0.397	341	0.7	6.897	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	1280	422	2088	0.613	1280	1.6	4.458	A
2	358	1201	665	0.538	358	1.1	11.704	B
3	1059	319	2077	0.510	1059	1.0	3.537	A
4	342	1081	861	0.398	342	0.7	6.938	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	1046	345	2147	0.487	1048	1.0	3.284	A
2	292	983	794	0.368	294	0.6	7.243	A
3	865	262	2120	0.408	866	0.7	2.877	A
4	280	884	986	0.284	281	0.4	5.110	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	876	289	2191	0.400	877	0.7	2.741	A
2	245	822	888	0.276	246	0.4	5.610	A
3	724	219	2152	0.336	725	0.5	2.522	A
4	234	740	1078	0.217	235	0.3	4.273	A

Existing Layout - 2027 with Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	4.38	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)
D5	2027 with Dev	AM	ONE HOUR	07:00	08:30	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		✓	714	100.000
2		✓	448	100.000
3		✓	709	100.000
4		✓	271	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	53	587	74
	2	80	0	77	291
	3	585	94	0	30
	4	109	137	25	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	7	4
	2	1	0	1	2
	3	7	2	0	0
	4	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.37	2.71	0.6	A
2	0.55	8.75	1.2	A
3	0.41	3.15	0.7	A
4	0.30	5.08	0.4	A

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	538	192	2180	0.247	536	0.3	2.187	A
2	337	515	1050	0.321	335	0.5	5.023	A
3	534	333	2039	0.262	532	0.4	2.386	A
4	204	570	1177	0.173	203	0.2	3.692	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	642	230	2152	0.298	641	0.4	2.383	A
2	403	616	989	0.407	402	0.7	6.125	A
3	637	399	1990	0.320	637	0.5	2.661	A
4	244	682	1106	0.220	243	0.3	4.174	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	786	281	2113	0.372	785	0.6	2.710	A
2	493	755	905	0.545	491	1.2	8.661	A
3	781	488	1923	0.406	780	0.7	3.148	A
4	298	835	1008	0.296	298	0.4	5.066	A

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	786	282	2113	0.372	786	0.6	2.712	A
2	493	755	904	0.545	493	1.2	8.750	A
3	781	490	1922	0.406	781	0.7	3.154	A
4	298	836	1007	0.296	298	0.4	5.077	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	642	231	2151	0.298	643	0.4	2.388	A
2	403	617	988	0.408	405	0.7	6.189	A
3	637	402	1988	0.321	638	0.5	2.670	A
4	244	683	1105	0.221	244	0.3	4.188	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	538	193	2180	0.247	538	0.3	2.192	A
2	337	517	1049	0.321	338	0.5	5.070	A
3	534	336	2038	0.262	534	0.4	2.394	A
4	204	572	1176	0.174	204	0.2	3.709	A

Existing Layout - 2027 with Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	5.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2027 with Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1189	100.000
2		✓	328	100.000
3		✓	962	100.000
4		✓	324	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	87	1023	79
	2	43	0	88	197
	3	841	98	0	23
	4	37	272	15	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	2	0
	2	0	0	0	2
	3	6	1	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.63	4.63	1.7	A
2	0.56	12.51	1.2	B
3	0.52	3.62	1.1	A
4	0.41	7.13	0.7	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	895	289	2192	0.408	892	0.7	2.764	A
2	247	838	879	0.281	245	0.4	5.668	A
3	724	239	2138	0.339	722	0.5	2.540	A
4	244	737	1079	0.226	243	0.3	4.296	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	1069	346	2148	0.498	1068	1.0	3.330	A
2	295	1003	782	0.377	294	0.6	7.365	A
3	865	286	2102	0.411	864	0.7	2.907	A
4	291	882	988	0.295	291	0.4	5.163	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	1309	423	2088	0.627	1306	1.7	4.590	A
2	361	1227	650	0.556	359	1.2	12.251	B
3	1059	349	2054	0.516	1058	1.1	3.608	A
4	357	1079	862	0.414	356	0.7	7.089	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	1309	424	2087	0.627	1309	1.7	4.626	A
2	361	1230	649	0.557	361	1.2	12.509	B
3	1059	351	2053	0.516	1059	1.1	3.622	A
4	357	1081	861	0.414	357	0.7	7.135	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	1069	347	2147	0.498	1072	1.0	3.358	A
2	295	1007	780	0.378	297	0.6	7.499	A
3	865	289	2100	0.412	866	0.7	2.920	A
4	291	885	986	0.295	292	0.4	5.198	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	895	290	2191	0.409	896	0.7	2.785	A
2	247	842	877	0.282	248	0.4	5.733	A
3	724	241	2136	0.339	725	0.5	2.554	A
4	244	740	1078	0.226	244	0.3	4.325	A

Existing Layout - 2038 without Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	4.58	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2038 without Dev	AM	ONE HOUR	07:00	08:30	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		✓	733	100.000
2		✓	466	100.000
3		✓	741	100.000
4		✓	242	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	55	613	65
	2	84	0	81	301
	3	611	99	0	31
	4	79	137	26	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	7	4
	2	1	0	1	2
	3	7	2	0	0
	4	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.38	2.77	0.6	A
2	0.58	9.49	1.3	A
3	0.43	3.27	0.7	A
4	0.27	5.03	0.4	A

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	552	197	2176	0.254	550	0.3	2.212	A
2	351	529	1042	0.337	349	0.5	5.180	A
3	558	337	2037	0.274	556	0.4	2.429	A
4	182	596	1160	0.157	181	0.2	3.678	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	659	235	2147	0.307	659	0.4	2.418	A
2	419	632	979	0.428	418	0.7	6.408	A
3	666	404	1987	0.335	666	0.5	2.725	A
4	218	713	1085	0.201	217	0.2	4.147	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	807	288	2107	0.383	806	0.6	2.765	A
2	513	774	893	0.575	511	1.3	9.368	A
3	816	493	1919	0.425	815	0.7	3.257	A
4	266	873	983	0.271	266	0.4	5.016	A

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	807	288	2107	0.383	807	0.6	2.768	A
2	513	775	892	0.575	513	1.3	9.487	A
3	816	495	1918	0.425	816	0.7	3.266	A
4	266	874	982	0.271	266	0.4	5.028	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	659	236	2146	0.307	660	0.4	2.423	A
2	419	634	978	0.428	421	0.8	6.491	A
3	666	407	1985	0.336	667	0.5	2.733	A
4	218	715	1084	0.201	218	0.3	4.161	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	552	197	2175	0.254	552	0.3	2.218	A
2	351	530	1041	0.337	352	0.5	5.233	A
3	558	340	2035	0.274	558	0.4	2.440	A
4	182	598	1158	0.157	182	0.2	3.692	A

Existing Layout - 2038 without Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	5.86	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2038 without Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1217	100.000
2		✓	341	100.000
3		✓	1007	100.000
4		✓	327	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	91	1071	55
	2	45	0	92	204
	3	881	102	0	24
	4	28	283	16	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	2	0
	2	0	0	0	2
	3	6	1	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.65	4.91	1.8	A
2	0.59	14.01	1.4	B
3	0.54	3.76	1.2	A
4	0.43	7.67	0.8	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	916	301	2182	0.420	913	0.7	2.833	A
2	257	857	868	0.296	255	0.4	5.861	A
3	758	228	2146	0.353	756	0.5	2.590	A
4	246	772	1058	0.233	245	0.3	4.424	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	1094	360	2136	0.512	1093	1.0	3.446	A
2	307	1025	769	0.399	306	0.7	7.759	A
3	905	273	2112	0.429	904	0.7	2.980	A
4	294	923	961	0.306	293	0.4	5.385	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	1340	440	2074	0.646	1337	1.8	4.866	A
2	375	1254	634	0.592	372	1.4	13.624	B
3	1109	332	2067	0.536	1107	1.1	3.745	A
4	360	1130	830	0.434	359	0.8	7.615	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	1340	441	2073	0.647	1340	1.8	4.913	A
2	375	1257	632	0.594	375	1.4	14.005	B
3	1109	335	2065	0.537	1109	1.2	3.763	A
4	360	1132	829	0.434	360	0.8	7.674	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	1094	362	2134	0.513	1097	1.1	3.479	A
2	307	1029	766	0.400	310	0.7	7.934	A
3	905	276	2110	0.429	907	0.8	2.998	A
4	294	926	960	0.306	295	0.4	5.428	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	916	302	2180	0.420	918	0.7	2.853	A
2	257	861	865	0.297	258	0.4	5.935	A
3	758	230	2144	0.354	759	0.5	2.599	A
4	246	775	1055	0.233	247	0.3	4.454	A

Existing Layout - 2038 with Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	4.73	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2038 with Dev	AM	ONE HOUR	07:00	08:30	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		✓	746	100.000
2		✓	471	100.000
3		✓	741	100.000
4		✓	282	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	55	613	78
	2	84	0	81	306
	3	611	99	0	31
	4	112	144	26	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	7	4
	2	1	0	1	2
	3	7	2	0	0
	4	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.39	2.81	0.6	A
2	0.59	9.85	1.4	A
3	0.43	3.31	0.7	A
4	0.32	5.35	0.5	A

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	562	202	2173	0.258	560	0.3	2.230	A
2	355	538	1036	0.342	353	0.5	5.251	A
3	558	350	2027	0.275	556	0.4	2.446	A
4	212	596	1160	0.183	211	0.2	3.790	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	671	242	2143	0.313	670	0.5	2.444	A
2	423	644	972	0.436	422	0.8	6.539	A
3	666	420	1974	0.337	666	0.5	2.749	A
4	254	713	1086	0.234	253	0.3	4.325	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	821	296	2102	0.391	821	0.6	2.807	A
2	519	789	884	0.586	516	1.4	9.714	A
3	816	513	1904	0.428	815	0.7	3.302	A
4	310	873	984	0.316	310	0.5	5.339	A

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	821	296	2102	0.391	821	0.6	2.810	A
2	519	789	884	0.587	519	1.4	9.851	A
3	816	515	1902	0.429	816	0.7	3.312	A
4	310	874	983	0.316	310	0.5	5.354	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	671	242	2143	0.313	671	0.5	2.449	A
2	423	645	971	0.436	426	0.8	6.630	A
3	666	423	1972	0.338	667	0.5	2.762	A
4	254	715	1084	0.234	254	0.3	4.341	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	562	203	2172	0.259	562	0.3	2.237	A
2	355	540	1035	0.343	356	0.5	5.308	A
3	558	353	2025	0.276	558	0.4	2.457	A
4	212	598	1159	0.183	213	0.2	3.805	A

Existing Layout - 2038 with Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	6.15	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)
D10	2038 with Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1243	100.000
2		✓	344	100.000
3		✓	1007	100.000
4		✓	340	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	91	1071	81
	2	45	0	92	207
	3	881	102	0	24
	4	39	285	16	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	2	0
	2	0	0	0	2
	3	6	1	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.66	5.12	1.9	A
2	0.62	15.17	1.6	C
3	0.54	3.86	1.2	A
4	0.45	7.91	0.8	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	936	302	2182	0.429	933	0.7	2.875	A
2	259	877	856	0.302	257	0.4	5.991	A
3	758	249	2130	0.356	756	0.6	2.616	A
4	256	772	1058	0.242	255	0.3	4.470	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	1117	362	2135	0.523	1116	1.1	3.527	A
2	309	1049	755	0.410	308	0.7	8.037	A
3	905	299	2092	0.433	904	0.8	3.029	A
4	306	923	961	0.318	305	0.5	5.481	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	1369	442	2073	0.660	1365	1.9	5.065	A
2	379	1283	617	0.614	375	1.5	14.677	B
3	1109	364	2043	0.543	1107	1.2	3.839	A
4	374	1130	830	0.451	373	0.8	7.846	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	1369	444	2072	0.661	1368	1.9	5.118	A
2	379	1286	616	0.615	379	1.6	15.168	C
3	1109	367	2041	0.543	1109	1.2	3.860	A
4	374	1132	829	0.452	374	0.8	7.915	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	1117	364	2134	0.524	1121	1.1	3.566	A
2	309	1053	753	0.411	313	0.7	8.245	A
3	905	302	2090	0.433	907	0.8	3.049	A
4	306	926	959	0.319	307	0.5	5.528	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	936	304	2180	0.429	937	0.8	2.901	A
2	259	881	854	0.303	260	0.4	6.071	A
3	758	252	2128	0.356	759	0.6	2.633	A
4	256	775	1055	0.243	257	0.3	4.509	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.2.5947

For sales and distribution information, program advice and maintenance, contact TRL:
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Filename: Park Street Rbt.j9
Path: \\gc-did-fs01\CAD\2021\8210856\(6)_Transport\(1)_Planning\(4)_Modelling\SRN
Report generation date: 10/08/2022 12:08:38

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)
Existing Layout - 2016 Base										
Arm 1	2.0	4.25	0.67	A	5.65	7.2	12.06	0.88	B	10.90
Arm 2	1.2	7.04	0.54	A		2.2	14.90	0.69	B	
Arm 3	1.4	6.81	0.58	A		2.8	11.46	0.74	B	
Arm 4	0.6	2.29	0.36	A		0.9	2.74	0.46	A	
Arm 5	2.2	10.85	0.69	B		3.2	16.57	0.77	C	
Existing Layout - 2027 without Dev										
Arm 1	3.1	5.94	0.76	A	9.09	36.4	51.42	1.00	F	38.45
Arm 2	1.9	10.52	0.66	B		7.0	46.18	0.90	E	
Arm 3	2.4	10.50	0.71	B		7.2	27.72	0.89	D	
Arm 4	0.7	2.64	0.42	A		1.2	3.33	0.54	A	
Arm 5	4.7	22.29	0.84	C		12.8	61.56	0.96	F	
Existing Layout - 2027 with Dev										
Arm 1	3.2	6.08	0.76	A	9.76	39.6	54.95	1.01	F	42.65
Arm 2	1.9	10.76	0.66	B		7.3	47.81	0.91	E	
Arm 3	2.8	11.75	0.74	B		9.5	35.30	0.93	E	
Arm 4	0.8	2.69	0.43	A		1.2	3.40	0.55	A	
Arm 5	5.2	24.76	0.85	C		15.4	72.53	0.98	F	
Existing Layout - 2038 without Dev										
Arm 1	3.9	7.25	0.80	A	13.38	79.1	96.65	1.05	F	72.79
Arm 2	2.6	13.75	0.73	B		12.1	73.43	0.97	F	
Arm 3	3.3	13.96	0.77	B		12.3	44.62	0.95	E	
Arm 4	0.8	2.85	0.45	A		1.3	3.66	0.57	A	
Arm 5	8.9	40.75	0.92	E		36.0	144.41	1.07	F	
Existing Layout - 2038 with Dev										
Arm 1	4.1	7.43	0.81	A	15.99	83.0	100.74	1.05	F	79.32
Arm 2	2.7	14.11	0.73	B		12.3	74.95	0.97	F	
Arm 3	3.9	16.18	0.80	C		17.4	59.24	0.98	F	
Arm 4	0.9	2.99	0.47	A		1.4	3.74	0.58	A	
Arm 5	12.3	55.45	0.95	F		41.2	163.53	1.09	F	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

Title	J6 - Park Street Roundabout
Location	Chiswell Green, St Albans
Site number	J6
Date	24/07/2022
Version	v 1
Status	(new file)
Identifier	
Client	
Jobnumber	8210856
Enumerator	UK\dkemp
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	2016 Base	AM	ONE HOUR	07:00	08:30	15
D2	2016 Base	PM	ONE HOUR	16:45	18:15	15
D3	2027 without Dev	AM	ONE HOUR	07:00	08:30	15
D4	2027 without Dev	PM	ONE HOUR	16:45	18:15	15
D5	2027 with Dev	AM	ONE HOUR	07:00	08:30	15
D6	2027 with Dev	PM	ONE HOUR	16:45	18:15	15
D7	2038 without Dev	AM	ONE HOUR	07:00	08:30	15
D8	2038 without Dev	PM	ONE HOUR	16:45	18:15	15
D9	2038 with Dev	AM	ONE HOUR	07:00	08:30	15
D10	2038 with Dev	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Existing Layout	100.000

Existing Layout - 2016 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 5 - 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	Park Street Roundabout	Standard Roundabout	1, 2, 3, 4, 5	5.65	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A414 (East)	
2	Watling Street (South)	
3	A405	
4	A414 (West)	
5	Watling Street (North)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	7.75	11.20	30.0	35.0	101.0	36.0	
2	3.00	7.50	80.0	31.0	101.0	34.0	
3	7.20	7.50	4.5	26.0	101.0	31.0	
4	7.90	12.50	33.0	47.0	101.0	23.0	
5	3.90	7.00	35.0	51.0	101.0	34.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.647	3113
2	0.502	2072
3	0.531	2274
4	0.717	3533
5	0.487	1944

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	2016 Base	AM	ONE HOUR	07:00	08:30	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		✓	1549	100.000
2		✓	550	100.000
3		✓	670	100.000
4		✓	815	100.000
5		✓	666	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	177	449	653	270
	2	266	0	54	157	73
	3	489	45	0	65	71
	4	620	88	50	0	57
	5	238	227	69	132	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	1	7	5	2
	2	2	0	0	0	6
	3	8	0	0	0	0
	4	2	1	12	0	0
	5	2	1	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.67	4.25	2.0	A
2	0.54	7.04	1.2	A
3	0.58	6.81	1.4	A
4	0.36	2.29	0.6	A
5	0.69	10.85	2.2	B

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1166	458	2688	0.434	1163	0.8	2.356	A
2	414	1218	1411	0.293	412	0.4	3.599	A
3	504	1164	1547	0.326	502	0.5	3.440	A
4	614	911	2779	0.221	612	0.3	1.661	A
5	501	1170	1339	0.375	499	0.6	4.275	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1393	548	2631	0.529	1391	1.1	2.901	A
2	494	1457	1287	0.384	494	0.6	4.531	A
3	602	1392	1429	0.421	601	0.7	4.342	A
4	733	1090	2649	0.277	732	0.4	1.877	A
5	599	1399	1223	0.489	597	0.9	5.737	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1705	669	2555	0.668	1702	2.0	4.204	A
2	606	1782	1119	0.541	603	1.2	6.955	A
3	738	1703	1269	0.581	735	1.4	6.713	A
4	897	1332	2472	0.363	897	0.6	2.283	A
5	733	1712	1066	0.688	729	2.1	10.514	B

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	1705	673	2553	0.668	1705	2.0	4.247	A
2	606	1787	1117	0.542	606	1.2	7.043	A
3	738	1708	1266	0.583	738	1.4	6.806	A
4	897	1337	2469	0.363	897	0.6	2.289	A
5	733	1715	1064	0.689	733	2.2	10.847	B

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	1393	553	2628	0.530	1396	1.1	2.931	A
2	494	1464	1284	0.385	497	0.6	4.585	A
3	602	1399	1426	0.422	605	0.7	4.401	A
4	733	1096	2644	0.277	733	0.4	1.886	A
5	599	1404	1221	0.490	604	1.0	5.876	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	1166	461	2686	0.434	1168	0.8	2.373	A
2	414	1224	1408	0.294	415	0.4	3.629	A
3	504	1170	1544	0.327	505	0.5	3.470	A
4	614	916	2775	0.221	614	0.3	1.667	A
5	501	1175	1336	0.375	503	0.6	4.327	A

Existing Layout - 2016 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 5 - 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	Park Street Roundabout	Standard Roundabout	1, 2, 3, 4, 5	10.90	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2016 Base	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	2028	100.000
2		✓	485	100.000
3		✓	812	100.000
4		✓	1030	100.000
5		✓	647	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	142	835	843	208
	2	229	0	12	180	64
	3	569	59	0	71	113
	4	823	74	57	0	76
	5	209	165	140	133	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	1	7	5	2
	2	2	0	0	0	6
	3	8	0	0	0	0
	4	2	1	12	0	0
	5	2	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.88	12.06	7.2	B
2	0.69	14.90	2.2	B
3	0.74	11.46	2.8	B
4	0.46	2.74	0.9	A
5	0.77	16.57	3.2	C

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	1527	471	2663	0.573	1521	1.3	3.140	A
2	365	1662	1178	0.310	363	0.4	4.410	A
3	611	1242	1508	0.405	609	0.7	3.990	A
4	775	931	2763	0.281	774	0.4	1.810	A
5	487	1359	1248	0.390	485	0.6	4.703	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	1823	563	2606	0.700	1819	2.3	4.555	A
2	436	1988	1009	0.432	435	0.8	6.262	A
3	730	1486	1382	0.528	728	1.1	5.495	A
4	926	1114	2630	0.352	925	0.5	2.112	A
5	582	1626	1113	0.522	580	1.1	6.726	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	2233	686	2530	0.883	2215	6.8	10.863	B
2	534	2420	784	0.681	529	2.0	13.848	B
3	894	1808	1214	0.736	888	2.7	10.823	B
4	1134	1357	2452	0.462	1133	0.9	2.725	A
5	712	1986	932	0.765	705	3.0	15.352	C

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	2233	691	2526	0.884	2231	7.2	12.062	B
2	534	2438	774	0.690	534	2.2	14.901	B
3	894	1823	1207	0.741	894	2.8	11.465	B
4	1134	1367	2445	0.464	1134	0.9	2.745	A
5	712	1993	928	0.768	712	3.2	16.571	C

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	1823	571	2601	0.701	1842	2.4	4.863	A
2	436	2014	995	0.438	441	0.8	6.562	A
3	730	1507	1371	0.532	736	1.2	5.729	A
4	926	1128	2619	0.353	927	0.5	2.128	A
5	582	1637	1108	0.525	590	1.1	7.062	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	1527	474	2661	0.574	1531	1.4	3.196	A
2	365	1673	1172	0.311	366	0.5	4.474	A
3	611	1251	1504	0.407	613	0.7	4.052	A
4	775	938	2758	0.281	776	0.4	1.819	A
5	487	1366	1244	0.392	489	0.6	4.780	A

Existing Layout - 2027 without Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 5 - 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	Park Street Roundabout	Standard Roundabout	1, 2, 3, 4, 5	9.09	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2027 without Dev	AM	ONE HOUR	07:00	08:30	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		✓	1732	100.000
2		✓	602	100.000
3		✓	751	100.000
4		✓	913	100.000
5		✓	731	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	194	506	736	296
	2	291	0	59	172	80
	3	551	49	0	73	78
	4	699	96	56	0	62
	5	261	249	76	145	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	1	7	5	2
	2	2	0	0	0	6
	3	8	0	0	0	0
	4	2	1	12	0	0
	5	2	1	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.76	5.94	3.1	A
2	0.66	10.52	1.9	B
3	0.71	10.50	2.4	B
4	0.42	2.64	0.7	A
5	0.84	22.29	4.7	C

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1304	503	2660	0.490	1300	1.0	2.640	A
2	453	1362	1333	0.340	451	0.5	4.076	A
3	565	1290	1481	0.382	563	0.6	3.912	A
4	687	1008	2714	0.253	686	0.3	1.775	A
5	550	1307	1268	0.434	547	0.8	4.973	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1557	602	2598	0.599	1555	1.5	3.444	A
2	541	1629	1195	0.453	540	0.8	5.489	A
3	675	1543	1350	0.500	674	1.0	5.313	A
4	821	1207	2569	0.320	820	0.5	2.059	A
5	657	1564	1140	0.577	655	1.3	7.392	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1907	730	2517	0.758	1901	3.0	5.783	A
2	663	1989	1009	0.657	659	1.9	10.164	B
3	827	1884	1174	0.705	822	2.3	10.082	B
4	1005	1473	2374	0.423	1004	0.7	2.626	A
5	805	1911	966	0.834	792	4.4	19.568	C

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	1907	738	2512	0.759	1907	3.1	5.940	A
2	663	1998	1004	0.660	663	1.9	10.523	B
3	827	1893	1169	0.707	827	2.4	10.501	B
4	1005	1480	2369	0.424	1005	0.7	2.640	A
5	805	1918	962	0.837	804	4.7	22.294	C

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	1557	612	2591	0.601	1563	1.5	3.526	A
2	541	1641	1188	0.455	545	0.8	5.634	A
3	675	1556	1343	0.503	680	1.0	5.478	A
4	821	1218	2561	0.321	822	0.5	2.071	A
5	657	1573	1135	0.579	671	1.4	7.972	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	1304	507	2657	0.491	1306	1.0	2.668	A
2	453	1369	1329	0.341	455	0.5	4.124	A
3	565	1298	1477	0.383	567	0.6	3.963	A
4	687	1015	2709	0.254	688	0.3	1.783	A
5	550	1314	1265	0.435	553	0.8	5.073	A

Existing Layout - 2027 without Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 5 - 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	Park Street Roundabout	Standard Roundabout	1, 2, 3, 4, 5	38.45	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2027 without Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	2269	100.000
2		✓	532	100.000
3		✓	908	100.000
4		✓	1152	100.000
5		✓	710	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	156	938	947	228
	2	251	0	13	198	70
	3	639	65	0	80	124
	4	924	81	64	0	83
	5	229	181	154	146	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	1	7	5	2
	2	2	0	0	0	6
	3	8	0	0	0	0
	4	2	1	12	0	0
	5	2	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	1.00	51.42	36.4	F
2	0.90	46.18	7.0	E
3	0.89	27.72	7.2	D
4	0.54	3.33	1.2	A
5	0.96	61.56	12.8	F

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	1708	517	2636	0.648	1701	1.8	3.822	A
2	401	1857	1074	0.373	398	0.6	5.308	A
3	684	1378	1437	0.476	680	0.9	4.736	A
4	867	1031	2697	0.322	865	0.5	1.964	A
5	535	1518	1167	0.458	531	0.8	5.632	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	2040	619	2573	0.793	2032	3.7	6.570	A
2	478	2218	886	0.540	476	1.1	8.723	A
3	816	1647	1297	0.629	813	1.7	7.393	A
4	1036	1233	2549	0.406	1035	0.7	2.377	A
5	638	1815	1018	0.627	635	1.6	9.334	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	2498	738	2499	1.000	2414	24.8	29.044	D
2	586	2635	670	0.874	569	5.3	31.479	D
3	1000	1959	1135	0.881	982	6.1	21.423	C
4	1268	1481	2366	0.536	1267	1.1	3.267	A
5	782	2205	821	0.952	750	9.6	39.598	E

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	2498	752	2490	1.003	2452	36.4	51.423	F
2	586	2679	648	0.904	579	7.0	46.184	E
3	1000	1993	1118	0.894	995	7.2	27.723	D
4	1268	1503	2350	0.540	1268	1.2	3.326	A
5	782	2222	813	0.962	769	12.8	61.560	F

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	2040	653	2552	0.799	2169	4.2	12.665	B
2	478	2366	810	0.590	500	1.5	12.412	B
3	816	1752	1243	0.657	837	2.0	9.318	A
4	1036	1283	2512	0.412	1037	0.7	2.446	A
5	638	1848	1001	0.638	682	1.8	12.827	B

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	1708	523	2632	0.649	1717	1.9	3.974	A
2	401	1875	1064	0.376	404	0.6	5.480	A
3	684	1394	1429	0.479	688	0.9	4.887	A
4	867	1044	2688	0.323	868	0.5	1.981	A
5	535	1529	1161	0.460	538	0.9	5.812	A

Existing Layout - 2027 with Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 5 - 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	Park Street Roundabout	Standard Roundabout	1, 2, 3, 4, 5	9.76	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2027 with Dev	AM	ONE HOUR	07:00	08:30	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		✓	1743	100.000
2		✓	602	100.000
3		✓	784	100.000
4		✓	915	100.000
5		✓	731	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	194	517	736	296
	2	291	0	59	172	80
	3	579	49	0	78	78
	4	699	96	58	0	62
	5	261	249	76	145	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	1	7	5	2
	2	2	0	0	0	6
	3	8	0	0	0	0
	4	2	1	12	0	0
	5	2	1	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.76	6.08	3.2	A
2	0.66	10.76	1.9	B
3	0.74	11.75	2.8	B
4	0.43	2.69	0.8	A
5	0.85	24.76	5.2	C

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1312	504	2658	0.494	1308	1.0	2.659	A
2	453	1372	1327	0.341	451	0.5	4.100	A
3	590	1290	1480	0.399	588	0.7	4.022	A
4	689	1029	2697	0.255	687	0.3	1.791	A
5	550	1330	1256	0.438	547	0.8	5.057	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1567	603	2596	0.604	1565	1.5	3.483	A
2	541	1641	1188	0.455	540	0.8	5.541	A
3	705	1543	1349	0.522	703	1.1	5.557	A
4	823	1232	2549	0.323	822	0.5	2.084	A
5	657	1591	1126	0.584	655	1.4	7.607	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1919	732	2516	0.763	1913	3.1	5.906	A
2	663	2003	1001	0.662	659	1.9	10.372	B
3	863	1883	1173	0.736	857	2.7	11.157	B
4	1007	1502	2351	0.428	1006	0.7	2.673	A
5	805	1943	949	0.848	791	4.8	21.217	C

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	1919	740	2510	0.764	1919	3.2	6.079	A
2	663	2012	997	0.665	663	1.9	10.758	B
3	863	1893	1168	0.739	863	2.8	11.748	B
4	1007	1511	2345	0.430	1007	0.8	2.691	A
5	805	1951	945	0.852	803	5.2	24.758	C

