
PROPOSED LIDL FOODSTORE

**Former Hayes Pool and Fitness Centre,
Central Avenue, Hayes Town**

**Transport Assessment: Appendices J - N
On behalf of Lidl UK**

November 2015



Project: Proposed Lidl Foodstore
Former Hayes Pool and Fitness Centre, Central Avenue, Hayes Town

Client: Lidl UK

Document: Transport Assessment: Appendices J - N

Gateway TSP ref: MF/15-0302 Appendices J - N Cover

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APPENDIX J
Servicing Management Plan

PROPOSED LIDL FOODSTORE

**Former Hayes Pool and Fitness Centre,
Central Avenue, Hayes Town**

**Service Management Plan
On behalf of Lidl UK**

November 2015



Project: Proposed Lidl Foodstore
Former Hayes Pool and Fitness Centre, Central Avenue, Hayes Town

Client: Lidl UK

Document: Service Management Plan

Gateway TSP ref: LF/15-0302 SMP v1.0.docx

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1 INTRODUCTION

1.1 This Service Management Plan (SMP) has been prepared by Gateway TSP on behalf of Lidl UK in connection with their proposal for a foodstore at the former Hayes Pool and Fitness Centre, Central Avenue, Hayes.

1.2 The scheme comprises a foodstore of some 2,824 square metres of gross external floor space, accessed from Church Road.

1.3 The purpose of this SMP is to ensure that delivery/servicing activity associated with the foodstore can take place in a safe, efficient and sustainable manner. It has been developed in accordance with policies set out within:

- 'Delivery and Servicing Plans: Making Freight Work for You' produced by Transport for London;
- 'Quiet Deliveries Good Practice Guidance – Key Principles and Processes for Retailers' produced by the Department for Transport in April 2014;
- 'The London Plan' (July 2011); and
- 'The London Freight Plan' (November 2007).

1.4 The remainder of this report is structured under the following chapter headings:

- i) Chapter 2 – Local Situation
- ii) Chapter 3 – Policy Context
- iii) Chapter 4 – Measures and Initiatives
- iv) Chapter 5 – Monitoring and Review
- v) Chapter 6 – Summary

- 1.5** This SMP is applicable to all delivery vehicles serving the Lidl foodstore, which are principally undertaken by Lidl themselves. Compliance and implementation of the SMP will be monitored and reviewed by the management of the store.

2 LOCAL SITUATION

Site Location

- 2.1** The site has an existing frontage onto Central Avenue, a local road connecting Botwell Green in the south with the A4020 Uxbridge Road to the north via a left-in/left-out junction arrangement. Central Avenue is a 20mph traffic calmed road which runs parallel to Coldharbour Lane located to the east. Coldharbour Lane provides an all movements access onto the A4020 Uxbridge Road and connects to Botwell Lane at a roundabout junction to the south.
- 2.2** To the south and west, the site is bounded by Botwell Lane, which connects to Coldharbour Lane and Pump Lane at a mini-roundabout in the east. Pump Lane provides a strategic connection to the principal road network of the A312 The Parkway to the east whilst Coldharbour Lane provides a connection to the A4020 Uxbridge Road to the north. The Parkway (A312) provides a connection south to the M4 at junction 3, the A4 and A30 whilst to the north it connects to the A4020 and A40.
- 2.3** To the west, Central Avenue meets Botwell Lane at a priority junction located immediately to the west of a pedestrian signalised crossing over Botwell Lane. Botwell Lane continues in a north-west direction to a roundabout with Church Lane, which heads north to the A4020 Uxbridge Road. Beyond this roundabout Botwell Lane continues north-west into Hayes. A further roundabout junction is present with Botwell Common Road, which provides a link south-west to the A437 Dawley Road.

Scheme Elements

- 2.4** Lidl UK propose to redevelop the site by constructing a Lidl foodstore with 2,824 square metres gross external floorspace, comprising the following elements:
- 1,689 square metres net sales floor area;
 - A car parking area with 146 spaces.

Servicing Arrangements

- 2.5** Access to the servicing area is provided through the Lidl foodstore car park from a new and dedicated access onto Church Road, which is shared with customers. Swept path analysis of these manoeuvres has been undertaken, demonstrating that vehicles up to the size of a 16.5m articulated vehicle can be accommodated into the service area as demonstrated in the drawing included at **Appendix A**.
- 2.6** This access arrangement is typical of the Lidl retail model, thereby ensuring that the drivers servicing the foodstore will be highly trained and well-practised in undertaking the required manoeuvres.
- 2.7** Lidl UK's approach to store deliveries seeks to ensure the most operationally efficient systems are in place. It is company Policy to ensure utilisation is as high as possible. This measures the actual number of pallets shipped on each trip to store against the total number of pallet spaces. For example, if a trailer has a capacity of 32 pallets, but leaves the Regional Distribution Centre (RDC) with 16 pallets, then it would have been utilised 50%. The figure is taken over weekly periods and Lidl always aim to ensure these figures are as close to 100% as possible. This in effect translates into ensuring one delivery to store per day.
- 2.8** Servicing is usually conducted outside network and trading peak hours but to allow for out of hours servicing, Lidl will adopt a number of key principles outlined within the DfT Quiet Deliveries Good Practice Guidance document.

Vehicle Routing

- 2.9** Deliveries to the food store will be made from the regional distribution centre in Enfield and will be routed along Botwell Lane and then north along Church Road to access the proposed food store. Alternatively, the servicing vehicle can access the store via the A4020 Uxbridge Road.

3 POLICY CONTEXT

National Policy

- 3.1** The National Planning Policy Framework sets out the Government’s planning policies for England and how these are expected to be applied.
- 3.2** The NPPF presumes in favour of sustainable development and is a material consideration in planning decisions. Twelve core land-use planning principles are put forward to underpin both plan-making and decision-taking, one of which is to “*actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable.*”
- 3.3** Paragraph 35 of the NPPF states that plans should be designed to “*accommodate the efficient delivery of goods and supplies*”.

Regional Policy

The London Plan

- 3.4** Policy 6.14 of the current London Plan (adopted July 2011 and subject to further alterations in March 2015) specifically relates to freight. In regard to development proposals, it stipulates that:
- a. “locate developments that generate high numbers of freight movements close to major transport routes;*
 - b. promote the uptake of the Freight Operators Recognition Scheme, construction logistics plans and delivery and servicing plans. These should be secured in line with the London Freight Plan and should be co-ordinated with travel plans and the development of approaches to consolidate freight; and*

c. *increase the use of the Blue Ribbon network for freight transport.”*

The London Freight Plan

3.5 The London Freight Plan incorporates guidance on SMP's. It states that:

“Delivery and Servicing Plans (DSPs) will be used to increase building operational efficiency by reducing delivery and servicing impacts to premises, specifically CO2 emissions, congestion and collisions.

DSP's aim to reduce delivery trips (particularly during peak periods) and increase availability and use of safe and legal loading facilities, using a range of approaches including consolidation and out-of-hour deliveries.”

Good Practice Guidelines

Quiet Deliveries Good Practice Guidance – Key Principles and Processes for Retailers (DfT, April 2014)

3.6 The core principle of the DfT document on quiet deliveries is:

“about enabling businesses and organisations to make and receive deliveries outside the main working day. The flexibility will generate multiple benefits for all affected parties, such as reduced congestion, lower emissions and business efficiency.”

3.7 Through pilot schemes and case studies it was found that:

“If delivery times are extended into the evenings/night-time periods in a well-managed manner, that schemes can work effectively with minimal or negligible disturbance to residents and surrounding communities.”

Summary

- 3.8** The SMP for the proposed foodstore accords with the relevant national and regional policies. The scheme has been designed to include an on-site dedicated servicing area making use of a proposed access onto Church Road. The SMP will ensure that deliveries are managed to minimise impacts on the local road network. Furthermore servicing and delivery activity will be managed in such a way as to ensure it operates efficiently and minimises any adverse impacts.

4 MEASURES AND INITIATIVES

4.1 This section of the SMP outlines the specific management measures to be implemented at the proposed foodstore. The measures aim to manage the impact of delivery and servicing activity.

Management of the Plan

4.2 A member of staff will be appointed to oversee the management, development and monitoring of the SMP. The SMP principles and measures will be promoted to store employees and delivery drivers.

4.3 The key principles of the DfT's Quiet Deliveries Good Practice Guidance would be adopted, which would include:

- i) General Servicing Best Practice:
 - a) Making sure all equipment (vehicles and servicing area) and the acoustic fence surrounding the site is in good working order and maintained to minimise noise;
 - b) Identify timings for deliveries in advance so both the driver and the store operatives are prepared for the arrival;
 - c) Seek to ensure that delivery vehicles spend as little time as possible attempting to access the service area, possibly tasking staff members to ensure that manoeuvring can be accomplished quickly and safely; and
 - d) Ensure all staff are briefed and trained and follow the company code of practice.
- ii) Operation of the Servicing Area:

- e) During out of hours servicing switch off any bells/alarms/speakers when the servicing area doors are open;
- f) Avoid where possible caging banging together or against servicing equipment;
- g) Switch off reversing alarm for out of hours deliveries; and
- h) Turn-off service vehicle engines when not manoeuvring to prevent idling.

4.4 The above list is not exhaustive and the SMP can be updated and added to as necessary, but the above provides an indication of the measures that would be put in place.

5 MONITORING AND REVIEW

Monitoring

- 5.1** The appointed member of staff will be responsible for the ongoing monitoring of the SMP.
- 5.2** The monitoring process will generate information by which the success of the SMP can be evaluated. The monitoring process will enable the SMP to be modified as appropriate to respond to any issues as they arise.
- 5.3** A record will be kept of any incidences, comments or feedback from staff or delivery drivers.

Review

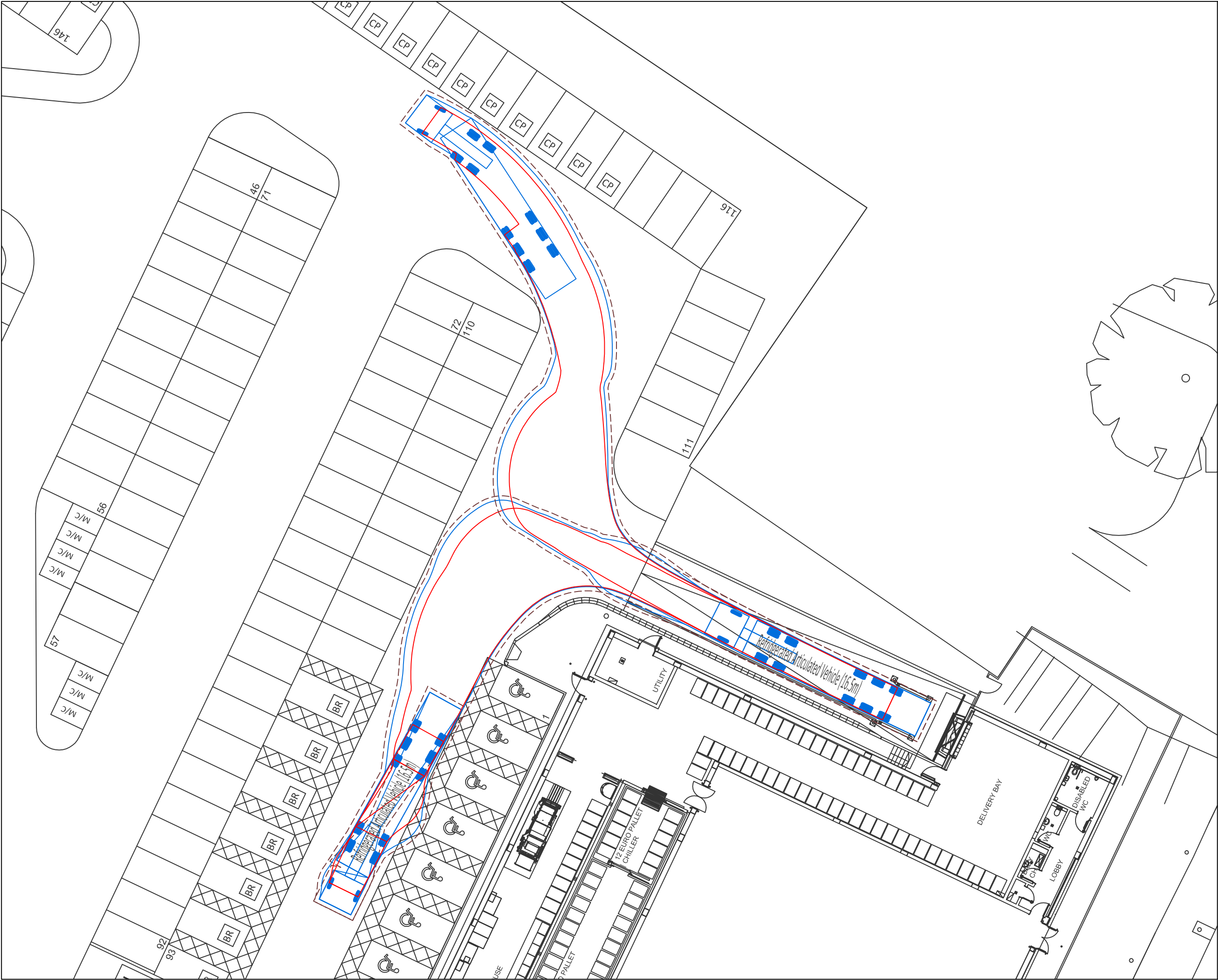
- 5.4** Lidl will undertake an annual review of the SMP and will make any necessary changes or alterations as a result of this review. Stakeholders will be consulted where appropriate.

