

APPENDIX 2.3

TRAFFIC MODELLING – SOUTHERN COMPACT ROUNDABOUT LAYOUT – SENSITIVITY TESTING

Junctions 9
ARCADY 9 - Roundabout Module
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Filename: Compact roundabout layout_Sensitivity Test.j9

Path: C:\Users\304919\Box\PB8301 Haverhill\PB8301 Team\PB8301 Technical Data\Calcs\Internal Junction Testing\Southern Junc Options\Sensitivity Test

Report generation date: 21/03/2019 11:34:05

- »2500 Dwellings + 5%, AM
- »2500 Dwellings + 5%, PM
- »2500 Dwellings + 10%, AM
- »2500 Dwellings + 10%, PM
- »2500 Dwellings + 15%, AM
- »2500 Dwellings + 15%, PM
- »2500 Dwellings + 20%, AM
- »2500 Dwellings + 20%, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2500 Dwellings + 5%								
Arm 1	5.1	23.28	0.84	C	1.1	7.73	0.51	A
Arm 2	0.6	8.52	0.36	A	1.1	9.72	0.52	A
Arm 3	0.6	6.27	0.37	A	2.8	15.86	0.73	C
2500 Dwellings + 10%								
Arm 1	7.1	30.92	0.88	D	1.2	8.18	0.53	A
Arm 2	0.7	9.03	0.39	A	1.2	10.43	0.54	B
Arm 3	0.7	6.50	0.39	A	3.4	18.86	0.77	C
2500 Dwellings + 15%								
Arm 1	10.2	43.16	0.93	E	1.3	8.68	0.56	A
Arm 2	0.7	9.58	0.41	A	1.4	11.28	0.57	B
Arm 3	0.7	6.72	0.41	A	4.3	22.88	0.81	C
2500 Dwellings + 20%								
Arm 1	16.1	63.68	0.97	F	1.5	9.26	0.58	A
Arm 2	0.8	10.14	0.44	B	1.6	12.29	0.61	B
Arm 3	0.8	6.98	0.43	A	5.7	29.39	0.86	D

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

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

File summary

File Description

Title	Haverhill Southern Roundabout
Location	
Site number	
Date	20/03/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORPORATEROOT\304919
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2500 Dwellings + 5%	AM	ONE HOUR	07:45	09:15	15
D2	2500 Dwellings + 5%	PM	ONE HOUR	16:45	18:15	15
D3	2500 Dwellings + 10%	AM	ONE HOUR	07:45	09:15	15
D4	2500 Dwellings + 10%	PM	ONE HOUR	16:45	18:15	15
D5	2500 Dwellings + 15%	AM	ONE HOUR	07:45	09:15	15
D6	2500 Dwellings + 15%	PM	ONE HOUR	16:45	18:15	15
D7	2500 Dwellings + 20%	AM	ONE HOUR	07:45	09:15	15
D8	2500 Dwellings + 20%	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2500 Dwellings + 5%, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Southern Junction	Standard Roundabout		1, 2, 3	16.48	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	East	
2	South	
3	North	

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	3.10	5.10	4.4	18.3	22.0	60.7	
2	3.10	3.40	1.3	14.7	22.0	32.6	
3	3.10	3.80	4.2	30.0	22.0	48.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.496	1054
2	0.504	965
3	0.510	1028

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2500 Dwellings + 5%	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	757	100.000
2		✓	228	100.000
3		✓	327	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	268	489
	2	116	0	112
	3	212	115	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
1	0.84	23.28	5.1	26.2	C
2	0.36	8.52	0.6	2.8	A
3	0.37	6.27	0.6	2.8	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	570	86	1012	0.563	565	1.3	8.358	A
2	172	365	781	0.220	170	0.3	6.175	A
3	246	87	984	0.250	245	0.3	5.107	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	681	103	1003	0.678	677	2.1	11.478	B
2	205	438	745	0.275	205	0.4	6.992	A
3	294	104	975	0.302	294	0.4	5.545	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	833	126	992	0.840	823	4.8	21.080	C
2	251	531	698	0.360	250	0.6	8.436	A
3	360	127	963	0.374	359	0.6	6.257	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	833	127	992	0.840	832	5.1	23.279	C
2	251	538	694	0.362	251	0.6	8.523	A
3	360	128	963	0.374	360	0.6	6.271	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	681	104	1003	0.678	692	2.3	12.555	B
2	205	447	740	0.277	206	0.4	7.082	A
3	294	105	974	0.302	295	0.5	5.567	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	570	87	1011	0.563	574	1.4	8.704	A
2	172	371	779	0.220	172	0.3	6.236	A
3	246	88	983	0.250	247	0.4	5.136	A