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	1567	615	2589	0.605	1573	1.5	3.567	A
2	541	1654	1182	0.458	546	0.9	5.695	A
3	705	1557	1342	0.525	711	1.1	5.765	A
4	823	1244	2540	0.324	824	0.5	2.099	A
5	657	1601	1120	0.587	672	1.4	8.302	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	1312	509	2656	0.494	1314	1.0	2.690	A
2	453	1379	1324	0.342	455	0.5	4.149	A
3	590	1298	1476	0.400	592	0.7	4.079	A
4	689	1036	2692	0.256	689	0.3	1.799	A
5	550	1337	1253	0.439	553	0.8	5.161	A

Existing Layout - 2027 with Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 5 - 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	Park Street Roundabout	Standard Roundabout	1, 2, 3, 4, 5	42.65	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2027 with Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	2280	100.000
2		✓	532	100.000
3		✓	941	100.000
4		✓	1154	100.000
5		✓	710	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	156	949	947	228
	2	251	0	13	198	70
	3	667	65	0	85	124
	4	924	81	66	0	83
	5	229	181	154	146	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	1	7	5	2
	2	2	0	0	0	6
	3	8	0	0	0	0
	4	2	1	12	0	0
	5	2	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	1.01	54.95	39.6	F
2	0.91	47.81	7.3	E
3	0.93	35.30	9.5	E
4	0.55	3.40	1.2	A
5	0.98	72.53	15.4	F

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	1716	519	2634	0.652	1709	1.8	3.860	A
2	401	1866	1069	0.375	398	0.6	5.349	A
3	708	1378	1436	0.493	705	1.0	4.895	A
4	869	1052	2680	0.324	867	0.5	1.983	A
5	535	1540	1155	0.463	531	0.9	5.736	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	2050	620	2571	0.797	2042	3.8	6.703	A
2	478	2230	880	0.543	476	1.2	8.851	A
3	846	1647	1297	0.652	842	1.8	7.867	A
4	1037	1258	2529	0.410	1037	0.7	2.410	A
5	638	1842	1004	0.636	635	1.7	9.674	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	2510	736	2499	1.004	2420	26.4	30.313	D
2	586	2642	667	0.879	568	5.5	32.292	D
3	1036	1955	1137	0.911	1013	7.7	25.328	D
4	1271	1506	2347	0.541	1269	1.2	3.332	A
5	782	2233	807	0.969	745	10.9	43.908	E

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	2510	750	2490	1.008	2457	39.6	54.945	F
2	586	2685	645	0.909	579	7.3	47.805	E
3	1036	1988	1120	0.925	1029	9.5	35.298	E
4	1271	1531	2329	0.546	1270	1.2	3.399	A
5	782	2252	797	0.981	764	15.4	72.527	F

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	2050	662	2546	0.805	2191	4.3	14.288	B
2	478	2393	796	0.601	501	1.6	13.106	B
3	846	1760	1238	0.683	875	2.2	10.682	B
4	1037	1318	2486	0.417	1039	0.7	2.491	A
5	638	1882	983	0.649	692	1.9	14.655	B

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	1716	525	2631	0.652	1726	1.9	4.022	A
2	401	1886	1059	0.378	404	0.6	5.529	A
3	708	1395	1428	0.496	713	1.0	5.073	A
4	869	1065	2670	0.325	870	0.5	1.999	A
5	535	1553	1149	0.465	539	0.9	5.935	A

Existing Layout - 2038 without Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 5 - 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	Park Street Roundabout	Standard Roundabout	1, 2, 3, 4, 5	13.38	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2038 without Dev	AM	ONE HOUR	07:00	08:30	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		✓	1813	100.000
2		✓	633	100.000
3		✓	787	100.000
4		✓	956	100.000
5		✓	766	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	204	529	769	311
	2	306	0	62	181	84
	3	576	52	0	77	82
	4	730	101	59	0	66
	5	274	261	79	152	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	1	7	5	2
	2	2	0	0	0	6
	3	8	0	0	0	0
	4	2	1	12	0	0
	5	2	1	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.80	7.25	3.9	A
2	0.73	13.75	2.6	B
3	0.77	13.96	3.3	B
4	0.45	2.85	0.8	A
5	0.92	40.75	8.9	E

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1365	527	2644	0.516	1361	1.1	2.795	A
2	477	1425	1300	0.367	474	0.6	4.346	A
3	592	1352	1449	0.409	590	0.7	4.177	A
4	720	1058	2678	0.269	718	0.4	1.837	A
5	577	1369	1237	0.466	573	0.9	5.392	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1630	631	2580	0.632	1627	1.7	3.771	A
2	569	1704	1156	0.492	568	1.0	6.101	A
3	707	1617	1312	0.539	706	1.2	5.923	A
4	859	1265	2526	0.340	859	0.5	2.159	A
5	689	1637	1103	0.624	686	1.6	8.565	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1996	759	2499	0.799	1988	3.8	6.928	A
2	697	2076	964	0.723	691	2.5	12.913	B
3	867	1970	1129	0.767	859	3.1	12.949	B
4	1053	1541	2324	0.453	1051	0.8	2.826	A
5	843	1998	922	0.915	820	7.5	30.172	D

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	1996	772	2491	0.801	1996	3.9	7.251	A
2	697	2089	957	0.728	697	2.6	13.754	B
3	867	1983	1122	0.772	866	3.3	13.965	B
4	1053	1553	2316	0.455	1053	0.8	2.849	A
5	843	2008	917	0.920	838	8.9	40.750	E

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	1630	652	2566	0.635	1639	1.8	3.917	A
2	569	1724	1146	0.497	575	1.0	6.379	A
3	707	1638	1301	0.544	716	1.2	6.229	A
4	859	1281	2514	0.342	861	0.5	2.178	A
5	689	1651	1096	0.628	717	1.7	10.202	B

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	1365	532	2641	0.517	1368	1.1	2.834	A
2	477	1433	1296	0.368	478	0.6	4.413	A
3	592	1361	1444	0.410	595	0.7	4.246	A
4	720	1066	2672	0.269	720	0.4	1.847	A
5	577	1376	1234	0.468	580	0.9	5.536	A

Existing Layout - 2038 without Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 5 - 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	Park Street Roundabout	Standard Roundabout	1, 2, 3, 4, 5	72.79	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2038 without Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	2375	100.000
2		✓	558	100.000
3		✓	950	100.000
4		✓	1207	100.000
5		✓	744	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	163	982	991	239
	2	263	0	14	207	74
	3	669	68	0	83	130
	4	968	85	67	0	87
	5	240	190	161	153	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	1	7	5	2
	2	2	0	0	0	6
	3	8	0	0	0	0
	4	2	1	12	0	0
	5	2	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	1.05	96.65	79.1	F
2	0.97	73.43	12.1	F
3	0.95	44.62	12.3	E
4	0.57	3.66	1.3	A
5	1.07	144.41	36.0	F

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	1788	542	2620	0.682	1780	2.1	4.239	A
2	420	1943	1029	0.408	417	0.7	5.856	A
3	715	1443	1403	0.510	711	1.0	5.172	A
4	909	1080	2661	0.342	907	0.5	2.049	A
5	560	1590	1131	0.495	556	1.0	6.222	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	2135	647	2555	0.836	2124	4.8	8.160	A
2	502	2319	834	0.601	498	1.5	10.623	B
3	854	1723	1258	0.679	850	2.1	8.739	A
4	1085	1290	2506	0.433	1084	0.8	2.530	A
5	669	1900	975	0.686	664	2.1	11.431	B

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	2615	745	2494	1.049	2453	45.3	44.785	E
2	614	2673	650	0.945	586	8.4	44.586	E
3	1046	1996	1116	0.937	1016	9.4	29.982	D
4	1329	1529	2332	0.570	1327	1.3	3.575	A
5	819	2296	776	1.056	746	20.5	69.692	F

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	2615	754	2488	1.051	2480	79.1	96.649	F
2	614	2703	635	0.967	600	12.1	73.428	F
3	1046	2025	1101	0.950	1035	12.3	44.623	E
4	1329	1556	2311	0.575	1329	1.3	3.663	A
5	819	2318	764	1.072	757	36.0	144.409	F

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	2135	744	2495	0.856	2422	7.4	61.202	F
2	502	2655	661	0.759	536	3.5	34.212	D
3	854	1942	1144	0.747	891	3.1	16.027	C
4	1085	1380	2441	0.444	1087	0.8	2.664	A
5	669	1952	948	0.705	802	2.6	45.415	E

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	1788	550	2615	0.684	1809	2.2	4.575	A
2	420	1974	1013	0.415	431	0.7	6.304	A
3	715	1474	1387	0.516	723	1.1	5.486	A
4	909	1103	2644	0.344	910	0.5	2.078	A
5	560	1609	1122	0.499	566	1.0	6.558	A

Existing Layout - 2038 with Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 5 - 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	Park Street Roundabout	Standard Roundabout	1, 2, 3, 4, 5	15.99	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2038 with Dev	AM	ONE HOUR	07:00	08:30	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		✓	1824	100.000
2		✓	633	100.000
3		✓	820	100.000
4		✓	988	100.000
5		✓	766	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	204	540	769	311
	2	306	0	62	181	84
	3	604	52	0	82	82
	4	760	101	61	0	66
	5	274	261	79	152	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	1	7	5	2
	2	2	0	0	0	6
	3	8	0	0	0	0
	4	2	1	12	0	0
	5	2	1	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.81	7.43	4.1	A
2	0.73	14.11	2.7	B
3	0.80	16.18	3.9	C
4	0.47	2.99	0.9	A
5	0.95	55.45	12.3	F

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1373	529	2643	0.520	1369	1.1	2.816	A
2	477	1434	1295	0.368	474	0.6	4.374	A
3	617	1352	1448	0.426	614	0.7	4.302	A
4	744	1079	2662	0.279	742	0.4	1.872	A
5	577	1413	1215	0.475	573	0.9	5.580	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1640	632	2578	0.636	1637	1.7	3.814	A
2	569	1715	1150	0.495	567	1.0	6.166	A
3	737	1617	1311	0.562	735	1.3	6.225	A
4	888	1290	2507	0.354	888	0.5	2.221	A
5	689	1691	1076	0.640	685	1.7	9.143	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	2008	756	2500	0.803	1999	3.9	7.067	A
2	697	2088	957	0.728	691	2.5	13.194	B
3	903	1968	1130	0.799	893	3.7	14.656	B
4	1088	1570	2302	0.473	1086	0.9	2.959	A
5	843	2062	889	0.948	812	9.6	37.023	E

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	2008	770	2491	0.806	2008	4.1	7.426	A
2	697	2101	950	0.733	696	2.7	14.114	B
3	903	1982	1122	0.804	902	3.9	16.177	C
4	1088	1583	2293	0.474	1088	0.9	2.987	A
5	843	2073	884	0.954	833	12.3	55.452	F

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	1640	662	2559	0.641	1649	1.8	3.991	A
2	569	1740	1138	0.500	576	1.0	6.479	A
3	737	1640	1299	0.567	747	1.3	6.641	A
4	888	1308	2494	0.356	890	0.6	2.247	A
5	689	1706	1068	0.645	730	1.9	11.970	B

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	1373	534	2640	0.520	1376	1.1	2.854	A
2	477	1443	1291	0.369	478	0.6	4.440	A
3	617	1361	1444	0.428	620	0.8	4.382	A
4	744	1087	2656	0.280	744	0.4	1.886	A
5	577	1422	1211	0.476	581	0.9	5.747	A

Existing Layout - 2038 with Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 5 - 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	Park Street Roundabout	Standard Roundabout	1, 2, 3, 4, 5	79.32	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2038 with Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	2386	100.000
2		✓	558	100.000
3		✓	983	100.000
4		✓	1209	100.000
5		✓	744	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	163	993	991	239
	2	263	0	14	207	74
	3	697	68	0	88	130
	4	968	85	69	0	87
	5	240	190	161	153	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	1	7	5	2
	2	2	0	0	0	6
	3	8	0	0	0	0
	4	2	1	12	0	0
	5	2	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	1.05	100.74	83.0	F
2	0.97	74.95	12.3	F
3	0.98	59.24	17.4	F
4	0.58	3.74	1.4	A
5	1.09	163.53	41.2	F

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	1796	543	2619	0.686	1788	2.1	4.286	A
2	420	1952	1024	0.410	417	0.7	5.906	A
3	740	1443	1403	0.528	736	1.1	5.361	A
4	910	1101	2645	0.344	908	0.5	2.070	A
5	560	1612	1119	0.500	556	1.0	6.347	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	2145	649	2554	0.840	2134	5.0	8.356	A
2	502	2330	828	0.606	498	1.5	10.807	B
3	884	1722	1258	0.703	879	2.3	9.394	A
4	1087	1315	2488	0.437	1086	0.8	2.567	A
5	669	1927	961	0.696	664	2.2	11.933	B

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	2627	741	2496	1.052	2458	47.3	46.246	E
2	614	2677	648	0.948	586	8.6	45.375	E
3	1082	1990	1119	0.967	1042	12.3	36.070	E
4	1331	1549	2316	0.575	1329	1.3	3.641	A
5	819	2321	763	1.074	737	22.8	76.286	F

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	2627	748	2492	1.054	2484	83.0	100.736	F
2	614	2705	634	0.970	600	12.3	74.954	F
3	1082	2018	1104	0.980	1062	17.4	59.239	F
4	1331	1578	2294	0.580	1331	1.4	3.736	A
5	819	2344	751	1.091	745	41.2	163.529	F

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	2145	760	2485	0.863	2442	8.7	69.544	F
2	502	2684	646	0.777	535	3.9	38.706	E
3	884	1950	1139	0.776	938	3.7	21.907	C
4	1087	1422	2409	0.451	1089	0.8	2.730	A
5	669	1993	927	0.722	822	2.9	65.286	F

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	1796	552	2614	0.687	1822	2.2	4.694	A
2	420	1989	1005	0.418	433	0.7	6.428	A
3	740	1478	1384	0.535	750	1.2	5.765	A
4	910	1127	2625	0.347	911	0.5	2.103	A
5	560	1634	1108	0.505	568	1.0	6.743	A

Appendix E

'With Committed Development' Junction Modelling Outputs

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.2.5947

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 770558 software@trl.co.uk www.trlsoftware.co.uk

Filename: A405_Watford Road + Committed.j9
Path: \\gc-did-fs01\CAD\2021\8210856\(6)_Transport\(1)_Planning\(4)_Modelling\SRN
Report generation date: 10/08/2022 12:07:01

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)
	Proposed Layout - 2027 + committed without Dev									
Arm 1	1.7	7.35	0.64	A	5.50	1.6	7.90	0.62	A	9.73
Arm 2	0.9	4.11	0.49	A		2.8	7.36	0.74	A	
Arm 3	0.1	3.36	0.07	A		0.1	4.68	0.11	A	
Arm 4	2.3	5.31	0.70	A		6.6	12.19	0.87	B	
Arm 5	0.1	30.29	0.05	D		0.0	0.00	0.00	A	
	Proposed Layout - 2027 + committed with Dev									
Arm 1	2.1	8.50	0.68	A	5.96	1.7	8.33	0.64	A	11.06
Arm 2	1.0	4.31	0.50	A		2.9	7.60	0.75	A	
Arm 3	0.1	3.50	0.08	A		0.1	4.77	0.11	A	
Arm 4	2.5	5.49	0.71	A		8.0	14.58	0.90	B	
Arm 5	0.1	33.08	0.06	D		0.0	0.00	0.00	A	
	Proposed Layout - 2038 + committed without Dev									
Arm 1	2.1	8.43	0.68	A	6.10	1.9	9.20	0.66	A	12.69
Arm 2	1.0	4.37	0.51	A		3.5	8.78	0.78	A	
Arm 3	0.1	3.52	0.08	A		0.1	5.08	0.12	A	
Arm 4	2.7	5.84	0.73	A		9.4	16.90	0.91	C	
Arm 5	0.1	39.29	0.07	E		0.0	0.00	0.00	A	
	Proposed Layout - 2038 + committed with Dev									
Arm 1	2.6	9.96	0.73	A	6.70	2.1	9.41	0.68	A	12.19
Arm 2	1.1	4.59	0.52	A		3.4	8.59	0.78	A	
Arm 3	0.1	3.67	0.08	A		0.1	5.10	0.12	A	
Arm 4	2.8	6.06	0.74	A		9.1	15.93	0.91	C	
Arm 5	0.1	44.09	0.07	E		0.0	0.00	0.00	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

Title	J5 - A405 / Watford Road + Committed Development
Location	Chiswell Green
Site number	J5
Date	24/07/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	8210856
Enumerator	UK\dkemp
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)
D3	2027 + committed without Dev	AM	ONE HOUR	07:00	08:30	15
D4	2027 + committed without Dev	PM	ONE HOUR	16:45	18:15	15
D5	2027 + committed with Dev	AM	ONE HOUR	07:00	08:30	15
D6	2027 + committed with Dev	PM	ONE HOUR	16:45	18:15	15
D7	2038 + committed without Dev	AM	ONE HOUR	07:00	08:30	15
D8	2038 + committed without Dev	PM	ONE HOUR	16:45	18:15	15
D9	2038 + committed with Dev	AM	ONE HOUR	07:00	08:30	15
D10	2038 + committed with Dev	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Proposed Layout	100.000

Proposed Layout - 2027 + committed without Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4, 5	5.50	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Watford Road	
2	A405 (North)	
3	New Hotel Access	
4	A405 (South)	
5	Hotel Access	

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	3.85	9.10	13.0	30.0	64.0	21.5	
2	7.40	8.60	14.0	25.0	64.0	43.0	
3	6.60	8.00	8.4	25.0	60.0	38.0	
4	6.75	8.80	28.6	10.0	60.0	24.5	
5	3.00	3.90	1.7	6.5	48.0	50.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.588	1946
2	0.649	2438
3	0.645	2236
4	0.683	2474
5	0.402	838

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)
D3	2027 + committed without Dev	AM	ONE HOUR	07:00	08:30	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		✓	773	100.000
2		✓	756	100.000
3		✓	77	100.000
4		✓	1455	100.000
5		✓	6	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	59	1	713	0
	2	25	0	26	704	1
	3	3	29	0	45	0
	4	637	734	84	0	0
	5	1	2	0	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	0	0	1	0
	2	13	0	0	9	0
	3	0	0	0	0	0
	4	4	9	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.64	7.35	1.7	A
2	0.49	4.11	0.9	A
3	0.07	3.36	0.1	A
4	0.70	5.31	2.3	A
5	0.05	30.29	0.1	D

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	582	639	1528	0.381	580	0.6	3.786	A
2	569	601	1877	0.303	567	0.4	2.746	A
3	58	1085	1500	0.039	58	0.0	2.496	A
4	1095	44	2294	0.478	1092	0.9	2.987	A
5	5	1135	352	0.013	4	0.0	10.351	B

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	695	765	1449	0.480	694	0.9	4.758	A
2	680	719	1806	0.376	679	0.6	3.194	A
3	69	1298	1355	0.051	69	0.1	2.799	A
4	1308	52	2288	0.572	1306	1.3	3.661	A
5	5	1358	257	0.021	5	0.0	14.315	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	851	936	1342	0.634	848	1.7	7.244	A
2	832	879	1710	0.487	831	0.9	4.098	A
3	85	1588	1158	0.073	85	0.1	3.352	A
4	1602	64	2280	0.703	1598	2.3	5.249	A
5	7	1661	127	0.052	6	0.1	29.802	D

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	851	938	1340	0.635	851	1.7	7.355	A
2	832	882	1708	0.487	832	0.9	4.112	A
3	85	1592	1156	0.073	85	0.1	3.360	A
4	1602	64	2280	0.703	1602	2.3	5.308	A
5	7	1665	125	0.053	7	0.1	30.288	D

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	695	768	1447	0.480	698	0.9	4.826	A
2	680	723	1803	0.377	681	0.6	3.212	A
3	69	1304	1351	0.051	69	0.1	2.808	A
4	1308	52	2288	0.572	1312	1.3	3.706	A
5	5	1363	254	0.021	6	0.0	14.474	B

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	582	642	1526	0.381	583	0.6	3.825	A
2	569	604	1874	0.304	570	0.4	2.762	A
3	58	1090	1496	0.039	58	0.0	2.503	A
4	1095	44	2293	0.478	1097	0.9	3.015	A
5	5	1140	350	0.013	5	0.0	10.426	B

Proposed Layout - 2027 + committed without Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4, 5	9.73	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2027 + committed without Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	670	100.000
2		✓	1261	100.000
3		✓	86	100.000
4		✓	1826	100.000
5		✓	4	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	27	3	640	0
	2	27	0	23	1209	2
	3	2	22	0	62	0
	4	775	1013	38	0	0
	5	0	1	0	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	4	0	1	0
	2	0	0	0	4	0
	3	0	0	0	0	0
	4	4	8	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.62	7.90	1.6	A
2	0.74	7.36	2.8	A
3	0.11	4.68	0.1	A
4	0.87	12.19	6.6	B
5	0.00	0.00	0.0	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	504	804	1428	0.353	502	0.5	3.881	A
2	949	510	2027	0.468	946	0.9	3.318	A
3	65	1408	1301	0.050	65	0.1	2.910	A
4	1375	40	2314	0.594	1369	1.4	3.787	A
5	0	1407	241	0.000	0	0.0	0.000	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	602	962	1329	0.453	601	0.8	4.938	A
2	1134	611	1964	0.577	1132	1.4	4.317	A
3	77	1685	1118	0.069	77	0.1	3.459	A
4	1642	48	2309	0.711	1638	2.4	5.334	A
5	0	1683	123	0.000	0	0.0	0.000	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	738	1172	1198	0.616	735	1.6	7.717	A
2	1388	747	1878	0.739	1383	2.8	7.181	A
3	95	2059	870	0.109	94	0.1	4.643	A
4	2010	58	2302	0.873	1995	6.3	11.202	B
5	0	2051	0	0.000	0	0.0	0.000	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	738	1181	1193	0.618	738	1.6	7.900	A
2	1388	750	1877	0.740	1388	2.8	7.365	A
3	95	2067	864	0.110	95	0.1	4.677	A
4	2010	58	2302	0.873	2009	6.6	12.191	B
5	0	2065	0	0.000	0	0.0	0.000	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	602	974	1322	0.456	605	0.8	5.043	A
2	1134	615	1961	0.578	1139	1.4	4.410	A
3	77	1697	1110	0.070	78	0.1	3.485	A
4	1642	48	2308	0.711	1658	2.5	5.664	A
5	0	1704	115	0.000	0	0.0	0.000	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	504	810	1424	0.354	506	0.6	3.925	A
2	949	514	2025	0.469	951	0.9	3.361	A
3	65	1417	1296	0.050	65	0.1	2.926	A
4	1375	40	2314	0.594	1379	1.5	3.867	A
5	0	1417	236	0.000	0	0.0	0.000	A

Proposed Layout - 2027 + committed with Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4, 5	5.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2027 + committed with Dev	AM	ONE HOUR	07:00	08:30	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		✓	833	100.000
2		✓	756	100.000
3		✓	77	100.000
4		✓	1478	100.000
5		✓	6	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	59	1	773	0
	2	25	0	26	704	1
	3	3	29	0	45	0
	4	660	734	84	0	0
	5	1	2	0	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	0	0	1	0
	2	13	0	0	9	0
	3	0	0	0	0	0
	4	4	9	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.68	8.50	2.1	A
2	0.50	4.31	1.0	A
3	0.08	3.50	0.1	A
4	0.71	5.49	2.5	A
5	0.06	33.08	0.1	D

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	627	639	1528	0.410	624	0.7	3.972	A
2	569	645	1850	0.308	567	0.4	2.804	A
3	58	1129	1471	0.039	58	0.0	2.548	A
4	1113	44	2296	0.485	1109	0.9	3.024	A
5	5	1152	345	0.013	4	0.0	10.558	B

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	749	765	1449	0.517	747	1.1	5.121	A
2	680	773	1773	0.383	679	0.6	3.288	A
3	69	1352	1320	0.052	69	0.1	2.877	A
4	1329	52	2290	0.580	1327	1.4	3.730	A
5	5	1378	249	0.022	5	0.0	14.795	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	917	936	1342	0.684	913	2.1	8.315	A
2	832	944	1670	0.498	831	1.0	4.281	A
3	85	1653	1116	0.076	85	0.1	3.489	A
4	1627	64	2282	0.713	1623	2.4	5.423	A
5	7	1686	117	0.056	6	0.1	32.456	D

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	917	938	1340	0.684	917	2.1	8.498	A
2	832	948	1668	0.499	832	1.0	4.307	A
3	85	1658	1113	0.076	85	0.1	3.501	A
4	1627	64	2282	0.713	1627	2.5	5.492	A
5	7	1690	115	0.057	7	0.1	33.078	D

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	749	768	1447	0.518	753	1.1	5.221	A
2	680	778	1770	0.384	681	0.6	3.310	A
3	69	1359	1315	0.053	69	0.1	2.891	A
4	1329	52	2290	0.580	1333	1.4	3.775	A
5	5	1384	246	0.022	6	0.0	14.977	B

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	627	642	1526	0.411	629	0.7	4.020	A
2	569	650	1847	0.308	570	0.4	2.819	A
3	58	1136	1466	0.040	58	0.0	2.556	A
4	1113	44	2296	0.485	1115	0.9	3.053	A
5	5	1157	343	0.013	5	0.0	10.639	B

Proposed Layout - 2027 + committed with Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4, 5	11.06	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)
D6	2027 + committed with Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	692	100.000
2		✓	1261	100.000
3		✓	86	100.000
4		✓	1873	100.000
5		✓	4	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	27	3	662	0
	2	27	0	23	1209	2
	3	2	22	0	62	0
	4	822	1013	38	0	0
	5	0	1	0	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	4	0	1	0
	2	0	0	0	4	0
	3	0	0	0	0	0
	4	4	8	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.64	8.33	1.7	A
2	0.75	7.60	2.9	A
3	0.11	4.77	0.1	A
4	0.90	14.58	8.0	B
5	0.00	0.00	0.0	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	521	804	1428	0.365	519	0.6	3.950	A
2	949	527	2017	0.471	946	0.9	3.351	A
3	65	1425	1291	0.050	65	0.1	2.935	A
4	1410	40	2315	0.609	1404	1.5	3.926	A
5	0	1442	226	0.000	0	0.0	0.000	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	622	962	1329	0.468	621	0.9	5.073	A
2	1134	631	1951	0.581	1132	1.4	4.381	A
3	77	1705	1105	0.070	77	0.1	3.502	A
4	1684	48	2310	0.729	1679	2.6	5.671	A
5	0	1725	106	0.000	0	0.0	0.000	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	762	1170	1200	0.635	759	1.7	8.103	A
2	1388	770	1863	0.745	1383	2.8	7.396	A
3	95	2083	854	0.111	94	0.1	4.737	A
4	2062	58	2303	0.895	2043	7.5	12.952	B
5	0	2099	0	0.000	0	0.0	0.000	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	762	1180	1193	0.639	762	1.7	8.334	A
2	1388	774	1861	0.746	1388	2.9	7.599	A
3	95	2092	849	0.112	95	0.1	4.774	A
4	2062	58	2303	0.896	2060	8.0	14.577	B
5	0	2117	0	0.000	0	0.0	0.000	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	622	976	1321	0.471	625	0.9	5.205	A
2	1134	636	1948	0.582	1140	1.4	4.484	A
3	77	1717	1097	0.070	78	0.1	3.531	A
4	1684	48	2310	0.729	1705	2.8	6.148	A
5	0	1751	95	0.000	0	0.0	0.000	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	521	810	1424	0.366	522	0.6	3.998	A
2	949	531	2014	0.471	951	0.9	3.395	A
3	65	1434	1285	0.050	65	0.1	2.950	A
4	1410	40	2315	0.609	1415	1.6	4.021	A
5	0	1453	221	0.000	0	0.0	0.000	A

Proposed Layout - 2038 + committed without Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4, 5	6.10	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2038 + committed without Dev	AM	ONE HOUR	07:00	08:30	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		✓	813	100.000
2		✓	786	100.000
3		✓	77	100.000
4		✓	1516	100.000
5		✓	6	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	62	1	750	0
	2	26	0	26	733	1
	3	3	29	0	45	0
	4	669	763	84	0	0
	5	1	2	0	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	0	0	1	0
	2	12	0	0	9	0
	3	0	0	0	0	0
	4	4	9	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.68	8.43	2.1	A
2	0.51	4.37	1.0	A
3	0.08	3.52	0.1	A
4	0.73	5.84	2.7	A
5	0.07	39.29	0.1	E

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	612	661	1516	0.404	609	0.7	3.961	A
2	592	628	1866	0.317	590	0.5	2.816	A
3	58	1135	1467	0.040	58	0.0	2.553	A
4	1141	44	2299	0.496	1137	1.0	3.088	A
5	5	1181	334	0.014	4	0.0	10.934	B

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	731	791	1434	0.510	729	1.0	5.098	A
2	707	752	1792	0.394	706	0.6	3.313	A
3	69	1358	1316	0.053	69	0.1	2.886	A
4	1363	53	2293	0.594	1361	1.4	3.853	A
5	5	1413	235	0.023	5	0.0	15.698	C

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	895	967	1324	0.676	891	2.0	8.245	A
2	865	919	1691	0.512	864	1.0	4.342	A
3	85	1661	1111	0.076	85	0.1	3.505	A
4	1669	65	2285	0.730	1664	2.6	5.753	A
5	7	1728	100	0.066	6	0.1	38.310	E