6 SUMMARY

- 6.1** The SMP has been prepared for the proposed Lidl foodstore at Church Road, Hayes. The scheme would be serviced by a dedicated on-site service area which can accommodate all sizes of servicing vehicles up to the size of a 16.5m articulated lorry.
- 6.2** The Lidl operation is such that they operate and manage store deliveries and servicing from their regional distribution centres, thus allowing the management of deliveries to store in terms of timings of deliveries, driver training/experience and ensuring efficient practices (including collecting waste in the returning vehicle).
- 6.3** The SMP has been drafted in accordance with regional and national policy in relation to the movement of freight. It will remain a live document that will evolve over time to ensure that objectives are met in the most appropriate manner.
- 6.4** The measures set out within this SMP will ensure the successful and efficient operation of servicing/ delivery activity on a day to day basis, reducing the impact of servicing movements on the road network.
- 6.5** The SMP will be monitored on a regular basis by staff. An annual review will be undertaken with relevant stakeholders.

APPENDIX A

Swept Path Analysis for Servicing Vehicles



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Refrigerated Articulated Vehicle (16.5m)

Overall Length

Overall Width

Overall Body Height

Min Body Ground Clearance

Max Track Width

Lock to Lock Time

Kerb to Kerb Turning Radius

16.560m

2.600m

3.681m

0.411m

2.500m

6.00s

6.530m

B

Updated site layout

5/11/15

A

Updated site layout

1/6/15

rev	description	date
-----	-------------	------

client

LIDL UK

project

BOTWELL LANE, HAYES

title

16.5 METRE ARTICULATED
VEHICLE ACCESSING DELIVERY
BAY

Gateway

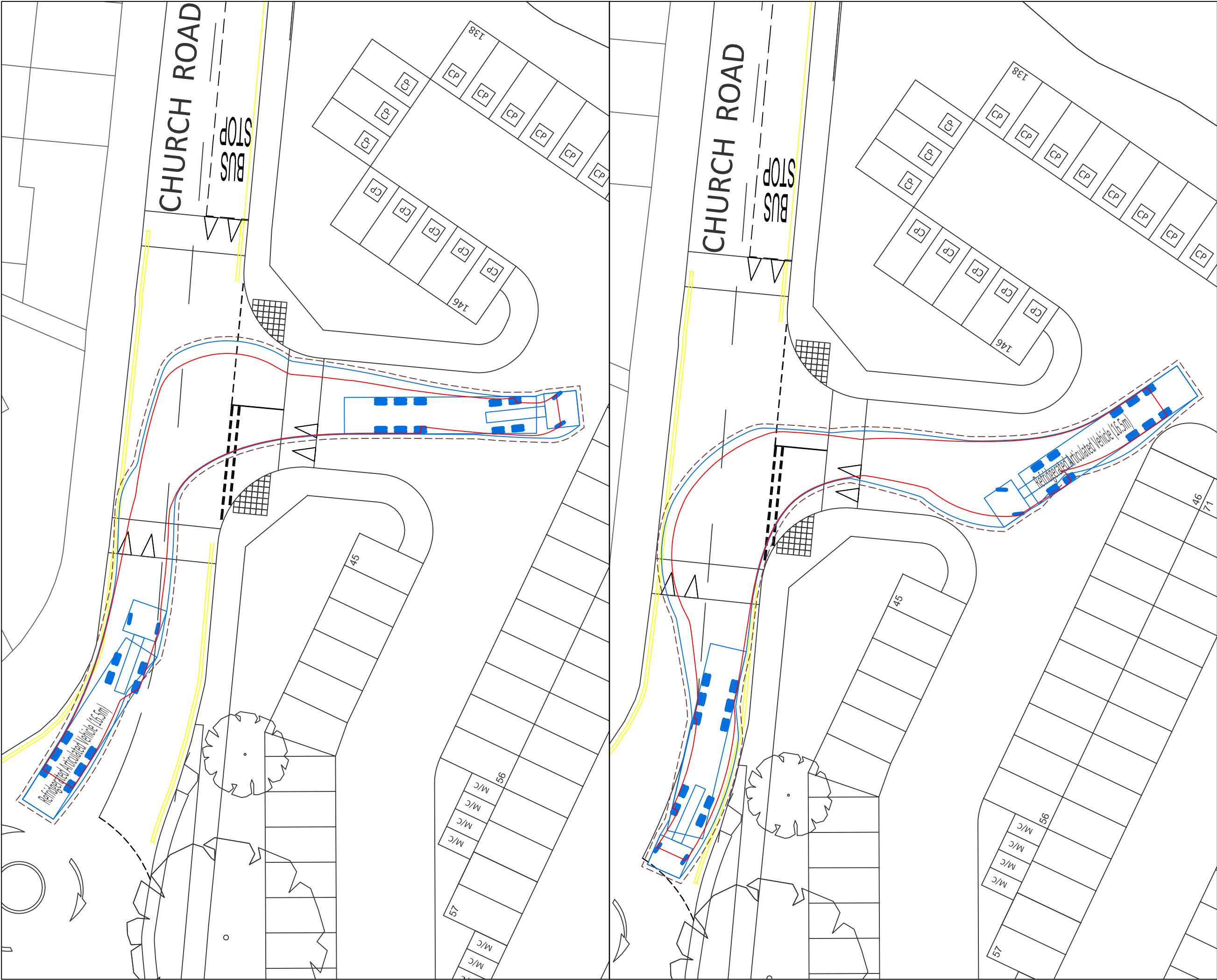
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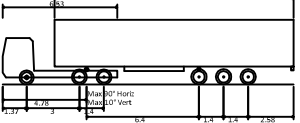
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scale	drawn by	date
1/250 @ A3	MF	JUN 15

drawing number	rev
15/0302/TK03	B



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Refrigerated Articulated Vehicle (16.5m)
Overall Length 16.560m
Overall Width 2.600m
Overall Body Height 3.681m
Min Body Ground Clearance 0.411m
Max Track Width 2.500m
Lock to Lock Time 6.00s
Kerb to Kerb Turning Radius 6.530m

C	Updated site layout	5/11/15
B	Updated raised table arrangement	26/10/15
A	Updated site layout	1/6/15

rev	description	date

client

LIDL UK

project

BOTWELL LANE, HAYES

title

16.5 METRE ARTICULATED VEHICLE ENTERING AND EXITING SITE ACCESS



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scale	drawn by	date
1/250 @ A3	MF	OCT 15
drawing number	rev	
15/0302/TK04	C	

APPENDIX K

Lidl London Store Trip Rates and Trips

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Barking (2010)

Friday

	Mode of travel by group - from survey, adjusted for sample & observed cars								
	Walk	Bus	Cycle	Car	Car (o/s)	Train	Tube	Other	Total
No	516	202	39	647	54	17	9	15	1,497
%	34%	13%	3%	43%	4%	1%	1%	1%	100%

Friday Daily Profile - Observed					Factor	100 sqm	
					Units	1222 sqm	
Time Range	Arrivals		Departures		Totals		Accum
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips	
00:00-01:00							0
01:00-02:00							0
02:00-03:00							0
03:00-04:00							0
04:00-05:00							0
05:00-06:00							0
06:00-07:00							0
07:00-08:00							0
08:00-09:00	1.72	21	1.06	13	2.78	34	8
09:00-10:00	3.11	38	2.05	25	5.16	63	21
10:00-11:00	5.32	65	4.34	53	9.66	118	33
11:00-12:00	4.42	54	4.42	54	8.84	108	33
12:00-13:00	6.14	75	5.07	62	11.21	137	46
13:00-14:00	4.66	57	4.42	54	9.08	111	49
14:00-15:00	4.17	51	3.60	44	7.77	95	56
15:00-16:00	4.42	54	5.40	66	9.82	120	44
16:00-17:00	4.99	61	6.14	75	11.13	136	30
17:00-18:00	4.01	49	4.83	59	8.84	108	20
18:00-19:00	3.19	39	3.19	39	6.38	78	20
19:00-20:00	3.68	45	3.76	46	7.45	91	19
20:00-21:00	3.36	41	4.34	53	7.69	94	7
21:00-22:00							7
22:00-23:00							7
23:00-24:00							7
Daily:	53.19	650	52.62	643	105.81	1,293	

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Barking (2010)

Saturday

	Mode of travel by group - from survey, adjusted for sample & observed cars								
	Walk	Bus	Cycle	Car	Car (o/s)	Train	Tube	Other	Total
No	634	209	13	729	45	25	5	7	1,667
%	38%	13%	1%	44%	3%	2%	0%	0%	100%

Saturday Daily Profile - Observed					Factor	100 sqm	
					Units	1222 sqm	
Time Range	Arrivals		Departures		Totals		Accum
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips	
00:00-01:00							0
01:00-02:00							0
02:00-03:00							0
03:00-04:00							0
04:00-05:00							0
05:00-06:00							0
06:00-07:00							0
07:00-08:00							0
08:00-09:00	2.54	31	1.06	13	3.60	44	18
09:00-10:00	3.19	39	2.86	35	6.06	74	22
10:00-11:00	4.58	56	4.01	49	8.59	105	29
11:00-12:00	6.87	84	5.24	64	12.11	148	49
12:00-13:00	6.06	74	5.65	69	11.70	143	54
13:00-14:00	4.50	55	5.48	67	9.98	122	42
14:00-15:00	4.83	59	4.50	55	9.33	114	46
15:00-16:00	5.16	63	5.65	69	10.80	132	40
16:00-17:00	6.30	77	5.48	67	11.78	144	50
17:00-18:00	5.32	65	7.04	86	12.36	151	29
18:00-19:00	4.83	59	5.07	62	9.90	121	26
19:00-20:00	2.70	33	4.34	53	7.04	86	6
20:00-21:00	3.03	37	3.03	37	6.06	74	6
21:00-22:00							6
22:00-23:00							6
23:00-24:00							6
Daily:	59.90	732	59.41	726	119.31	1,458	

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Clapham (2010)

Friday

	Mode of travel by group - from survey, adjusted for sample & observed cars								
	Walk	Bus	Cycle	Car	Car (o/s)	Train	Tube	Other	Total
No	586	328	38	797	43	38	0	15	1,845
%	32%	18%	2%	43%	2%	2%	0%	1%	100%

Friday Daily Profile - Observed							Factor	100 sqm
							Units	1285 sqm
Time Range	Arrivals		Departures		Totals		Accum	
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips		
00:00-01:00							0	
01:00-02:00							0	
02:00-03:00							0	
03:00-04:00							0	
04:00-05:00							0	
05:00-06:00							0	
06:00-07:00							0	
07:00-08:00							0	
08:00-09:00	2.10	27	1.25	16	3.35	43	11	
09:00-10:00	5.29	68	2.57	33	7.86	101	46	
10:00-11:00	3.97	51	4.20	54	8.17	105	43	
11:00-12:00	5.76	74	4.12	53	9.88	127	64	
12:00-13:00	7.08	91	7.16	92	14.24	183	63	
13:00-14:00	6.54	84	6.46	83	13.00	167	64	
14:00-15:00	7.32	94	7.94	102	15.25	196	56	
15:00-16:00	5.60	72	6.07	78	11.67	150	50	
16:00-17:00	6.23	80	5.91	76	12.14	156	54	
17:00-18:00	4.44	57	5.60	72	10.04	129	39	
18:00-19:00	3.04	39	4.05	52	7.08	91	26	
19:00-20:00	2.26	29	2.80	36	5.06	65	19	
20:00-21:00	2.80	36	3.50	45	6.30	81	10	
21:00-22:00							10	
22:00-23:00							10	
23:00-24:00							10	
Daily:	62.41	802	61.63	792	124.05	1,594		

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Clapham (2010)

Saturday

	Mode of travel by group - from survey, adjusted for sample & observed cars								
	Walk	Bus	Cycle	Car	Car (o/s)	Train	Tube	Other	Total
No	507	266	38	978	60	34	6	17	1,904
%	27%	14%	2%	51%	3%	2%	0%	1%	100%