Queue Variation Results for each time segment

07:45 - 08:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.33	0.58	1.05	1.47	1.52			N/A	N/A
2	0.29	0.00	0.00	0.29	0.29			N/A	N/A
3	0.35	0.00	0.00	0.35	0.35			N/A	N/A

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	2.13	0.07	1.06	5.23	7.67			N/A	N/A
2	0.39	0.00	0.00	0.39	0.39			N/A	N/A
3	0.45	0.00	0.00	0.45	0.45			N/A	N/A

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	4.84	0.04	0.39	12.01	26.16			N/A	N/A
2	0.58	0.03	0.27	0.58	0.58			N/A	N/A
3	0.62	0.03	0.27	0.62	0.62			N/A	N/A

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	5.14	0.03	0.33	6.09	24.40			N/A	N/A
2	0.59	0.03	0.31	1.43	2.77			N/A	N/A
3	0.62	0.03	0.30	1.21	2.78			N/A	N/A

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	2.30	0.05	0.47	6.28	10.66			N/A	N/A
2	0.41	0.00	0.00	0.41	0.41			N/A	N/A
3	0.46	0.00	0.00	0.46	0.46			N/A	N/A

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.38	0.04	0.36	3.29	7.01			N/A	N/A
2	0.30	0.00	0.00	0.30	0.30			N/A	N/A
3	0.35	0.00	0.00	0.35	0.35			N/A	N/A

2500 Dwellings + 5%, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Southern Junction	Standard Roundabout		1, 2, 3	11.62	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2500 Dwellings + 5%	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	457	100.000
2		✓	375	100.000
3		✓	586	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	162	295
	2	259	0	116
	3	471	115	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
1	0.51	7.73	1.1	2.1	A
2	0.52	9.72	1.1	2.8	A
3	0.73	15.86	2.8	12.4	C

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	344	86	1012	0.340	342	0.5	5.624	A
2	282	221	854	0.331	280	0.5	6.564	A
3	441	194	929	0.475	437	0.9	7.632	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	411	103	1003	0.409	410	0.7	6.363	A
2	337	265	832	0.405	336	0.7	7.615	A
3	527	232	909	0.579	525	1.4	9.783	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	503	126	992	0.507	502	1.1	7.685	A
2	413	324	802	0.515	411	1.1	9.636	A
3	645	284	883	0.731	640	2.7	15.248	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	503	127	992	0.507	503	1.1	7.735	A
2	413	325	802	0.515	413	1.1	9.719	A
3	645	285	882	0.731	645	2.8	15.859	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	411	104	1003	0.410	412	0.7	6.417	A
2	337	266	831	0.406	339	0.7	7.697	A
3	527	234	909	0.580	532	1.5	10.169	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	344	87	1011	0.340	345	0.5	5.679	A
2	282	223	853	0.331	283	0.5	6.643	A
3	441	196	928	0.475	443	1.0	7.829	A

Queue Variation Results for each time segment

16:45 - 17:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.54	0.54	1.05	1.47	1.52			N/A	N/A
2	0.51	0.00	0.00	0.51	0.51			N/A	N/A
3	0.93	0.58	1.05	1.47	1.52			N/A	N/A

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.72	0.15	0.94	1.45	1.51			N/A	N/A
2	0.71	0.16	0.95	1.45	1.51			N/A	N/A
3	1.41	0.08	1.05	2.87	3.91			N/A	N/A

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.06	0.03	0.27	1.06	1.06			N/A	N/A
2	1.09	0.03	0.28	1.09	1.09			N/A	N/A
3	2.69	0.03	0.32	2.89	12.42			N/A	N/A

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.07	0.03	0.29	1.07	2.07			N/A	N/A
2	1.10	0.03	0.29	1.10	2.82			N/A	N/A
3	2.77	0.03	0.29	2.77	7.62			N/A	N/A

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.74	0.15	0.94	1.45	1.51			N/A	N/A
2	0.73	0.10	0.87	1.44	1.52			N/A	N/A
3	1.49	0.06	0.71	3.56	5.23			N/A	N/A