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	895	970	1322	0.677	895	2.1	8.425	A
2	865	923	1689	0.512	865	1.0	4.370	A
3	85	1666	1108	0.077	85	0.1	3.517	A
4	1669	65	2285	0.730	1669	2.7	5.840	A
5	7	1733	98	0.067	7	0.1	39.288	E

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	731	795	1432	0.511	735	1.1	5.197	A
2	707	757	1789	0.395	708	0.7	3.338	A
3	69	1365	1311	0.053	69	0.1	2.900	A
4	1363	53	2293	0.594	1368	1.5	3.910	A
5	5	1420	232	0.023	6	0.0	15.931	C

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	612	664	1513	0.404	614	0.7	4.007	A
2	592	632	1864	0.317	592	0.5	2.832	A
3	58	1141	1463	0.040	58	0.0	2.561	A
4	1141	44	2299	0.496	1143	1.0	3.119	A
5	5	1187	331	0.014	5	0.0	11.025	B

Proposed Layout - 2038 + committed without Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4, 5	12.69	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)
D8	2038 + committed without Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	703	100.000
2		✓	1315	100.000
3		✓	86	100.000
4		✓	1908	100.000
5		✓	4	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	29	3	671	0
	2	29	0	23	1261	2
	3	2	22	0	62	0
	4	812	1058	38	0	0
	5	0	1	0	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	4	0	1	0
	2	0	0	0	4	0
	3	0	0	0	0	0
	4	4	7	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.66	9.20	1.9	A
2	0.78	8.78	3.5	A
3	0.12	5.08	0.1	A
4	0.91	16.90	9.4	C
5	0.00	0.00	0.0	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	529	838	1408	0.376	527	0.6	4.074	A
2	990	534	2014	0.491	986	1.0	3.489	A
3	65	1472	1260	0.051	65	0.1	3.011	A
4	1436	41	2317	0.620	1430	1.6	4.029	A
5	0	1470	215	0.000	0	0.0	0.000	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	632	1002	1306	0.484	631	0.9	5.320	A
2	1182	639	1948	0.607	1180	1.5	4.672	A
3	77	1761	1068	0.072	77	0.1	3.632	A
4	1715	49	2312	0.742	1710	2.8	5.937	A
5	0	1758	93	0.000	0	0.0	0.000	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	774	1217	1172	0.660	770	1.9	8.873	A
2	1448	780	1859	0.779	1440	3.4	8.448	A
3	95	2150	810	0.117	94	0.1	5.028	A
4	2101	60	2305	0.911	2077	8.7	14.513	B
5	0	2135	0	0.000	0	0.0	0.000	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	774	1229	1165	0.665	774	1.9	9.202	A
2	1448	784	1857	0.780	1448	3.5	8.777	A
3	95	2161	803	0.118	95	0.1	5.079	A
4	2101	61	2305	0.911	2098	9.4	16.896	C
5	0	2156	0	0.000	0	0.0	0.000	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	632	1020	1295	0.488	636	1.0	5.496	A
2	1182	644	1945	0.608	1190	1.6	4.815	A
3	77	1776	1058	0.073	78	0.1	3.672	A
4	1715	50	2312	0.742	1741	2.9	6.577	A
5	0	1789	80	0.000	0	0.0	0.000	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	529	845	1404	0.377	531	0.6	4.130	A
2	990	537	2012	0.492	992	1.0	3.541	A
3	65	1482	1254	0.052	65	0.1	3.030	A
4	1436	41	2317	0.620	1442	1.7	4.137	A
5	0	1482	210	0.000	0	0.0	0.000	A

Proposed Layout - 2038 + committed with Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4, 5	6.70	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2038 + committed with Dev	AM	ONE HOUR	07:00	08:30	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		✓	873	100.000
2		✓	786	100.000
3		✓	77	100.000
4		✓	1539	100.000
5		✓	6	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	62	1	810	0
	2	26	0	26	733	1
	3	3	29	0	45	0
	4	692	763	84	0	0
	5	1	2	0	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	0	0	1	0
	2	12	0	0	9	0
	3	0	0	0	0	0
	4	4	9	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.73	9.96	2.6	A
2	0.52	4.59	1.1	A
3	0.08	3.67	0.1	A
4	0.74	6.06	2.8	A
5	0.07	44.09	0.1	E

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	657	661	1515	0.434	654	0.8	4.166	A
2	592	673	1839	0.322	590	0.5	2.877	A
3	58	1180	1438	0.040	58	0.0	2.607	A
4	1159	44	2302	0.503	1155	1.0	3.128	A
5	5	1198	327	0.014	4	0.0	11.164	B

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	785	791	1434	0.547	783	1.2	5.515	A
2	707	806	1760	0.402	706	0.7	3.415	A
3	69	1412	1281	0.054	69	0.1	2.969	A
4	1384	53	2296	0.603	1382	1.5	3.928	A
5	5	1434	227	0.024	5	0.0	16.274	C

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	961	967	1324	0.726	956	2.6	9.641	A
2	865	983	1652	0.524	864	1.1	4.555	A
3	85	1725	1069	0.079	85	0.1	3.655	A
4	1694	65	2288	0.741	1689	2.8	5.963	A
5	7	1753	90	0.073	6	0.1	42.760	E

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	961	970	1322	0.727	961	2.6	9.958	A
2	865	988	1649	0.525	865	1.1	4.591	A
3	85	1732	1065	0.080	85	0.1	3.671	A
4	1694	65	2288	0.741	1694	2.8	6.061	A
5	7	1758	88	0.075	7	0.1	44.086	E

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	785	795	1431	0.548	790	1.2	5.661	A
2	707	813	1755	0.403	708	0.7	3.443	A
3	69	1421	1275	0.054	69	0.1	2.984	A
4	1384	53	2296	0.603	1389	1.5	3.991	A
5	5	1441	223	0.024	6	0.0	16.543	C

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	657	664	1513	0.434	659	0.8	4.224	A
2	592	678	1836	0.322	593	0.5	2.895	A
3	58	1187	1433	0.040	58	0.0	2.616	A
4	1159	44	2302	0.503	1161	1.0	3.162	A
5	5	1204	324	0.014	5	0.0	11.262	B

Proposed Layout - 2038 + committed with Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Watford Road	Standard Roundabout	1, 2, 3, 4, 5	12.19	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)
D10	2038 + committed with Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	725	100.000
2		✓	1315	100.000
3		✓	86	100.000
4		✓	1955	100.000
5		✓	3	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	29	3	693	0
	2	29	0	23	1261	2
	3	2	22	0	62	0
	4	859	1058	38	0	0
	5	0	0	0	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	4	0	1	0
	2	0	0	0	3	0
	3	0	0	0	0	0
	4	0	5	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.68	9.41	2.1	A
2	0.78	8.59	3.4	A
3	0.12	5.10	0.1	A
4	0.91	15.93	9.1	C
5	0.00	0.00	0.0	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	546	838	1419	0.385	543	0.6	4.101	A
2	990	550	2030	0.488	986	0.9	3.435	A
3	65	1488	1258	0.051	65	0.1	3.016	A
4	1472	41	2383	0.618	1465	1.6	3.896	A
5	0	1505	217	0.000	0	0.0	0.000	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	652	1002	1319	0.494	650	1.0	5.377	A
2	1182	658	1961	0.603	1180	1.5	4.596	A
3	77	1781	1066	0.073	77	0.1	3.642	A
4	1758	49	2378	0.739	1753	2.8	5.718	A
5	0	1800	96	0.000	0	0.0	0.000	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	798	1218	1187	0.672	794	2.0	9.069	A
2	1448	804	1868	0.775	1441	3.3	8.278	A
3	95	2174	807	0.117	94	0.1	5.051	A
4	2152	60	2370	0.908	2130	8.5	13.817	B
5	0	2188	0	0.000	0	0.0	0.000	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	798	1230	1180	0.676	798	2.1	9.411	A
2	1448	808	1866	0.776	1448	3.4	8.592	A
3	95	2185	800	0.118	95	0.1	5.102	A
4	2152	61	2370	0.908	2150	9.1	15.927	C
5	0	2208	0	0.000	0	0.0	0.000	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	652	1019	1308	0.498	656	1.0	5.551	A
2	1182	664	1957	0.604	1190	1.5	4.732	A
3	77	1796	1056	0.073	78	0.1	3.679	A
4	1758	50	2377	0.739	1782	2.9	6.285	A
5	0	1830	83	0.000	0	0.0	0.000	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	546	845	1415	0.386	547	0.6	4.158	A
2	990	554	2028	0.488	992	1.0	3.486	A
3	65	1498	1251	0.052	65	0.1	3.033	A
4	1472	41	2383	0.618	1477	1.6	3.995	A
5	0	1517	212	0.000	0	0.0	0.000	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.2.5947

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 770558 software@trl.co.uk www.trlsoftware.co.uk

Filename: A405_Tippendell Lane + Committed.j9
Path: \\gc-did-fs01\CAD\2021\8210856\(6)_Transport\(1)_Planning\(4)_Modelling\SRN
Report generation date: 10/08/2022 12:11:07

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)
	Existing Layout - 2016 Base									
Arm 1	0.5	2.49	0.32	A	3.74	1.2	3.69	0.54	A	4.31
Arm 2	0.9	6.96	0.46	A		0.8	8.66	0.44	A	
Arm 3	0.5	2.83	0.35	A		0.8	3.12	0.45	A	
Arm 4	0.3	4.33	0.22	A		0.5	5.79	0.33	A	
	Existing Layout - 2027 + committed without Dev									
Arm 1	0.7	2.99	0.42	A	4.80	2.2	5.56	0.69	A	6.41
Arm 2	1.3	10.00	0.58	A		1.6	16.43	0.62	C	
Arm 3	0.9	3.70	0.49	A		1.3	4.03	0.56	A	
Arm 4	0.4	5.56	0.28	A		0.7	7.94	0.43	A	
	Existing Layout - 2027 + committed with Dev									
Arm 1	0.7	3.04	0.42	A	4.95	2.3	5.82	0.70	A	6.77
Arm 2	1.4	10.39	0.59	B		1.8	18.05	0.65	C	
Arm 3	1.0	3.75	0.49	A		1.3	4.14	0.57	A	
Arm 4	0.5	5.94	0.33	A		0.8	8.20	0.45	A	
	Existing Layout - 2038 + committed without Dev									
Arm 1	0.8	3.10	0.43	A	5.22	2.5	6.26	0.72	A	7.44
Arm 2	1.6	11.45	0.62	B		2.1	21.26	0.69	C	
Arm 3	1.0	3.90	0.51	A		1.4	4.31	0.59	A	
Arm 4	0.4	5.87	0.30	A		0.9	8.91	0.47	A	
	Existing Layout - 2038 + committed with Dev									
Arm 1	0.8	3.15	0.44	A	5.42	2.7	6.59	0.73	A	7.96
Arm 2	1.7	11.97	0.63	B		2.4	24.01	0.72	C	
Arm 3	1.0	3.96	0.51	A		1.4	4.43	0.59	A	
Arm 4	0.5	6.32	0.35	A		0.9	9.23	0.49	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

Title	J4 - A405 / Tippendell Lane + Committed Development
Location	Chiswell Green
Site number	J4
Date	24/07/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	8210856
Enumerator	UK\dkemp
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	2016 Base	AM	ONE HOUR	07:00	08:30	15
D2	2016 Base	PM	ONE HOUR	16:45	18:15	15
D3	2027 + committed without Dev	AM	ONE HOUR	07:00	08:30	15
D4	2027 + committed without Dev	PM	ONE HOUR	16:45	18:15	15
D5	2027 + committed with Dev	AM	ONE HOUR	07:00	08:30	15
D6	2027 + committed with Dev	PM	ONE HOUR	16:45	18:15	15
D7	2038 + committed without Dev	AM	ONE HOUR	07:00	08:30	15
D8	2038 + committed without Dev	PM	ONE HOUR	16:45	18:15	15
D9	2038 + committed with Dev	AM	ONE HOUR	07:00	08:30	15
D10	2038 + committed with Dev	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Existing Layout	100.000

Existing Layout - 2016 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	3.74	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A405 (North)	
2	Tippendell Lane (East)	
3	A405 (South)	
4	Tippendell Lane (West)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	7.40	8.00	18.6	31.0	44.0	28.0	
2	3.20	5.10	10.3	23.0	44.0	20.0	
3	7.50	8.00	2.3	43.0	44.0	29.0	
4	3.20	6.10	16.0	17.0	44.0	23.5	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.789	2465
2	0.582	1386
3	0.783	2432
4	0.605	1547

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	2016 Base	AM	ONE HOUR	07:00	08:30	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		✓	625	100.000
2		✓	404	100.000
3		✓	632	100.000
4		✓	211	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	48	521	56
	2	73	0	70	261
	3	519	86	0	27
	4	69	119	23	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	7	4
	2	1	0	1	2
	3	7	2	0	0
	4	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.32	2.49	0.5	A
2	0.46	6.96	0.9	A
3	0.35	2.83	0.5	A
4	0.22	4.33	0.3	A

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	471	171	2196	0.214	469	0.3	2.084	A
2	304	451	1089	0.279	303	0.4	4.568	A
3	476	292	2071	0.230	475	0.3	2.254	A
4	159	509	1215	0.131	158	0.1	3.403	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	562	205	2170	0.259	562	0.3	2.237	A
2	363	539	1036	0.351	363	0.5	5.345	A
3	568	350	2027	0.280	568	0.4	2.466	A
4	190	609	1152	0.165	189	0.2	3.741	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	688	251	2136	0.322	688	0.5	2.486	A
2	445	660	962	0.462	444	0.8	6.925	A
3	696	428	1968	0.354	695	0.5	2.826	A
4	232	746	1064	0.218	232	0.3	4.321	A

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	688	251	2135	0.322	688	0.5	2.487	A
2	445	661	962	0.462	445	0.9	6.962	A
3	696	429	1968	0.354	696	0.5	2.830	A
4	232	746	1064	0.218	232	0.3	4.328	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	562	205	2170	0.259	562	0.4	2.239	A
2	363	540	1035	0.351	364	0.5	5.379	A
3	568	352	2026	0.280	569	0.4	2.472	A
4	190	610	1151	0.165	190	0.2	3.750	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	471	172	2195	0.214	471	0.3	2.089	A
2	304	452	1088	0.279	305	0.4	4.598	A
3	476	294	2069	0.230	476	0.3	2.261	A
4	159	511	1214	0.131	159	0.2	3.411	A

Existing Layout - 2016 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	4.31	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	2016 Base	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1038	100.000
2		✓	296	100.000
3		✓	859	100.000
4		✓	284	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	79	911	48
	2	39	0	80	177
	3	749	89	0	21
	4	24	246	14	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	2	0
	2	0	0	0	2
	3	6	1	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.54	3.69	1.2	A
2	0.44	8.66	0.8	A
3	0.45	3.12	0.8	A
4	0.33	5.79	0.5	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	781	262	2212	0.353	779	0.5	2.510	A
2	223	730	942	0.236	222	0.3	4.987	A
3	647	198	2169	0.298	645	0.4	2.361	A
4	214	658	1129	0.189	213	0.2	3.924	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	933	313	2172	0.430	932	0.7	2.903	A
2	266	874	858	0.310	266	0.4	6.073	A
3	772	237	2139	0.361	772	0.6	2.631	A
4	255	788	1047	0.244	255	0.3	4.541	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	1143	384	2118	0.540	1141	1.2	3.680	A
2	326	1070	743	0.439	325	0.8	8.587	A
3	946	290	2099	0.451	945	0.8	3.115	A
4	313	964	935	0.334	312	0.5	5.770	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	1143	384	2117	0.540	1143	1.2	3.694	A
2	326	1071	742	0.439	326	0.8	8.657	A
3	946	291	2098	0.451	946	0.8	3.122	A
4	313	966	935	0.335	313	0.5	5.788	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	933	314	2171	0.430	935	0.8	2.915	A
2	266	876	856	0.311	267	0.5	6.123	A
3	772	238	2138	0.361	773	0.6	2.639	A
4	255	790	1046	0.244	256	0.3	4.561	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	781	263	2211	0.353	782	0.5	2.523	A
2	223	733	941	0.237	223	0.3	5.025	A
3	647	199	2168	0.298	647	0.4	2.370	A
4	214	661	1128	0.190	214	0.2	3.941	A

Existing Layout - 2027 + committed without Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	4.80	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2027 + committed without Dev	AM	ONE HOUR	07:00	08:30	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		✓	776	100.000
2		✓	443	100.000
3		✓	841	100.000
4		✓	231	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	53	662	61
	2	80	0	77	286
	3	717	94	0	30
	4	76	130	25	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	10	4
	2	1	0	1	2
	3	10	2	0	0
	4	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.42	2.99	0.7	A
2	0.58	10.00	1.3	A
3	0.49	3.70	0.9	A
4	0.28	5.56	0.4	A

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	584	187	2121	0.275	583	0.4	2.338	A
2	334	562	1011	0.330	332	0.5	5.280	A
3	633	320	2008	0.315	631	0.5	2.611	A
4	174	669	1105	0.157	173	0.2	3.860	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	698	224	2094	0.333	697	0.5	2.577	A
2	398	672	942	0.423	397	0.7	6.594	A
3	756	383	1962	0.385	755	0.6	2.983	A
4	208	800	1019	0.204	207	0.3	4.433	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	854	274	2057	0.415	854	0.7	2.989	A
2	488	823	848	0.575	485	1.3	9.859	A
3	926	468	1899	0.488	925	0.9	3.690	A
4	254	979	903	0.282	254	0.4	5.542	A

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	854	274	2057	0.415	854	0.7	2.992	A
2	488	824	848	0.575	488	1.3	9.998	A
3	926	470	1897	0.488	926	0.9	3.704	A
4	254	981	902	0.282	254	0.4	5.560	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	698	224	2093	0.333	698	0.5	2.583	A
2	398	673	942	0.423	401	0.7	6.682	A
3	756	386	1960	0.386	757	0.6	2.999	A
4	208	803	1018	0.204	208	0.3	4.451	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	584	188	2120	0.276	585	0.4	2.346	A
2	334	564	1010	0.330	334	0.5	5.334	A
3	633	322	2006	0.316	634	0.5	2.623	A
4	174	672	1103	0.158	174	0.2	3.876	A

Existing Layout - 2027 + committed without Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	6.41	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2027 + committed without Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1282	100.000
2		✓	325	100.000
3		✓	1032	100.000
4		✓	311	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	87	1142	53
	2	43	0	88	194
	3	911	98	0	23
	4	26	270	15	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	4	0
	2	0	0	0	2
	3	8	1	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.69	5.56	2.2	A
2	0.62	16.43	1.6	C
3	0.56	4.03	1.3	A
4	0.43	7.94	0.7	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	965	287	2161	0.447	962	0.8	2.994	A
2	245	908	830	0.295	243	0.4	6.117	A
3	777	217	2105	0.369	775	0.6	2.701	A
4	234	790	1035	0.226	233	0.3	4.483	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	1152	344	2118	0.544	1151	1.2	3.715	A
2	292	1086	723	0.404	291	0.7	8.312	A
3	928	260	2074	0.447	927	0.8	3.134	A
4	280	945	934	0.299	279	0.4	5.490	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	1412	420	2060	0.685	1408	2.1	5.490	A
2	358	1329	578	0.619	354	1.6	15.818	C
3	1136	317	2032	0.559	1134	1.3	4.003	A
4	342	1156	797	0.430	341	0.7	7.875	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	1412	422	2059	0.686	1411	2.2	5.559	A
2	358	1332	576	0.621	358	1.6	16.429	C
3	1136	319	2030	0.560	1136	1.3	4.028	A
4	342	1158	796	0.430	342	0.7	7.941	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	1152	346	2117	0.544	1156	1.2	3.765	A
2	292	1091	720	0.406	296	0.7	8.551	A
3	928	263	2071	0.448	930	0.8	3.158	A
4	280	948	932	0.300	281	0.4	5.540	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	965	289	2160	0.447	967	0.8	3.022	A
2	245	912	827	0.296	246	0.4	6.205	A
3	777	219	2104	0.369	778	0.6	2.716	A
4	234	793	1033	0.227	235	0.3	4.516	A

Existing Layout - 2027 + committed with Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	4.95	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2027 + committed with Dev	AM	ONE HOUR	07:00	08:30	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		✓	789	100.000
2		✓	448	100.000
3		✓	838	100.000
4		✓	271	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	53	662	74
	2	80	0	77	291
	3	714	94	0	30
	4	109	137	25	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	10	3
	2	1	0	1	2
	3	10	2	0	0
	4	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.42	3.04	0.7	A
2	0.59	10.39	1.4	B
3	0.49	3.75	1.0	A
4	0.33	5.94	0.5	A

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	594	192	2120	0.280	592	0.4	2.355	A
2	337	571	1006	0.335	335	0.5	5.352	A
3	631	333	1999	0.316	629	0.5	2.625	A
4	204	666	1107	0.184	203	0.2	3.979	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	709	230	2092	0.339	709	0.5	2.602	A
2	403	684	936	0.430	402	0.7	6.729	A
3	753	399	1950	0.386	753	0.6	3.005	A
4	244	797	1022	0.238	243	0.3	4.623	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	869	281	2055	0.423	868	0.7	3.032	A
2	493	837	840	0.587	491	1.4	10.234	B
3	923	488	1885	0.490	921	1.0	3.732	A
4	298	976	905	0.330	298	0.5	5.918	A

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	869	282	2054	0.423	869	0.7	3.036	A
2	493	838	839	0.588	493	1.4	10.392	B
3	923	490	1883	0.490	923	1.0	3.747	A
4	298	978	904	0.330	298	0.5	5.940	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	709	231	2092	0.339	710	0.5	2.607	A
2	403	685	935	0.431	405	0.8	6.831	A
3	753	402	1948	0.387	755	0.6	3.022	A
4	244	800	1020	0.239	244	0.3	4.644	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	594	193	2119	0.280	594	0.4	2.361	A
2	337	573	1005	0.336	338	0.5	5.410	A
3	631	336	1997	0.316	632	0.5	2.638	A
4	204	669	1105	0.185	204	0.2	4.000	A

Existing Layout - 2027 + committed with Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	6.77	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2027 + committed with Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1308	100.000
2		✓	328	100.000
3		✓	1032	100.000
4		✓	324	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	87	1142	79
	2	43	0	88	197
	3	911	98	0	23
	4	37	272	15	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	4	0
	2	0	0	0	2
	3	8	1	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.70	5.82	2.3	A
2	0.65	18.05	1.8	C
3	0.57	4.14	1.3	A
4	0.45	8.20	0.8	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	985	289	2162	0.456	981	0.8	3.041	A
2	247	927	819	0.302	245	0.4	6.259	A
3	777	239	2089	0.372	775	0.6	2.733	A
4	244	789	1035	0.236	243	0.3	4.538	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	1176	346	2118	0.555	1174	1.2	3.807	A
2	295	1110	710	0.415	294	0.7	8.632	A
3	928	286	2055	0.452	927	0.8	3.188	A
4	291	945	934	0.312	291	0.4	5.590	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	1440	422	2059	0.699	1436	2.3	5.734	A
2	361	1357	562	0.642	357	1.7	17.233	C
3	1136	348	2009	0.566	1134	1.3	4.107	A
4	357	1156	797	0.448	355	0.8	8.123	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	1440	424	2058	0.700	1440	2.3	5.819	A
2	361	1361	560	0.645	361	1.8	18.048	C
3	1136	351	2007	0.566	1136	1.3	4.136	A
4	357	1158	796	0.448	357	0.8	8.200	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	1176	348	2117	0.556	1180	1.3	3.859	A
2	295	1115	706	0.417	299	0.7	8.922	A
3	928	290	2052	0.452	930	0.8	3.213	A
4	291	948	932	0.313	293	0.5	5.642	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	985	290	2160	0.456	986	0.8	3.070	A
2	247	932	816	0.303	248	0.4	6.356	A
3	777	241	2088	0.372	778	0.6	2.750	A
4	244	793	1033	0.236	245	0.3	4.571	A

Existing Layout - 2038 + committed without Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	5.22	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2038 + committed without Dev	AM	ONE HOUR	07:00	08:30	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		✓	808	100.000
2		✓	466	100.000
3		✓	870	100.000
4		✓	242	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	55	688	65
	2	84	0	81	301
	3	740	99	0	31
	4	79	137	26	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	10	4
	2	1	0	1	2
	3	9	2	0	0
	4	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.43	3.10	0.8	A
2	0.62	11.45	1.6	B
3	0.51	3.90	1.0	A
4	0.30	5.87	0.4	A

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	608	196	2117	0.287	607	0.4	2.381	A
2	351	585	998	0.352	349	0.5	5.531	A
3	655	337	1998	0.328	653	0.5	2.674	A
4	182	693	1090	0.167	181	0.2	3.960	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	726	235	2089	0.348	726	0.5	2.641	A
2	419	700	926	0.453	418	0.8	7.071	A
3	782	404	1948	0.401	781	0.7	3.083	A
4	218	829	1001	0.217	217	0.3	4.589	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	890	288	2050	0.434	889	0.8	3.095	A
2	513	857	828	0.620	510	1.6	11.223	B
3	958	493	1882	0.509	956	1.0	3.876	A
4	266	1014	881	0.303	266	0.4	5.849	A

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	890	288	2050	0.434	890	0.8	3.101	A
2	513	858	827	0.620	513	1.6	11.447	B
3	958	495	1880	0.509	958	1.0	3.901	A
4	266	1016	879	0.303	266	0.4	5.872	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	726	236	2088	0.348	727	0.5	2.648	A
2	419	701	925	0.453	422	0.8	7.203	A
3	782	407	1946	0.402	784	0.7	3.100	A
4	218	832	999	0.218	218	0.3	4.611	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	608	198	2117	0.287	609	0.4	2.390	A
2	351	587	996	0.352	352	0.5	5.599	A
3	655	340	1995	0.328	656	0.5	2.688	A
4	182	696	1088	0.168	183	0.2	3.978	A

Existing Layout - 2038 + committed without Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	7.44	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2038 + committed without Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1336	100.000
2		✓	341	100.000
3		✓	1076	100.000
4		✓	327	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	91	1190	55
	2	45	0	92	204
	3	950	102	0	24
	4	28	283	16	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	4	0
	2	0	0	0	2
	3	8	1	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.72	6.26	2.5	A
2	0.69	21.26	2.1	C
3	0.59	4.31	1.4	A
4	0.47	8.91	0.9	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	1006	300	2153	0.467	1002	0.9	3.120	A
2	257	946	808	0.318	255	0.5	6.493	A
3	810	227	2099	0.386	808	0.6	2.783	A
4	246	823	1013	0.243	245	0.3	4.677	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	1201	360	2108	0.570	1199	1.3	3.953	A
2	307	1132	697	0.440	305	0.8	9.172	A
3	967	272	2066	0.468	966	0.9	3.270	A
4	294	985	908	0.324	293	0.5	5.846	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	1471	440	2047	0.719	1466	2.5	6.153	A
2	375	1384	546	0.687	370	2.1	19.923	C
3	1185	331	2023	0.586	1183	1.4	4.274	A
4	360	1205	766	0.470	358	0.9	8.803	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	1471	441	2045	0.719	1471	2.5	6.262	A
2	375	1388	544	0.691	375	2.1	21.261	C
3	1185	334	2020	0.586	1185	1.4	4.308	A
4	360	1208	764	0.471	360	0.9	8.906	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	1201	362	2106	0.570	1206	1.3	4.021	A
2	307	1138	693	0.442	312	0.8	9.578	A
3	967	277	2062	0.469	969	0.9	3.299	A
4	294	989	906	0.324	296	0.5	5.914	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	1006	303	2151	0.468	1008	0.9	3.151	A
2	257	951	805	0.319	258	0.5	6.605	A
3	810	230	2097	0.386	811	0.6	2.802	A
4	246	827	1011	0.244	247	0.3	4.717	A

Existing Layout - 2038 + committed with Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	5.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2038 + committed with Dev	AM	ONE HOUR	07:00	08:30	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		✓	821	100.000
2		✓	471	100.000
3		✓	870	100.000
4		✓	282	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	55	688	78
	2	84	0	81	306
	3	740	99	0	31
	4	112	144	26	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	2	10	3
	2	1	0	1	2
	3	9	2	0	0
	4	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.44	3.15	0.8	A
2	0.63	11.97	1.7	B
3	0.51	3.96	1.0	A
4	0.35	6.32	0.5	A

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	618	202	2116	0.292	616	0.4	2.398	A
2	355	595	992	0.357	352	0.6	5.610	A
3	655	350	1988	0.330	653	0.5	2.694	A
4	212	693	1090	0.195	211	0.2	4.092	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	738	242	2087	0.354	738	0.5	2.666	A
2	423	711	919	0.461	422	0.8	7.228	A
3	782	420	1937	0.404	781	0.7	3.115	A
4	254	829	1002	0.253	253	0.3	4.807	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	904	296	2047	0.441	903	0.8	3.142	A
2	519	871	820	0.633	515	1.7	11.705	B
3	958	512	1868	0.513	956	1.0	3.942	A
4	310	1014	881	0.352	310	0.5	6.291	A

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	904	296	2047	0.442	904	0.8	3.148	A
2	519	872	819	0.633	518	1.7	11.967	B
3	958	515	1866	0.513	958	1.0	3.963	A
4	310	1016	880	0.353	310	0.5	6.322	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	738	242	2086	0.354	739	0.5	2.675	A
2	423	713	918	0.461	427	0.9	7.372	A
3	782	424	1934	0.404	784	0.7	3.133	A
4	254	832	1000	0.254	254	0.3	4.833	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	618	203	2115	0.292	619	0.4	2.407	A
2	355	597	991	0.358	356	0.6	5.683	A
3	655	353	1985	0.330	656	0.5	2.710	A
4	212	696	1088	0.195	213	0.2	4.115	A