Saturday Daily Profile - Observed					Factor	100 sqm	
					Units	1285 sqm	
Time Range	Arrivals		Departures		Totals		Accum
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips	
00:00-01:00							0
01:00-02:00							0
02:00-03:00							0
03:00-04:00							0
04:00-05:00							0
05:00-06:00							0
06:00-07:00							0
07:00-08:00							0
08:00-09:00	2.41	31	1.56	20	3.97	51	11
09:00-10:00	5.14	66	2.96	38	8.09	104	39
10:00-11:00	7.47	96	6.46	83	13.93	179	52
11:00-12:00	7.86	101	7.55	97	15.41	198	56
12:00-13:00	8.79	113	8.79	113	17.59	226	56
13:00-14:00	8.09	104	8.40	108	16.50	212	52
14:00-15:00	8.56	110	7.94	102	16.50	212	60
15:00-16:00	7.16	92	7.78	100	14.94	192	52
16:00-17:00	6.77	87	6.23	80	13.00	167	59
17:00-18:00	4.82	62	6.85	88	11.67	150	33
18:00-19:00	4.05	52	4.59	59	8.64	111	26
19:00-20:00	3.42	44	4.05	52	7.47	96	18
20:00-21:00	1.63	21	2.80	36	4.44	57	3
21:00-22:00							3
22:00-23:00							3
23:00-24:00							3
Daily:	76.19	979	75.95	976	152.14	1,955	

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Brixton (2013)

Friday

	Mode of travel by group - from survey, adjusted for sample & observed cars								
	Walk	Bus	Cycle	Car	Car (o/s)	Train	Tube	Other	Total
No	616	330	61	466	77	4	0	18	1,571
%	39%	21%	4%	30%	5%	0%	0%	1%	100%

Friday Daily Profile - Observed					Factor	100 sqm	
					Units	975 sqm	
Time Range	Arrivals		Departures		Totals		Accum
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips	
00:00-01:00							1
01:00-02:00							1
02:00-03:00							1
03:00-04:00							1
04:00-05:00							1
05:00-06:00							1
06:00-07:00							1
07:00-08:00							1
08:00-09:00	1.64	16	0.41	4	2.05	20	13
09:00-10:00	2.77	27	2.26	22	5.03	49	18
10:00-11:00	3.59	35	3.90	38	7.49	73	15
11:00-12:00	3.28	32	2.87	28	6.15	60	19
12:00-13:00	4.10	40	3.38	33	7.49	73	26
13:00-14:00	4.21	41	4.21	41	8.41	82	26
14:00-15:00	4.51	44	4.62	45	9.13	89	25
15:00-16:00	5.64	55	5.33	52	10.97	107	28
16:00-17:00	5.13	50	4.92	48	10.05	98	30
17:00-18:00	4.41	43	5.74	56	10.15	99	17
18:00-19:00	2.97	29	3.08	30	6.05	59	16
19:00-20:00	3.28	32	3.49	34	6.77	66	14
20:00-21:00	2.97	29	2.87	28	5.85	57	15
21:00-22:00							15
22:00-23:00							15
23:00-24:00							15
Daily:	48.51	473	47.08	459	95.59	932	

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Brixton (2013)

Saturday

	Mode of travel by group - from survey, adjusted for sample & observed cars								
	Walk	Bus	Cycle	Car	Car (o/s)	Train	Tube	Other	Total
No	497	302	44	497	109	10	10	23	1,494
%	33%	20%	3%	33%	7%	1%	1%	2%	100%

Saturday Daily Profile - Observed					Factor Units	100 sqm 975 sqm	
Time Range	Arrivals		Departures		Totals		Accum
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips	
00:00-01:00							3
01:00-02:00							3
02:00-03:00							3
03:00-04:00							3
04:00-05:00							3
05:00-06:00							3
06:00-07:00							3
07:00-08:00							3
08:00-09:00	1.33	13	0.92	9	2.26	22	7
09:00-10:00	2.56	25	2.15	21	4.72	46	11
10:00-11:00	5.44	53	4.21	41	9.64	94	23
11:00-12:00	5.03	49	5.44	53	10.46	102	19
12:00-13:00	5.44	53	5.33	52	10.77	105	20
13:00-14:00	4.82	47	5.03	49	9.85	96	18
14:00-15:00	4.62	45	4.41	43	9.03	88	20
15:00-16:00	5.33	52	5.33	52	10.67	104	20
16:00-17:00	4.92	48	4.82	47	9.74	95	21
17:00-18:00	4.21	41	4.21	41	8.41	82	21
18:00-19:00	3.49	34	4.21	41	7.69	75	14
19:00-20:00	2.26	22	2.77	27	5.03	49	9
20:00-21:00	1.64	16	2.05	20	3.69	36	5
21:00-22:00							5
22:00-23:00							5
23:00-24:00							5
Daily:	51.08	498	50.87	496	101.95	994	

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Cricklewood (2013)

Friday

	Mode of travel by group - from survey, adjusted for sample & observed cars								
	Walk	Bus	Cycle	Car	Car (disp)	Train	Tube	Other	Total
No	No multi-modal survey available								
%									

Parking Accumulation - Observed					Factor	100 sqm	
					Units	1307 sqm	
Time Range	Arrivals		Departures		Totals		Accum
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips	
00:00-01:00							4
01:00-02:00							4
02:00-03:00							4
03:00-04:00							4
04:00-05:00							4
05:00-06:00							4
06:00-07:00							4
07:00-08:00							4
08:00-09:00	2.14	28	1.15	15	3.29	43	17
09:00-10:00	3.06	40	2.91	38	5.97	78	19
10:00-11:00	4.21	55	3.67	48	7.88	103	26
11:00-12:00	5.05	66	4.74	62	9.79	128	30
12:00-13:00	4.97	65	5.66	74	10.64	139	21
13:00-14:00	4.59	60	3.90	51	8.49	111	30
14:00-15:00	4.82	63	5.05	66	9.87	129	27
15:00-16:00	5.05	66	5.51	72	10.56	138	21
16:00-17:00	3.75	49	3.21	42	6.96	91	28
17:00-18:00	5.81	76	5.05	66	10.86	142	38
18:00-19:00	5.74	75	6.43	84	12.17	159	29
19:00-20:00	3.83	50	3.75	49	7.57	99	30
20:00-21:00	4.44	58	4.36	57	8.80	115	31
21:00-22:00							31
22:00-23:00							31
23:00-24:00							31
Daily:	57.46	751	55.39	724	112.85	1,475	

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Cricklewood (2013)

Saturday

	Mode of travel by group - from survey, adjusted for sample & observed cars								
	Walk	Bus	Cycle	Car	Car (disp)	Train	Tube	Other	Total
No	No multi-modal survey available								
%									

Saturday Daily Profile - Observed					Factor	100 sqm	
					Units	1307 sqm	
Time Range	Arrivals		Departures		Totals		Accum
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips	
00:00-01:00							9
01:00-02:00							9
02:00-03:00							9
03:00-04:00							9
04:00-05:00							9
05:00-06:00							9
06:00-07:00							9
07:00-08:00							9
08:00-09:00	3.90	51	2.37	31	6.27	82	29
09:00-10:00	3.75	49	4.06	53	7.80	102	25
10:00-11:00	6.66	87	5.51	72	12.17	159	40
11:00-12:00	6.04	79	6.27	82	12.32	161	37
12:00-13:00	7.04	92	5.89	77	12.93	169	52
13:00-14:00	6.81	89	8.03	105	14.84	194	36
14:00-15:00	6.35	83	6.12	80	12.47	163	39
15:00-16:00	6.27	82	5.74	75	12.01	157	46
16:00-17:00	5.43	71	6.04	79	11.48	150	38
17:00-18:00	5.43	71	5.43	71	10.86	142	38
18:00-19:00	6.27	82	6.27	82	12.55	164	38
19:00-20:00	3.75	49	4.36	57	8.11	106	30
20:00-21:00	3.52	46	3.83	50	7.35	96	26
21:00-22:00							26
22:00-23:00							26
23:00-24:00							26
Daily:	71.23	931	69.93	914	141.16	1,845	

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Average Trip Rates

Friday

	Mode of travel by group - from survey, adjusted for sample & observed cars								
	Walk	Bus	Cycle	Car	Car (o/s)	Train	Tube	Other	Total
No	580	287	47	727	60	18	3	16	1,739
%	33%	16%	3%	42%	3%	1%	0%	1%	100%

Friday Daily Profile					Factor	100 sqm	
					Units	1271 sqm	
Time Range	Arrivals		Departures		Totals		Accum
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips	
00:00-01:00							0
01:00-02:00							0
02:00-03:00							0
03:00-04:00							0
04:00-05:00							0
05:00-06:00							0
06:00-07:00							0
07:00-08:00							0
08:00-09:00	1.99	25	1.15	15	3.15	40	11
09:00-10:00	3.83	49	2.52	32	6.35	81	27
10:00-11:00	4.48	57	4.06	52	8.55	109	33
11:00-12:00	5.09	65	4.43	56	9.52	121	41
12:00-13:00	6.06	77	5.98	76	12.03	153	42
13:00-14:00	5.27	67	4.93	63	10.20	130	46
14:00-15:00	5.45	69	5.56	71	11.01	140	45
15:00-16:00	5.03	64	5.66	72	10.70	136	37
16:00-17:00	4.98	63	5.06	64	10.04	128	36
17:00-18:00	4.77	61	5.17	66	9.94	126	31
18:00-19:00	4.01	51	4.59	58	8.60	109	24
19:00-20:00	3.25	41	3.43	44	6.69	85	21
20:00-21:00	3.54	45	4.06	52	7.60	97	15
21:00-22:00							15
22:00-23:00							15
23:00-24:00							15
Daily:	57.76	734	56.61	720	114.37	1,454	

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Average Trip Rates

Saturday

	Mode of travel by group - from survey, adjusted for sample & observed cars								
	Walk	Bus	Cycle	Car	Car (o/s)	Train	Tube	Other	Total
No	546	255	31	876	68	24	7	15	1,823
%	30%	14%	2%	48%	4%	1%	0%	1%	100%

							Factor	100 sqm
							Units	1271 sqm
Saturday Daily Profile								
Time Range	Arrivals		Departures		Totals		Accum	
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips		
00:00-01:00							0	
01:00-02:00							0	
02:00-03:00							0	
03:00-04:00							0	
04:00-05:00							0	
05:00-06:00							0	
06:00-07:00							0	
07:00-08:00							0	
08:00-09:00	2.96	38	1.68	21	4.64	59	16	
09:00-10:00	4.04	51	3.30	42	7.34	93	26	
10:00-11:00	6.27	80	5.35	68	11.62	148	37	
11:00-12:00	6.92	88	6.37	81	13.29	169	44	
12:00-13:00	7.32	93	6.79	86	14.11	179	51	
13:00-14:00	6.50	83	7.34	93	13.84	176	40	
14:00-15:00	6.61	84	6.21	79	12.82	163	45	
15:00-16:00	6.21	79	6.40	81	12.61	160	43	
16:00-17:00	6.16	78	5.93	75	12.09	154	46	
17:00-18:00	5.19	66	6.42	82	11.62	148	30	
18:00-19:00	5.06	64	5.32	68	10.38	132	27	
19:00-20:00	3.30	42	4.25	54	7.55	96	15	
20:00-21:00	2.73	35	3.22	41	5.95	76	9	
21:00-22:00							9	
22:00-23:00							9	
23:00-24:00							9	
Daily:	69.27	881	68.59	872	137.86	1,753		

APPENDIX L

**Proposed Lidl Hayes Vehicular Trip Rates and
Movements**

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Hayes Revised Foodstore Proposal

Friday

	Mode of travel by group - constrained								
	Walk	Bus	Cycle	Car	Car (o/s)	Train	Tube	Other	Total
No									
%									

Sensitivity Test - Trip Rates +10% Factor 100 sqm
Units 1689 sqm 10%

Time Range	Arrivals		Departures		Totals		Accum
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips	
00:00-01:00							0
01:00-02:00							0
02:00-03:00							0
03:00-04:00							0
04:00-05:00							0
05:00-06:00							0
06:00-07:00							0
07:00-08:00							0
08:00-09:00	2.192	37	1.269	21	3.461	58	16
09:00-10:00	4.211	71	2.769	47	6.980	118	40
10:00-11:00	4.932	83	4.470	76	9.402	159	47
11:00-12:00	5.595	95	4.874	82	10.469	177	60
12:00-13:00	6.662	113	6.576	111	13.238	224	62
13:00-14:00	5.797	98	5.422	92	11.219	190	68
14:00-15:00	5.999	101	6.114	103	12.113	204	66
15:00-16:00	5.537	94	6.230	105	11.767	199	55
16:00-17:00	5.480	93	5.566	94	11.046	187	54
17:00-18:00	5.249	89	5.682	96	10.931	185	47
18:00-19:00	4.413	75	5.047	85	9.460	160	37
19:00-20:00	3.576	60	3.778	64	7.354	124	33
20:00-21:00	3.894	66	4.470	76	8.364	142	23
21:00-22:00							23
22:00-23:00							23
23:00-24:00							23
Daily:	63.537	1,075	62.268	1,052	125.805	2,127	