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.55	0.05	0.52	1.36	1.47			N/A	N/A
2	0.52	0.05	0.47	1.34	1.46			N/A	N/A
3	0.97	0.04	0.41	2.33	3.91			N/A	N/A

2500 Dwellings + 10%, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Southern Junction	Standard Roundabout		1, 2, 3	21.03	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2500 Dwellings + 10%	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	794	100.000
2		✓	239	100.000
3		✓	343	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	281	513
	2	122	0	117
	3	222	121	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
1	0.88	30.92	7.1	38.6	D
2	0.39	9.03	0.7	3.0	A
3	0.39	6.50	0.7	2.8	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	598	91	1010	0.592	592	1.5	8.928	A
2	180	382	773	0.233	179	0.3	6.352	A
3	258	91	981	0.263	257	0.4	5.206	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	714	109	1001	0.713	710	2.5	12.812	B
2	215	459	734	0.293	214	0.4	7.265	A
3	308	109	972	0.317	308	0.5	5.688	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	874	133	989	0.884	858	6.4	26.298	D
2	263	555	686	0.384	262	0.6	8.907	A
3	378	134	960	0.394	377	0.7	6.480	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	874	133	988	0.884	872	7.1	30.920	D
2	263	563	682	0.386	263	0.7	9.032	A
3	378	134	959	0.394	378	0.7	6.497	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	714	109	1000	0.714	731	2.7	14.841	B
2	215	472	727	0.295	216	0.4	7.402	A
3	308	110	972	0.317	309	0.5	5.712	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	598	91	1009	0.592	602	1.6	9.400	A
2	180	389	769	0.234	180	0.3	6.427	A
3	258	92	981	0.263	259	0.4	5.239	A

Queue Variation Results for each time segment

07:45 - 08:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.49	0.61	1.36	1.82	1.96			N/A	N/A
2	0.32	0.00	0.00	0.32	0.32			N/A	N/A
3	0.37	0.00	0.00	0.37	0.37			N/A	N/A

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	2.50	0.07	1.12	6.33	9.35			N/A	N/A
2	0.43	0.00	0.00	0.43	0.43			N/A	N/A
3	0.48	0.00	0.00	0.48	0.48			N/A	N/A

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	6.43	0.05	0.50	18.32	33.10			N/A	N/A
2	0.64	0.03	0.27	0.64	0.64			N/A	N/A
3	0.67	0.03	0.27	0.67	0.67			N/A	N/A

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	7.06	0.04	0.37	15.24	38.63			N/A	N/A
2	0.65	0.03	0.31	1.37	3.02			N/A	N/A
3	0.68	0.03	0.30	1.05	2.82			N/A	N/A

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	2.74	0.04	0.45	7.56	13.47			N/A	N/A
2	0.45	0.00	0.00	0.45	0.45			N/A	N/A
3	0.49	0.00	0.00	0.49	0.49			N/A	N/A

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.56	0.03	0.34	3.33	8.10			N/A	N/A
2	0.32	0.00	0.00	0.32	0.32			N/A	N/A
3	0.38	0.00	0.00	0.38	0.38			N/A	N/A

2500 Dwellings + 10%, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Southern Junction	Standard Roundabout		1, 2, 3	13.20	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2500 Dwellings + 10%	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	478	100.000
2		✓	392	100.000
3		✓	615	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	169	309
	2	271	0	121
	3	494	121	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
1	0.53	8.18	1.2	2.0	A
2	0.54	10.43	1.2	2.9	B
3	0.77	18.86	3.4	17.2	C

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	360	90	1010	0.356	358	0.6	5.777	A
2	295	231	849	0.348	293	0.6	6.773	A
3	463	202	925	0.501	459	1.0	8.049	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	430	108	1001	0.429	429	0.8	6.600	A
2	352	277	826	0.427	352	0.8	7.959	A
3	553	243	904	0.612	551	1.6	10.628	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	526	132	989	0.532	525	1.2	8.111	A
2	432	339	794	0.543	430	1.2	10.318	B
3	677	297	876	0.773	670	3.3	17.791	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	526	133	988	0.532	526	1.2	8.177	A
2	432	340	794	0.544	432	1.2	10.428	B
3	677	298	876	0.773	677	3.4	18.862	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	430	110	1000	0.430	431	0.8	6.664	A
2	352	279	825	0.427	354	0.8	8.063	A
3	553	245	903	0.612	560	1.7	11.224	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	360	92	1009	0.357	361	0.6	5.837	A
2	295	233	848	0.348	296	0.6	6.864	A
3	463	205	923	0.501	466	1.1	8.301	A