Existing Layout - 2038 + committed with Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A405 / Tippendell Lane	Standard Roundabout	1, 2, 3, 4	7.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2038 + committed with Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1362	100.000
2		✓	344	100.000
3		✓	1076	100.000
4		✓	340	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1	2	3	4
From	1	0	91	1190	81
	2	45	0	92	207
	3	950	102	0	24
	4	39	285	16	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	4	0
	2	0	0	0	2
	3	8	1	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1	0.73	6.59	2.7	A
2	0.72	24.01	2.4	C
3	0.59	4.43	1.4	A
4	0.49	9.23	0.9	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	1025	302	2153	0.476	1022	0.9	3.170	A
2	259	965	796	0.325	257	0.5	6.654	A
3	810	249	2083	0.389	808	0.6	2.815	A
4	256	823	1013	0.253	255	0.3	4.737	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	1224	362	2108	0.581	1223	1.4	4.059	A
2	309	1155	683	0.453	308	0.8	9.560	A
3	967	298	2047	0.473	966	0.9	3.327	A
4	306	985	908	0.336	305	0.5	5.959	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	1500	442	2046	0.733	1494	2.7	6.463	A
2	379	1412	530	0.715	373	2.3	22.127	C
3	1185	362	2000	0.592	1183	1.4	4.392	A
4	374	1205	766	0.489	373	0.9	9.112	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	1500	444	2045	0.733	1499	2.7	6.594	A
2	379	1417	527	0.719	378	2.4	24.011	C
3	1185	366	1997	0.593	1185	1.4	4.431	A
4	374	1208	764	0.490	374	0.9	9.231	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	1224	364	2106	0.581	1230	1.4	4.132	A
2	309	1162	679	0.455	316	0.9	10.066	B
3	967	304	2043	0.474	969	0.9	3.360	A
4	306	989	906	0.337	307	0.5	6.034	A

18:00 - 18:15

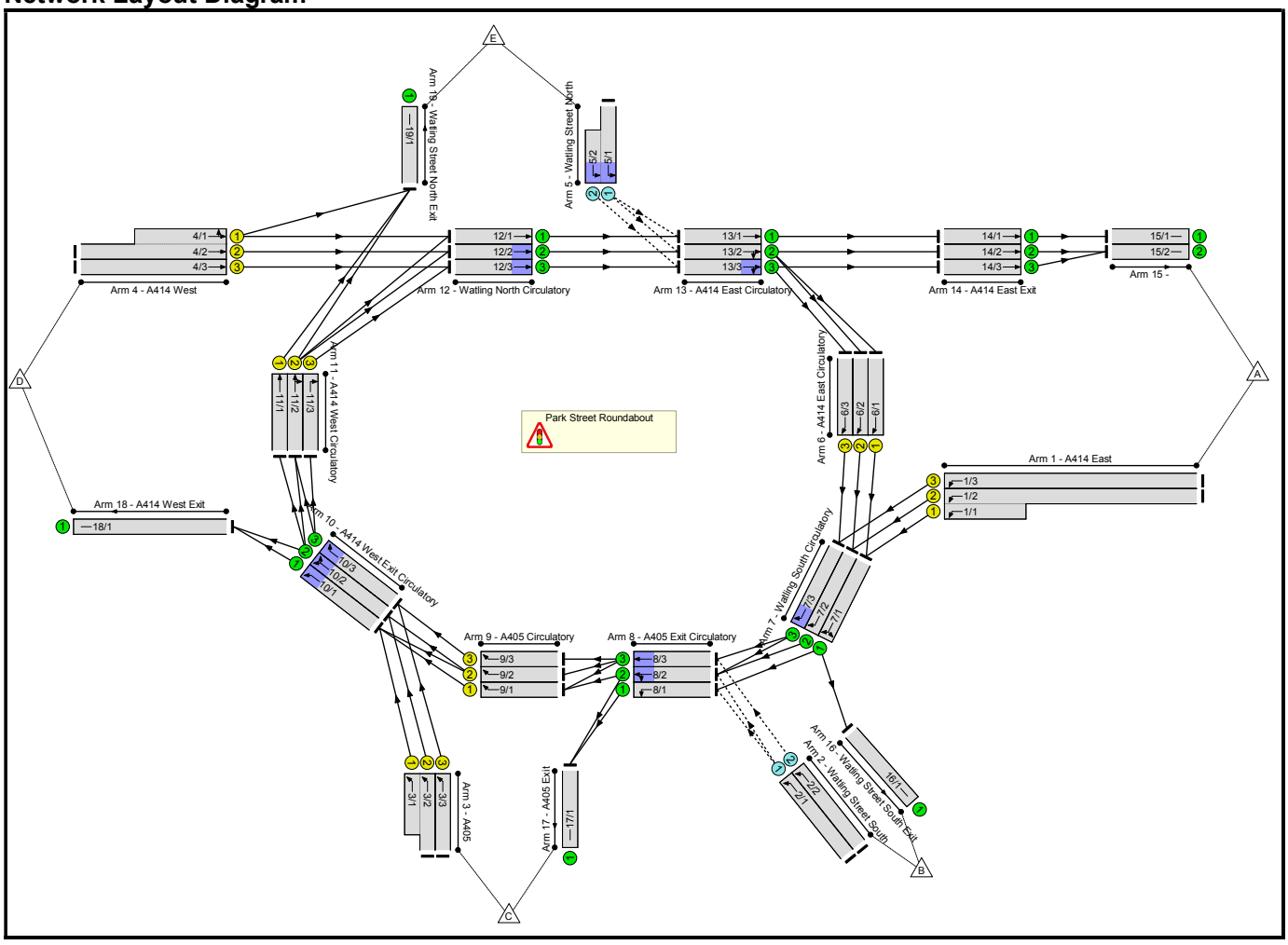
Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1	1025	304	2152	0.477	1027	0.9	3.209	A
2	259	971	793	0.327	260	0.5	6.777	A
3	810	252	2081	0.389	811	0.6	2.838	A
4	256	827	1011	0.253	257	0.3	4.779	A

Full Input Data And Results

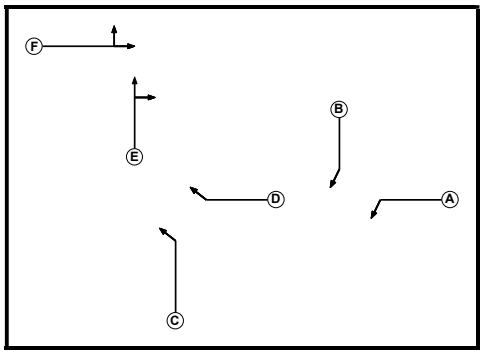
User and Project Details

Project:	**Land South of Chiswell Green Lane**
Title:	**Proposed Park Street Roundabout**
Location:	St Albans
File name:	Park Street Roundabout.lsg3x
Company:	Glanville

Network Layout Diagram



Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7

Phase Intergreens Matrix

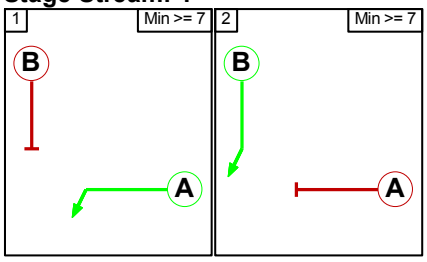
		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A		5	-	-	-	-
	B	5		-	-	-	-
	C	-	-		5	-	-
	D	-	-	5		-	-
	E	-	-	-	-		5
	F	-	-	-	-	5	

Phases in Stage

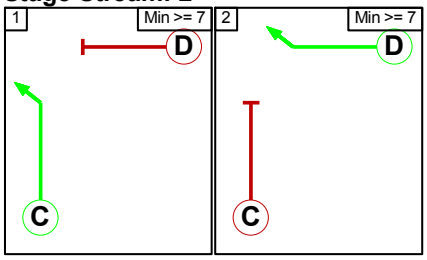
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	F
3	2	E

Stage Diagram

Stage Stream: 1

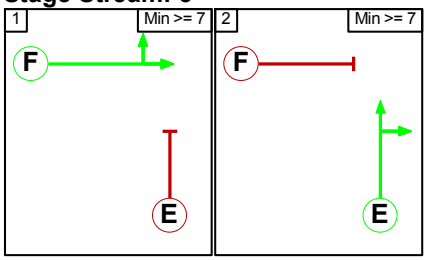


Stage Stream: 2



Full Input Data And Results

Stage Stream: 3



Phase Delays

Stage Stream: 1

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

Stage Stream: 2

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

Stage Stream: 3

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

Prohibited Stage Change

Stage Stream: 1

		To Stage	
		1	2
From Stage	1		5
	2	5	

Stage Stream: 2

		To Stage	
		1	2
From Stage	1		5
	2	5	

Stage Stream: 3

		To Stage	
		1	2
From Stage	1		5
	2	5	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Park Street Roundabout											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
2/1 (Watling Street South)	8/1 (Left)	2159	0	7/1	0.52	To 8/1 (Right)	-	-	-	-	-
				7/2	0.52	All					
				7/3	0.52	All					
	8/2 (Left)	2159	0	7/1	0.52	To 8/1 (Right)					
				7/2	0.52	All					
				7/3	0.52	All					
2/2 (Watling Street South)	8/3 (Left)	2159	0	7/1	0.52	To 8/1 (Right)	-	-	-	-	-
5/1 (Watling Street North)	13/1 (Left)	2086	0	12/1	0.51	All	-	-	-	-	-
				12/2	0.51	All					
				12/3	0.51	All					
	13/2 (Left)	2086	0	12/1	0.51	All					
				12/2	0.51	All					
				12/3	0.51	All					
5/2 (Watling Street North)	13/3 (Left)	2086	0	12/1	0.51	All	-	-	-	-	-
				12/2	0.51	All					
				12/3	0.51	All					

Full Input Data And Results

Lane Input Data

Junction: Park Street Roundabout												
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 (A414 East)	U	A	2	3	8.0	Geom	-	4.00	0.00	Y	Arm 7 Left	36.00
1/2 (A414 East)	U	A	2	3	8.0	Geom	-	4.00	0.00	N	Arm 7 Left	Inf
1/3 (A414 East)	U	A	2	3	60.0	Geom	-	4.50	0.00	N	Arm 7 Left	Inf
2/1 (Watling Street South)	O		2	3	60.0	Geom	-	3.70	0.00	Y	Arm 8 Left	30.00
2/2 (Watling Street South)	O		2	3	60.0	Geom	-	3.70	0.00	N	Arm 8 Left	30.00
3/1 (A405)	U	C	2	3	12.0	Geom	-	3.75	0.00	Y	Arm 10 Left	40.00
3/2 (A405)	U	C	2	3	8.9	Geom	-	3.75	0.00	N	Arm 10 Left	Inf
3/3 (A405)	U	C	2	3	60.0	Geom	-	3.75	0.00	N	Arm 10 Left	Inf
4/1 (A414 West)	U	E	2	3	9.0	Geom	-	3.75	0.00	Y	Arm 12 Ahead	Inf
											Arm 19 Left	40.00
4/2 (A414 West)	U	E	2	3	5.7	Geom	-	3.75	0.00	N	Arm 12 Ahead	Inf
4/3 (A414 West)	U	E	2	3	60.0	Geom	-	3.75	0.00	N	Arm 12 Ahead	Inf
5/1 (Watling Street North)	O		2	3	60.0	Geom	-	4.30	0.00	Y	Arm 13 Left	60.00
5/2 (Watling Street North)	O		2	3	5.2	Geom	-	4.30	0.00	N	Arm 13 Left	Inf
6/1 (A414 East Circulatory)	U	B	2	3	4.0	User	1900	-	-	-	-	-
6/2 (A414 East Circulatory)	U	B	2	3	4.0	User	1900	-	-	-	-	-
6/3 (A414 East Circulatory)	U	B	2	3	4.0	User	1900	-	-	-	-	-
7/1 (Watling South Circulatory)	U		2	3	60.0	User	1900	-	-	-	-	-
7/2 (Watling South Circulatory)	U		2	3	60.0	User	1900	-	-	-	-	-
7/3 (Watling South Circulatory)	U		2	3	8.9	User	1900	-	-	-	-	-

Full Input Data And Results

8/1 (A405 Exit Circulatory)	U		2	3	60.0	User	1900	-	-	-	-	-
8/2 (A405 Exit Circulatory)	U		2	3	60.0	User	1900	-	-	-	-	-
8/3 (A405 Exit Circulatory)	U		2	3	5.7	User	1900	-	-	-	-	-
9/1 (A405 Circulatory)	U	D	2	3	5.6	User	1900	-	-	-	-	-
9/2 (A405 Circulatory)	U	D	2	3	5.6	User	1900	-	-	-	-	-
9/3 (A405 Circulatory)	U	D	2	3	5.6	User	1900	-	-	-	-	-
10/1 (A414 West Exit Circulatory)	U		2	3	4.5	User	1900	-	-	-	-	-
10/2 (A414 West Exit Circulatory)	U		2	3	4.5	User	1900	-	-	-	-	-
10/3 (A414 West Exit Circulatory)	U		2	3	4.5	User	1900	-	-	-	-	-
11/1 (A414 West Circulatory)	U	F	2	3	4.5	User	1900	-	-	-	-	-
11/2 (A414 West Circulatory)	U	F	2	3	4.5	User	1900	-	-	-	-	-
11/3 (A414 West Circulatory)	U	F	2	3	4.5	User	1900	-	-	-	-	-
12/1 (Watling North Circulatory)	U		2	3	4.2	User	1900	-	-	-	-	-
12/2 (Watling North Circulatory)	U		2	3	4.7	User	1900	-	-	-	-	-
12/3 (Watling North Circulatory)	U		2	3	4.2	User	1900	-	-	-	-	-
13/1 (A414 East Circulatory)	U		2	3	5.2	User	1900	-	-	-	-	-
13/2 (A414 East Circulatory)	U		2	3	5.2	User	1900	-	-	-	-	-
13/3 (A414 East Circulatory)	U		2	3	5.2	User	1900	-	-	-	-	-

Full Input Data And Results

14/1 (A414 East Exit)	U		2	3	23.5	Geom	-	3.65	0.00	Y	Arm 15 Ahead	Inf
14/2 (A414 East Exit)	U		2	3	23.5	Geom	-	3.65	0.00	N	Arm 15 Ahead	Inf
14/3 (A414 East Exit)	U		2	3	23.5	Geom	-	3.50	0.00	Y	Arm 15 Ahead	Inf
15/1	U		2	3	60.0	Inf	-	-	-	-	-	-
15/2	U		2	3	60.0	Inf	-	-	-	-	-	-
16/1 (Watling Street South Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
17/1 (A405 Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
18/1 (A414 West Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
19/1 (Watling Street North Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2027 Base + Committed - AM'	07:15	08:15	01:00	
2: '2027 Base + Committed - PM'	17:00	18:00	01:00	
3: '2027 Base + Committed + Dev - AM'	07:15	08:15	01:00	
4: '2027 Base + Committed + Dev - PM'	17:00	18:00	01:00	
5: '2038 Base + Committed - AM'	07:15	08:15	01:00	
6: '2038 Base + Committed - PM'	17:00	18:00	01:00	
7: '2038 Base + Committed + Dev - AM'	07:15	08:15	01:00	
8: '2038 Base + Committed + Dev - PM'	17:00	18:00	01:00	

Scenario 1: '2027 Base + Committed - AM' (FG1: '2027 Base + Committed - AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	197	638	851	301	1987
	B	299	0	61	172	84	616
	C	742	51	0	76	81	950
	D	837	97	65	0	62	1061
	E	269	251	79	145	0	744
	Tot.	2147	596	843	1244	528	5358

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2027 Base + Committed - AM
Junction: Park Street Roundabout	
1/1 (short)	398
1/2 (with short)	835(In) 437(Out)
1/3	1152
2/1	61
2/2	555
3/1 (short)	76
3/2 (with short)	502(In) 426(Out)
3/3	448
4/1 (short)	379
4/2 (with short)	772(In) 393(Out)
4/3	289
5/1 (with short)	744(In) 491(Out)
5/2 (short)	253
6/1	399
6/2	0
6/3	289
7/1	797
7/2	437
7/3	1441
8/1	258
8/2	724
8/3	1713
9/1	658
9/2	670
9/3	524
10/1	855
10/2	975
10/3	972
11/1	241
11/2	718
11/3	599
12/1	608
12/2	595
12/3	888
13/1	758

Full Input Data And Results

13/2	936
13/3	1141
14/1	758
14/2	537
14/3	852
15/1	758
15/2	1389
16/1	596
17/1	843
18/1	1244
19/1	528

Lane Saturation Flows

Junction: Park Street Roundabout								
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 (A414 East)	4.00	0.00	Y	Arm 7 Left	36.00	100.0 %	1934	1934
1/2 (A414 East)	4.00	0.00	N	Arm 7 Left	Inf	100.0 %	2155	2155
1/3 (A414 East)	4.50	0.00	N	Arm 7 Left	Inf	100.0 %	2205	2205
2/1 (Watling Street South)	3.70	0.00	Y	Arm 8 Left	30.00	100.0 %	1890	1890
2/2 (Watling Street South)	3.70	0.00	N	Arm 8 Left	30.00	100.0 %	2024	2024
3/1 (A405)	3.75	0.00	Y	Arm 10 Left	40.00	100.0 %	1918	1918
3/2 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
3/3 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
4/1 (A414 West)	3.75	0.00	Y	Arm 12 Ahead	Inf	83.6 %	1978	1978
				Arm 19 Left	40.00	16.4 %		
4/2 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
4/3 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
5/1 (Watling Street North)	4.30	0.00	Y	Arm 13 Left	60.00	100.0 %	1995	1995
5/2 (Watling Street North)	4.30	0.00	N	Arm 13 Left	Inf	100.0 %	2185	2185
6/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
6/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
6/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
7/1 (Watling South Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
7/2 (Watling South Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
7/3 (Watling South Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
8/1 (A405 Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
8/2 (A405 Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
8/3 (A405 Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900

Full Input Data And Results

9/1 (A405 Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
9/2 (A405 Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
9/3 (A405 Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
10/1 (A414 West Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
10/2 (A414 West Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
10/3 (A414 West Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
11/1 (A414 West Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
11/2 (A414 West Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
11/3 (A414 West Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
12/1 (Watling North Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (Watling North Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
12/3 (Watling North Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
13/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
13/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
13/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
14/1 (A414 East Exit)	3.65	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1980	1980
14/2 (A414 East Exit)	3.65	0.00	N	Arm 15 Ahead	Inf	100.0 %	2120	2120
14/3 (A414 East Exit)	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
15/1	Infinite Saturation Flow						Inf	Inf
15/2	Infinite Saturation Flow						Inf	Inf
16/1 (Watling Street South Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
17/1 (A405 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
18/1 (A414 West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
19/1 (Watling Street North Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2027 Base + Committed - PM' (FG2: '2027 Base + Committed - PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	162	1140	1109	235	2646
	B	256	0	13	198	74	541
	C	690	142	0	80	124	1036
	D	1022	82	73	0	83	1260
	E	234	183	157	146	0	720
	Tot.	2202	569	1383	1533	516	6203

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2027 Base + Committed - PM
Junction: Park Street Roundabout	
1/1 (short)	637
1/2 (with short)	1302(In) 665(Out)
1/3	1344
2/1	13
2/2	528
3/1 (short)	80
3/2 (with short)	554(In) 474(Out)
3/3	482
4/1 (short)	462
4/2 (with short)	921(In) 459(Out)
4/3	339
5/1 (with short)	720(In) 417(Out)
5/2 (short)	303
6/1	407
6/2	0
6/3	376
7/1	1044
7/2	665
7/3	1720
8/1	488
8/2	1048
8/3	1865
9/1	769
9/2	783
9/3	466
10/1	986
10/2	1120
10/3	948
11/1	223
11/2	687
11/3	611
12/1	624
12/2	691
12/3	950
13/1	770

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13/2	962
13/3	1253
14/1	770
14/2	555
14/3	877
15/1	770
15/2	1432
16/1	569
17/1	1383
18/1	1533
19/1	516

Lane Saturation Flows

Junction: Park Street Roundabout								
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 (A414 East)	4.00	0.00	Y	Arm 7 Left	36.00	100.0 %	1934	1934
1/2 (A414 East)	4.00	0.00	N	Arm 7 Left	Inf	100.0 %	2155	2155
1/3 (A414 East)	4.50	0.00	N	Arm 7 Left	Inf	100.0 %	2205	2205
2/1 (Watling Street South)	3.70	0.00	Y	Arm 8 Left	30.00	100.0 %	1890	1890
2/2 (Watling Street South)	3.70	0.00	N	Arm 8 Left	30.00	100.0 %	2024	2024
3/1 (A405)	3.75	0.00	Y	Arm 10 Left	40.00	100.0 %	1918	1918
3/2 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
3/3 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
4/1 (A414 West)	3.75	0.00	Y	Arm 12 Ahead	Inf	82.0 %	1977	1977
				Arm 19 Left	40.00	18.0 %		
4/2 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
4/3 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
5/1 (Watling Street North)	4.30	0.00	Y	Arm 13 Left	60.00	100.0 %	1995	1995
5/2 (Watling Street North)	4.30	0.00	N	Arm 13 Left	Inf	100.0 %	2185	2185
6/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
6/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
6/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
7/1 (Watling South Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
7/2 (Watling South Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
7/3 (Watling South Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
8/1 (A405 Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
8/2 (A405 Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
8/3 (A405 Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900

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9/1 (A405 Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
9/2 (A405 Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
9/3 (A405 Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
10/1 (A414 West Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
10/2 (A414 West Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
10/3 (A414 West Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
11/1 (A414 West Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
11/2 (A414 West Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
11/3 (A414 West Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
12/1 (Watling North Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (Watling North Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
12/3 (Watling North Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
13/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
13/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
13/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
14/1 (A414 East Exit)	3.65	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1980	1980
14/2 (A414 East Exit)	3.65	0.00	N	Arm 15 Ahead	Inf	100.0 %	2120	2120
14/3 (A414 East Exit)	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
15/1	Infinite Saturation Flow						Inf	Inf
15/2	Infinite Saturation Flow						Inf	Inf
16/1 (Watling Street South Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
17/1 (A405 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
18/1 (A414 West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
19/1 (Watling Street North Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2027 Base + Committed + Dev - AM' (FG3: '2027 Base + Committed + Dev - AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	197	649	851	301	1998
	B	299	0	61	172	84	616
	C	770	51	0	81	81	983
	D	837	97	67	0	62	1063
	E	269	251	79	145	0	744
	Tot.	2175	596	856	1249	528	5404

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2027 Base + Committed + Dev - AM
Junction: Park Street Roundabout	
1/1 (short)	363
1/2 (with short)	729(In) 366(Out)
1/3	1269
2/1	61
2/2	555
3/1 (short)	81
3/2 (with short)	525(In) 444(Out)
3/3	458
4/1 (short)	377
4/2 (with short)	764(In) 387(Out)
4/3	299
5/1 (with short)	744(In) 491(Out)
5/2 (short)	253
6/1	399
6/2	6
6/3	285
7/1	762
7/2	372
7/3	1554
8/1	225
8/2	686
8/3	1797
9/1	638
9/2	658
9/3	556
10/1	826
10/2	995
10/3	1014
11/1	209
11/2	788
11/3	589
12/1	612
12/2	621
12/3	888
13/1	765

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13/2	959
13/3	1141
14/1	765
14/2	554
14/3	856
15/1	765
15/2	1410
16/1	596
17/1	856
18/1	1249
19/1	528

Lane Saturation Flows

Junction: Park Street Roundabout								
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 (A414 East)	4.00	0.00	Y	Arm 7 Left	36.00	100.0 %	1934	1934
1/2 (A414 East)	4.00	0.00	N	Arm 7 Left	Inf	100.0 %	2155	2155
1/3 (A414 East)	4.50	0.00	N	Arm 7 Left	Inf	100.0 %	2205	2205
2/1 (Watling Street South)	3.70	0.00	Y	Arm 8 Left	30.00	100.0 %	1890	1890
2/2 (Watling Street South)	3.70	0.00	N	Arm 8 Left	30.00	100.0 %	2024	2024
3/1 (A405)	3.75	0.00	Y	Arm 10 Left	40.00	100.0 %	1918	1918
3/2 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
3/3 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
4/1 (A414 West)	3.75	0.00	Y	Arm 12 Ahead	Inf	83.6 %	1978	1978
				Arm 19 Left	40.00	16.4 %		
4/2 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
4/3 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
5/1 (Watling Street North)	4.30	0.00	Y	Arm 13 Left	60.00	100.0 %	1995	1995
5/2 (Watling Street North)	4.30	0.00	N	Arm 13 Left	Inf	100.0 %	2185	2185
6/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
6/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
6/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
7/1 (Watling South Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
7/2 (Watling South Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
7/3 (Watling South Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
8/1 (A405 Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
8/2 (A405 Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
8/3 (A405 Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900

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9/1 (A405 Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
9/2 (A405 Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
9/3 (A405 Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
10/1 (A414 West Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
10/2 (A414 West Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
10/3 (A414 West Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
11/1 (A414 West Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
11/2 (A414 West Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
11/3 (A414 West Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
12/1 (Watling North Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (Watling North Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
12/3 (Watling North Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
13/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
13/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
13/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
14/1 (A414 East Exit)	3.65	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1980	1980
14/2 (A414 East Exit)	3.65	0.00	N	Arm 15 Ahead	Inf	100.0 %	2120	2120
14/3 (A414 East Exit)	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
15/1	Infinite Saturation Flow						Inf	Inf
15/2	Infinite Saturation Flow						Inf	Inf
16/1 (Watling Street South Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
17/1 (A405 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
18/1 (A414 West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
19/1 (Watling Street North Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 4: '2027 Base + Committed + Dev - PM' (FG4: '2027 Base + Committed + Dev - PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	162	1151	1109	235	2657
	B	256	0	13	198	74	541
	C	718	142	0	85	124	1069
	D	1022	82	75	0	83	1262
	E	234	183	157	146	0	720
	Tot.	2230	569	1396	1538	516	6249

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2027 Base + Committed + Dev - PM
Junction: Park Street Roundabout	
1/1 (short)	642
1/2 (with short)	1313(In) 671(Out)
1/3	1344
2/1	13
2/2	528
3/1 (short)	85
3/2 (with short)	580(In) 495(Out)
3/3	489
4/1 (short)	450
4/2 (with short)	912(In) 462(Out)
4/3	350
5/1 (with short)	720(In) 417(Out)
5/2 (short)	303
6/1	407
6/2	1
6/3	377
7/1	1049
7/2	672
7/3	1721
8/1	493
8/2	1044
8/3	1877
9/1	759
9/2	780
9/3	479
10/1	1001
10/2	1118
10/3	968
11/1	210
11/2	725
11/3	614
12/1	617
12/2	714
12/3	964
13/1	768

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13/2	980
13/3	1267
14/1	768
14/2	572
14/3	890
15/1	768
15/2	1462
16/1	569
17/1	1396
18/1	1538
19/1	516

Lane Saturation Flows

Junction: Park Street Roundabout								
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 (A414 East)	4.00	0.00	Y	Arm 7 Left	36.00	100.0 %	1934	1934
1/2 (A414 East)	4.00	0.00	N	Arm 7 Left	Inf	100.0 %	2155	2155
1/3 (A414 East)	4.50	0.00	N	Arm 7 Left	Inf	100.0 %	2205	2205
2/1 (Watling Street South)	3.70	0.00	Y	Arm 8 Left	30.00	100.0 %	1890	1890
2/2 (Watling Street South)	3.70	0.00	N	Arm 8 Left	30.00	100.0 %	2024	2024
3/1 (A405)	3.75	0.00	Y	Arm 10 Left	40.00	100.0 %	1918	1918
3/2 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
3/3 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
4/1 (A414 West)	3.75	0.00	Y	Arm 12 Ahead	Inf	81.6 %	1976	1976
				Arm 19 Left	40.00	18.4 %		
4/2 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
4/3 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
5/1 (Watling Street North)	4.30	0.00	Y	Arm 13 Left	60.00	100.0 %	1995	1995
5/2 (Watling Street North)	4.30	0.00	N	Arm 13 Left	Inf	100.0 %	2185	2185
6/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
6/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
6/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
7/1 (Watling South Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
7/2 (Watling South Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
7/3 (Watling South Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
8/1 (A405 Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
8/2 (A405 Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
8/3 (A405 Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900

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9/1 (A405 Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
9/2 (A405 Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
9/3 (A405 Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
10/1 (A414 West Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
10/2 (A414 West Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
10/3 (A414 West Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
11/1 (A414 West Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
11/2 (A414 West Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
11/3 (A414 West Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
12/1 (Watling North Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (Watling North Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
12/3 (Watling North Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
13/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
13/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
13/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
14/1 (A414 East Exit)	3.65	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1980	1980
14/2 (A414 East Exit)	3.65	0.00	N	Arm 15 Ahead	Inf	100.0 %	2120	2120
14/3 (A414 East Exit)	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
15/1	Infinite Saturation Flow						Inf	Inf
15/2	Infinite Saturation Flow						Inf	Inf
16/1 (Watling Street South Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
17/1 (A405 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
18/1 (A414 West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
19/1 (Watling Street North Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2038 Base + Committed - AM' (FG5: '2038 Base + Committed - AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	207	662	885	317	2071
	B	315	0	64	181	89	649
	C	789	54	0	79	85	1007
	D	869	102	68	0	66	1105
	E	283	264	82	152	0	781
	Tot.	2256	627	876	1297	557	5613