Proposed Lidl Foodstore, Church Road, Hayes
Trip Rate Analysis
Hayes Revised Foodstore Proposal

Saturday

	Mode of travel by group - constrained								
	Walk	Bus	Cycle	Car	Car (o/s)	Train	Tube	Other	Total
No									
%									

Sensitivity Test - Trip Rates +10% Factor 100 sqm
Units 1689 sqm 10%

Time Range	Arrivals		Departures		Totals		Accum
	Veh Trip Rate	Trips	Veh Trip Rate	Trips	Veh Trip Rate	Trips	
00:00-01:00							0
01:00-02:00							0
02:00-03:00							0
03:00-04:00							0
04:00-05:00							0
05:00-06:00							0
06:00-07:00							0
07:00-08:00							0
08:00-09:00	3.259	55	1.846	31	5.105	86	24
09:00-10:00	4.442	75	3.634	61	8.076	136	38
10:00-11:00	6.893	116	5.884	99	12.777	215	55
11:00-12:00	7.614	129	7.008	118	14.622	247	66
12:00-13:00	8.047	136	7.470	126	15.517	262	76
13:00-14:00	7.153	121	8.076	136	15.228	257	61
14:00-15:00	7.268	123	6.835	115	14.103	238	69
15:00-16:00	6.835	115	7.037	119	13.873	234	65
16:00-17:00	6.778	114	6.518	110	13.296	224	69
17:00-18:00	5.711	96	7.066	119	12.777	215	46
18:00-19:00	5.566	94	5.855	99	11.421	193	41
19:00-20:00	3.634	61	4.672	79	8.306	140	23
20:00-21:00	2.999	51	3.547	60	6.547	111	14
21:00-22:00							14
22:00-23:00							14
23:00-24:00							14
Daily:	76.20	1,286	75.45	1,272	151.65	2,558	

APPENDIX M

**Junctions 8 PICADY Report – Site Access/Church
Road Junction**

Junctions 8			
PICADY 8 - Priority Intersection Module			
Version: 8.0.4.487 [15039,24/03/2014] © Copyright TRL Limited, 2015			
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Filename: 15-0302 Church Road Site Access Picady.arc8

Path: P:\2015\15-0302 lidl hayes4\Analysis\Modelling

Report generation date: 09/06/2015 16:56:38

- » Proposed Junction Layout - 2016 Future Year Baseline with Development, PM
- » Proposed Junction Layout - 2016 Future Year Baseline with Development, SAT
- » Proposed Junction Layout - 2020 Future Year Baseline with Development, PM
- » Proposed Junction Layout - 2020 Future Year Baseline with Development, SAT

Summary of junction performance

	PM				SAT			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
Proposed Junction Layout - 2016 Future Year Baseline with Development								
Stream B-AC	0.22	8.49	0.18	A	0.36	10.32	0.27	B
Stream C-AB	0.17	5.80	0.09	A	0.27	6.25	0.14	A
Stream C-A	-	-	-	-	-	-	-	-
Stream A-B	-	-	-	-	-	-	-	-
Stream A-C	-	-	-	-	-	-	-	-
Proposed Junction Layout - 2020 Future Year Baseline with Development								
Stream B-AC	0.22	8.65	0.18	A	0.37	10.61	0.27	B
Stream C-AB	0.18	5.75	0.09	A	0.29	6.22	0.14	A
Stream C-A	-	-	-	-	-	-	-	-
Stream A-B	-	-	-	-	-	-	-	-
Stream A-C	-	-	-	-	-	-	-	-

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

"D1 - 2016 Future Year Baseline with Development, PM " model duration: 16:30 - 17:30

"D2 - 2016 Future Year Baseline with Development, SAT" model duration: 12:45 - 13:45

"D3 - 2020 Future Year Baseline with Development, PM" model duration: 16:30 - 17:30

"D4 - 2020 Future Year Baseline with Development, SAT" model duration: 12:45 - 13:45

Run using Junctions 8.0.4.487 at 09/06/2015 16:56:37

File summary

Title	Site Access/Church Road Priority Junction
Location	Hayes
Site Number	
Date	09/06/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	Gateway TSP
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	Veh	PCU	perTimeSegment	s	-Min	perMin

Proposed Junction Layout - 2016 Future Year Baseline with Development, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Proposed Junction Layout	N/A			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2016 Future Year Baseline with Development, PM	2016 Future Year Baseline with Development	PM		DIRECT	16:30	17:30	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C	7.42	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Church Road (n)		Major
B	B	Site Access		Minor
C	C	Church Road (s)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	7.50		0.00		2.20	66.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.89										37	49

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	139.844	0.095	0.241	0.151	0.344
1	B-C	178.282	0.102	0.258	-	-
1	C-B	153.046	0.222	0.222	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:30-16:45)

	To			
		A	B	C
From	A	0.000	13.000	57.000
	B	12.000	0.000	11.000
	C	73.000	10.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:30-16:45)

	To			
		A	B	C
From	A	0.00	0.19	0.81
	B	0.52	0.00	0.48
	C	0.88	0.12	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:45-17:00)

	To			
		A	B	C
From	A	0.000	13.000	53.000
	B	12.000	0.000	11.000
	C	52.000	10.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:45-17:00)

	To			
		A	B	C
From	A	0.00	0.20	0.80
	B	0.52	0.00	0.48
	C	0.84	0.16	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:00-17:15)

	To			
		A	B	C
From	A	0.000	13.000	63.000
	B	12.000	0.000	11.000
	C	51.000	10.000	0.000

Turning Proportions (Veh) - Junction 1 - (17:00-17:15)

	To			
		A	B	C
From	A	0.00	0.17	0.83
	B	0.52	0.00	0.48
	C	0.84	0.16	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:15-17:30)

	To			
		A	B	C
From	A	0.000	13.000	49.000
	B	12.000	0.000	11.000
	C	61.000	10.000	0.000

Turning Proportions (Veh) - Junction 1 - (17:15-17:30)

	To			
		A	B	C
From	A	0.00	0.21	0.79
	B	0.52	0.00	0.48
	C	0.86	0.14	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		A	B	C
From	A	1.000	1.000	1.087
	B	1.000	1.000	1.000
	C	1.056	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		A	B	C
From	A	0.0	0.0	8.7
	B	0.0	0.0	0.0
	C	5.6	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.18	8.49	0.22	A
C-AB	0.09	5.80	0.17	A
C-A	-	-	-	-
A-B	-	-	-	-
A-C	-	-	-	-

Main Results for each time segment

Main results: (16:30-16:45)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	23.00	22.78	0.00	128.59	0.179	0.22	8.489	A
C-AB	16.71	16.54	0.00	189.92	0.088	0.17	5.304	A
C-A	70.37	70.37	0.00	-	-	-	-	-
A-B	13.00	13.00	0.00	-	-	-	-	-
A-C	61.96	61.96	0.00	-	-	-	-	-

Main results: (16:45-17:00)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	23.00	23.00	0.00	132.09	0.174	0.21	8.250	A
C-AB	14.34	14.37	0.00	175.08	0.082	0.14	5.713	A
C-A	50.57	50.57	0.00	-	-	-	-	-
A-B	13.00	13.00	0.00	-	-	-	-	-
A-C	57.61	57.61	0.00	-	-	-	-	-

Main results: (17:00-17:15)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	23.00	23.00	0.00	129.45	0.178	0.21	8.454	A
C-AB	14.33	14.33	0.00	172.24	0.083	0.14	5.797	A
C-A	49.53	49.53	0.00	-	-	-	-	-
A-B	13.00	13.00	0.00	-	-	-	-	-
A-C	68.48	68.48	0.00	-	-	-	-	-

Main results: (17:15-17:30)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	23.00	23.00	0.00	132.17	0.174	0.21	8.246	A
C-AB	15.43	15.42	0.00	182.88	0.084	0.15	5.474	A
C-A	58.98	58.98	0.00	-	-	-	-	-
A-B	13.00	13.00	0.00	-	-	-	-	-
A-C	53.26	53.26	0.00	-	-	-	-	-

Proposed Junction Layout - 2016 Future Year Baseline with Development, SAT

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Proposed Junction Layout	N/A			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2016 Future Year Baseline with Development, SAT	2016 Future Year Baseline with Development	SAT		DIRECT	12:45	13:45	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C	8.64	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Church Road (n)		Major
B	B	Site Access		Minor
C	C	Church Road (s)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	7.50		0.00		2.20	66.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.89										37	49

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	139.844	0.095	0.241	0.151	0.344
1	B-C	178.282	0.102	0.258	-	-
1	C-B	153.046	0.222	0.222	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (12:45-13:00)

		To		
From		A	B	C
	A	0.000	19.000	64.000
	B	17.000	0.000	15.000
	C	51.000	15.000	0.000

Turning Proportions (Veh) - Junction 1 - (12:45-13:00)

		To		
From		A	B	C
	A	0.00	0.23	0.77
	B	0.53	0.00	0.47
	C	0.77	0.23	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:00-13:15)

		To		
From		A	B	C
	A	0.000	19.000	74.000
	B	17.000	0.000	15.000
	C	49.000	15.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:00-13:15)

		To		
From		A	B	C
	A	0.00	0.20	0.80
	B	0.53	0.00	0.47
	C	0.77	0.23	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:15-13:30)

	To			
		A	B	C
	A	0.000	19.000	75.000
	B	17.000	0.000	15.000
	C	51.000	15.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:15-13:30)

	To			
		A	B	C
	A	0.00	0.20	0.80
	B	0.53	0.00	0.47
	C	0.77	0.23	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:30-13:45)

	To			
		A	B	C
	A	0.000	19.000	87.000
	B	17.000	0.000	15.000
	C	68.000	15.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:30-13:45)

	To			
		A	B	C
	A	0.00	0.18	0.82
	B	0.53	0.00	0.47
	C	0.82	0.18	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		A	B	C
	A	1.000	1.000	1.054
	B	1.000	1.000	1.000
	C	1.060	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		A	B	C
	A	0.0	0.0	5.4
	B	0.0	0.0	0.0
	C	6.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.27	10.32	0.36	B
C-AB	0.14	6.25	0.27	A
C-A	-	-	-	-
A-B	-	-	-	-
A-C	-	-	-	-

Main Results for each time segment

Main results: (12:45-13:00)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	32.00	31.67	0.00	127.42	0.251	0.33	9.368	A
C-AB	21.84	21.62	0.00	171.80	0.127	0.22	6.099	A
C-A	47.22	47.22	0.00	-	-	-	-	-
A-B	19.00	19.00	0.00	-	-	-	-	-
A-C	67.46	67.46	0.00	-	-	-	-	-

Main results: (13:00-13:15)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	32.00	31.99	0.00	124.93	0.256	0.34	9.682	A
C-AB	21.72	21.72	0.00	168.30	0.129	0.22	6.255	A
C-A	45.22	45.22	0.00	-	-	-	-	-
A-B	19.00	19.00	0.00	-	-	-	-	-
A-C	78.00	78.00	0.00	-	-	-	-	-

Main results: (13:15-13:30)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	32.00	32.00	0.00	124.42	0.257	0.34	9.737	A
C-AB	22.04	22.04	0.00	169.58	0.130	0.22	6.215	A
C-A	47.02	47.02	0.00	-	-	-	-	-
A-B	19.00	19.00	0.00	-	-	-	-	-
A-C	79.05	79.05	0.00	-	-	-	-	-

Main results: (13:30-13:45)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	32.00	31.98	0.00	119.16	0.269	0.36	10.321	B
C-AB	24.99	24.95	0.00	179.87	0.139	0.27	5.936	A
C-A	62.09	62.09	0.00	-	-	-	-	-
A-B	19.00	19.00	0.00	-	-	-	-	-
A-C	91.70	91.70	0.00	-	-	-	-	-

Proposed Junction Layout - 2020 Future Year Baseline with Development, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Proposed Junction Layout	N/A			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2020 Future Year Baseline with Development, PM	2020 Future Year Baseline with Development	PM		DIRECT	16:30	17:30	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C	7.47	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Church Road (n)		Major
B	B	Site Access		Minor
C	C	Church Road (s)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	7.50		0.00		2.20	66.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.89										37	49