Queue Variation Results for each time segment

16:45 - 17:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.58	0.58	1.05	1.47	1.52			N/A	N/A
2	0.55	0.55	1.05	1.47	1.52			N/A	N/A
3	1.03	0.58	1.05	1.47	1.52			N/A	N/A

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.78	0.15	0.94	1.46	1.52			N/A	N/A
2	0.77	0.15	0.94	1.46	1.52			N/A	N/A
3	1.61	0.07	1.05	3.55	4.95			N/A	N/A

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.17	0.03	0.27	1.17	1.17			N/A	N/A
2	1.22	0.03	0.28	1.22	1.22			N/A	N/A
3	3.30	0.03	0.34	5.74	17.20			N/A	N/A

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.18	0.03	0.28	1.18	1.95			N/A	N/A
2	1.24	0.03	0.29	1.24	2.86			N/A	N/A
3	3.43	0.03	0.30	3.43	12.40			N/A	N/A

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.80	0.14	0.94	1.47	1.53			N/A	N/A
2	0.80	0.10	0.88	1.49	1.56			N/A	N/A
3	1.71	0.05	0.52	4.39	6.88			N/A	N/A

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.59	0.06	0.59	1.38	1.48			N/A	N/A
2	0.57	0.05	0.49	1.38	1.49			N/A	N/A
3	1.07	0.04	0.38	2.69	4.89			N/A	N/A

2500 Dwellings + 15%, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Southern Junction	Standard Roundabout		1, 2, 3	28.25	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2500 Dwellings + 15%	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	830	100.000
2		✓	250	100.000
3		✓	358	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	294	536
	2	127	0	123
	3	232	126	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
1	0.93	43.16	10.2	53.8	E
2	0.41	9.58	0.7	3.2	A
3	0.41	6.72	0.7	2.8	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	625	94	1008	0.620	618	1.7	9.558	A
2	188	399	764	0.246	187	0.3	6.534	A
3	270	95	979	0.275	268	0.4	5.301	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	746	113	998	0.747	741	2.9	14.402	B
2	225	479	724	0.310	224	0.5	7.553	A
3	322	114	970	0.332	321	0.5	5.826	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	914	138	986	0.927	890	8.8	33.376	D
2	275	575	676	0.407	274	0.7	9.395	A
3	394	139	957	0.412	393	0.7	6.699	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	914	139	986	0.927	908	10.2	43.158	E
2	275	586	670	0.411	275	0.7	9.575	A
3	394	140	957	0.412	394	0.7	6.720	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	746	114	998	0.748	774	3.3	18.619	C
2	225	500	714	0.315	226	0.5	7.765	A
3	322	115	969	0.332	323	0.5	5.851	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	625	95	1007	0.620	631	1.8	10.204	B
2	188	408	760	0.248	189	0.3	6.626	A
3	270	96	979	0.275	270	0.4	5.335	A

Queue Variation Results for each time segment

07:45 - 08:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.67	0.63	1.12	1.98	2.09			N/A	N/A
2	0.34	0.00	0.00	0.34	0.34			N/A	N/A
3	0.40	0.00	0.00	0.40	0.40			N/A	N/A

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	2.93	0.07	1.24	7.62	11.27			N/A	N/A
2	0.47	0.00	0.00	0.47	0.47			N/A	N/A
3	0.52	0.00	0.00	0.52	0.52			N/A	N/A

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	8.80	0.07	1.43	25.37	39.99			N/A	N/A
2	0.71	0.03	0.27	0.71	0.71			N/A	N/A
3	0.73	0.03	0.27	0.73	0.73			N/A	N/A

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	10.23	0.05	0.50	28.96	53.83			N/A	N/A
2	0.72	0.03	0.30	1.28	3.19			N/A	N/A
3	0.73	0.03	0.30	0.87	2.83			N/A	N/A

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	3.31	0.04	0.44	9.11	16.79			N/A	N/A
2	0.49	0.00	0.00	0.49	0.49			N/A	N/A
3	0.53	0.53	1.05	1.47	1.52			N/A	N/A