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2038 Base + Committed - AM
Junction: Park Street Roundabout	
1/1 (short)	415
1/2 (with short)	869(In) 454(Out)
1/3	1202
2/1	64
2/2	585
3/1 (short)	79
3/2 (with short)	534(In) 455(Out)
3/3	473
4/1 (short)	393
4/2 (with short)	790(In) 397(Out)
4/3	315
5/1 (with short)	781(In) 513(Out)
5/2 (short)	268
6/1	420
6/2	1
6/3	301
7/1	835
7/2	455
7/3	1503
8/1	272
8/2	761
8/3	1782
9/1	702
9/2	708
9/3	529
10/1	901
10/2	1043
10/3	1002
11/1	277
11/2	743
11/3	629
12/1	629
12/2	624
12/3	944
13/1	786

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13/2	980
13/3	1212
14/1	786
14/2	559
14/3	911
15/1	786
15/2	1470
16/1	627
17/1	876
18/1	1297
19/1	557

Lane Saturation Flows

Junction: Park Street Roundabout								
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 (A414 East)	4.00	0.00	Y	Arm 7 Left	36.00	100.0 %	1934	1934
1/2 (A414 East)	4.00	0.00	N	Arm 7 Left	Inf	100.0 %	2155	2155
1/3 (A414 East)	4.50	0.00	N	Arm 7 Left	Inf	100.0 %	2205	2205
2/1 (Watling Street South)	3.70	0.00	Y	Arm 8 Left	30.00	100.0 %	1890	1890
2/2 (Watling Street South)	3.70	0.00	N	Arm 8 Left	30.00	100.0 %	2024	2024
3/1 (A405)	3.75	0.00	Y	Arm 10 Left	40.00	100.0 %	1918	1918
3/2 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
3/3 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
4/1 (A414 West)	3.75	0.00	Y	Arm 12 Ahead	Inf	83.2 %	1978	1978
				Arm 19 Left	40.00	16.8 %		
4/2 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
4/3 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
5/1 (Watling Street North)	4.30	0.00	Y	Arm 13 Left	60.00	100.0 %	1995	1995
5/2 (Watling Street North)	4.30	0.00	N	Arm 13 Left	Inf	100.0 %	2185	2185
6/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
6/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
6/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
7/1 (Watling South Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
7/2 (Watling South Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
7/3 (Watling South Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
8/1 (A405 Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
8/2 (A405 Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
8/3 (A405 Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900

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9/1 (A405 Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
9/2 (A405 Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
9/3 (A405 Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
10/1 (A414 West Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
10/2 (A414 West Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
10/3 (A414 West Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
11/1 (A414 West Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
11/2 (A414 West Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
11/3 (A414 West Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
12/1 (Watling North Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (Watling North Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
12/3 (Watling North Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
13/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
13/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
13/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
14/1 (A414 East Exit)	3.65	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1980	1980
14/2 (A414 East Exit)	3.65	0.00	N	Arm 15 Ahead	Inf	100.0 %	2120	2120
14/3 (A414 East Exit)	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
15/1	Infinite Saturation Flow						Inf	Inf
15/2	Infinite Saturation Flow						Inf	Inf
16/1 (Watling Street South Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
17/1 (A405 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
18/1 (A414 West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
19/1 (Watling Street North Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2038 Base + Committed - PM' (FG6: '2038 Base + Committed - PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	169	1186	1155	247	2757
	B	268	0	14	207	78	567
	C	722	145	0	83	130	1080
	D	1067	86	76	0	87	1316
	E	245	191	164	153	0	753
	Tot.	2302	591	1440	1598	542	6473

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2038 Base + Committed - PM
Junction: Park Street Roundabout	
1/1 (short)	689
1/2 (with short)	1355(In) 666(Out)
1/3	1402
2/1	14
2/2	553
3/1 (short)	83
3/2 (with short)	585(In) 502(Out)
3/3	495
4/1 (short)	467
4/2 (with short)	927(In) 460(Out)
4/3	389
5/1 (with short)	753(In) 462(Out)
5/2 (short)	291
6/1	422
6/2	76
6/3	317
7/1	1111
7/2	742
7/3	1719
8/1	534
8/2	1163
8/3	1851
9/1	778
9/2	786
9/3	544
10/1	1010
10/2	1139
10/3	1039
11/1	179
11/2	796
11/3	615
12/1	633
12/2	727
12/3	1004
13/1	805

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13/2	1017
13/3	1295
14/1	805
14/2	519
14/3	978
15/1	805
15/2	1497
16/1	591
17/1	1440
18/1	1598
19/1	542

Lane Saturation Flows

Junction: Park Street Roundabout								
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 (A414 East)	4.00	0.00	Y	Arm 7 Left	36.00	100.0 %	1934	1934
1/2 (A414 East)	4.00	0.00	N	Arm 7 Left	Inf	100.0 %	2155	2155
1/3 (A414 East)	4.50	0.00	N	Arm 7 Left	Inf	100.0 %	2205	2205
2/1 (Watling Street South)	3.70	0.00	Y	Arm 8 Left	30.00	100.0 %	1890	1890
2/2 (Watling Street South)	3.70	0.00	N	Arm 8 Left	30.00	100.0 %	2024	2024
3/1 (A405)	3.75	0.00	Y	Arm 10 Left	40.00	100.0 %	1918	1918
3/2 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
3/3 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
4/1 (A414 West)	3.75	0.00	Y	Arm 12 Ahead	Inf	81.4 %	1976	1976
				Arm 19 Left	40.00	18.6 %		
4/2 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
4/3 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
5/1 (Watling Street North)	4.30	0.00	Y	Arm 13 Left	60.00	100.0 %	1995	1995
5/2 (Watling Street North)	4.30	0.00	N	Arm 13 Left	Inf	100.0 %	2185	2185
6/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
6/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
6/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
7/1 (Watling South Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
7/2 (Watling South Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
7/3 (Watling South Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
8/1 (A405 Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
8/2 (A405 Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
8/3 (A405 Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900

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9/1 (A405 Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
9/2 (A405 Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
9/3 (A405 Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
10/1 (A414 West Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
10/2 (A414 West Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
10/3 (A414 West Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
11/1 (A414 West Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
11/2 (A414 West Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
11/3 (A414 West Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
12/1 (Watling North Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (Watling North Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
12/3 (Watling North Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
13/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
13/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
13/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
14/1 (A414 East Exit)	3.65	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1980	1980
14/2 (A414 East Exit)	3.65	0.00	N	Arm 15 Ahead	Inf	100.0 %	2120	2120
14/3 (A414 East Exit)	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
15/1	Infinite Saturation Flow						Inf	Inf
15/2	Infinite Saturation Flow						Inf	Inf
16/1 (Watling Street South Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
17/1 (A405 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
18/1 (A414 West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
19/1 (Watling Street North Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 7: '2038 Base + Committed + Dev - AM' (FG7: '2038 Base + Committed + Dev - AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	207	673	885	317	2082
	B	315	0	64	181	89	649
	C	797	54	0	84	85	1020
	D	859	102	70	0	66	1097
	E	283	264	82	152	0	781
	Tot.	2254	627	889	1302	557	5629

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2038 Base + Committed + Dev - AM
Junction: Park Street Roundabout	
1/1 (short)	419
1/2 (with short)	880(In) 461(Out)
1/3	1202
2/1	64
2/2	585
3/1 (short)	84
3/2 (with short)	540(In) 456(Out)
3/3	480
4/1 (short)	399
4/2 (with short)	799(In) 400(Out)
4/3	298
5/1 (with short)	781(In) 510(Out)
5/2 (short)	271
6/1	420
6/2	10
6/3	294
7/1	839
7/2	471
7/3	1496
8/1	276
8/2	742
8/3	1810
9/1	715
9/2	717
9/3	507
10/1	906
10/2	1066
10/3	987
11/1	299
11/2	737
11/3	621
12/1	622
12/2	656
12/3	919
13/1	785

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13/2	1003
13/3	1190
14/1	785
14/2	573
14/3	896
15/1	785
15/2	1469
16/1	627
17/1	889
18/1	1302
19/1	557

Lane Saturation Flows

Junction: Park Street Roundabout								
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 (A414 East)	4.00	0.00	Y	Arm 7 Left	36.00	100.0 %	1934	1934
1/2 (A414 East)	4.00	0.00	N	Arm 7 Left	Inf	100.0 %	2155	2155
1/3 (A414 East)	4.50	0.00	N	Arm 7 Left	Inf	100.0 %	2205	2205
2/1 (Watling Street South)	3.70	0.00	Y	Arm 8 Left	30.00	100.0 %	1890	1890
2/2 (Watling Street South)	3.70	0.00	N	Arm 8 Left	30.00	100.0 %	2024	2024
3/1 (A405)	3.75	0.00	Y	Arm 10 Left	40.00	100.0 %	1918	1918
3/2 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
3/3 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
4/1 (A414 West)	3.75	0.00	Y	Arm 12 Ahead	Inf	83.5 %	1978	1978
				Arm 19 Left	40.00	16.5 %		
4/2 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
4/3 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
5/1 (Watling Street North)	4.30	0.00	Y	Arm 13 Left	60.00	100.0 %	1995	1995
5/2 (Watling Street North)	4.30	0.00	N	Arm 13 Left	Inf	100.0 %	2185	2185
6/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
6/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
6/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
7/1 (Watling South Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
7/2 (Watling South Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
7/3 (Watling South Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
8/1 (A405 Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
8/2 (A405 Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
8/3 (A405 Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900

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9/1 (A405 Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
9/2 (A405 Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
9/3 (A405 Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
10/1 (A414 West Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
10/2 (A414 West Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
10/3 (A414 West Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
11/1 (A414 West Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
11/2 (A414 West Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
11/3 (A414 West Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
12/1 (Watling North Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (Watling North Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
12/3 (Watling North Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
13/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
13/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
13/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
14/1 (A414 East Exit)	3.65	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1980	1980
14/2 (A414 East Exit)	3.65	0.00	N	Arm 15 Ahead	Inf	100.0 %	2120	2120
14/3 (A414 East Exit)	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
15/1	Infinite Saturation Flow						Inf	Inf
15/2	Infinite Saturation Flow						Inf	Inf
16/1 (Watling Street South Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
17/1 (A405 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
18/1 (A414 West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
19/1 (Watling Street North Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 8: '2038 Base + Committed + Dev - PM' (FG8: '2038 Base + Committed + Dev - PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	169	1197	1155	247	2768
	B	268	0	14	207	78	567
	C	750	145	0	88	130	1113
	D	1067	86	78	0	87	1318
	E	245	191	164	153	0	753
	Tot.	2330	591	1453	1603	542	6519

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2038 Base + Committed + Dev - PM
Junction: Park Street Roundabout	
1/1 (short)	695
1/2 (with short)	1366(In) 671(Out)
1/3	1402
2/1	14
2/2	553
3/1 (short)	88
3/2 (with short)	604(In) 516(Out)
3/3	509
4/1 (short)	467
4/2 (with short)	932(In) 465(Out)
4/3	386
5/1 (with short)	753(In) 446(Out)
5/2 (short)	307
6/1	422
6/2	70
6/3	325
7/1	1117
7/2	741
7/3	1727
8/1	540
8/2	1170
8/3	1851
9/1	809
9/2	834
9/3	465
10/1	1044
10/2	1203
10/3	974
11/1	256
11/2	770
11/3	592
12/1	671
12/2	745
12/3	978
13/1	827

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13/2	1035
13/3	1285
14/1	827
14/2	543
14/3	960
15/1	827
15/2	1503
16/1	591
17/1	1453
18/1	1603
19/1	542

Lane Saturation Flows

Junction: Park Street Roundabout								
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 (A414 East)	4.00	0.00	Y	Arm 7 Left	36.00	100.0 %	1934	1934
1/2 (A414 East)	4.00	0.00	N	Arm 7 Left	Inf	100.0 %	2155	2155
1/3 (A414 East)	4.50	0.00	N	Arm 7 Left	Inf	100.0 %	2205	2205
2/1 (Watling Street South)	3.70	0.00	Y	Arm 8 Left	30.00	100.0 %	1890	1890
2/2 (Watling Street South)	3.70	0.00	N	Arm 8 Left	30.00	100.0 %	2024	2024
3/1 (A405)	3.75	0.00	Y	Arm 10 Left	40.00	100.0 %	1918	1918
3/2 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
3/3 (A405)	3.75	0.00	N	Arm 10 Left	Inf	100.0 %	2130	2130
4/1 (A414 West)	3.75	0.00	Y	Arm 12 Ahead	Inf	81.4 %	1976	1976
				Arm 19 Left	40.00	18.6 %		
4/2 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
4/3 (A414 West)	3.75	0.00	N	Arm 12 Ahead	Inf	100.0 %	2130	2130
5/1 (Watling Street North)	4.30	0.00	Y	Arm 13 Left	60.00	100.0 %	1995	1995
5/2 (Watling Street North)	4.30	0.00	N	Arm 13 Left	Inf	100.0 %	2185	2185
6/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
6/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
6/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
7/1 (Watling South Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
7/2 (Watling South Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
7/3 (Watling South Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
8/1 (A405 Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
8/2 (A405 Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
8/3 (A405 Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900

Full Input Data And Results

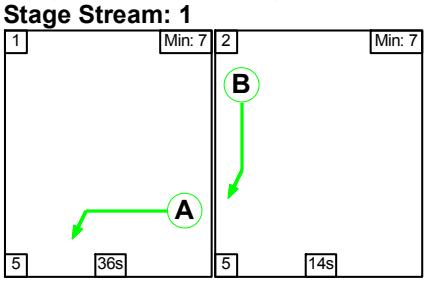
9/1 (A405 Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
9/2 (A405 Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
9/3 (A405 Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
10/1 (A414 West Exit Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
10/2 (A414 West Exit Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
10/3 (A414 West Exit Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
11/1 (A414 West Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
11/2 (A414 West Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
11/3 (A414 West Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
12/1 (Watling North Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (Watling North Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
12/3 (Watling North Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
13/1 (A414 East Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
13/2 (A414 East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
13/3 (A414 East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
14/1 (A414 East Exit)	3.65	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1980	1980
14/2 (A414 East Exit)	3.65	0.00	N	Arm 15 Ahead	Inf	100.0 %	2120	2120
14/3 (A414 East Exit)	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
15/1	Infinite Saturation Flow						Inf	Inf
15/2	Infinite Saturation Flow						Inf	Inf
16/1 (Watling Street South Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
17/1 (A405 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
18/1 (A414 West Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
19/1 (Watling Street North Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

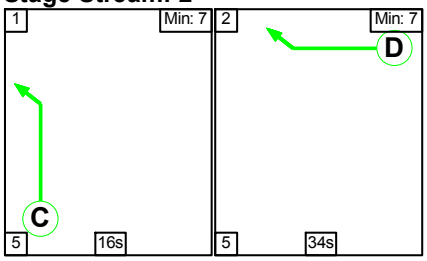
Scenario 1: '2027 Base + Committed - AM' (FG1: '2027 Base + Committed - AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

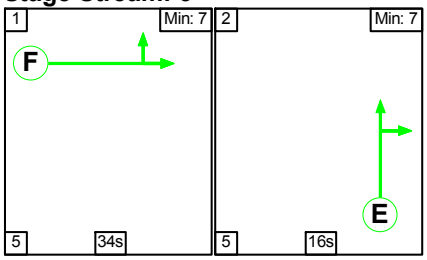
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	36	14
Change Point	0	41

Stage Stream: 2

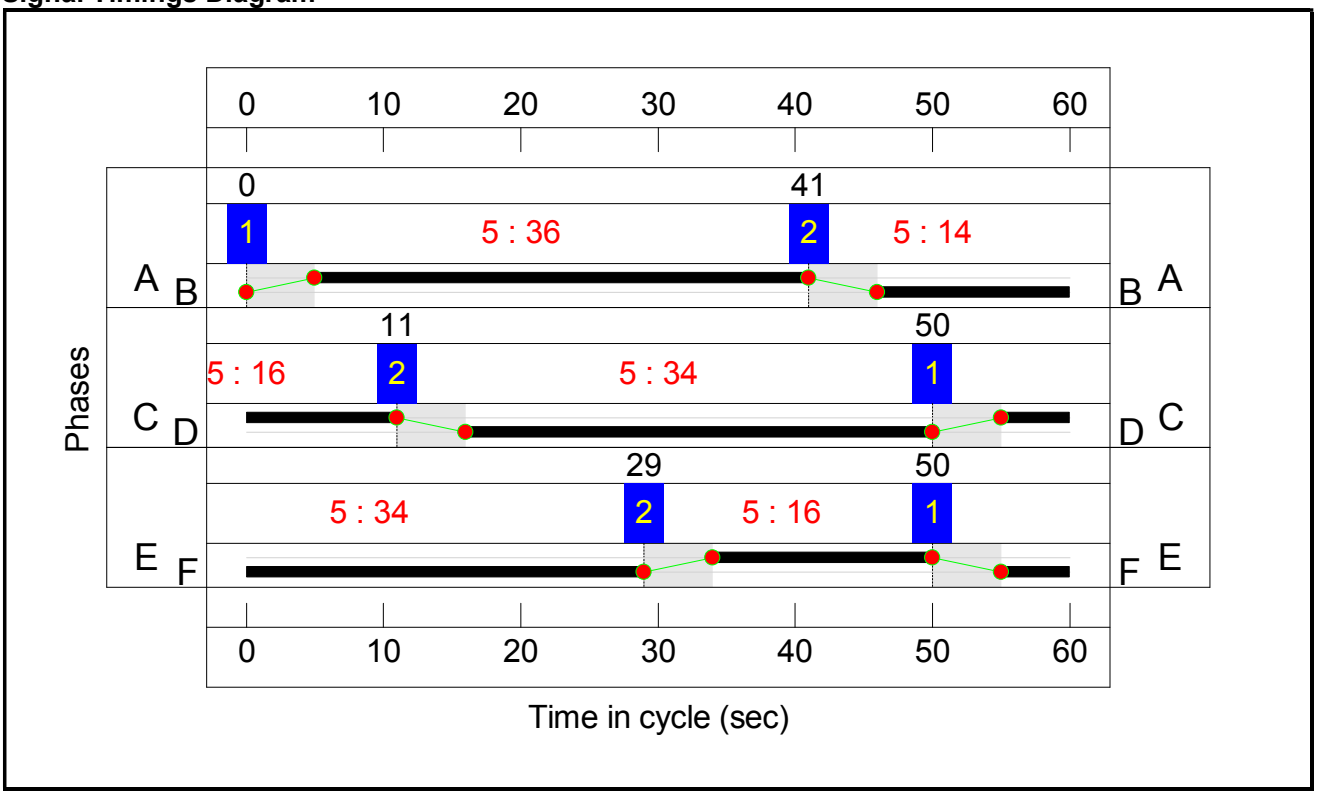
Stage	1	2
Duration	16	34
Change Point	50	11

Stage Stream: 3

Stage	1	2
Duration	34	16
Change Point	50	29

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**90.2%**
Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**90.2%**
1/2+1/1	A414 East Left	U	1	N/A	A		1	36	-	835	2155:1934	908+827	48.1 : 48.1%
1/3	A414 East Left	U	1	N/A	A		1	36	-	1152	2205	1360	84.7%
2/1	Watling Street South Left	O	N/A	N/A	-		-	-	-	61	1890	1076	5.7%
2/2	Watling Street South Left	O	N/A	N/A	-		-	-	-	555	2024	2008	27.6%
3/2+3/1	A405 Left	U	2	N/A	C		1	16	-	502	2130:1918	604+108	70.6 : 70.6%
3/3	A405 Left	U	2	N/A	C		1	16	-	448	2130	604	74.2%
4/2+4/1	A414 West Ahead Left	U	3	N/A	E		1	16	-	772	2130:1978	575+554	68.4 : 68.4%
4/3	A414 West Ahead	U	3	N/A	E		1	16	-	289	2130	604	47.9%
5/1+5/2	Watling Street North Left	O	N/A	N/A	-		-	-	-	744	1995:2185	1087+560	45.2 : 45.2%
6/1	A414 East Circulatory Ahead	U	1	N/A	B		1	14	-	399	1900	475	84.0%
6/2	A414 East Circulatory Ahead	U	1	N/A	B		1	14	-	0	1900	475	0.0%
6/3	A414 East Circulatory Ahead	U	1	N/A	B		1	14	-	289	1900	475	60.8%
7/1	Watling South Circulatory Right Left	U	N/A	N/A	-		-	-	-	797	1900	1900	41.9%
7/2	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	437	1900	1900	23.0%

Full Input Data And Results

7/3	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	1441	1900	1900	75.8%
8/1	A405 Exit Circulatory Left	U	N/A	N/A	-		-	-	-	258	1900	1900	13.6%
8/2	A405 Exit Circulatory Ahead Left	U	N/A	N/A	-		-	-	-	724	1900	1900	38.1%
8/3	A405 Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	1713	1900	1900	90.2%
9/1	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	658	1900	1108	59.4%
9/2	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	670	1900	1108	60.5%
9/3	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	524	1900	1108	47.3%
10/1	A414 West Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	855	1900	1900	45.0%
10/2	A414 West Exit Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	975	1900	1900	51.3%
10/3	A414 West Exit Circulatory Right	U	N/A	N/A	-		-	-	-	972	1900	1900	51.2%
11/1	A414 West Circulatory Ahead	U	3	N/A	F		1	34	-	241	1900	1108	21.7%
11/2	A414 West Circulatory Right Ahead	U	3	N/A	F		1	34	-	718	1900	1108	64.8%
11/3	A414 West Circulatory Right	U	3	N/A	F		1	34	-	599	1900	1108	54.0%
12/1	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	608	1900	1900	32.0%
12/2	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	595	1900	1900	31.3%
12/3	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	888	1900	1900	46.7%

Full Input Data And Results

13/1	A414 East Circulatory Ahead	U	N/A	N/A	-		-	-	-	758	1900	1900	39.9%
13/2	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	936	1900	1900	49.3%
13/3	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1141	1900	1900	60.1%
14/1	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	758	1980	1980	38.3%
14/2	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	537	2120	2120	25.3%
14/3	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	852	1965	1965	43.4%
15/1		U	N/A	N/A	-		-	-	-	758	Inf	Inf	0.0%
15/2		U	N/A	N/A	-		-	-	-	1389	Inf	Inf	0.0%
16/1	Watling Street South Exit	U	N/A	N/A	-		-	-	-	596	Inf	Inf	0.0%
17/1	A405 Exit	U	N/A	N/A	-		-	-	-	843	Inf	Inf	0.0%
18/1	A414 West Exit	U	N/A	N/A	-		-	-	-	1244	Inf	Inf	0.0%
19/1	Watling Street North Exit	U	N/A	N/A	-		-	-	-	528	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Proposed Park Street Roundabout	**-**	**-**	**2104**	**0**	**0**	**26.1**	**26.4**	**0.0**	**52.5**	**-**	**-**	**-**	**-**
Park Street Roundabout	**-**	**-**	**2104**	**0**	**0**	**26.1**	**26.4**	**0.0**	**52.5**	**-**	**-**	**-**	**-**
1/2+1/1	835	835	-	-	-	1.3	0.5	-	1.7	7.5	3.4	0.5	3.9
1/3	1152	1152	-	-	-	3.0	2.7	-	5.7	17.7	15.4	2.7	18.1
2/1	61	61	61	0	0	0.0	0.0	-	0.0	1.8	0.0	0.0	0.0
2/2	555	555	555	0	0	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
3/2+3/1	502	502	-	-	-	2.6	1.2	-	3.8	27.3	6.3	1.2	7.5
3/3	448	448	-	-	-	2.4	1.4	-	3.8	30.9	6.7	1.4	8.1
4/2+4/1	772	772	-	-	-	4.1	1.1	-	5.1	24.0	5.7	1.1	6.8
4/3	289	289	-	-	-	1.4	0.5	-	1.9	23.5	3.9	0.5	4.4
5/1+5/2	744	744	1488	0	0	0.3	0.4	-	0.7	3.3	1.8	0.4	2.2
6/1	399	399	-	-	-	2.1	2.5	-	4.5	40.7	6.0	2.5	8.5
6/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	289	289	-	-	-	1.3	0.8	-	2.0	25.4	3.7	0.8	4.5
7/1	797	797	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
7/2	437	437	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
7/3	1441	1441	-	-	-	0.5	1.6	-	2.0	5.1	1.8	1.6	3.3
8/1	258	258	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/2	724	724	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
8/3	1713	1713	-	-	-	2.2	4.4	-	6.6	13.8	6.8	4.4	11.2
9/1	658	658	-	-	-	0.9	0.7	-	1.7	9.1	6.0	0.7	6.7
9/2	670	670	-	-	-	1.2	0.8	-	2.0	10.6	5.9	0.8	6.7
9/3	524	524	-	-	-	1.2	0.4	-	1.7	11.5	5.4	0.4	5.8
10/1	855	855	-	-	-	0.1	0.4	-	0.5	2.1	0.8	0.4	1.2

Full Input Data And Results

10/2	975	975	-	-	-	0.0	0.5	-	0.6	2.1	0.4	0.5	1.0
10/3	972	972	-	-	-	0.0	0.5	-	0.6	2.1	0.5	0.5	1.0
11/1	241	241	-	-	-	0.4	0.1	-	0.5	8.2	1.6	0.1	1.8
11/2	718	718	-	-	-	0.7	0.9	-	1.6	8.0	3.7	0.9	4.7
11/3	599	599	-	-	-	0.4	0.6	-	1.0	6.1	1.7	0.6	2.2
12/1	608	608	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
12/2	595	595	-	-	-	0.0	0.2	-	0.3	1.6	0.4	0.2	0.6
12/3	888	888	-	-	-	0.0	0.4	-	0.4	1.8	0.2	0.4	0.6
13/1	758	758	-	-	-	0.0	0.3	-	0.3	1.6	0.0	0.3	0.3
13/2	936	936	-	-	-	0.0	0.5	-	0.5	1.9	4.8	0.5	5.3
13/3	1141	1141	-	-	-	0.0	0.8	-	0.8	2.4	0.0	0.8	0.8
14/1	758	758	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
14/2	537	537	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2
14/3	852	852	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
15/1	758	758	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	1389	1389	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
16/1	596	596	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
17/1	843	843	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
18/1	1244	1244	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
19/1	528	528	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

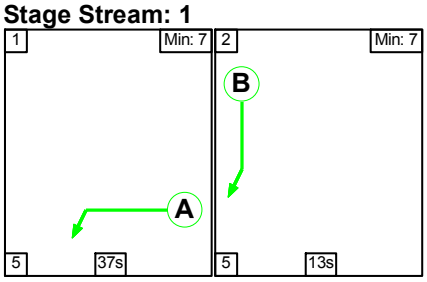
C1	Stream: 1 PRC for Signalled Lanes (%):	6.2	Total Delay for Signalled Lanes (pcuHr):	13.96	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	21.2	Total Delay for Signalled Lanes (pcuHr):	12.95	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	31.6	Total Delay for Signalled Lanes (pcuHr):	10.18	Cycle Time (s):	60
	PRC Over All Lanes (%):	-0.2	Total Delay Over All Lanes(pcuHr):	52.51		

Full Input Data And Results

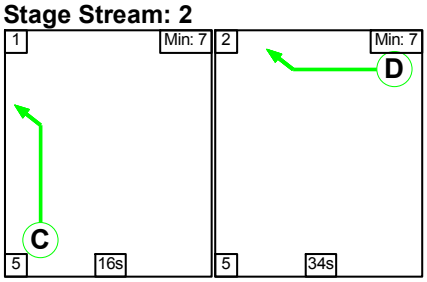
Scenario 2: '2027 Base + Committed - PM' (FG2: '2027 Base + Committed - PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

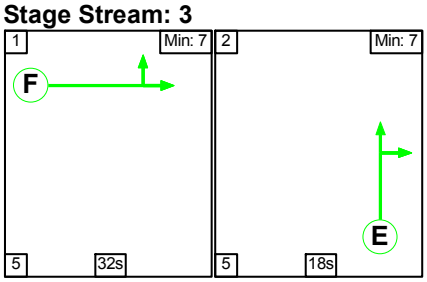
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	37	13
Change Point	0	42