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	139.844	0.095	0.241	0.151	0.344
1	B-C	178.282	0.102	0.258	-	-
1	C-B	153.046	0.222	0.222	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:30-16:45)

	To			
		A	B	C
From	A	0.000	13.000	62.000
	B	12.000	0.000	11.000
	C	78.000	10.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:30-16:45)

	To			
		A	B	C
From	A	0.00	0.17	0.83
	B	0.52	0.00	0.48
	C	0.89	0.11	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:45-17:00)

	To			
		A	B	C
From	A	0.000	13.000	57.000
	B	12.000	0.000	11.000
	C	56.000	10.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:45-17:00)

	To			
		A	B	C
From	A	0.00	0.19	0.81
	B	0.52	0.00	0.48
	C	0.85	0.15	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:00-17:15)

	To			
		A	B	C
From	A	0.000	13.000	68.000
	B	12.000	0.000	11.000
	C	55.000	10.000	0.000

Turning Proportions (Veh) - Junction 1 - (17:00-17:15)

	To			
		A	B	C
From	A	0.00	0.16	0.84
	B	0.52	0.00	0.48
	C	0.85	0.15	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:15-17:30)

	To			
		A	B	C
From	A	0.000	13.000	53.000
	B	12.000	0.000	11.000
	C	66.000	10.000	0.000

Turning Proportions (Veh) - Junction 1 - (17:15-17:30)

	To			
		A	B	C
From	A	0.00	0.20	0.80
	B	0.52	0.00	0.48
	C	0.87	0.13	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		A	B	C
From	A	1.000	1.000	1.086
	B	1.000	1.000	1.000
	C	1.056	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		A	B	C
From	A	0.0	0.0	8.6
	B	0.0	0.0	0.0
	C	5.6	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.18	8.65	0.22	A
C-AB	0.09	5.75	0.18	A
C-A	-	-	-	-
A-B	-	-	-	-
A-C	-	-	-	-

Main Results for each time segment

Main results: (16:30-16:45)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	23.00	22.78	0.00	126.63	0.182	0.22	8.648	A
C-AB	17.32	17.14	0.00	192.56	0.090	0.18	5.248	A
C-A	75.05	75.05	0.00	-	-	-	-	-
A-B	13.00	13.00	0.00	-	-	-	-	-
A-C	67.33	67.33	0.00	-	-	-	-	-

Main results: (16:45-17:00)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	23.00	23.00	0.00	130.54	0.176	0.22	8.369	A
C-AB	14.73	14.76	0.00	177.08	0.083	0.15	5.665	A
C-A	54.41	54.41	0.00	-	-	-	-	-
A-B	13.00	13.00	0.00	-	-	-	-	-
A-C	61.90	61.90	0.00	-	-	-	-	-

Main results: (17:00-17:15)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	23.00	23.00	0.00	127.62	0.180	0.22	8.601	A
C-AB	14.73	14.73	0.00	174.04	0.085	0.15	5.752	A
C-A	53.35	53.35	0.00	-	-	-	-	-
A-B	13.00	13.00	0.00	-	-	-	-	-
A-C	73.85	73.85	0.00	-	-	-	-	-

Main results: (17:15-17:30)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	23.00	23.00	0.00	130.50	0.176	0.22	8.372	A
C-AB	15.99	15.98	0.00	185.70	0.086	0.16	5.405	A
C-A	63.71	63.71	0.00	-	-	-	-	-
A-B	13.00	13.00	0.00	-	-	-	-	-
A-C	57.56	57.56	0.00	-	-	-	-	-

Proposed Junction Layout - 2020 Future Year Baseline with Development, SAT

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Proposed Junction Layout	N/A			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2020 Future Year Baseline with Development, SAT	2020 Future Year Baseline with Development	SAT		DIRECT	12:45	13:45	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C	8.75	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Church Road (n)		Major
B	B	Site Access		Minor
C	C	Church Road (s)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	7.50		0.00		2.20	66.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.89										37	49

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	139.844	0.095	0.241	0.151	0.344
1	B-C	178.282	0.102	0.258	-	-
1	C-B	153.046	0.222	0.222	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (12:45-13:00)

	To			
		A	B	C
From	A	0.000	19.000	69.000
	B	17.000	0.000	15.000
	C	55.000	15.000	0.000

Turning Proportions (Veh) - Junction 1 - (12:45-13:00)

	To			
		A	B	C
From	A	0.00	0.22	0.78
	B	0.53	0.00	0.47
	C	0.79	0.21	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:00-13:15)

	To			
		A	B	C
From	A	0.000	19.000	80.000
	B	17.000	0.000	15.000
	C	53.000	15.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:00-13:15)

	To			
		A	B	C
From	A	0.00	0.19	0.81
	B	0.53	0.00	0.47
	C	0.78	0.22	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:15-13:30)

	To			
		A	B	C
From	A	0.000	19.000	81.000
	B	17.000	0.000	15.000
	C	55.000	15.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:15-13:30)

	To			
		A	B	C
From	A	0.00	0.19	0.81
	B	0.53	0.00	0.47
	C	0.79	0.21	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:30-13:45)

	To			
		A	B	C
From	A	0.000	19.000	93.000
	B	17.000	0.000	15.000
	C	74.000	15.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:30-13:45)

	To			
		A	B	C
From	A	0.00	0.17	0.83
	B	0.53	0.00	0.47
	C	0.83	0.17	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		A	B	C
From	A	1.000	1.000	1.054
	B	1.000	1.000	1.000
	C	1.060	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		A	B	C
From	A	0.0	0.0	5.4
	B	0.0	0.0	0.0
	C	6.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.27	10.61	0.37	B
C-AB	0.14	6.22	0.29	A
C-A	-	-	-	-
A-B	-	-	-	-
A-C	-	-	-	-

Main Results for each time segment

Main results: (12:45-13:00)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	32.00	31.66	0.00	125.61	0.255	0.34	9.546	A
C-AB	22.51	22.28	0.00	173.74	0.130	0.23	6.053	A
C-A	50.79	50.79	0.00	-	-	-	-	-
A-B	19.00	19.00	0.00	-	-	-	-	-
A-C	72.73	72.73	0.00	-	-	-	-	-

Main results: (13:00-13:15)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	32.00	31.99	0.00	122.84	0.261	0.35	9.904	A
C-AB	22.42	22.42	0.00	170.06	0.132	0.23	6.220	A
C-A	48.76	48.76	0.00	-	-	-	-	-
A-B	19.00	19.00	0.00	-	-	-	-	-
A-C	84.32	84.32	0.00	-	-	-	-	-

Main results: (13:15-13:30)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	32.00	32.00	0.00	122.33	0.262	0.35	9.962	A
C-AB	22.75	22.75	0.00	171.35	0.133	0.23	6.179	A
C-A	50.55	50.55	0.00	-	-	-	-	-
A-B	19.00	19.00	0.00	-	-	-	-	-
A-C	85.37	85.37	0.00	-	-	-	-	-

Main results: (13:30-13:45)

Stream	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	32.00	31.98	0.00	116.80	0.274	0.37	10.606	B
C-AB	26.15	26.10	0.00	183.20	0.143	0.29	5.861	A
C-A	67.29	67.29	0.00	-	-	-	-	-
A-B	19.00	19.00	0.00	-	-	-	-	-
A-C	98.02	98.02	0.00	-	-	-	-	-

APPENDIX N

**Junctions 8 ARCADY Report – Botwell
Lane/Church Road Junction**

Junctions 8	
ARCADY 8 - Roundabout Module	
Version: 8.0.4.487 [15039,24/03/2014] © Copyright TRL Limited, 2015	
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Filename: 15-0302 Church Road Botwell Lane Roundabout Arcady.arc8

Path: P:\2015\15-0302 lidl hayes4\Analysis\Modelling

Report generation date: 03/11/2015 16:03:10

-
- » Existing Junction Layout - 2015 Observed Baseline, PM
 - » Existing Junction Layout - 2015 Observed Baseline, SAT
 - » Existing Junction Layout - 2016 Future Year Baseline, PM
 - » Existing Junction Layout - 2016 Future Year Baseline, SAT
 - » Existing Junction Layout - 2020 Future Year Baseline, PM
 - » Existing Junction Layout - 2020 Future Year Baseline, SAT
 - » Existing Junction Layout - 2016 Future Year Baseline with Development, PM
 - » Existing Junction Layout - 2016 Future Year Baseline with Development, SAT
 - » Existing Junction Layout - 2020 Future Year Baseline with Development, PM
 - » Existing Junction Layout - 2020 Future Year Baseline with Development, SAT

Summary of junction performance

	PM				SAT			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
Existing Junction Layout - 2015 Observed Baseline								
Arm 1	1.24	6.50	0.55	A	0.82	5.45	0.45	A
Arm 2	0.40	5.05	0.27	A	0.53	5.15	0.34	A
Arm 3	1.47	7.11	0.59	A	2.11	8.97	0.68	A
Existing Junction Layout - 2016 Future Year Baseline								
Arm 1	1.29	6.65	0.56	A	0.85	5.53	0.45	A
Arm 2	0.42	5.14	0.28	A	0.55	5.25	0.34	A
Arm 3	1.54	7.32	0.60	A	2.25	9.38	0.69	A
Existing Junction Layout - 2016 Future Year Baseline with Development								
Arm 1	1.39	7.01	0.58	A	0.94	5.90	0.48	A
Arm 2	0.50	5.35	0.32	A	0.68	5.61	0.40	A
Arm 3	1.65	7.73	0.62	A	2.62	10.58	0.72	B
Existing Junction Layout - 2020 Future Year Baseline								
Arm 1	1.53	7.37	0.60	A	0.99	5.98	0.49	A
Arm 2	0.46	5.40	0.30	A	0.63	5.58	0.37	A
Arm 3	1.86	8.26	0.65	A	2.93	11.29	0.75	B
Existing Junction Layout - 2020 Future Year Baseline with Development								
Arm 1	1.65	7.82	0.62	A	1.09	6.38	0.52	A
Arm 2	0.55	5.68	0.34	A	0.77	6.02	0.43	A
Arm 3	2.03	8.86	0.67	A	3.57	13.18	0.79	B

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

"D1 - 2015 Observed Baseline, PM" model duration: 16:30 - 17:30
 "D2 - 2015 Observed Baseline, SAT" model duration: 12:45 - 13:45
 "D3 - 2016 Future Year Baseline, PM" model duration: 16:30 - 17:30
 "D4 - 2016 Future Year Baseline, SAT" model duration: 12:45 - 13:45
 "D5 - 2020 Future Year Baseline, PM" model duration: 16:30 - 17:30
 "D6 - 2020 Future Year Baseline, SAT" model duration: 12:45 - 13:45
 "D7 - 2016 Future Year Baseline with Development, PM" model duration: 16:30 - 17:30
 "D8 - 2016 Future Year Baseline with Development, SAT" model duration: 12:45 - 13:45
 "D9 - 2020 Future Year Baseline with Development, PM" model duration: 16:30 - 17:30
 "D10 - 2020 Future Year Baseline with Development, SAT" model duration: 12:45 - 13:45

Run using Junctions 8.0.4.487 at 03/11/2015 16:03:08

File summary

Title	Botwell Lane/Church Road Roundabout Junction
Location	Hayes
Site Number	
Date	03/11/2015
Version	
Status	
Identifier	
Client	
Jobnumber	15/0302
Enumerator	Gateway TSP
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	Veh	PCU	perTimeSegment	s	-Min	perMin

Existing Junction Layout - 2015 Observed Baseline, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Existing Junction Layout	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2015 Observed Baseline, PM	2015 Observed Baseline	PM		DIRECT	16:30	17:30	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
1	Botwell Lane/Church Road Roundabout	Roundabout	1,2,3			6.54	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	Botwell Lane (NW)	
2	2	Church Road	
3	3	Botwell Lane (SE)	Town Centre Approach Arm

Capacity Options

Arm	Minimum Capacity (PCU/TS)	Maximum Capacity (PCU/TS)
1	0.00	24999.75
2	0.00	24999.75
3	0.00	24999.75

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.50	3.32	15.00	17.00	15.00	
2	3.50	4.70	4.87	25.00	17.00	12.50	
3	3.30	5.10	5.64	35.00	17.00	14.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/TS)	Final Slope	Final Intercept (PCU/TS)
1		(calculated)	(calculated)	0.597	328.200
2		(calculated)	(calculated)	0.616	338.226
3		(calculated)	(calculated)	0.621	341.709

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
1	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:30-16:45)

		To		
From		1	2	3
	1	1.000	38.000	114.000
	2	29.000	0.000	30.000
	3	115.000	35.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:30-16:45)