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.76	0.03	0.33	3.27	9.17			N/A	N/A
2	0.35	0.03	0.27	0.48	0.50			N/A	N/A
3	0.40	0.00	0.00	0.40	0.40			N/A	N/A

2500 Dwellings + 15%, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Southern Junction	Standard Roundabout		1, 2, 3	15.24	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2500 Dwellings + 15%	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	500	100.000
2		✓	410	100.000
3		✓	642	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	177	323
	2	283	0	127
	3	516	126	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
1	0.56	8.68	1.3	1.9	A
2	0.57	11.28	1.4	3.0	B
3	0.81	22.88	4.3	22.1	C

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	376	94	1008	0.373	374	0.6	5.941	A
2	309	242	844	0.366	306	0.6	7.005	A
3	483	211	920	0.525	479	1.1	8.484	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	449	113	999	0.450	449	0.8	6.861	A
2	369	290	819	0.450	368	0.8	8.351	A
3	577	254	898	0.642	574	1.8	11.566	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	551	137	987	0.558	549	1.3	8.597	A
2	451	354	787	0.574	449	1.4	11.134	B
3	707	310	870	0.813	698	4.1	20.970	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	551	139	986	0.558	550	1.3	8.680	A
2	451	356	786	0.574	451	1.4	11.285	B
3	707	312	869	0.814	706	4.3	22.879	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	449	115	997	0.451	451	0.9	6.942	A
2	369	292	818	0.450	371	0.9	8.481	A
3	577	256	897	0.643	587	2.0	12.506	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	376	95	1007	0.374	377	0.6	6.013	A
2	309	244	842	0.366	310	0.6	7.112	A
3	483	214	919	0.526	486	1.2	8.805	A

Queue Variation Results for each time segment

16:45 - 17:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.62	0.58	1.05	1.47	1.52			N/A	N/A
2	0.60	0.58	1.05	1.47	1.52			N/A	N/A
3	1.14	0.58	1.05	1.47	1.52			N/A	N/A

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.85	0.13	0.95	1.50	1.57			N/A	N/A
2	0.85	0.14	0.95	1.49	1.56			N/A	N/A
3	1.82	0.07	1.06	4.21	6.06			N/A	N/A

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.30	0.03	0.28	1.30	1.30			N/A	N/A
2	1.38	0.03	0.28	1.38	1.61			N/A	N/A
3	4.07	0.04	0.37	9.39	22.05			N/A	N/A

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.31	0.03	0.28	1.31	1.90			N/A	N/A
2	1.40	0.03	0.29	1.40	3.03			N/A	N/A
3	4.30	0.03	0.32	4.30	19.38			N/A	N/A

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.87	0.12	0.94	1.32	1.32			N/A	N/A
2	0.87	0.09	0.89	1.11	1.66			N/A	N/A
3	1.96	0.05	0.48	5.23	8.65			N/A	N/A

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.63	0.06	0.61	1.42	1.52			N/A	N/A
2	0.61	0.05	0.50	1.44	1.57			N/A	N/A
3	1.19	0.04	0.36	2.87	5.84			N/A	N/A

2500 Dwellings + 20%, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Southern Junction	Standard Roundabout		1, 2, 3	40.24	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2500 Dwellings + 20%	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	866	100.000
2		✓	261	100.000
3		✓	374	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	307	559
	2	133	0	128
	3	242	132	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
1	0.97	63.68	16.1	69.5	F
2	0.44	10.14	0.8	3.4	B
3	0.43	6.98	0.8	2.8	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	652	99	1005	0.648	644	1.9	10.270	B
2	196	416	756	0.260	195	0.4	6.724	A
3	282	99	977	0.288	280	0.4	5.408	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	779	118	996	0.782	772	3.5	16.370	C
2	235	498	714	0.329	234	0.5	7.863	A
3	336	119	967	0.348	336	0.6	5.982	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	953	145	983	0.970	917	12.5	43.291	E
2	287	592	667	0.431	286	0.8	9.900	A
3	412	146	953	0.432	411	0.8	6.956	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	953	145	982	0.971	939	16.1	63.682	F
2	287	606	660	0.435	287	0.8	10.141	B
3	412	146	953	0.432	412	0.8	6.981	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	779	119	995	0.782	826	4.1	27.085	D
2	235	533	697	0.337	236	0.5	8.222	A
3	336	120	967	0.348	337	0.6	6.013	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	652	100	1005	0.649	660	2.0	11.225	B
2	196	426	750	0.262	197	0.4	6.841	A
3	282	100	977	0.288	282	0.4	5.448	A