Stage Stream: 2

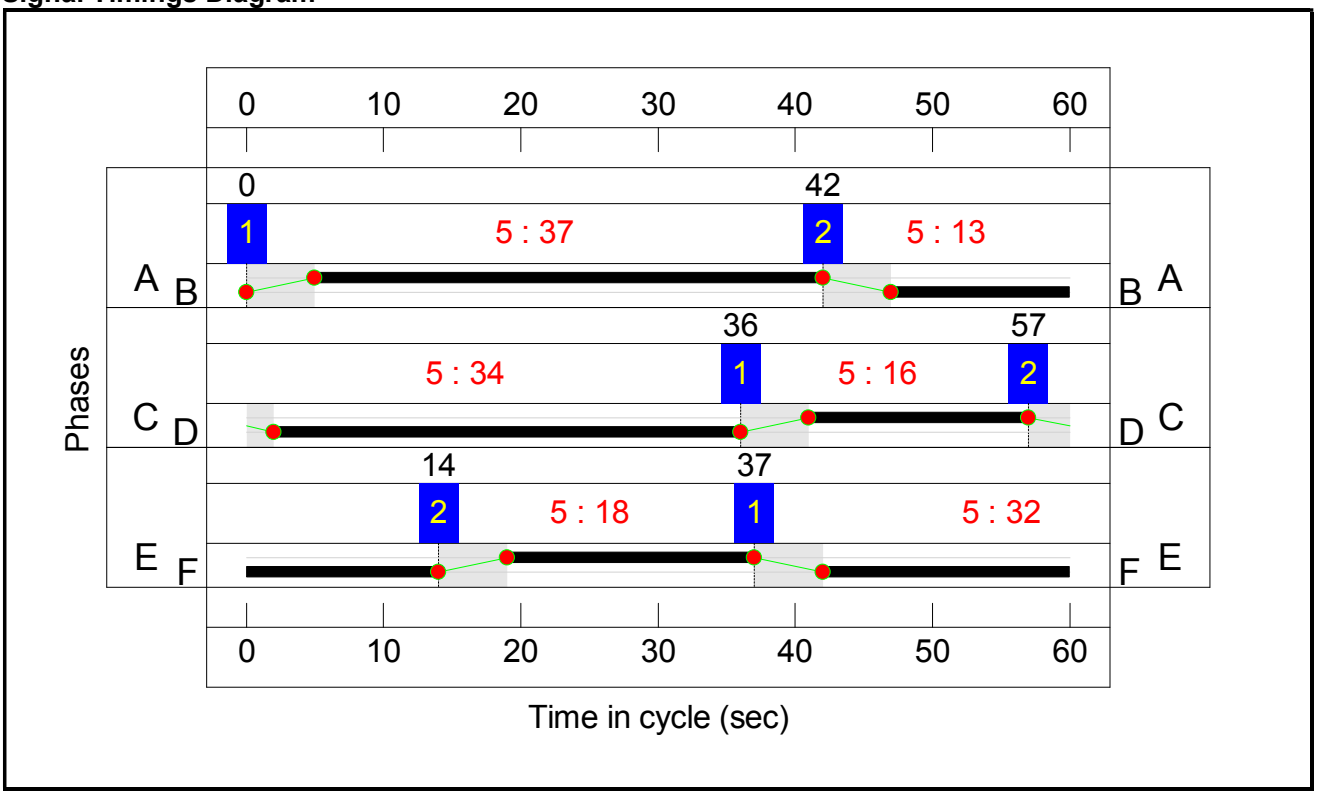
Stage	1	2
Duration	16	34
Change Point	36	57

Stage Stream: 3

Stage	1	2
Duration	32	18
Change Point	37	14

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**98.2%**
Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**98.2%**
1/2+1/1	A414 East Left	U	1	N/A	A		1	37	-	1302	2155:1934	901+863	73.8 : 73.8%
1/3	A414 East Left	U	1	N/A	A		1	37	-	1344	2205	1397	96.2%
2/1	Watling Street South Left	O	N/A	N/A	-		-	-	-	13	1890	680	1.9%
2/2	Watling Street South Left	O	N/A	N/A	-		-	-	-	528	2024	1888	28.0%
3/2+3/1	A405 Left	U	2	N/A	C		1	16	-	554	2130:1918	604+102	78.5 : 78.5%
3/3	A405 Left	U	2	N/A	C		1	16	-	482	2130	604	79.9%
4/2+4/1	A414 West Ahead Left	U	3	N/A	E		1	18	-	921	2130:1977	588+591	78.1 : 78.1%
4/3	A414 West Ahead	U	3	N/A	E		1	18	-	339	2130	674	50.3%
5/1+5/2	Watling Street North Left	O	N/A	N/A	-		-	-	-	720	1995:2185	1011+735	41.3 : 41.3%
6/1	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	407	1900	443	91.8%
6/2	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	0	1900	443	0.0%
6/3	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	376	1900	443	84.8%
7/1	Watling South Circulatory Right Left	U	N/A	N/A	-		-	-	-	1044	1900	1900	54.9%
7/2	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	665	1900	1900	35.0%

Full Input Data And Results

7/3	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	1720	1900	1900	90.5%
8/1	A405 Exit Circulatory Left	U	N/A	N/A	-		-	-	-	488	1900	1900	25.7%
8/2	A405 Exit Circulatory Ahead Left	U	N/A	N/A	-		-	-	-	1048	1900	1900	55.2%
8/3	A405 Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	1865	1900	1900	98.2%
9/1	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	769	1900	1108	69.4%
9/2	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	783	1900	1108	70.6%
9/3	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	466	1900	1108	42.0%
10/1	A414 West Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	986	1900	1900	51.9%
10/2	A414 West Exit Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1120	1900	1900	58.9%
10/3	A414 West Exit Circulatory Right	U	N/A	N/A	-		-	-	-	948	1900	1900	49.9%
11/1	A414 West Circulatory Ahead	U	3	N/A	F		1	32	-	223	1900	1045	21.3%
11/2	A414 West Circulatory Right Ahead	U	3	N/A	F		1	32	-	687	1900	1045	65.7%
11/3	A414 West Circulatory Right	U	3	N/A	F		1	32	-	611	1900	1045	58.5%
12/1	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	624	1900	1900	32.8%
12/2	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	691	1900	1900	36.4%
12/3	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	950	1900	1900	50.0%

Full Input Data And Results

13/1	A414 East Circulatory Ahead	U	N/A	N/A	-		-	-	-	770	1900	1900	40.5%
13/2	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	962	1900	1900	50.6%
13/3	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1253	1900	1900	65.9%
14/1	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	770	1980	1980	38.9%
14/2	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	555	2120	2120	26.2%
14/3	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	877	1965	1965	44.6%
15/1		U	N/A	N/A	-		-	-	-	770	Inf	Inf	0.0%
15/2		U	N/A	N/A	-		-	-	-	1432	Inf	Inf	0.0%
16/1	Watling Street South Exit	U	N/A	N/A	-		-	-	-	569	Inf	Inf	0.0%
17/1	A405 Exit	U	N/A	N/A	-		-	-	-	1383	Inf	Inf	0.0%
18/1	A414 West Exit	U	N/A	N/A	-		-	-	-	1533	Inf	Inf	0.0%
19/1	Watling Street North Exit	U	N/A	N/A	-		-	-	-	516	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Proposed Park Street Roundabout	**-**	**-**	**1981**	**0**	**0**	**32.4**	**55.2**	**0.0**	**87.6**	**-**	**-**	**-**	**-**
Park Street Roundabout	**-**	**-**	**1981**	**0**	**0**	**32.4**	**55.2**	**0.0**	**87.6**	**-**	**-**	**-**	**-**
1/2+1/1	1302	1302	-	-	-	2.1	1.4	-	3.5	9.8	5.7	1.4	7.1
1/3	1344	1344	-	-	-	3.9	9.4	-	13.3	35.6	20.9	9.4	30.3
2/1	13	13	13	0	0	0.0	0.0	-	0.0	3.0	0.0	0.0	0.0
2/2	528	528	528	0	0	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
3/2+3/1	554	554	-	-	-	3.0	1.8	-	4.8	30.9	7.2	1.8	9.0
3/3	482	482	-	-	-	2.7	1.9	-	4.6	34.3	7.4	1.9	9.3
4/2+4/1	921	921	-	-	-	4.6	1.8	-	6.4	25.0	6.8	1.8	8.6
4/3	339	339	-	-	-	1.6	0.5	-	2.1	22.0	4.5	0.5	5.0
5/1+5/2	720	720	1440	0	0	0.3	0.4	-	0.7	3.4	1.8	0.4	2.1
6/1	407	407	-	-	-	2.5	4.5	-	6.9	61.4	6.4	4.5	10.9
6/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	376	376	-	-	-	2.1	2.6	-	4.7	45.2	6.0	2.6	8.6
7/1	1044	1044	-	-	-	0.0	0.6	-	0.6	2.1	0.0	0.6	0.6
7/2	665	665	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
7/3	1720	1720	-	-	-	0.9	4.5	-	5.5	11.4	2.6	4.5	7.1
8/1	488	488	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
8/2	1048	1048	-	-	-	0.0	0.6	-	0.6	2.2	0.2	0.6	0.8
8/3	1865	1865	-	-	-	2.6	14.5	-	17.1	33.0	7.8	14.5	22.4
9/1	769	769	-	-	-	1.7	1.1	-	2.8	13.1	7.0	1.1	8.2
9/2	783	783	-	-	-	2.0	1.2	-	3.2	14.7	8.7	1.2	9.9
9/3	466	466	-	-	-	0.8	0.4	-	1.2	8.9	4.3	0.4	4.7
10/1	986	986	-	-	-	0.1	0.5	-	0.7	2.5	1.0	0.5	1.5

Full Input Data And Results

10/2	1120	1120	-	-	-	0.1	0.7	-	0.8	2.5	0.6	0.7	1.3
10/3	948	948	-	-	-	0.1	0.5	-	0.6	2.1	0.6	0.5	1.1
11/1	223	223	-	-	-	0.3	0.1	-	0.5	7.3	1.1	0.1	1.3
11/2	687	687	-	-	-	0.6	1.0	-	1.5	8.1	2.7	1.0	3.6
11/3	611	611	-	-	-	0.5	0.7	-	1.2	7.0	1.6	0.7	2.3
12/1	624	624	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
12/2	691	691	-	-	-	0.0	0.3	-	0.3	1.7	0.5	0.3	0.8
12/3	950	950	-	-	-	0.0	0.5	-	0.5	1.9	0.3	0.5	0.8
13/1	770	770	-	-	-	0.0	0.3	-	0.3	1.6	0.0	0.3	0.3
13/2	962	962	-	-	-	0.0	0.5	-	0.5	1.9	5.8	0.5	6.3
13/3	1253	1253	-	-	-	0.0	1.0	-	1.0	2.8	0.1	1.0	1.0
14/1	770	770	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
14/2	555	555	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2
14/3	877	877	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
15/1	770	770	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	1432	1432	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
16/1	569	569	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
17/1	1383	1383	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
18/1	1533	1533	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
19/1	516	516	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

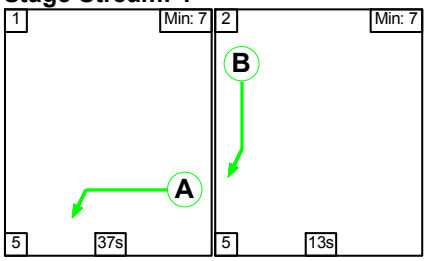
C1	Stream: 1 PRC for Signalled Lanes (%):	-6.9	Total Delay for Signalled Lanes (pcuHr):	28.49	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	12.7	Total Delay for Signalled Lanes (pcuHr):	16.50	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	15.2	Total Delay for Signalled Lanes (pcuHr):	11.65	Cycle Time (s):	60
	PRC Over All Lanes (%):	-9.1	Total Delay Over All Lanes(pcuHr):	87.60		

Full Input Data And Results

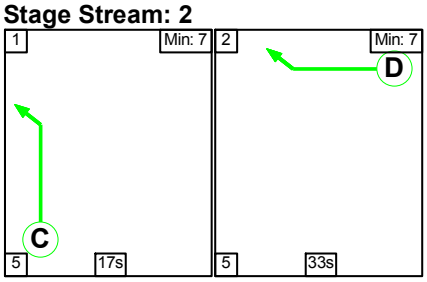
Scenario 3: '2027 Base + Committed + Dev - AM' (FG3: '2027 Base + Committed + Dev - AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

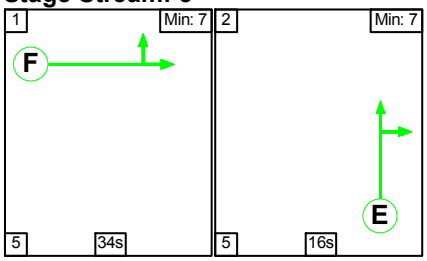
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	37	13
Change Point	0	42

Stage Stream: 2

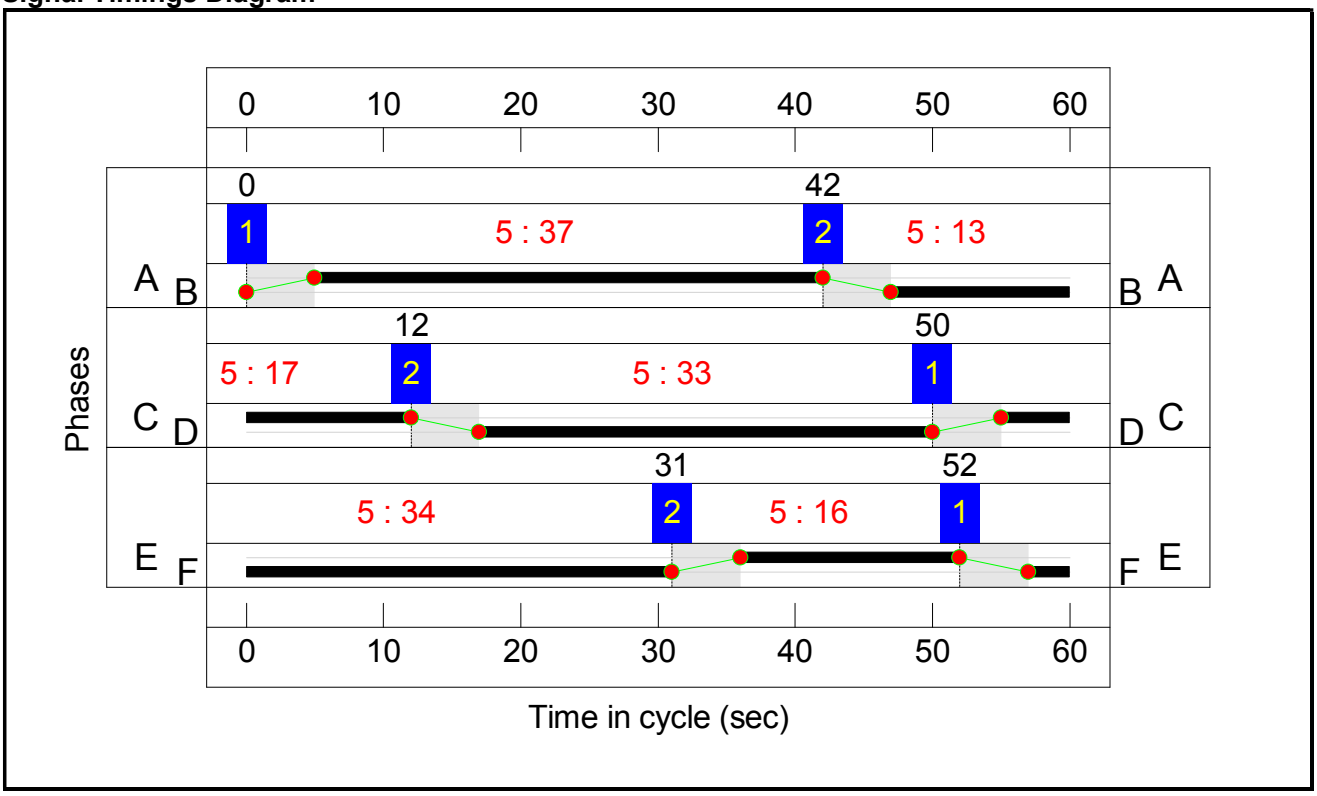
Stage	1	2
Duration	17	33
Change Point	50	12

Stage Stream: 3

Stage	1	2
Duration	34	16
Change Point	52	31

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**94.6%**
Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**94.6%**
1/2+1/1	A414 East Left	U	1	N/A	A		1	37	-	729	2155:1934	876+869	41.8 : 41.8%
1/3	A414 East Left	U	1	N/A	A		1	37	-	1269	2205	1397	90.9%
2/1	Watling Street South Left	O	N/A	N/A	-		-	-	-	61	1890	1069	5.7%
2/2	Watling Street South Left	O	N/A	N/A	-		-	-	-	555	2024	2017	27.5%
3/2+3/1	A405 Left	U	2	N/A	C		1	17	-	525	2130:1918	639+117	69.5 : 69.5%
3/3	A405 Left	U	2	N/A	C		1	17	-	458	2130	639	71.7%
4/2+4/1	A414 West Ahead Left	U	3	N/A	E		1	16	-	764	2130:1978	572+557	67.7 : 67.7%
4/3	A414 West Ahead	U	3	N/A	E		1	16	-	299	2130	604	49.5%
5/1+5/2	Watling Street North Left	O	N/A	N/A	-		-	-	-	744	1995:2185	1076+554	45.6 : 45.6%
6/1	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	399	1900	443	90.0%
6/2	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	6	1900	443	1.4%
6/3	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	285	1900	443	64.3%
7/1	Watling South Circulatory Right Left	U	N/A	N/A	-		-	-	-	762	1900	1900	40.1%
7/2	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	372	1900	1900	19.6%

Full Input Data And Results

7/3	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	1554	1900	1900	81.8%
8/1	A405 Exit Circulatory Left	U	N/A	N/A	-		-	-	-	225	1900	1900	11.8%
8/2	A405 Exit Circulatory Ahead Left	U	N/A	N/A	-		-	-	-	686	1900	1900	36.1%
8/3	A405 Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	1797	1900	1900	94.6%
9/1	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	638	1900	1077	59.3%
9/2	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	658	1900	1077	61.1%
9/3	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	556	1900	1077	51.6%
10/1	A414 West Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	826	1900	1900	43.5%
10/2	A414 West Exit Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	995	1900	1900	52.4%
10/3	A414 West Exit Circulatory Right	U	N/A	N/A	-		-	-	-	1014	1900	1900	53.4%
11/1	A414 West Circulatory Ahead	U	3	N/A	F		1	34	-	209	1900	1108	18.9%
11/2	A414 West Circulatory Right Ahead	U	3	N/A	F		1	34	-	788	1900	1108	71.1%
11/3	A414 West Circulatory Right	U	3	N/A	F		1	34	-	589	1900	1108	53.1%
12/1	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	612	1900	1900	32.2%
12/2	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	621	1900	1900	32.7%
12/3	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	888	1900	1900	46.7%

Full Input Data And Results

13/1	A414 East Circulatory Ahead	U	N/A	N/A	-		-	-	-	765	1900	1900	40.3%
13/2	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	959	1900	1900	50.5%
13/3	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1141	1900	1900	60.1%
14/1	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	765	1980	1980	38.6%
14/2	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	554	2120	2120	26.1%
14/3	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	856	1965	1965	43.6%
15/1		U	N/A	N/A	-		-	-	-	765	Inf	Inf	0.0%
15/2		U	N/A	N/A	-		-	-	-	1410	Inf	Inf	0.0%
16/1	Watling Street South Exit	U	N/A	N/A	-		-	-	-	596	Inf	Inf	0.0%
17/1	A405 Exit	U	N/A	N/A	-		-	-	-	856	Inf	Inf	0.0%
18/1	A414 West Exit	U	N/A	N/A	-		-	-	-	1249	Inf	Inf	0.0%
19/1	Watling Street North Exit	U	N/A	N/A	-		-	-	-	528	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Proposed Park Street Roundabout	**-**	**-**	**2104**	**0**	**0**	**26.9**	**33.7**	**0.0**	**60.7**	**-**	**-**	**-**	**-**
Park Street Roundabout	**-**	**-**	**2104**	**0**	**0**	**26.9**	**33.7**	**0.0**	**60.7**	**-**	**-**	**-**	**-**
1/2+1/1	729	729	-	-	-	1.0	0.4	-	1.4	6.7	2.7	0.4	3.1
1/3	1269	1269	-	-	-	3.3	4.6	-	8.0	22.7	18.0	4.6	22.6
2/1	61	61	61	0	0	0.0	0.0	-	0.0	1.8	0.0	0.0	0.0
2/2	555	555	555	0	0	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
3/2+3/1	525	525	-	-	-	2.6	1.1	-	3.8	25.8	6.5	1.1	7.7
3/3	458	458	-	-	-	2.4	1.2	-	3.6	28.5	6.7	1.2	8.0
4/2+4/1	764	764	-	-	-	4.0	1.0	-	5.1	23.8	5.6	1.0	6.6
4/3	299	299	-	-	-	1.5	0.5	-	2.0	23.8	4.2	0.5	4.6
5/1+5/2	744	744	1488	0	0	0.3	0.4	-	0.7	3.3	1.8	0.4	2.2
6/1	399	399	-	-	-	2.2	3.8	-	6.0	54.1	6.0	3.8	9.9
6/2	6	6	-	-	-	0.0	0.0	-	0.0	5.4	0.0	0.0	0.0
6/3	285	285	-	-	-	1.3	0.9	-	2.2	28.0	3.7	0.9	4.6
7/1	762	762	-	-	-	0.0	0.3	-	0.3	1.6	0.0	0.3	0.3
7/2	372	372	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
7/3	1554	1554	-	-	-	0.7	2.2	-	2.9	6.8	2.2	2.2	4.4
8/1	225	225	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/2	686	686	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
8/3	1797	1797	-	-	-	1.4	7.6	-	9.0	18.0	3.0	7.6	10.6
9/1	638	638	-	-	-	1.4	0.7	-	2.1	12.1	6.4	0.7	7.1
9/2	658	658	-	-	-	1.6	0.8	-	2.3	12.8	7.0	0.8	7.7
9/3	556	556	-	-	-	1.2	0.5	-	1.8	11.4	5.5	0.5	6.0
10/1	826	826	-	-	-	0.1	0.4	-	0.5	2.1	0.8	0.4	1.2

Full Input Data And Results

10/2	995	995	-	-	-	0.0	0.5	-	0.6	2.1	0.5	0.5	1.1
10/3	1014	1014	-	-	-	0.0	0.6	-	0.6	2.2	0.5	0.6	1.1
11/1	209	209	-	-	-	0.4	0.1	-	0.5	8.1	1.3	0.1	1.4
11/2	788	788	-	-	-	1.0	1.2	-	2.3	10.3	10.1	1.2	11.3
11/3	589	589	-	-	-	0.4	0.6	-	0.9	5.8	1.7	0.6	2.2
12/1	612	612	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
12/2	621	621	-	-	-	0.0	0.2	-	0.3	1.6	0.4	0.2	0.6
12/3	888	888	-	-	-	0.0	0.4	-	0.4	1.8	0.3	0.4	0.7
13/1	765	765	-	-	-	0.0	0.3	-	0.3	1.6	0.0	0.3	0.3
13/2	959	959	-	-	-	0.0	0.5	-	0.5	1.9	4.8	0.5	5.3
13/3	1141	1141	-	-	-	0.0	0.8	-	0.8	2.4	0.0	0.8	0.8
14/1	765	765	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
14/2	554	554	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2
14/3	856	856	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
15/1	765	765	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	1410	1410	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
16/1	596	596	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
17/1	856	856	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
18/1	1249	1249	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
19/1	528	528	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

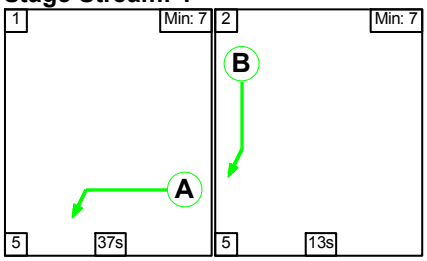
C1	Stream: 1 PRC for Signalled Lanes (%):	-1.0	Total Delay for Signalled Lanes (pcuHr):	17.56	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	25.6	Total Delay for Signalled Lanes (pcuHr):	13.63	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	26.6	Total Delay for Signalled Lanes (pcuHr):	10.71	Cycle Time (s):	60
	PRC Over All Lanes (%):	-5.1	Total Delay Over All Lanes(pcuHr):	60.69		

Full Input Data And Results

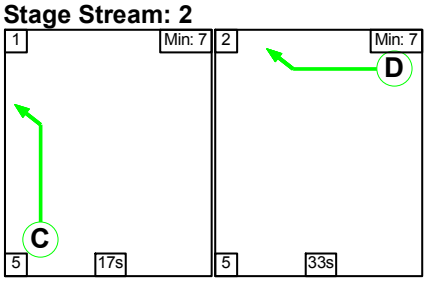
Scenario 4: '2027 Base + Committed + Dev - PM' (FG4: '2027 Base + Committed + Dev - PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

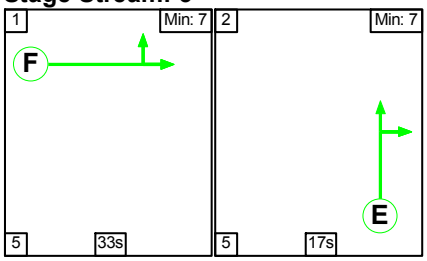
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	37	13
Change Point	0	42

Stage Stream: 2

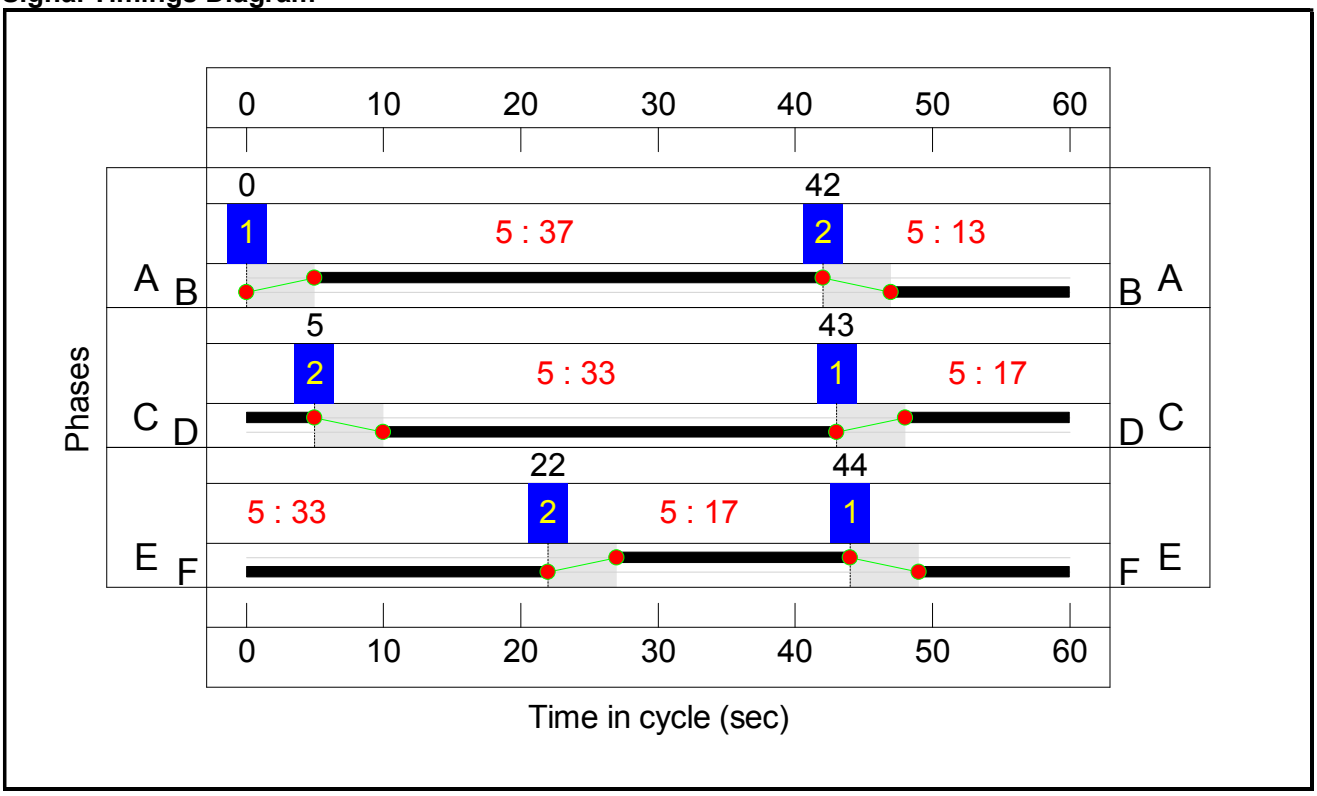
Stage	1	2
Duration	17	33
Change Point	43	5

Stage Stream: 3

Stage	1	2
Duration	33	17
Change Point	44	22

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**98.8%**
Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**98.8%**
1/2+1/1	A414 East Left	U	1	N/A	A		1	37	-	1313	2155:1934	902+863	74.4 : 74.4%
1/3	A414 East Left	U	1	N/A	A		1	37	-	1344	2205	1397	96.2%
2/1	Watling Street South Left	O	N/A	N/A	-		-	-	-	13	1890	674	1.9%
2/2	Watling Street South Left	O	N/A	N/A	-		-	-	-	528	2024	1885	28.0%
3/2+3/1	A405 Left	U	2	N/A	C		1	17	-	580	2130:1918	639+110	77.5 : 77.5%
3/3	A405 Left	U	2	N/A	C		1	17	-	489	2130	639	76.5%
4/2+4/1	A414 West Ahead Left	U	3	N/A	E		1	17	-	912	2130:1976	589+574	78.4 : 78.4%
4/3	A414 West Ahead	U	3	N/A	E		1	17	-	350	2130	639	54.8%
5/1+5/2	Watling Street North Left	O	N/A	N/A	-		-	-	-	720	1995:2185	1002+728	41.6 : 41.6%
6/1	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	407	1900	443	91.8%
6/2	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	1	1900	443	0.2%
6/3	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	377	1900	443	85.0%
7/1	Watling South Circulatory Right Left	U	N/A	N/A	-		-	-	-	1049	1900	1900	55.2%
7/2	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	672	1900	1900	35.4%