	To			
		1	2	3
From	1	0.01	0.25	0.75
	2	0.49	0.00	0.51
	3	0.77	0.23	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:45-17:00)

	To			
		1	2	3
From	1	0.000	33.000	137.000
	2	37.000	0.000	18.000
	3	132.000	20.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:45-17:00)

	To			
		1	2	3
From	1	0.00	0.19	0.81
	2	0.67	0.00	0.33
	3	0.87	0.13	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:00-17:15)

	To			
		1	2	3
From	1	1.000	30.000	112.000
	2	33.000	0.000	32.000
	3	157.000	22.000	1.000

Turning Proportions (Veh) - Junction 1 - (17:00-17:15)

	To			
		1	2	3
From	1	0.01	0.21	0.78
	2	0.51	0.00	0.49
	3	0.87	0.12	0.01

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:15-17:30)

	To			
		1	2	3
From	1	3.000	39.000	111.000
	2	36.000	0.000	15.000
	3	144.000	23.000	1.000

Turning Proportions (Veh) - Junction 1 - (17:15-17:30)

	To			
		1	2	3
From	1	0.02	0.25	0.73
	2	0.71	0.00	0.29
	3	0.86	0.14	0.01

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		1	2	3
	1	1.000	1.000	1.027
	2	1.022	1.000	1.168
	3	1.036	1.130	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	0.0	2.7
	2	2.2	0.0	16.8
	3	3.6	13.0	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.55	6.50	1.24	A
2	0.27	5.05	0.40	A
3	0.59	7.11	1.47	A

Main Results for each time segment

Main results: (16:30-16:45)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	156.08	155.02	39.30	0.00	304.76	0.512	1.06	6.089	A
2	64.68	64.33	117.28	0.00	266.01	0.243	0.35	4.884	A
3	158.69	157.68	30.47	0.00	322.80	0.492	1.01	5.733	A

Main results: (16:45-17:00)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	173.70	173.51	22.70	0.00	314.66	0.552	1.24	6.505	A
2	58.84	58.86	140.49	0.00	251.72	0.234	0.33	4.992	A
3	159.35	159.32	37.77	0.00	318.27	0.501	1.04	5.934	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	146.02	146.36	25.81	0.00	312.81	0.467	0.90	5.532	A
2	71.10	71.03	117.30	0.00	266.00	0.267	0.40	5.048	A
3	188.51	188.08	34.74	0.00	320.15	0.589	1.47	7.111	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	156.00	155.89	26.99	0.00	312.10	0.500	1.01	5.870	A
2	54.31	54.43	117.96	0.00	265.59	0.204	0.28	4.543	A
3	176.17	176.32	39.78	0.00	317.03	0.556	1.33	6.717	A

Existing Junction Layout - 2015 Observed Baseline, SAT

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Existing Junction Layout	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2015 Observed Baseline, SAT	2015 Observed Baseline	SAT		DIRECT	12:45	13:45	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
1	Botwell Lane/Church Road Roundabout	Roundabout	1,2,3			7.03	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	Botwell Lane (NW)	
2	2	Church Road	
3	3	Botwell Lane (SE)	Town Centre Approach Arm

Capacity Options

Arm	Minimum Capacity (PCU/TS)	Maximum Capacity (PCU/TS)
1	0.00	24999.75
2	0.00	24999.75
3	0.00	24999.75

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.50	3.32	15.00	17.00	15.00	
2	3.50	4.70	4.87	25.00	17.00	12.50	
3	3.30	5.10	5.64	35.00	17.00	14.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/TS)	Final Slope	Final Intercept (PCU/TS)
1		(calculated)	(calculated)	0.597	328.200
2		(calculated)	(calculated)	0.616	338.226
3		(calculated)	(calculated)	0.621	341.709

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
1	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (12:45-13:00)

		To		
From		1	2	3
	1	2.000	24.000	107.000
	2	49.000	0.000	17.000
	3	172.000	28.000	1.000

Turning Proportions (Veh) - Junction 1 - (12:45-13:00)

	To			
		1	2	3
From	1	0.02	0.18	0.80
	2	0.74	0.00	0.26
	3	0.86	0.14	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:00-13:15)

	To			
		1	2	3
From	1	1.000	23.000	108.000
	2	55.000	0.000	21.000
	3	152.000	27.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:00-13:15)

	To			
		1	2	3
From	1	0.01	0.17	0.82
	2	0.72	0.00	0.28
	3	0.85	0.15	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:15-13:30)

	To			
		1	2	3
From	1	1.000	20.000	112.000
	2	55.000	0.000	22.000
	3	150.000	32.000	1.000

Turning Proportions (Veh) - Junction 1 - (13:15-13:30)

	To			
		1	2	3
From	1	0.01	0.15	0.84
	2	0.71	0.00	0.29
	3	0.82	0.17	0.01

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:30-13:45)

	To			
		1	2	3
From	1	1.000	41.000	92.000
	2	53.000	0.000	35.000
	3	138.000	28.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:30-13:45)

	To			
		1	2	3
From	1	0.01	0.31	0.69
	2	0.60	0.00	0.40
	3	0.83	0.17	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		1	2	3
	1	1.000	1.019	1.029
	2	1.009	1.000	1.147
	3	1.031	1.113	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	1.9	2.9
	2	0.9	0.0	14.7
	3	3.1	11.3	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.45	5.45	0.82	A
2	0.34	5.15	0.53	A
3	0.68	8.97	2.11	A

Main Results for each time segment

Main results: (12:45-13:00)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	136.56	135.76	31.84	0.00	309.21	0.442	0.80	5.303	A
2	68.94	68.58	112.43	0.00	268.99	0.256	0.36	4.682	A
3	209.50	207.39	51.17	0.00	309.96	0.676	2.11	8.972	A

Main results: (13:00-13:15)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	135.57	135.57	30.11	0.00	310.24	0.437	0.80	5.291	A
2	79.58	79.50	112.14	0.00	269.18	0.296	0.44	4.966	A
3	186.76	187.21	56.45	0.00	306.68	0.609	1.66	7.892	A

Main results: (13:15-13:30)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	136.63	136.61	36.56	0.00	306.39	0.446	0.82	5.445	A
2	80.73	80.71	117.20	0.00	266.06	0.303	0.45	5.090	A
3	191.27	191.22	56.49	0.00	306.66	0.624	1.71	8.140	A

Main results: (13:30-13:45)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	137.45	137.45	31.24	0.00	309.56	0.444	0.82	5.363	A
2	93.62	93.54	95.80	0.00	279.23	0.335	0.53	5.153	A
3	173.44	173.78	54.48	0.00	307.90	0.563	1.37	7.031	A

Existing Junction Layout - 2016 Future Year Baseline, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Existing Junction Layout	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2016 Future Year Baseline, PM	2016 Future Year Baseline	PM		DIRECT	16:30	17:30	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
1	Botwell Lane/Church Road Roundabout	Roundabout	1,2,3			6.70	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	Botwell Lane (NW)	
2	2	Church Road	
3	3	Botwell Lane (SE)	Town Centre Approach Arm

Capacity Options

Arm	Minimum Capacity (PCU/TS)	Maximum Capacity (PCU/TS)
1	0.00	24999.75
2	0.00	24999.75
3	0.00	24999.75

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.50	3.32	15.00	17.00	15.00	
2	3.50	4.70	4.87	25.00	17.00	12.50	
3	3.30	5.10	5.64	35.00	17.00	14.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/TS)	Final Slope	Final Intercept (PCU/TS)
1		(calculated)	(calculated)	0.597	328.200
2		(calculated)	(calculated)	0.616	338.226
3		(calculated)	(calculated)	0.621	341.709

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
1	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:30-16:45)

		To		
From		1	2	3
	1	1.000	39.000	116.000
	2	30.000	0.000	31.000
	3	117.000	36.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:30-16:45)

	To			
		1	2	3
From	1	0.01	0.25	0.74
	2	0.49	0.00	0.51
	3	0.76	0.24	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:45-17:00)

	To			
		1	2	3
From	1	0.000	34.000	139.000
	2	38.000	0.000	18.000
	3	134.000	20.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:45-17:00)

	To			
		1	2	3
From	1	0.00	0.20	0.80
	2	0.68	0.00	0.32
	3	0.87	0.13	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:00-17:15)

	To			
		1	2	3
From	1	1.000	31.000	114.000
	2	34.000	0.000	33.000
	3	160.000	22.000	1.000

Turning Proportions (Veh) - Junction 1 - (17:00-17:15)

	To			
		1	2	3
From	1	0.01	0.21	0.78
	2	0.51	0.00	0.49
	3	0.87	0.12	0.01

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:15-17:30)

	To			
		1	2	3
From	1	3.000	40.000	113.000
	2	37.000	0.000	15.000
	3	147.000	23.000	1.000

Turning Proportions (Veh) - Junction 1 - (17:15-17:30)

	To			
		1	2	3
From	1	0.02	0.26	0.72
	2	0.71	0.00	0.29
	3	0.86	0.13	0.01

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		1	2	3
From	1	1.000	1.000	1.027
	2	1.022	1.000	1.168
	3	1.036	1.130	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
From	1	0.0	0.0	2.7
	2	2.2	0.0	16.8
	3	3.6	13.0	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.56	6.65	1.29	A
2	0.28	5.14	0.42	A
3	0.60	7.32	1.54	A

Main Results for each time segment

Main results: (16:30-16:45)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	159.13	158.03	40.41	0.00	304.09	0.523	1.10	6.241	A
2	66.87	66.50	119.30	0.00	264.77	0.253	0.37	4.967	A
3	161.89	160.84	31.48	0.00	322.17	0.503	1.05	5.866	A

Main results: (16:45-17:00)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	176.75	176.57	22.71	0.00	314.65	0.562	1.29	6.649	A
2	59.86	59.89	142.54	0.00	250.45	0.239	0.34	5.049	A
3	161.42	161.41	38.79	0.00	317.64	0.508	1.07	6.036	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	149.08	149.43	25.80	0.00	312.81	0.477	0.94	5.638	A
2	73.29	73.21	119.37	0.00	264.73	0.277	0.42	5.139	A
3	191.62	191.15	35.76	0.00	319.52	0.600	1.54	7.315	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	159.05	158.94	26.99	0.00	312.10	0.510	1.05	5.987	A
2	55.33	55.47	120.01	0.00	264.33	0.209	0.28	4.590	A
3	179.28	179.43	40.80	0.00	316.39	0.567	1.39	6.900	A

Existing Junction Layout - 2016 Future Year Baseline, SAT

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Existing Junction Layout	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2016 Future Year Baseline, SAT	2016 Future Year Baseline	SAT		DIRECT	12:45	13:45	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
1	Botwell Lane/Church Road Roundabout	Roundabout	1,2,3			7.28	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	Botwell Lane (NW)	
2	2	Church Road	
3	3	Botwell Lane (SE)	Town Centre Approach Arm

Capacity Options

Arm	Minimum Capacity (PCU/TS)	Maximum Capacity (PCU/TS)
1	0.00	24999.75
2	0.00	24999.75
3	0.00	24999.75

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.50	3.32	15.00	17.00	15.00	
2	3.50	4.70	4.87	25.00	17.00	12.50	
3	3.30	5.10	5.64	35.00	17.00	14.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/TS)	Final Slope	Final Intercept (PCU/TS)
1		(calculated)	(calculated)	0.597	328.200
2		(calculated)	(calculated)	0.616	338.226
3		(calculated)	(calculated)	0.621	341.709

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
1	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (12:45-13:00)

		To		
From		1	2	3
	1	2.000	24.000	109.000
	2	50.000	0.000	17.000
	3	175.000	29.000	1.000

Turning Proportions (Veh) - Junction 1 - (12:45-13:00)

	To			
		1	2	3
From	1	0.01	0.18	0.81
	2	0.75	0.00	0.25
	3	0.85	0.14	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:00-13:15)

	To			
		1	2	3
From	1	1.000	23.000	110.000
	2	56.000	0.000	21.000
	3	155.000	27.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:00-13:15)

	To			
		1	2	3
From	1	0.01	0.17	0.82
	2	0.73	0.00	0.27
	3	0.85	0.15	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:15-13:30)

	To			
		1	2	3
From	1	1.000	20.000	114.000
	2	56.000	0.000	22.000
	3	153.000	33.000	1.000

Turning Proportions (Veh) - Junction 1 - (13:15-13:30)

	To			
		1	2	3
From	1	0.01	0.15	0.84
	2	0.72	0.00	0.28
	3	0.82	0.18	0.01

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:30-13:45)

	To			
		1	2	3
From	1	1.000	42.000	94.000
	2	54.000	0.000	36.000
	3	141.000	29.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:30-13:45)