Queue Variation Results for each time segment

07:45 - 08:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.87	0.64	1.30	2.56	2.95			N/A	N/A
2	0.37	0.00	0.00	0.37	0.37			N/A	N/A
3	0.42	0.00	0.00	0.42	0.42			N/A	N/A

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	3.49	0.08	1.43	9.15	13.46			N/A	N/A
2	0.51	0.00	0.00	0.51	0.51			N/A	N/A
3	0.55	0.55	1.05	1.47	1.52			N/A	N/A

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	12.54	0.17	5.39	33.11	46.94			N/A	N/A
2	0.78	0.03	0.27	0.78	0.78			N/A	N/A
3	0.79	0.03	0.27	0.79	0.79			N/A	N/A

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	16.11	0.11	4.25	45.92	69.55			N/A	N/A
2	0.80	0.03	0.30	1.18	3.37			N/A	N/A
3	0.79	0.03	0.29	0.79	2.76			N/A	N/A

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	4.13	0.04	0.45	11.40	21.19			N/A	N/A
2	0.54	0.06	0.59	1.38	1.48			N/A	N/A
3	0.57	0.57	1.05	1.47	1.52			N/A	N/A

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	2.00	0.03	0.33	3.15	10.15			N/A	N/A
2	0.38	0.03	0.28	0.51	0.85			N/A	N/A
3	0.43	0.03	0.30	0.64	1.11			N/A	N/A

2500 Dwellings + 20%, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Southern Junction	Standard Roundabout		1, 2, 3	18.39	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2500 Dwellings + 20%	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	522	100.000
2		✓	428	100.000
3		✓	671	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	185	337
	2	296	0	132
	3	539	132	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
1	0.58	9.26	1.5	1.9	A
2	0.61	12.29	1.6	3.4	B
3	0.86	29.39	5.7	30.2	D

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	393	98	1006	0.391	390	0.7	6.118	A
2	322	252	838	0.384	320	0.6	7.252	A
3	505	221	915	0.552	500	1.3	9.005	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	469	118	996	0.471	468	0.9	7.148	A
2	385	302	813	0.473	384	0.9	8.781	A
3	603	265	892	0.676	600	2.1	12.769	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	575	143	984	0.584	573	1.4	9.149	A
2	471	370	779	0.605	469	1.6	12.082	B
3	739	324	862	0.857	726	5.3	25.622	D

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	575	145	983	0.585	575	1.5	9.262	A
2	471	371	778	0.605	471	1.6	12.293	B
3	739	326	862	0.857	737	5.7	29.390	D

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	469	121	994	0.472	471	1.0	7.257	A
2	385	304	812	0.474	387	1.0	8.953	A
3	603	268	891	0.677	617	2.3	14.401	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	393	100	1005	0.391	394	0.7	6.199	A
2	322	254	837	0.385	323	0.7	7.378	A
3	505	224	914	0.553	509	1.3	9.429	A

Queue Variation Results for each time segment

16:45 - 17:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.67	0.58	1.05	1.47	1.52			N/A	N/A
2	0.65	0.58	1.05	1.47	1.52			N/A	N/A
3	1.27	0.58	1.05	1.47	1.52			N/A	N/A

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.92	0.12	0.96	1.06	1.61			N/A	N/A
2	0.93	0.12	0.97	1.08	1.62			N/A	N/A
3	2.10	0.07	1.08	5.13	7.44			N/A	N/A

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.44	0.03	0.28	1.44	1.52			N/A	N/A
2	1.56	0.03	0.29	1.56	3.14			N/A	N/A
3	5.25	0.04	0.44	14.40	27.75			N/A	N/A

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.46	0.03	0.28	1.46	1.94			N/A	N/A
2	1.58	0.03	0.29	1.58	3.44			N/A	N/A
3	5.70	0.04	0.35	10.34	30.20			N/A	N/A

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.95	0.11	0.96	1.33	1.77			N/A	N/A
2	0.96	0.08	0.89	1.60	1.99			N/A	N/A
3	2.29	0.04	0.45	6.24	10.87			N/A	N/A

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.68	0.06	0.61	1.22	1.22			N/A	N/A
2	0.67	0.05	0.49	1.55	1.62			N/A	N/A
3	1.33	0.03	0.35	2.90	6.76			N/A	N/A