Full Input Data And Results

7/3	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	1721	1900	1900	90.6%
8/1	A405 Exit Circulatory Left	U	N/A	N/A	-		-	-	-	493	1900	1900	25.9%
8/2	A405 Exit Circulatory Ahead Left	U	N/A	N/A	-		-	-	-	1044	1900	1900	54.9%
8/3	A405 Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	1877	1900	1900	98.8%
9/1	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	759	1900	1077	70.5%
9/2	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	780	1900	1077	72.4%
9/3	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	479	1900	1077	44.5%
10/1	A414 West Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	1001	1900	1900	52.7%
10/2	A414 West Exit Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1118	1900	1900	58.8%
10/3	A414 West Exit Circulatory Right	U	N/A	N/A	-		-	-	-	968	1900	1900	50.9%
11/1	A414 West Circulatory Ahead	U	3	N/A	F		1	33	-	210	1900	1077	19.5%
11/2	A414 West Circulatory Right Ahead	U	3	N/A	F		1	33	-	725	1900	1077	67.3%
11/3	A414 West Circulatory Right	U	3	N/A	F		1	33	-	614	1900	1077	57.0%
12/1	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	617	1900	1900	32.5%
12/2	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	714	1900	1900	37.6%
12/3	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	964	1900	1900	50.7%

Full Input Data And Results

13/1	A414 East Circulatory Ahead	U	N/A	N/A	-		-	-	-	768	1900	1900	40.4%
13/2	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	980	1900	1900	51.6%
13/3	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1267	1900	1900	66.7%
14/1	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	768	1980	1980	38.8%
14/2	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	572	2120	2120	27.0%
14/3	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	890	1965	1965	45.3%
15/1		U	N/A	N/A	-		-	-	-	768	Inf	Inf	0.0%
15/2		U	N/A	N/A	-		-	-	-	1462	Inf	Inf	0.0%
16/1	Watling Street South Exit	U	N/A	N/A	-		-	-	-	569	Inf	Inf	0.0%
17/1	A405 Exit	U	N/A	N/A	-		-	-	-	1396	Inf	Inf	0.0%
18/1	A414 West Exit	U	N/A	N/A	-		-	-	-	1538	Inf	Inf	0.0%
19/1	Watling Street North Exit	U	N/A	N/A	-		-	-	-	516	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Proposed Park Street Roundabout	**-**	**-**	**1981**	**0**	**0**	**33.5**	**57.5**	**0.0**	**91.0**	**-**	**-**	**-**	**-**
Park Street Roundabout	**-**	**-**	**1981**	**0**	**0**	**33.5**	**57.5**	**0.0**	**91.0**	**-**	**-**	**-**	**-**
1/2+1/1	1313	1313	-	-	-	2.2	1.4	-	3.6	9.9	5.8	1.4	7.2
1/3	1344	1344	-	-	-	3.9	9.4	-	13.3	35.6	20.9	9.4	30.3
2/1	13	13	13	0	0	0.0	0.0	-	0.0	3.1	0.0	0.0	0.0
2/2	528	528	528	0	0	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
3/2+3/1	580	580	-	-	-	3.0	1.7	-	4.7	29.1	7.4	1.7	9.1
3/3	489	489	-	-	-	2.6	1.6	-	4.2	30.8	7.3	1.6	8.9
4/2+4/1	912	912	-	-	-	4.8	1.8	-	6.6	26.0	6.8	1.8	8.6
4/3	350	350	-	-	-	1.7	0.6	-	2.3	23.8	4.9	0.6	5.5
5/1+5/2	720	720	1440	0	0	0.3	0.4	-	0.7	3.5	1.8	0.4	2.1
6/1	407	407	-	-	-	3.0	4.5	-	7.4	65.8	6.6	4.5	11.1
6/2	1	1	-	-	-	0.0	0.0	-	0.0	9.7	0.0	0.0	0.0
6/3	377	377	-	-	-	2.0	2.6	-	4.6	44.0	6.0	2.6	8.7
7/1	1049	1049	-	-	-	0.0	0.6	-	0.6	2.1	0.0	0.6	0.6
7/2	672	672	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
7/3	1721	1721	-	-	-	0.9	4.6	-	5.5	11.5	2.6	4.6	7.1
8/1	493	493	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
8/2	1044	1044	-	-	-	0.0	0.6	-	0.6	2.2	0.2	0.6	0.8
8/3	1877	1877	-	-	-	2.7	16.7	-	19.4	37.1	9.3	16.7	26.0
9/1	759	759	-	-	-	1.6	1.2	-	2.8	13.3	8.1	1.2	9.3
9/2	780	780	-	-	-	2.1	1.3	-	3.4	15.5	9.1	1.3	10.4
9/3	479	479	-	-	-	1.0	0.4	-	1.4	10.4	5.0	0.4	5.4
10/1	1001	1001	-	-	-	0.3	0.6	-	0.8	2.9	1.3	0.6	1.9

Full Input Data And Results

10/2	1118	1118	-	-	-	0.1	0.7	-	0.8	2.5	0.6	0.7	1.3
10/3	968	968	-	-	-	0.1	0.5	-	0.6	2.2	0.6	0.5	1.1
11/1	210	210	-	-	-	0.3	0.1	-	0.4	6.6	1.0	0.1	1.1
11/2	725	725	-	-	-	0.6	1.0	-	1.6	8.0	2.7	1.0	3.7
11/3	614	614	-	-	-	0.5	0.7	-	1.2	7.1	1.9	0.7	2.5
12/1	617	617	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
12/2	714	714	-	-	-	0.0	0.3	-	0.4	1.8	0.5	0.3	0.8
12/3	964	964	-	-	-	0.0	0.5	-	0.5	2.0	0.3	0.5	0.8
13/1	768	768	-	-	-	0.0	0.3	-	0.3	1.6	0.0	0.3	0.3
13/2	980	980	-	-	-	0.0	0.5	-	0.5	2.0	1.1	0.5	1.6
13/3	1267	1267	-	-	-	0.0	1.0	-	1.0	2.8	0.0	1.0	1.0
14/1	768	768	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
14/2	572	572	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
14/3	890	890	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
15/1	768	768	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	1462	1462	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
16/1	569	569	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
17/1	1396	1396	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
18/1	1538	1538	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
19/1	516	516	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

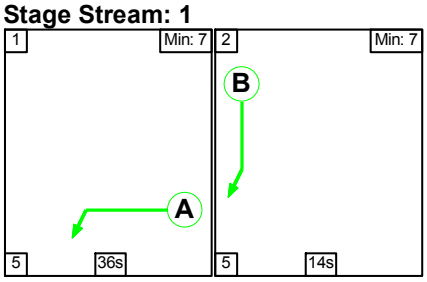
C1	Stream: 1 PRC for Signalled Lanes (%):	-6.9	Total Delay for Signalled Lanes (pcuHr):	28.94	Cycle Time (s): 60
C1	Stream: 2 PRC for Signalled Lanes (%):	16.2	Total Delay for Signalled Lanes (pcuHr):	16.44	Cycle Time (s): 60
C1	Stream: 3 PRC for Signalled Lanes (%):	14.7	Total Delay for Signalled Lanes (pcuHr):	12.10	Cycle Time (s): 60
	PRC Over All Lanes (%):	-9.8	Total Delay Over All Lanes(pcuHr):	91.01	

Full Input Data And Results

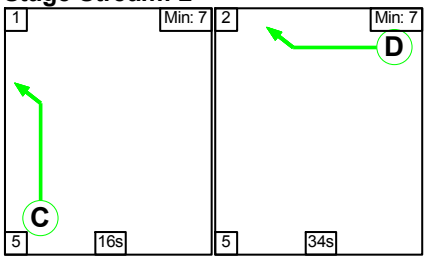
Scenario 5: '2038 Base + Committed - AM' (FG5: '2038 Base + Committed - AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

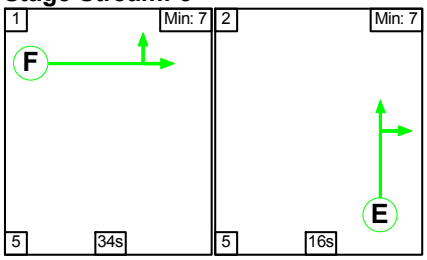
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	36	14
Change Point	0	41

Stage Stream: 2

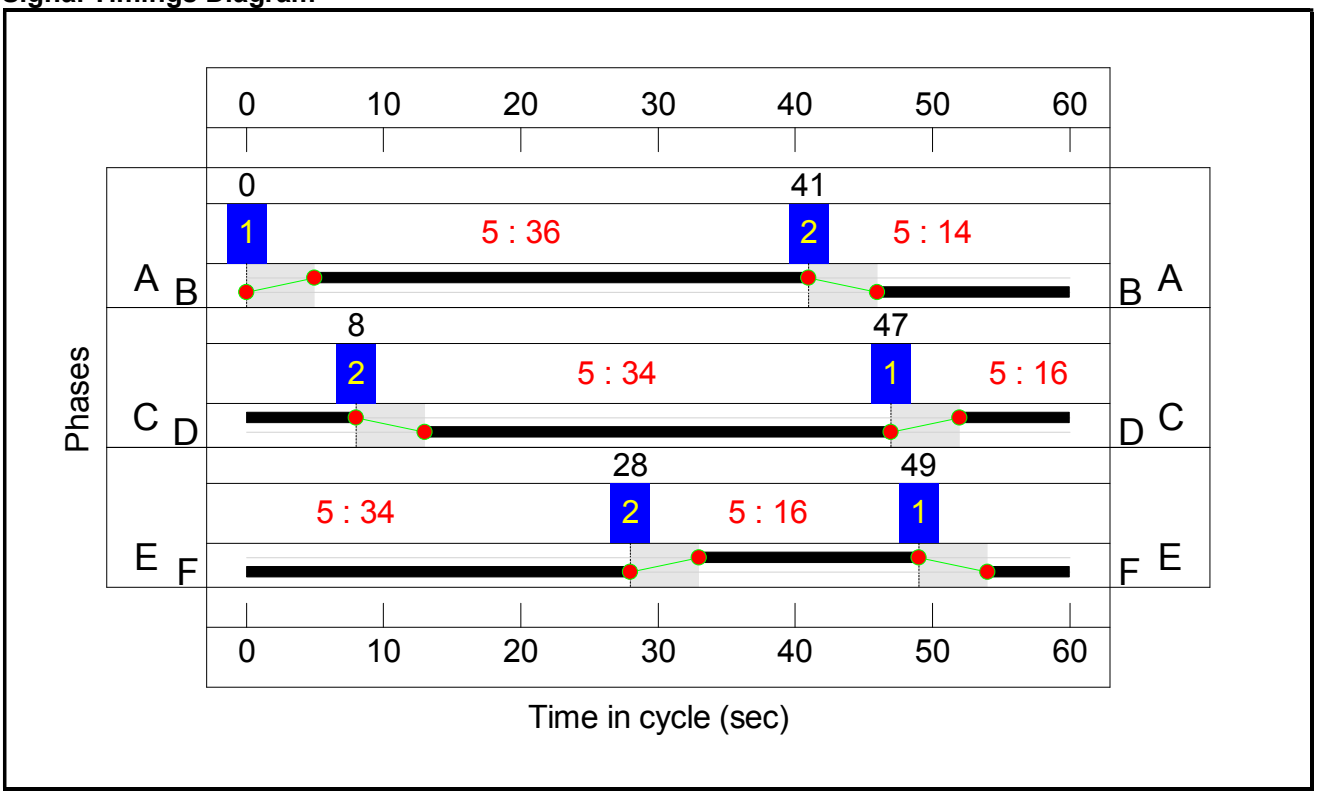
Stage	1	2
Duration	16	34
Change Point	47	8

Stage Stream: 3

Stage	1	2
Duration	34	16
Change Point	49	28

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.8%**
Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.8%**
1/2+1/1	A414 East Left	U	1	N/A	A		1	36	-	869	2155:1934	907+829	50.1 : 50.1%
1/3	A414 East Left	U	1	N/A	A		1	36	-	1202	2205	1360	88.4%
2/1	Watling Street South Left	O	N/A	N/A	-		-	-	-	64	1890	1031	6.2%
2/2	Watling Street South Left	O	N/A	N/A	-		-	-	-	585	2024	2006	29.2%
3/2+3/1	A405 Left	U	2	N/A	C		1	16	-	534	2130:1918	604+105	75.4 : 75.4%
3/3	A405 Left	U	2	N/A	C		1	16	-	473	2130	604	78.4%
4/2+4/1	A414 West Ahead Left	U	3	N/A	E		1	16	-	790	2130:1978	563+557	70.6 : 70.6%
4/3	A414 West Ahead	U	3	N/A	E		1	16	-	315	2130	604	52.2%
5/1+5/2	Watling Street North Left	O	N/A	N/A	-		-	-	-	781	1995:2185	1042+544	49.2 : 49.2%
6/1	A414 East Circulatory Ahead	U	1	N/A	B		1	14	-	420	1900	475	88.4%
6/2	A414 East Circulatory Ahead	U	1	N/A	B		1	14	-	1	1900	475	0.2%
6/3	A414 East Circulatory Ahead	U	1	N/A	B		1	14	-	301	1900	475	63.4%
7/1	Watling South Circulatory Right Left	U	N/A	N/A	-		-	-	-	835	1900	1900	43.9%
7/2	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	455	1900	1900	23.9%

Full Input Data And Results

7/3	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	1503	1900	1900	79.1%
8/1	A405 Exit Circulatory Left	U	N/A	N/A	-		-	-	-	272	1900	1900	14.3%
8/2	A405 Exit Circulatory Ahead Left	U	N/A	N/A	-		-	-	-	761	1900	1900	40.1%
8/3	A405 Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	1782	1900	1900	93.8%
9/1	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	702	1900	1108	63.3%
9/2	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	708	1900	1108	63.9%
9/3	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	529	1900	1108	47.7%
10/1	A414 West Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	901	1900	1900	47.4%
10/2	A414 West Exit Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1043	1900	1900	54.9%
10/3	A414 West Exit Circulatory Right	U	N/A	N/A	-		-	-	-	1002	1900	1900	52.7%
11/1	A414 West Circulatory Ahead	U	3	N/A	F		1	34	-	277	1900	1108	25.0%
11/2	A414 West Circulatory Right Ahead	U	3	N/A	F		1	34	-	743	1900	1108	67.0%
11/3	A414 West Circulatory Right	U	3	N/A	F		1	34	-	629	1900	1108	56.8%
12/1	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	629	1900	1900	33.1%
12/2	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	624	1900	1900	32.8%
12/3	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	944	1900	1900	49.7%

Full Input Data And Results

13/1	A414 East Circulatory Ahead	U	N/A	N/A	-		-	-	-	786	1900	1900	41.4%
13/2	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	980	1900	1900	51.6%
13/3	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1212	1900	1900	63.8%
14/1	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	786	1980	1980	39.7%
14/2	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	559	2120	2120	26.4%
14/3	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	911	1965	1965	46.4%
15/1		U	N/A	N/A	-		-	-	-	786	Inf	Inf	0.0%
15/2		U	N/A	N/A	-		-	-	-	1470	Inf	Inf	0.0%
16/1	Watling Street South Exit	U	N/A	N/A	-		-	-	-	627	Inf	Inf	0.0%
17/1	A405 Exit	U	N/A	N/A	-		-	-	-	876	Inf	Inf	0.0%
18/1	A414 West Exit	U	N/A	N/A	-		-	-	-	1297	Inf	Inf	0.0%
19/1	Watling Street North Exit	U	N/A	N/A	-		-	-	-	557	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Proposed Park Street Roundabout	**-**	**-**	**2211**	**0**	**0**	**28.4**	**33.1**	**0.0**	**61.5**	**-**	**-**	**-**	**-**
Park Street Roundabout	**-**	**-**	**2211**	**0**	**0**	**28.4**	**33.1**	**0.0**	**61.5**	**-**	**-**	**-**	**-**
1/2+1/1	869	869	-	-	-	1.4	0.5	-	1.9	7.7	3.7	0.5	4.2
1/3	1202	1202	-	-	-	3.2	3.6	-	6.9	20.6	16.7	3.6	20.3
2/1	64	64	64	0	0	0.0	0.0	-	0.0	1.9	0.0	0.0	0.0
2/2	585	585	585	0	0	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
3/2+3/1	534	534	-	-	-	2.8	1.5	-	4.3	29.2	6.8	1.5	8.3
3/3	473	473	-	-	-	2.6	1.8	-	4.4	33.2	7.2	1.8	9.0
4/2+4/1	790	790	-	-	-	4.2	1.2	-	5.4	24.5	5.8	1.2	7.0
4/3	315	315	-	-	-	1.6	0.5	-	2.1	24.3	4.4	0.5	4.9
5/1+5/2	781	781	1562	0	0	0.3	0.5	-	0.8	3.7	2.1	0.5	2.5
6/1	420	420	-	-	-	2.2	3.4	-	5.6	48.2	6.6	3.4	10.0
6/2	1	1	-	-	-	0.0	0.0	-	0.0	5.3	0.0	0.0	0.0
6/3	301	301	-	-	-	1.3	0.9	-	2.2	26.2	3.9	0.9	4.7
7/1	835	835	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
7/2	455	455	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
7/3	1503	1503	-	-	-	0.6	1.9	-	2.5	5.9	2.0	1.9	3.9
8/1	272	272	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/2	761	761	-	-	-	0.0	0.3	-	0.3	1.6	0.0	0.3	0.3
8/3	1782	1782	-	-	-	2.5	6.8	-	9.3	18.8	9.2	6.8	16.0
9/1	702	702	-	-	-	1.2	0.9	-	2.1	10.6	7.0	0.9	7.9
9/2	708	708	-	-	-	1.5	0.9	-	2.4	12.0	6.6	0.9	7.5
9/3	529	529	-	-	-	1.2	0.5	-	1.6	11.0	5.5	0.5	5.9
10/1	901	901	-	-	-	0.1	0.5	-	0.6	2.3	0.9	0.5	1.3

Full Input Data And Results

10/2	1043	1043	-	-	-	0.1	0.6	-	0.7	2.3	0.5	0.6	1.1
10/3	1002	1002	-	-	-	0.1	0.6	-	0.6	2.2	0.6	0.6	1.1
11/1	277	277	-	-	-	0.4	0.2	-	0.6	7.6	1.7	0.2	1.8
11/2	743	743	-	-	-	0.6	1.0	-	1.6	8.0	9.6	1.0	10.6
11/3	629	629	-	-	-	0.4	0.7	-	1.0	5.9	1.6	0.7	2.3
12/1	629	629	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
12/2	624	624	-	-	-	0.0	0.2	-	0.3	1.6	0.4	0.2	0.6
12/3	944	944	-	-	-	0.0	0.5	-	0.5	1.9	0.3	0.5	0.7
13/1	786	786	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
13/2	980	980	-	-	-	0.0	0.5	-	0.5	2.0	4.8	0.5	5.3
13/3	1212	1212	-	-	-	0.0	0.9	-	0.9	2.6	0.0	0.9	0.9
14/1	786	786	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
14/2	559	559	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
14/3	911	911	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
15/1	786	786	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	1470	1470	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
16/1	627	627	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
17/1	876	876	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
18/1	1297	1297	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
19/1	557	557	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

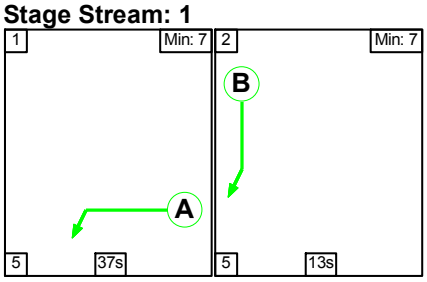
C1	Stream: 1 PRC for Signalled Lanes (%):	1.8	Total Delay for Signalled Lanes (pcuHr):	16.55	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	14.8	Total Delay for Signalled Lanes (pcuHr):	14.74	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	27.6	Total Delay for Signalled Lanes (pcuHr):	10.77	Cycle Time (s):	60
	PRC Over All Lanes (%):	-4.2	Total Delay Over All Lanes(pcuHr):	61.46		

Full Input Data And Results

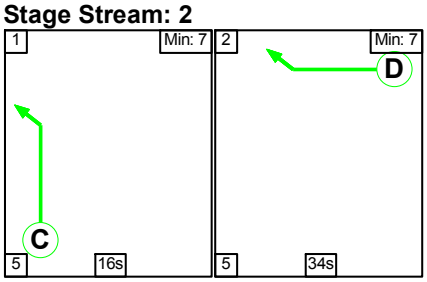
Scenario 6: '2038 Base + Committed - PM' (FG6: '2038 Base + Committed - PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

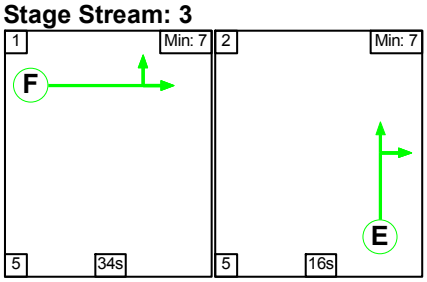
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	37	13
Change Point	0	42

Stage Stream: 2

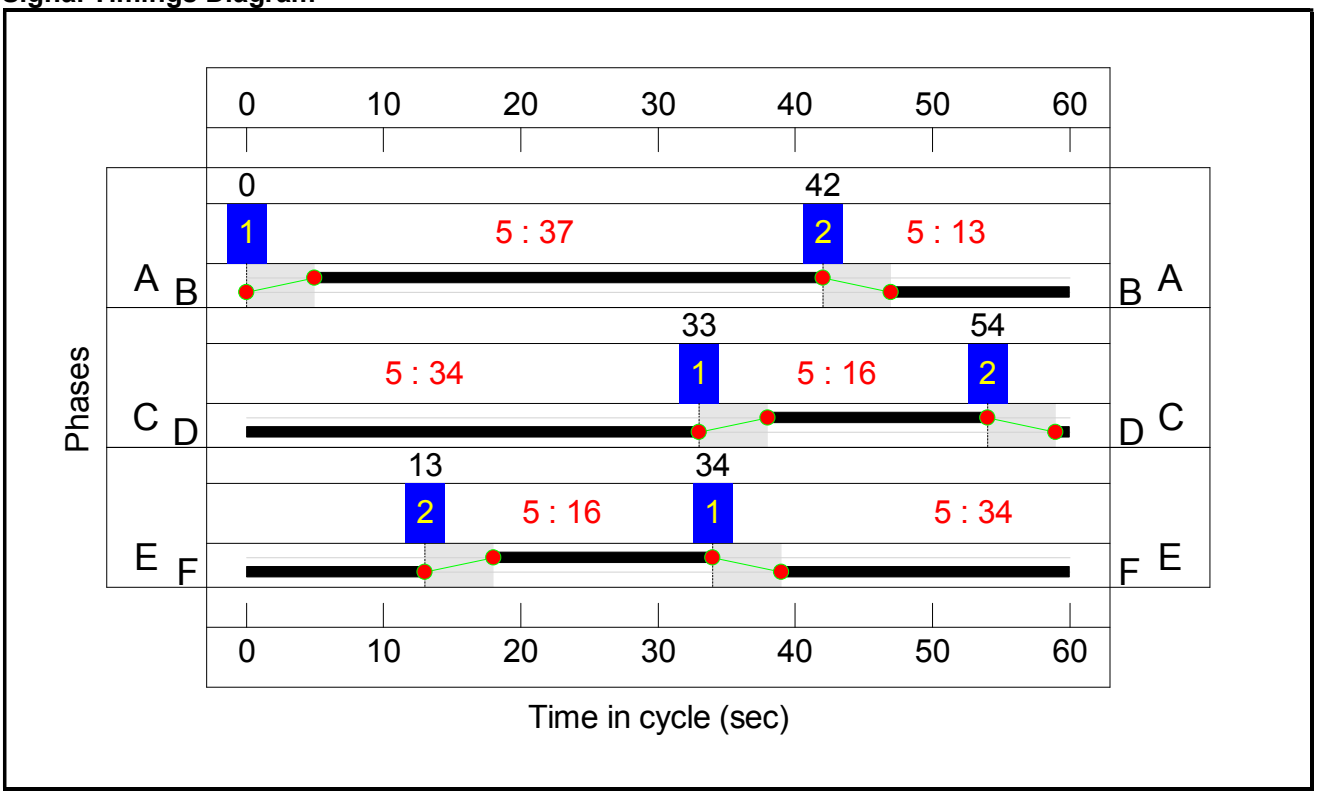
Stage	1	2
Duration	16	34
Change Point	33	54

Stage Stream: 3

Stage	1	2
Duration	34	16
Change Point	34	13

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**100.4%**
Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**100.4%**
1/2+1/1	A414 East Left	U	1	N/A	A		1	37	-	1355	2155:1934	848+877	78.6 : 78.6%
1/3	A414 East Left	U	1	N/A	A		1	37	-	1402	2205	1397	100.4%
2/1	Watling Street South Left	O	N/A	N/A	-		-	-	-	14	1890	624	2.2%
2/2	Watling Street South Left	O	N/A	N/A	-		-	-	-	553	2024	1866	29.6%
3/2+3/1	A405 Left	U	2	N/A	C		1	16	-	585	2130:1918	604+100	83.2 : 83.2%
3/3	A405 Left	U	2	N/A	C		1	16	-	495	2130	604	82.0%
4/2+4/1	A414 West Ahead Left	U	3	N/A	E		1	16	-	927	2130:1976	549+557	83.8 : 83.8%
4/3	A414 West Ahead	U	3	N/A	E		1	16	-	389	2130	604	64.5%
5/1+5/2	Watling Street North Left	O	N/A	N/A	-		-	-	-	753	1995:2185	984+620	46.9 : 46.9%
6/1	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	422	1900	443	95.2%
6/2	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	76	1900	443	17.1%
6/3	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	317	1900	443	71.5%
7/1	Watling South Circulatory Right Left	U	N/A	N/A	-		-	-	-	1111	1900	1900	58.5%
7/2	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	742	1900	1900	39.1%

Full Input Data And Results

7/3	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	1719	1900	1900	90.2%
8/1	A405 Exit Circulatory Left	U	N/A	N/A	-		-	-	-	534	1900	1900	28.1%
8/2	A405 Exit Circulatory Ahead Left	U	N/A	N/A	-		-	-	-	1163	1900	1900	61.2%
8/3	A405 Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	1851	1900	1900	97.2%
9/1	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	778	1900	1108	70.0%
9/2	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	786	1900	1108	70.7%
9/3	A405 Circulatory Ahead	U	2	N/A	D		1	34	-	544	1900	1108	49.0%
10/1	A414 West Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	1010	1900	1900	53.0%
10/2	A414 West Exit Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1139	1900	1900	59.8%
10/3	A414 West Exit Circulatory Right	U	N/A	N/A	-		-	-	-	1039	1900	1900	54.6%
11/1	A414 West Circulatory Ahead	U	3	N/A	F		1	34	-	179	1900	1108	16.1%
11/2	A414 West Circulatory Right Ahead	U	3	N/A	F		1	34	-	796	1900	1108	71.7%
11/3	A414 West Circulatory Right	U	3	N/A	F		1	34	-	615	1900	1108	55.5%
12/1	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	633	1900	1900	33.3%
12/2	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	727	1900	1900	38.3%
12/3	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	1004	1900	1900	52.8%

Full Input Data And Results

13/1	A414 East Circulatory Ahead	U	N/A	N/A	-		-	-	-	805	1900	1900	42.4%
13/2	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1017	1900	1900	53.5%
13/3	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1295	1900	1900	68.2%
14/1	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	805	1980	1980	40.7%
14/2	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	519	2120	2120	24.5%
14/3	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	978	1965	1965	49.8%
15/1		U	N/A	N/A	-		-	-	-	805	Inf	Inf	0.0%
15/2		U	N/A	N/A	-		-	-	-	1497	Inf	Inf	0.0%
16/1	Watling Street South Exit	U	N/A	N/A	-		-	-	-	591	Inf	Inf	0.0%
17/1	A405 Exit	U	N/A	N/A	-		-	-	-	1440	Inf	Inf	0.0%
18/1	A414 West Exit	U	N/A	N/A	-		-	-	-	1598	Inf	Inf	0.0%
19/1	Watling Street North Exit	U	N/A	N/A	-		-	-	-	542	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Proposed Park Street Roundabout	**-**	**-**	**2073**	**0**	**0**	**34.3**	**67.3**	**0.0**	**101.6**	**-**	**-**	**-**	**-**
Park Street Roundabout	**-**	**-**	**2073**	**0**	**0**	**34.3**	**67.3**	**0.0**	**101.6**	**-**	**-**	**-**	**-**
1/2+1/1	1355	1355	-	-	-	2.3	1.8	-	4.1	10.9	6.5	1.8	8.3
1/3	1402	1397	-	-	-	4.4	20.1	-	24.6	63.1	23.5	20.1	43.6
2/1	14	14	14	0	0	0.0	0.0	-	0.0	3.4	0.0	0.0	0.0
2/2	553	553	553	0	0	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
3/2+3/1	585	585	-	-	-	3.2	2.4	-	5.6	34.2	7.8	2.4	10.2
3/3	495	495	-	-	-	2.8	2.2	-	5.0	36.0	7.7	2.2	9.9
4/2+4/1	927	927	-	-	-	5.1	2.5	-	7.6	29.7	7.3	2.5	9.8
4/3	389	389	-	-	-	2.0	0.9	-	2.9	27.2	5.6	0.9	6.5
5/1+5/2	753	753	1506	0	0	0.4	0.4	-	0.9	4.1	2.2	0.4	2.7
6/1	422	422	-	-	-	2.3	6.2	-	8.5	72.9	6.6	6.2	12.9
6/2	76	76	-	-	-	0.3	0.1	-	0.4	20.6	1.2	0.1	1.3
6/3	317	317	-	-	-	1.7	1.2	-	2.9	33.5	4.9	1.2	6.1
7/1	1111	1111	-	-	-	0.0	0.7	-	0.7	2.3	0.0	0.7	0.7
7/2	742	742	-	-	-	0.0	0.3	-	0.3	1.6	0.0	0.3	0.3
7/3	1714	1714	-	-	-	1.1	4.4	-	5.5	11.6	2.9	4.4	7.3
8/1	534	534	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
8/2	1163	1163	-	-	-	0.0	0.8	-	0.8	2.5	0.2	0.8	0.9
8/3	1846	1846	-	-	-	2.2	11.9	-	14.0	27.4	4.6	11.9	16.5
9/1	776	776	-	-	-	1.8	1.2	-	2.9	13.6	7.4	1.2	8.6
9/2	783	783	-	-	-	2.1	1.2	-	3.3	15.0	8.7	1.2	9.9
9/3	543	543	-	-	-	1.0	0.5	-	1.5	9.8	5.0	0.5	5.5
10/1	1007	1007	-	-	-	0.2	0.6	-	0.7	2.6	1.1	0.6	1.7