	To			
		1	2	3
From	1	0.01	0.31	0.69
	2	0.60	0.00	0.40
	3	0.83	0.17	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		1	2	3
	1	1.000	1.019	1.029
	2	1.009	1.000	1.147
	3	1.031	1.113	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	1.9	2.9
	2	0.9	0.0	14.7
	3	3.1	11.3	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.45	5.53	0.85	A
2	0.34	5.25	0.55	A
3	0.69	9.38	2.25	A

Main Results for each time segment

Main results: (12:45-13:00)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	138.62	137.79	32.93	0.00	308.56	0.449	0.83	5.386	A
2	69.95	69.58	114.47	0.00	267.74	0.261	0.37	4.733	A
3	213.70	211.45	52.17	0.00	309.33	0.691	2.25	9.382	A

Main results: (13:00-13:15)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	137.63	137.63	30.13	0.00	310.23	0.444	0.82	5.355	A
2	80.59	80.51	114.20	0.00	267.91	0.301	0.45	5.024	A
3	189.86	190.37	57.46	0.00	306.05	0.620	1.74	8.154	A

Main results: (13:15-13:30)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	138.69	138.66	37.65	0.00	305.74	0.454	0.85	5.534	A
2	81.74	81.72	119.26	0.00	264.79	0.309	0.46	5.151	A
3	195.47	195.40	57.50	0.00	306.03	0.639	1.82	8.493	A

Main results: (13:30-13:45)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	140.52	140.52	32.36	0.00	308.89	0.455	0.85	5.482	A
2	95.78	95.69	97.86	0.00	277.97	0.345	0.55	5.251	A
3	177.65	178.01	55.49	0.00	307.28	0.578	1.46	7.298	A

Existing Junction Layout - 2020 Future Year Baseline, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Existing Junction Layout	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2020 Future Year Baseline, PM	2020 Future Year Baseline	PM		DIRECT	16:30	17:30	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
1	Botwell Lane/Church Road Roundabout	Roundabout	1,2,3			7.44	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	Botwell Lane (NW)	
2	2	Church Road	
3	3	Botwell Lane (SE)	Town Centre Approach Arm

Capacity Options

Arm	Minimum Capacity (PCU/TS)	Maximum Capacity (PCU/TS)
1	0.00	24999.75
2	0.00	24999.75
3	0.00	24999.75

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.50	3.32	15.00	17.00	15.00	
2	3.50	4.70	4.87	25.00	17.00	12.50	
3	3.30	5.10	5.64	35.00	17.00	14.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/TS)	Final Slope	Final Intercept (PCU/TS)
1		(calculated)	(calculated)	0.597	328.200
2		(calculated)	(calculated)	0.616	338.226
3		(calculated)	(calculated)	0.621	341.709

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
1	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:30-16:45)

		To		
From		1	2	3
	1	1.000	41.000	124.000
	2	32.000	0.000	33.000
	3	125.000	38.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:30-16:45)

	To			
		1	2	3
From	1	0.01	0.25	0.75
	2	0.49	0.00	0.51
	3	0.77	0.23	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:45-17:00)

	To			
		1	2	3
From	1	0.000	36.000	149.000
	2	40.000	0.000	20.000
	3	144.000	22.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:45-17:00)

	To			
		1	2	3
From	1	0.00	0.19	0.81
	2	0.67	0.00	0.33
	3	0.87	0.13	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:00-17:15)

	To			
		1	2	3
From	1	1.000	33.000	122.000
	2	36.000	0.000	35.000
	3	171.000	24.000	1.000

Turning Proportions (Veh) - Junction 1 - (17:00-17:15)

	To			
		1	2	3
From	1	0.01	0.21	0.78
	2	0.51	0.00	0.49
	3	0.87	0.12	0.01

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:15-17:30)

	To			
		1	2	3
From	1	3.000	42.000	121.000
	2	39.000	0.000	16.000
	3	157.000	25.000	1.000

Turning Proportions (Veh) - Junction 1 - (17:15-17:30)

	To			
		1	2	3
From	1	0.02	0.25	0.73
	2	0.71	0.00	0.29
	3	0.86	0.14	0.01

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		1	2	3
	1	1.000	1.000	1.027
	2	1.022	1.000	1.168
	3	1.036	1.130	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	0.0	2.7
	2	2.2	0.0	16.8
	3	3.6	13.0	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.60	7.37	1.53	A
2	0.30	5.40	0.46	A
3	0.65	8.26	1.86	A

Main Results for each time segment

Main results: (16:30-16:45)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	169.35	168.07	42.64	0.00	302.76	0.559	1.27	6.754	A
2	71.25	70.84	127.38	0.00	259.79	0.274	0.41	5.209	A
3	172.44	171.23	33.51	0.00	320.92	0.537	1.21	6.311	A

Main results: (16:45-17:00)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	189.02	188.77	24.98	0.00	313.30	0.603	1.53	7.369	A
2	64.24	64.27	152.75	0.00	244.17	0.263	0.39	5.357	A
3	174.04	173.99	40.83	0.00	316.37	0.550	1.27	6.624	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	159.29	159.74	28.05	0.00	311.47	0.511	1.08	6.076	A
2	77.67	77.59	127.66	0.00	259.62	0.299	0.46	5.404	A
3	205.28	204.68	37.81	0.00	318.25	0.645	1.86	8.255	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	169.27	169.15	29.25	0.00	310.75	0.545	1.20	6.475	A
2	58.55	58.70	128.22	0.00	259.27	0.226	0.31	4.782	A
3	191.90	192.10	42.85	0.00	315.12	0.609	1.66	7.687	A

Existing Junction Layout - 2020 Future Year Baseline, SAT

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Existing Junction Layout	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2020 Future Year Baseline, SAT	2020 Future Year Baseline	SAT		DIRECT	12:45	13:45	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
1	Botwell Lane/Church Road Roundabout	Roundabout	1,2,3			8.38	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	Botwell Lane (NW)	
2	2	Church Road	
3	3	Botwell Lane (SE)	Town Centre Approach Arm

Capacity Options

Arm	Minimum Capacity (PCU/TS)	Maximum Capacity (PCU/TS)
1	0.00	24999.75
2	0.00	24999.75
3	0.00	24999.75

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.50	3.32	15.00	17.00	15.00	
2	3.50	4.70	4.87	25.00	17.00	12.50	
3	3.30	5.10	5.64	35.00	17.00	14.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/TS)	Final Slope	Final Intercept (PCU/TS)
1		(calculated)	(calculated)	0.597	328.200
2		(calculated)	(calculated)	0.616	338.226
3		(calculated)	(calculated)	0.621	341.709

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
1	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (12:45-13:00)

		To		
From		1	2	3
	1	2.000	26.000	117.000
	2	54.000	0.000	19.000
	3	188.000	31.000	1.000

Turning Proportions (Veh) - Junction 1 - (12:45-13:00)

	To			
		1	2	3
From	1	0.01	0.18	0.81
	2	0.74	0.00	0.26
	3	0.85	0.14	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:00-13:15)

	To			
		1	2	3
From	1	1.000	25.000	118.000
	2	60.000	0.000	23.000
	3	167.000	30.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:00-13:15)

	To			
		1	2	3
From	1	0.01	0.17	0.82
	2	0.72	0.00	0.28
	3	0.85	0.15	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:15-13:30)

	To			
		1	2	3
From	1	1.000	22.000	123.000
	2	60.000	0.000	24.000
	3	164.000	35.000	1.000

Turning Proportions (Veh) - Junction 1 - (13:15-13:30)

	To			
		1	2	3
From	1	0.01	0.15	0.84
	2	0.71	0.00	0.29
	3	0.82	0.18	0.01

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:30-13:45)

	To			
		1	2	3
From	1	1.000	45.000	101.000
	2	58.000	0.000	38.000
	3	151.000	31.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:30-13:45)

	To			
		1	2	3
From	1	0.01	0.31	0.69
	2	0.60	0.00	0.40
	3	0.83	0.17	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		1	2	3
	1	1.000	1.019	1.029
	2	1.009	1.000	1.147
	3	1.031	1.113	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	1.9	2.9
	2	0.9	0.0	14.7
	3	3.1	11.3	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.49	5.98	0.99	A
2	0.37	5.58	0.63	A
3	0.75	11.29	2.93	B

Main Results for each time segment

Main results: (12:45-13:00)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	148.89	147.93	35.05	0.00	307.29	0.485	0.95	5.764	A
2	76.28	75.85	122.60	0.00	262.74	0.290	0.42	5.021	A
3	229.33	226.40	56.17	0.00	306.86	0.747	2.93	11.285	B

Main results: (13:00-13:15)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	147.90	147.90	33.48	0.00	308.23	0.480	0.95	5.765	A
2	86.92	86.83	122.43	0.00	262.84	0.331	0.51	5.352	A
3	205.57	206.25	61.49	0.00	303.55	0.677	2.25	9.724	A

Main results: (13:15-13:30)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	149.99	149.95	39.89	0.00	304.41	0.493	0.99	5.984	A
2	88.07	88.05	128.50	0.00	259.10	0.340	0.54	5.516	A
3	209.04	209.01	61.53	0.00	303.53	0.689	2.28	9.944	A

Main results: (13:30-13:45)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	150.78	150.79	34.62	0.00	307.55	0.490	0.99	5.888	A
2	102.11	102.02	105.09	0.00	273.51	0.373	0.63	5.579	A
3	190.18	190.69	59.53	0.00	304.77	0.624	1.77	8.283	A

Existing Junction Layout - 2016 Future Year Baseline with Development, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Existing Junction Layout	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2016 Future Year Baseline with Development, PM	2016 Future Year Baseline with Development	PM		DIRECT	16:30	17:30	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
1	Botwell Lane/Church Road Roundabout	Roundabout	1,2,3			7.02	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	Botwell Lane (NW)	
2	2	Church Road	
3	3	Botwell Lane (SE)	Town Centre Approach Arm

Capacity Options

Arm	Minimum Capacity (PCU/TS)	Maximum Capacity (PCU/TS)
1	0.00	24999.75
2	0.00	24999.75
3	0.00	24999.75

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.50	3.32	15.00	17.00	15.00	
2	3.50	4.70	4.87	25.00	17.00	12.50	
3	3.30	5.10	5.64	35.00	17.00	14.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/TS)	Final Slope	Final Intercept (PCU/TS)
1		(calculated)	(calculated)	0.597	328.200
2		(calculated)	(calculated)	0.616	338.226
3		(calculated)	(calculated)	0.621	341.709

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
1	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:30-16:45)

		To		
From		1	2	3
	1	1.000	44.000	115.000
	2	36.000	0.000	36.000
	3	116.000	40.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:30-16:45)

	To			
		1	2	3
From	1	0.01	0.28	0.72
	2	0.50	0.00	0.50
	3	0.74	0.26	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:45-17:00)

	To			
		1	2	3
From	1	0.000	39.000	138.000
	2	44.000	0.000	23.000
	3	133.000	25.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:45-17:00)

	To			
		1	2	3
From	1	0.00	0.22	0.78
	2	0.66	0.00	0.34
	3	0.84	0.16	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:00-17:15)

	To			
		1	2	3
From	1	1.000	36.000	113.000
	2	40.000	0.000	38.000
	3	158.000	27.000	1.000

Turning Proportions (Veh) - Junction 1 - (17:00-17:15)

	To			
		1	2	3
From	1	0.01	0.24	0.75
	2	0.51	0.00	0.49
	3	0.85	0.15	0.01

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:15-17:30)

	To			
		1	2	3
From	1	3.000	45.000	112.000
	2	43.000	0.000	20.000
	3	145.000	28.000	1.000

Turning Proportions (Veh) - Junction 1 - (17:15-17:30)

	To			
		1	2	3
From	1	0.02	0.28	0.70
	2	0.68	0.00	0.32
	3	0.83	0.16	0.01

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		1	2	3
	1	1.000	1.000	1.028
	2	1.019	1.000	1.140
	3	1.037	1.110	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	0.0	2.8
	2	1.9	0.0	14.0
	3	3.7	11.0	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.58	7.01	1.39	A
2	0.32	5.35	0.50	A
3	0.62	7.73	1.65	A

Main Results for each time segment

Main results: (16:30-16:45)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	163.22	162.04	44.10	0.00	301.89	0.541	1.18	6.511	A
2	77.72	77.28	118.36	0.00	265.35	0.293	0.44	5.155	A
3	164.69	163.58	37.47	0.00	318.46	0.517	1.11	6.091	A