Full Input Data And Results

10/2	1137	1137	-	-	-	0.1	0.7	-	0.8	2.6	0.6	0.7	1.4
10/3	1038	1038	-	-	-	0.1	0.6	-	0.7	2.3	0.6	0.6	1.2
11/1	179	179	-	-	-	0.1	0.1	-	0.2	4.3	0.5	0.1	0.6
11/2	795	795	-	-	-	0.5	1.3	-	1.8	8.2	3.7	1.3	5.0
11/3	615	615	-	-	-	0.5	0.6	-	1.1	6.7	1.8	0.6	2.5
12/1	633	633	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
12/2	727	727	-	-	-	0.1	0.3	-	0.4	1.8	0.5	0.3	0.8
12/3	1004	1004	-	-	-	0.0	0.6	-	0.6	2.1	0.4	0.6	0.9
13/1	805	805	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
13/2	1017	1017	-	-	-	0.0	0.6	-	0.6	2.0	5.8	0.6	6.4
13/3	1295	1295	-	-	-	0.0	1.1	-	1.1	3.0	0.0	1.1	1.1
14/1	805	805	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
14/2	519	519	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2
14/3	978	978	-	-	-	0.0	0.5	-	0.5	1.8	0.0	0.5	0.5
15/1	805	805	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	1497	1497	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
16/1	591	591	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
17/1	1440	1440	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
18/1	1593	1593	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
19/1	541	541	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

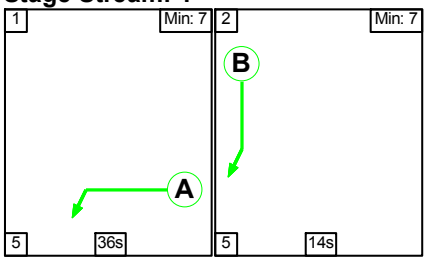
C1	Stream: 1 PRC for Signalled Lanes (%):	-11.5	Total Delay for Signalled Lanes (pcuHr):	40.59	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	8.2	Total Delay for Signalled Lanes (pcuHr):	18.18	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	7.4	Total Delay for Signalled Lanes (pcuHr):	13.74	Cycle Time (s):	60
	PRC Over All Lanes (%):	-11.5	Total Delay Over All Lanes(pcuHr):	101.61		

Full Input Data And Results

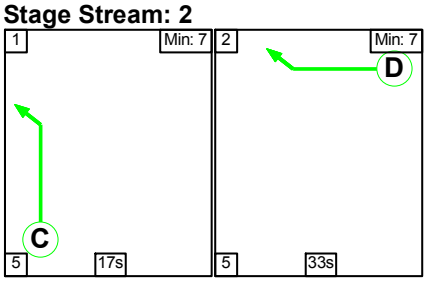
Scenario 7: '2038 Base + Committed + Dev - AM' (FG7: '2038 Base + Committed + Dev - AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

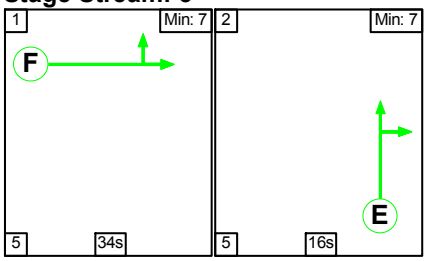
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	36	14
Change Point	0	41

Stage Stream: 2

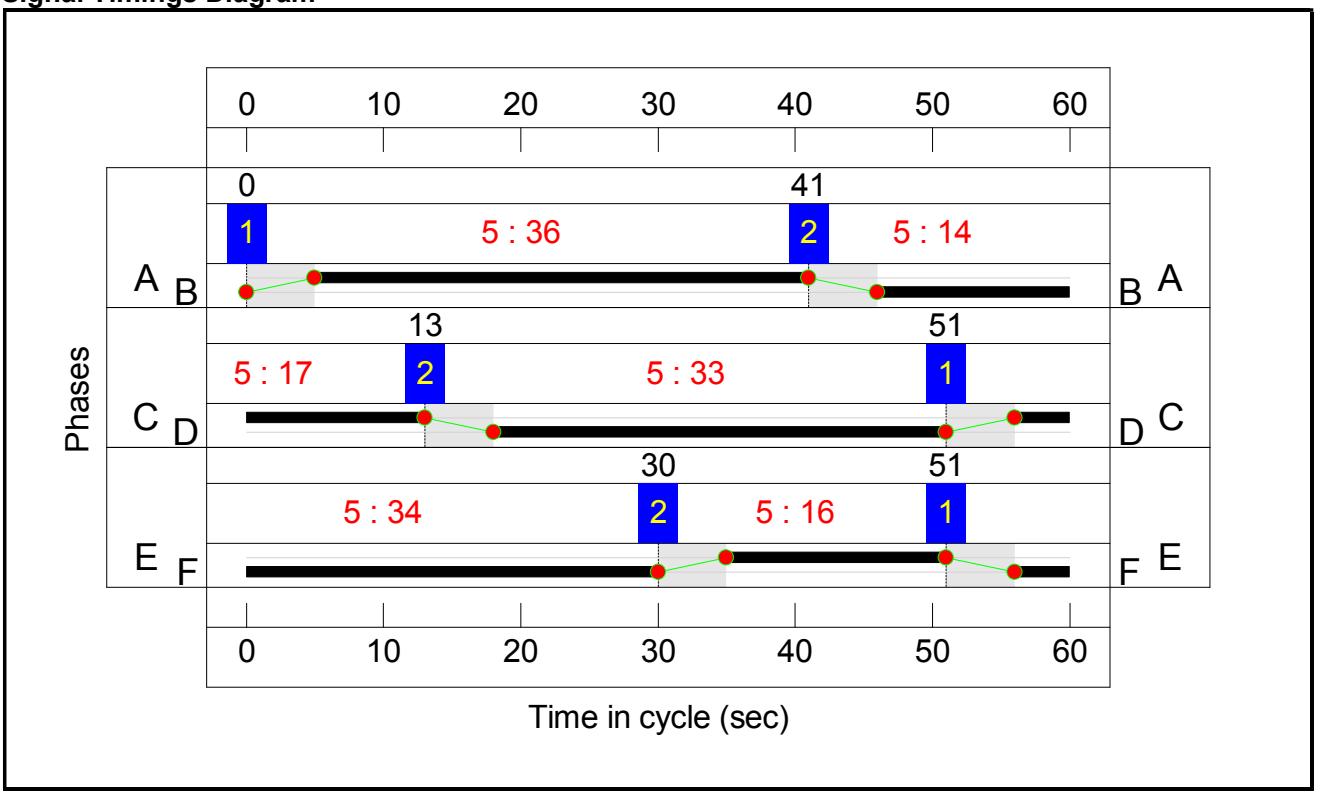
Stage	1	2
Duration	17	33
Change Point	51	13

Stage Stream: 3

Stage	1	2
Duration	34	16
Change Point	51	30

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**95.3%**
Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**95.3%**
1/2+1/1	A414 East Left	U	1	N/A	A		1	36	-	880	2155:1934	908+826	50.8 : 50.8%
1/3	A414 East Left	U	1	N/A	A		1	36	-	1202	2205	1360	88.4%
2/1	Watling Street South Left	O	N/A	N/A	-		-	-	-	64	1890	1025	6.2%
2/2	Watling Street South Left	O	N/A	N/A	-		-	-	-	585	2024	2005	29.2%
3/2+3/1	A405 Left	U	2	N/A	C		1	17	-	540	2130:1918	639+118	71.4 : 71.4%
3/3	A405 Left	U	2	N/A	C		1	17	-	480	2130	639	75.1%
4/2+4/1	A414 West Ahead Left	U	3	N/A	E		1	16	-	799	2130:1978	558+557	71.6 : 71.6%
4/3	A414 West Ahead	U	3	N/A	E		1	16	-	298	2130	604	49.4%
5/1+5/2	Watling Street North Left	O	N/A	N/A	-		-	-	-	781	1995:2185	1037+551	49.2 : 49.2%
6/1	A414 East Circulatory Ahead	U	1	N/A	B		1	14	-	420	1900	475	88.4%
6/2	A414 East Circulatory Ahead	U	1	N/A	B		1	14	-	10	1900	475	2.1%
6/3	A414 East Circulatory Ahead	U	1	N/A	B		1	14	-	294	1900	475	61.9%
7/1	Watling South Circulatory Right Left	U	N/A	N/A	-		-	-	-	839	1900	1900	44.2%
7/2	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	471	1900	1900	24.8%

Full Input Data And Results

7/3	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	1496	1900	1900	78.7%
8/1	A405 Exit Circulatory Left	U	N/A	N/A	-		-	-	-	276	1900	1900	14.5%
8/2	A405 Exit Circulatory Ahead Left	U	N/A	N/A	-		-	-	-	742	1900	1900	39.1%
8/3	A405 Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	1810	1900	1900	95.3%
9/1	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	715	1900	1077	66.4%
9/2	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	717	1900	1077	66.6%
9/3	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	507	1900	1077	47.1%
10/1	A414 West Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	906	1900	1900	47.7%
10/2	A414 West Exit Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1066	1900	1900	56.1%
10/3	A414 West Exit Circulatory Right	U	N/A	N/A	-		-	-	-	987	1900	1900	51.9%
11/1	A414 West Circulatory Ahead	U	3	N/A	F		1	34	-	299	1900	1108	27.0%
11/2	A414 West Circulatory Right Ahead	U	3	N/A	F		1	34	-	737	1900	1108	66.5%
11/3	A414 West Circulatory Right	U	3	N/A	F		1	34	-	621	1900	1108	56.0%
12/1	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	622	1900	1900	32.7%
12/2	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	656	1900	1900	34.5%
12/3	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	919	1900	1900	48.4%

Full Input Data And Results

13/1	A414 East Circulatory Ahead	U	N/A	N/A	-		-	-	-	785	1900	1900	41.3%
13/2	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1003	1900	1900	52.8%
13/3	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1190	1900	1900	62.6%
14/1	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	785	1980	1980	39.6%
14/2	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	573	2120	2120	27.0%
14/3	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	896	1965	1965	45.6%
15/1		U	N/A	N/A	-		-	-	-	785	Inf	Inf	0.0%
15/2		U	N/A	N/A	-		-	-	-	1469	Inf	Inf	0.0%
16/1	Watling Street South Exit	U	N/A	N/A	-		-	-	-	627	Inf	Inf	0.0%
17/1	A405 Exit	U	N/A	N/A	-		-	-	-	889	Inf	Inf	0.0%
18/1	A414 West Exit	U	N/A	N/A	-		-	-	-	1302	Inf	Inf	0.0%
19/1	Watling Street North Exit	U	N/A	N/A	-		-	-	-	557	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Proposed Park Street Roundabout	**-**	**-**	**2211**	**0**	**0**	**28.6**	**34.3**	**0.0**	**62.9**	**-**	**-**	**-**	**-**
Park Street Roundabout	**-**	**-**	**2211**	**0**	**0**	**28.6**	**34.3**	**0.0**	**62.9**	**-**	**-**	**-**	**-**
1/2+1/1	880	880	-	-	-	1.4	0.5	-	1.9	7.7	3.7	0.5	4.2
1/3	1202	1202	-	-	-	3.2	3.6	-	6.9	20.6	16.7	3.6	20.3
2/1	64	64	64	0	0	0.0	0.0	-	0.0	1.9	0.0	0.0	0.0
2/2	585	585	585	0	0	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
3/2+3/1	540	540	-	-	-	2.7	1.2	-	4.0	26.4	6.7	1.2	7.9
3/3	480	480	-	-	-	2.5	1.5	-	4.0	30.1	7.2	1.5	8.7
4/2+4/1	799	799	-	-	-	4.2	1.3	-	5.5	24.8	5.9	1.3	7.1
4/3	298	298	-	-	-	1.5	0.5	-	2.0	23.8	4.1	0.5	4.5
5/1+5/2	781	781	1562	0	0	0.3	0.5	-	0.8	3.7	2.0	0.5	2.5
6/1	420	420	-	-	-	2.2	3.4	-	5.6	48.1	6.4	3.4	9.8
6/2	10	10	-	-	-	0.0	0.0	-	0.0	4.8	0.0	0.0	0.1
6/3	294	294	-	-	-	1.3	0.8	-	2.1	26.1	3.8	0.8	4.6
7/1	839	839	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
7/2	471	471	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
7/3	1496	1496	-	-	-	0.6	1.8	-	2.4	5.9	2.0	1.8	3.8
8/1	276	276	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/2	742	742	-	-	-	0.0	0.3	-	0.3	1.6	0.0	0.3	0.3
8/3	1810	1810	-	-	-	1.7	8.5	-	10.2	20.2	3.7	8.5	12.2
9/1	715	715	-	-	-	1.9	1.0	-	2.8	14.3	7.7	1.0	8.7
9/2	717	717	-	-	-	1.6	1.0	-	2.6	13.1	7.6	1.0	8.6
9/3	507	507	-	-	-	1.1	0.4	-	1.6	11.2	5.0	0.4	5.5
10/1	906	906	-	-	-	0.1	0.5	-	0.6	2.4	1.0	0.5	1.4

Full Input Data And Results

10/2	1066	1066	-	-	-	0.0	0.6	-	0.7	2.3	0.5	0.6	1.1
10/3	987	987	-	-	-	0.1	0.5	-	0.6	2.2	0.6	0.5	1.1
11/1	299	299	-	-	-	0.7	0.2	-	0.9	10.9	2.6	0.2	2.8
11/2	737	737	-	-	-	0.7	1.0	-	1.7	8.2	5.4	1.0	6.4
11/3	621	621	-	-	-	0.5	0.6	-	1.1	6.6	1.9	0.6	2.5
12/1	622	622	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
12/2	656	656	-	-	-	0.0	0.3	-	0.3	1.6	0.4	0.3	0.7
12/3	919	919	-	-	-	0.0	0.5	-	0.5	1.9	0.2	0.5	0.7
13/1	785	785	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
13/2	1003	1003	-	-	-	0.0	0.6	-	0.6	2.0	4.8	0.6	5.3
13/3	1190	1190	-	-	-	0.0	0.8	-	0.8	2.5	0.0	0.8	0.9
14/1	785	785	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
14/2	573	573	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
14/3	896	896	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
15/1	785	785	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	1469	1469	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
16/1	627	627	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
17/1	889	889	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
18/1	1302	1302	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
19/1	557	557	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

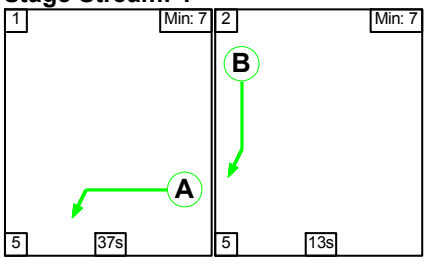
C1	Stream: 1 PRC for Signalled Lanes (%):	1.8	Total Delay for Signalled Lanes (pcuHr):	16.52	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	19.8	Total Delay for Signalled Lanes (pcuHr):	15.01	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	25.7	Total Delay for Signalled Lanes (pcuHr):	11.21	Cycle Time (s):	60
	PRC Over All Lanes (%):	-5.8	Total Delay Over All Lanes(pcuHr):	62.94		

Full Input Data And Results

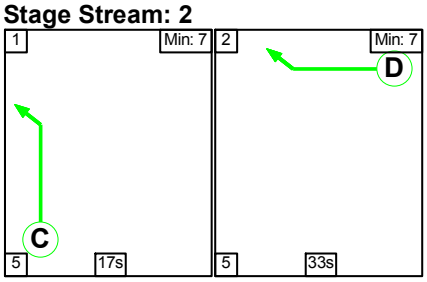
Scenario 8: '2038 Base + Committed + Dev - PM' (FG8: '2038 Base + Committed + Dev - PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

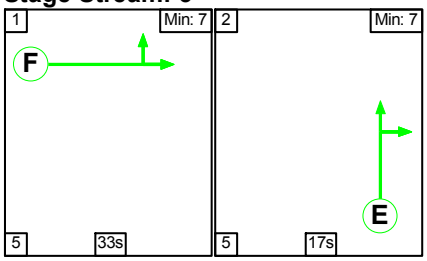
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	37	13
Change Point	0	42

Stage Stream: 2

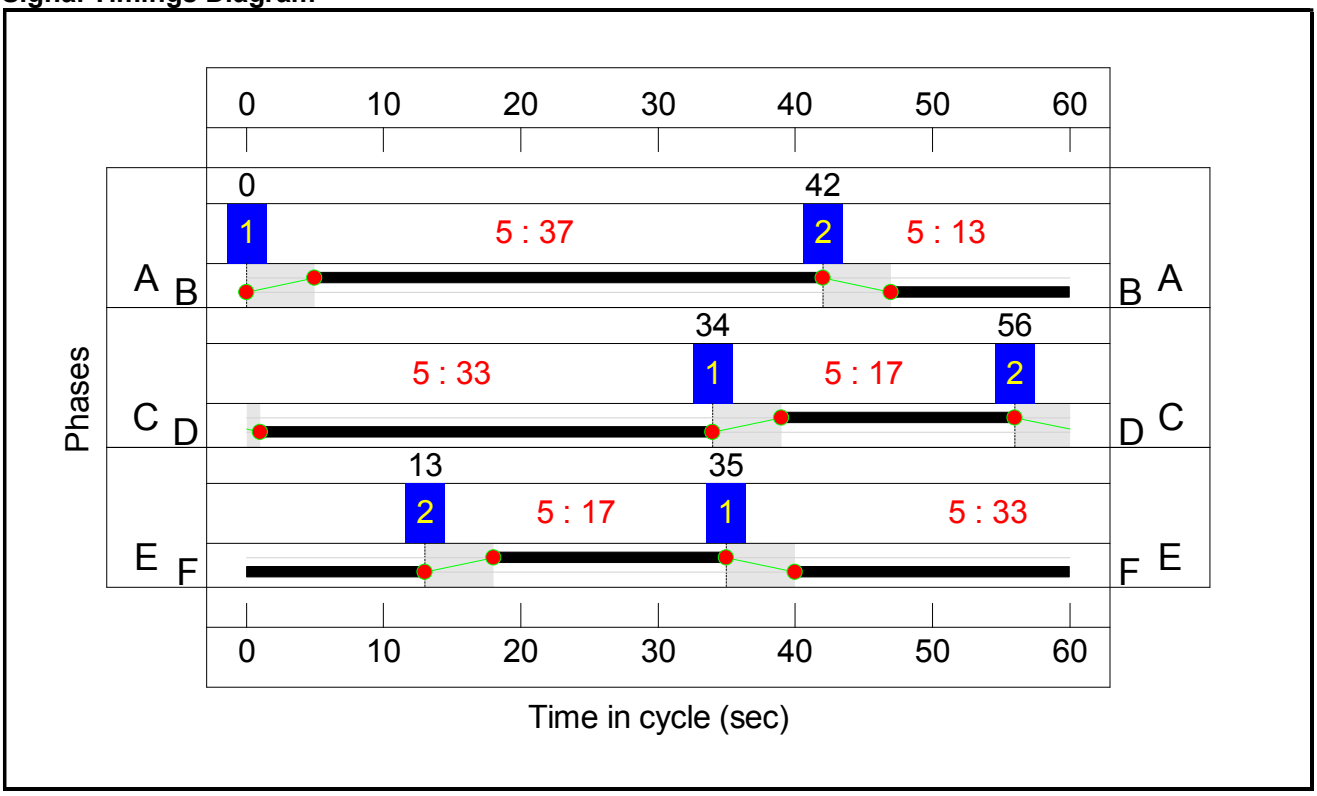
Stage	1	2
Duration	17	33
Change Point	34	56

Stage Stream: 3

Stage	1	2
Duration	33	17
Change Point	35	13

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**100.4%**
Park Street Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**100.4%**
1/2+1/1	A414 East Left	U	1	N/A	A		1	37	-	1366	2155:1934	847+877	79.2 : 79.2%
1/3	A414 East Left	U	1	N/A	A		1	37	-	1402	2205	1397	100.4%
2/1	Watling Street South Left	O	N/A	N/A	-		-	-	-	14	1890	618	2.3%
2/2	Watling Street South Left	O	N/A	N/A	-		-	-	-	553	2024	1863	29.7%
3/2+3/1	A405 Left	U	2	N/A	C		1	17	-	604	2130:1918	639+109	80.8 : 80.8%
3/3	A405 Left	U	2	N/A	C		1	17	-	509	2130	639	79.7%
4/2+4/1	A414 West Ahead Left	U	3	N/A	E		1	17	-	932	2130:1976	572+574	81.3 : 81.3%
4/3	A414 West Ahead	U	3	N/A	E		1	17	-	386	2130	639	60.4%
5/1+5/2	Watling Street North Left	O	N/A	N/A	-		-	-	-	753	1995:2185	965+664	46.2 : 46.2%
6/1	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	422	1900	443	95.2%
6/2	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	70	1900	443	15.8%
6/3	A414 East Circulatory Ahead	U	1	N/A	B		1	13	-	325	1900	443	73.3%
7/1	Watling South Circulatory Right Left	U	N/A	N/A	-		-	-	-	1117	1900	1900	58.8%
7/2	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	741	1900	1900	39.0%

Full Input Data And Results

7/3	Watling South Circulatory Right	U	N/A	N/A	-		-	-	-	1727	1900	1900	90.6%
8/1	A405 Exit Circulatory Left	U	N/A	N/A	-		-	-	-	540	1900	1900	28.4%
8/2	A405 Exit Circulatory Ahead Left	U	N/A	N/A	-		-	-	-	1170	1900	1900	61.6%
8/3	A405 Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	1851	1900	1900	97.2%
9/1	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	809	1900	1077	74.9%
9/2	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	834	1900	1077	77.2%
9/3	A405 Circulatory Ahead	U	2	N/A	D		1	33	-	465	1900	1077	43.1%
10/1	A414 West Exit Circulatory Ahead	U	N/A	N/A	-		-	-	-	1044	1900	1900	54.8%
10/2	A414 West Exit Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1203	1900	1900	63.2%
10/3	A414 West Exit Circulatory Right	U	N/A	N/A	-		-	-	-	974	1900	1900	51.2%
11/1	A414 West Circulatory Ahead	U	3	N/A	F		1	33	-	256	1900	1077	23.7%
11/2	A414 West Circulatory Right Ahead	U	3	N/A	F		1	33	-	770	1900	1077	71.5%
11/3	A414 West Circulatory Right	U	3	N/A	F		1	33	-	592	1900	1077	55.0%
12/1	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	671	1900	1900	35.3%
12/2	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	745	1900	1900	39.2%
12/3	Watling North Circulatory Ahead	U	N/A	N/A	-		-	-	-	978	1900	1900	51.5%

Full Input Data And Results

13/1	A414 East Circulatory Ahead	U	N/A	N/A	-		-	-	-	827	1900	1900	43.5%
13/2	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1035	1900	1900	54.5%
13/3	A414 East Circulatory Right Ahead	U	N/A	N/A	-		-	-	-	1285	1900	1900	67.6%
14/1	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	827	1980	1980	41.8%
14/2	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	543	2120	2120	25.6%
14/3	A414 East Exit Ahead	U	N/A	N/A	-		-	-	-	960	1965	1965	48.9%
15/1		U	N/A	N/A	-		-	-	-	827	Inf	Inf	0.0%
15/2		U	N/A	N/A	-		-	-	-	1503	Inf	Inf	0.0%
16/1	Watling Street South Exit	U	N/A	N/A	-		-	-	-	591	Inf	Inf	0.0%
17/1	A405 Exit	U	N/A	N/A	-		-	-	-	1453	Inf	Inf	0.0%
18/1	A414 West Exit	U	N/A	N/A	-		-	-	-	1603	Inf	Inf	0.0%
19/1	Watling Street North Exit	U	N/A	N/A	-		-	-	-	542	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Proposed Park Street Roundabout	**-**	**-**	**2073**	**0**	**0**	**34.9**	**67.4**	**0.0**	**102.3**	**-**	**-**	**-**	**-**
Park Street Roundabout	**-**	**-**	**2073**	**0**	**0**	**34.9**	**67.4**	**0.0**	**102.3**	**-**	**-**	**-**	**-**
1/2+1/1	1366	1366	-	-	-	2.3	1.9	-	4.2	11.1	6.6	1.9	8.5
1/3	1402	1397	-	-	-	4.4	20.1	-	24.6	63.1	23.5	20.1	43.6
2/1	14	14	14	0	0	0.0	0.0	-	0.0	3.5	0.0	0.0	0.0
2/2	553	553	553	0	0	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
3/2+3/1	604	604	-	-	-	3.2	2.0	-	5.2	31.0	7.9	2.0	9.9
3/3	509	509	-	-	-	2.7	1.9	-	4.6	32.8	7.8	1.9	9.7
4/2+4/1	932	932	-	-	-	4.9	2.1	-	7.1	27.3	7.0	2.1	9.1
4/3	386	386	-	-	-	1.9	0.8	-	2.7	25.0	5.5	0.8	6.2
5/1+5/2	753	753	1506	0	0	0.4	0.4	-	0.8	3.9	2.0	0.4	2.4
6/1	422	422	-	-	-	2.4	6.2	-	8.7	74.0	6.6	6.2	12.9
6/2	70	70	-	-	-	0.3	0.1	-	0.4	20.0	1.1	0.1	1.2
6/3	325	325	-	-	-	1.8	1.3	-	3.1	34.5	5.0	1.3	6.3
7/1	1117	1117	-	-	-	0.0	0.7	-	0.7	2.3	0.0	0.7	0.7
7/2	741	741	-	-	-	0.0	0.3	-	0.3	1.6	0.0	0.3	0.3
7/3	1722	1722	-	-	-	1.1	4.6	-	5.7	12.0	2.9	4.6	7.5
8/1	540	540	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
8/2	1170	1170	-	-	-	0.0	0.8	-	0.8	2.5	0.2	0.8	1.0
8/3	1846	1846	-	-	-	2.2	11.9	-	14.1	27.4	4.7	11.9	16.5
9/1	807	807	-	-	-	2.0	1.5	-	3.4	15.4	8.0	1.5	9.5
9/2	831	831	-	-	-	2.4	1.7	-	4.1	17.8	10.1	1.7	11.8
9/3	464	464	-	-	-	0.9	0.4	-	1.2	9.6	4.3	0.4	4.7
10/1	1041	1041	-	-	-	0.2	0.6	-	0.8	2.8	1.1	0.6	1.7

Full Input Data And Results

10/2	1201	1201	-	-	-	0.1	0.9	-	0.9	2.8	0.6	0.9	1.5
10/3	973	973	-	-	-	0.1	0.5	-	0.6	2.2	0.6	0.5	1.2
11/1	256	256	-	-	-	0.4	0.2	-	0.6	8.0	1.5	0.2	1.6
11/2	769	769	-	-	-	0.5	1.2	-	1.7	8.2	6.5	1.2	7.7
11/3	592	592	-	-	-	0.6	0.6	-	1.2	7.1	1.9	0.6	2.5
12/1	671	671	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
12/2	745	745	-	-	-	0.1	0.3	-	0.4	1.8	0.5	0.3	0.8
12/3	978	978	-	-	-	0.0	0.5	-	0.6	2.0	0.4	0.5	0.9
13/1	827	827	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
13/2	1035	1035	-	-	-	0.0	0.6	-	0.6	2.1	5.8	0.6	6.4
13/3	1285	1285	-	-	-	0.0	1.0	-	1.0	2.9	0.0	1.0	1.1
14/1	827	827	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
14/2	543	543	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2
14/3	960	960	-	-	-	0.0	0.5	-	0.5	1.8	0.0	0.5	0.5
15/1	827	827	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	1503	1503	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
16/1	591	591	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
17/1	1453	1453	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
18/1	1598	1598	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
19/1	541	541	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1	Stream: 1 PRC for Signalled Lanes (%):	-11.5	Total Delay for Signalled Lanes (pcuHr):	40.95	Cycle Time (s):	60		
C1	Stream: 2 PRC for Signalled Lanes (%):	11.5	Total Delay for Signalled Lanes (pcuHr):	18.62	Cycle Time (s):	60		
C1	Stream: 3 PRC for Signalled Lanes (%):	10.7	Total Delay for Signalled Lanes (pcuHr):	13.23	Cycle Time (s):	60		
	PRC Over All Lanes (%):	-11.5	Total Delay Over All Lanes(pcuHr):	102.26				

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