Main results: (16:45-17:00)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	180.86	180.66	27.86	0.00	311.58	0.580	1.39	7.012	A
2	71.06	71.08	141.64	0.00	251.01	0.283	0.42	5.307	A
3	165.67	165.63	44.79	0.00	313.92	0.528	1.16	6.360	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	153.16	153.54	30.90	0.00	309.77	0.494	1.01	5.896	A
2	84.08	84.01	118.47	0.00	265.28	0.317	0.50	5.351	A
3	194.82	194.32	41.78	0.00	315.78	0.617	1.65	7.728	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	163.14	163.02	32.08	0.00	309.06	0.528	1.12	6.277	A
2	66.62	66.76	119.10	0.00	264.89	0.251	0.36	4.808	A
3	182.45	182.60	46.81	0.00	312.66	0.584	1.49	7.268	A

Existing Junction Layout - 2016 Future Year Baseline with Development, SAT

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Existing Junction Layout	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2016 Future Year Baseline with Development, SAT	2016 Future Year Baseline with Development	SAT		DIRECT	12:45	13:45	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
1	Botwell Lane/Church Road Roundabout	Roundabout	1,2,3			7.96	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	Botwell Lane (NW)	
2	2	Church Road	
3	3	Botwell Lane (SE)	Town Centre Approach Arm

Capacity Options

Arm	Minimum Capacity (PCU/TS)	Maximum Capacity (PCU/TS)
1	0.00	24999.75
2	0.00	24999.75
3	0.00	24999.75

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.50	3.32	15.00	17.00	15.00	
2	3.50	4.70	4.87	25.00	17.00	12.50	
3	3.30	5.10	5.64	35.00	17.00	14.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/TS)	Final Slope	Final Intercept (PCU/TS)
1		(calculated)	(calculated)	0.597	328.200
2		(calculated)	(calculated)	0.616	338.226
3		(calculated)	(calculated)	0.621	341.709

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
1	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (12:45-13:00)

		To		
From		1	2	3
	1	2.000	31.000	108.000
	2	60.000	0.000	22.000
	3	173.000	37.000	1.000

Turning Proportions (Veh) - Junction 1 - (12:45-13:00)

	To			
		1	2	3
From	1	0.01	0.22	0.77
	2	0.73	0.00	0.27
	3	0.82	0.18	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:00-13:15)

	To			
		1	2	3
From	1	1.000	30.000	109.000
	2	66.000	0.000	26.000
	3	153.000	35.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:00-13:15)

	To			
		1	2	3
From	1	0.01	0.21	0.78
	2	0.72	0.00	0.28
	3	0.81	0.19	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:15-13:30)

	To			
		1	2	3
From	1	1.000	27.000	113.000
	2	66.000	0.000	27.000
	3	151.000	41.000	1.000

Turning Proportions (Veh) - Junction 1 - (13:15-13:30)

	To			
		1	2	3
From	1	0.01	0.19	0.80
	2	0.71	0.00	0.29
	3	0.78	0.21	0.01

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:30-13:45)

	To			
		1	2	3
From	1	1.000	49.000	92.000
	2	64.000	0.000	41.000
	3	139.000	37.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:30-13:45)

	To			
		1	2	3
From	1	0.01	0.35	0.65
	2	0.61	0.00	0.39
	3	0.79	0.21	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		1	2	3
	1	1.000	1.015	1.029
	2	1.008	1.000	1.122
	3	1.031	1.089	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	1.5	2.9
	2	0.8	0.0	12.2
	3	3.1	8.9	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.48	5.90	0.94	A
2	0.40	5.61	0.68	A
3	0.72	10.58	2.62	B

Main Results for each time segment

Main results: (12:45-13:00)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	144.60	143.68	40.80	0.00	303.86	0.476	0.92	5.731	A
2	85.16	84.69	113.40	0.00	268.40	0.317	0.48	5.074	A
3	219.66	217.03	62.13	0.00	303.16	0.725	2.62	10.581	B

Main results: (13:00-13:15)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	143.61	143.62	38.22	0.00	305.40	0.470	0.92	5.708	A
2	95.70	95.61	113.17	0.00	268.54	0.356	0.57	5.411	A
3	195.86	196.47	67.48	0.00	299.84	0.653	2.01	9.126	A

Main results: (13:15-13:30)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	144.68	144.66	45.57	0.00	301.02	0.481	0.94	5.904	A
2	96.82	96.80	118.23	0.00	265.43	0.365	0.59	5.556	A
3	201.33	201.25	67.52	0.00	299.81	0.672	2.09	9.511	A

Main results: (13:30-13:45)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	145.40	145.41	40.40	0.00	304.10	0.478	0.94	5.806	A
2	110.51	110.42	95.82	0.00	279.22	0.396	0.68	5.609	A
3	183.60	184.03	65.52	0.00	301.05	0.610	1.66	8.055	A

Existing Junction Layout - 2020 Future Year Baseline with Development, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Existing Junction Layout	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2020 Future Year Baseline with Development, PM	2020 Future Year Baseline with Development	PM		DIRECT	16:30	17:30	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
1	Botwell Lane/Church Road Roundabout	Roundabout	1,2,3			7.88	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	Botwell Lane (NW)	
2	2	Church Road	
3	3	Botwell Lane (SE)	Town Centre Approach Arm

Capacity Options

Arm	Minimum Capacity (PCU/TS)	Maximum Capacity (PCU/TS)
1	0.00	24999.75
2	0.00	24999.75
3	0.00	24999.75

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.50	3.32	15.00	17.00	15.00	
2	3.50	4.70	4.87	25.00	17.00	12.50	
3	3.30	5.10	5.64	35.00	17.00	14.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/TS)	Final Slope	Final Intercept (PCU/TS)
1		(calculated)	(calculated)	0.597	328.200
2		(calculated)	(calculated)	0.616	338.226
3		(calculated)	(calculated)	0.621	341.709

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
1	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:30-16:45)

		To		
From		1	2	3
	1	1.000	47.000	123.000
	2	38.000	0.000	38.000
	3	124.000	43.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:30-16:45)

	To			
		1	2	3
From	1	0.01	0.27	0.72
	2	0.50	0.00	0.50
	3	0.74	0.26	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (16:45-17:00)

	To			
		1	2	3
From	1	0.000	41.000	148.000
	2	47.000	0.000	25.000
	3	142.000	27.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:45-17:00)

	To			
		1	2	3
From	1	0.00	0.22	0.78
	2	0.65	0.00	0.35
	3	0.84	0.16	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:00-17:15)

	To			
		1	2	3
From	1	1.000	38.000	121.000
	2	42.000	0.000	40.000
	3	170.000	29.000	1.000

Turning Proportions (Veh) - Junction 1 - (17:00-17:15)

	To			
		1	2	3
From	1	0.01	0.24	0.76
	2	0.51	0.00	0.49
	3	0.85	0.15	0.01

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (17:15-17:30)

	To			
		1	2	3
From	1	3.000	48.000	120.000
	2	46.000	0.000	21.000
	3	155.000	30.000	1.000

Turning Proportions (Veh) - Junction 1 - (17:15-17:30)

	To			
		1	2	3
From	1	0.02	0.28	0.70
	2	0.69	0.00	0.31
	3	0.83	0.16	0.01

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		1	2	3
	1	1.000	1.000	1.028
	2	1.019	1.000	1.141
	3	1.037	1.111	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	0.0	2.8
	2	1.9	0.0	14.1
	3	3.7	11.1	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.62	7.82	1.65	A
2	0.34	5.68	0.55	A
3	0.67	8.86	2.03	A

Main Results for each time segment

Main results: (16:30-16:45)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	174.44	173.05	47.42	0.00	299.91	0.582	1.39	7.162	A
2	82.08	81.59	126.43	0.00	260.38	0.315	0.49	5.423	A
3	176.36	175.06	39.48	0.00	317.21	0.556	1.30	6.628	A

Main results: (16:45-17:00)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	193.14	192.88	30.12	0.00	310.23	0.623	1.65	7.817	A
2	76.42	76.43	151.86	0.00	244.72	0.312	0.48	5.678	A
3	177.25	177.19	47.83	0.00	312.03	0.568	1.36	6.995	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	163.39	163.87	33.13	0.00	308.44	0.530	1.17	6.380	A
2	88.44	88.37	126.78	0.00	260.16	0.340	0.55	5.648	A
3	209.51	208.84	43.83	0.00	314.51	0.666	2.03	8.862	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	174.36	174.21	34.33	0.00	307.72	0.567	1.31	6.864	A
2	70.84	70.99	127.30	0.00	259.84	0.273	0.40	5.042	A
3	195.07	195.29	49.86	0.00	310.77	0.628	1.80	8.193	A

Existing Junction Layout - 2020 Future Year Baseline with Development, SAT

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
Existing Junction Layout	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2020 Future Year Baseline with Development, SAT	2020 Future Year Baseline with Development	SAT		DIRECT	12:45	13:45	60	15		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
1	Botwell Lane/Church Road Roundabout	Roundabout	1,2,3			9.39	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
1	1	Botwell Lane (NW)	
2	2	Church Road	
3	3	Botwell Lane (SE)	Town Centre Approach Arm

Capacity Options

Arm	Minimum Capacity (PCU/TS)	Maximum Capacity (PCU/TS)
1	0.00	24999.75
2	0.00	24999.75
3	0.00	24999.75

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.50	3.32	15.00	17.00	15.00	
2	3.50	4.70	4.87	25.00	17.00	12.50	
3	3.30	5.10	5.64	35.00	17.00	14.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/TS)	Final Slope	Final Intercept (PCU/TS)
1		(calculated)	(calculated)	0.597	328.200
2		(calculated)	(calculated)	0.616	338.226
3		(calculated)	(calculated)	0.621	341.709

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00			✓	✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/TS)	Flow Scaling Factor (%)
1	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (12:45-13:00)

		To		
From		1	2	3
	1	2.000	33.000	116.000
	2	64.000	0.000	24.000
	3	187.000	39.000	1.000

Turning Proportions (Veh) - Junction 1 - (12:45-13:00)

	To			
		1	2	3
From	1	0.01	0.22	0.77
	2	0.73	0.00	0.27
	3	0.82	0.17	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:00-13:15)

	To			
		1	2	3
From	1	1.000	32.000	117.000
	2	70.000	0.000	28.000
	3	165.000	38.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:00-13:15)

	To			
		1	2	3
From	1	0.01	0.21	0.78
	2	0.71	0.00	0.29
	3	0.81	0.19	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:15-13:30)

	To			
		1	2	3
From	1	1.000	29.000	121.000
	2	70.000	0.000	29.000
	3	163.000	43.000	1.000

Turning Proportions (Veh) - Junction 1 - (13:15-13:30)

	To			
		1	2	3
From	1	0.01	0.19	0.80
	2	0.71	0.00	0.29
	3	0.79	0.21	0.00

Turning Counts / Proportions (Veh/ TS) - Junction 1 - (13:30-13:45)

	To			
		1	2	3
From	1	1.000	52.000	100.000
	2	68.000	0.000	43.000
	3	149.000	39.000	0.000

Turning Proportions (Veh) - Junction 1 - (13:30-13:45)

	To			
		1	2	3
From	1	0.01	0.34	0.65
	2	0.61	0.00	0.39
	3	0.79	0.21	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		1	2	3
	1	1.000	1.015	1.029
	2	1.008	1.000	1.124
	3	1.031	1.090	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	1.5	2.9
	2	0.8	0.0	12.4
	3	3.1	9.0	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.52	6.38	1.09	A
2	0.43	6.02	0.77	A
3	0.79	13.18	3.57	B

Main Results for each time segment

Main results: (12:45-13:00)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	154.86	153.80	42.85	0.00	302.64	0.512	1.06	6.159	A
2	91.49	90.94	121.52	0.00	263.40	0.347	0.55	5.408	A
3	236.31	232.74	66.11	0.00	300.69	0.786	3.57	13.176	B

Main results: (13:00-13:15)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	153.87	153.87	41.55	0.00	303.41	0.507	1.06	6.175	A
2	102.03	101.93	121.40	0.00	263.47	0.387	0.65	5.796	A
3	211.54	212.44	71.50	0.00	297.34	0.711	2.67	11.168	B

Main results: (13:15-13:30)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	154.94	154.92	47.79	0.00	299.69	0.517	1.09	6.376	A
2	103.16	103.13	126.45	0.00	260.36	0.396	0.68	5.962	A
3	215.92	215.88	71.55	0.00	297.31	0.726	2.71	11.508	B

Main results: (13:30-13:45)

Arm	Total Demand (PCU/TS)	Entry Flow (PCU/TS)	Circulating Flow (PCU/TS)	Pedestrian Demand (Ped/TS)	Capacity (PCU/TS)	RFC	End Queue (PCU)	Delay (s)	LOS
1	156.68	156.68	42.67	0.00	302.75	0.518	1.09	6.309	A
2	116.88	116.78	104.07	0.00	274.14	0.426	0.77	6.017	A
3	196.13	196.79	69.55	0.00	298.55	0.657	2.05	9.288	A