

APPENDIX 2.1

TRAFFIC MODELLING - NORTHERN COMPACT ROUNDABOUT LAYOUT SENSITIVITY TEST

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\Northern Junction Options\Sensitivity Test

Report generation date: 21/03/2019 12:05:49

- »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	2.0	10.52	0.67	B	0.8	6.28	0.45	A
Arm 2	0.7	6.45	0.40	A	4.1	20.70	0.81	C
Arm 3	0.3	6.05	0.25	A	0.2	6.90	0.19	A
	2500 Dwellings + 10%							
Arm 1	2.3	11.72	0.70	B	0.9	6.57	0.47	A
Arm 2	0.7	6.66	0.42	A	5.3	25.87	0.85	D
Arm 3	0.4	6.24	0.26	A	0.3	7.19	0.20	A
	2500 Dwellings + 15%							
Arm 1	2.7	13.26	0.73	B	1.0	6.86	0.50	A
Arm 2	0.8	6.91	0.44	A	7.2	33.84	0.89	D
Arm 3	0.4	6.42	0.28	A	0.3	7.49	0.21	A
	2500 Dwellings + 20%							
Arm 1	3.2	15.29	0.77	C	1.1	7.21	0.52	A
Arm 2	0.8	7.15	0.46	A	10.3	46.59	0.93	E
Arm 3	0.4	6.62	0.29	A	0.3	7.81	0.23	A

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

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

File summary

File Description

Title	Haverhill Northern 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	Northern Junction	Standard Roundabout		1, 2, 3	8.60	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	South	
2	North	
3	East	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.10	4.40	3.9	20.3	22.0	39.3	
2	3.10	4.30	3.5	10.0	22.0	59.0	
3	2.80	3.40	3.2	25.5	22.0	30.9	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.529	1094
2	0.461	946
3	0.515	969

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		✓	621	100.000
2		✓	340	100.000
3		✓	181	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	594	27
	2	291	0	49
	3	64	117	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	5
	2	0	0	0
	3	5	0	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	0.67	10.52	2.0	4.8	B
2	0.40	6.45	0.7	2.6	A
3	0.25	6.05	0.3	1.5	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	468	88	1048	0.446	464	0.8	6.149	A
2	256	20	937	0.273	254	0.4	5.262	A
3	136	218	857	0.159	136	0.2	5.070	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	558	105	1039	0.537	557	1.1	7.463	A
2	306	24	935	0.327	305	0.5	5.711	A
3	163	261	835	0.195	163	0.2	5.446	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	684	129	1026	0.666	681	1.9	10.341	B
2	374	30	933	0.401	374	0.7	6.432	A
3	199	320	804	0.248	199	0.3	6.042	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	684	129	1026	0.666	684	2.0	10.520	B
2	374	30	933	0.401	374	0.7	6.448	A
3	199	320	804	0.248	199	0.3	6.052	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	558	105	1039	0.538	561	1.2	7.608	A
2	306	24	935	0.327	306	0.5	5.732	A
3	163	262	834	0.195	163	0.2	5.458	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	468	88	1048	0.446	469	0.8	6.252	A
2	256	20	937	0.273	256	0.4	5.295	A
3	136	219	856	0.159	136	0.2	5.089	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	0.80	0.55	1.00	1.40	1.45			N/A	N/A
2	0.37	0.00	0.00	0.37	0.37			N/A	N/A
3	0.19	0.00	0.00	0.19	0.19			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	1.14	0.08	0.96	1.99	2.77			N/A	N/A
2	0.48	0.00	0.00	0.48	0.48			N/A	N/A
3	0.24	0.00	0.00	0.24	0.24			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	1.94	0.03	0.28	1.94	4.78			N/A	N/A
2	0.66	0.03	0.25	0.66	0.66			N/A	N/A
3	0.33	0.03	0.26	0.47	0.49			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	1.97	0.03	0.27	1.97	2.39			N/A	N/A
2	0.67	0.03	0.28	0.87	2.65			N/A	N/A
3	0.33	0.03	0.32	1.16	1.45			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	1.19	0.08	0.94	2.26	2.98			N/A	N/A
2	0.49	0.00	0.00	0.49	0.49			N/A	N/A
3	0.25	0.00	0.00	0.25	0.25			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	0.82	0.05	0.48	1.68	2.41			N/A	N/A
2	0.38	0.00	0.00	0.38	0.38			N/A	N/A
3	0.19	0.00	0.00	0.19	0.19			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	Northern Junction	Standard Roundabout		1, 2, 3	14.34	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		✓	432	100.000
2		✓	675	100.000
3		✓	110	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	369	63
	2	560	0	115
	3	39	71	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	0	5
	2	0	0	0
	3	5	0	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	0.45	6.28	0.8	2.3	A
2	0.81	20.70	4.1	21.2	C
3	0.19	6.90	0.2	0.9	A

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	325	53	1066	0.305	323	0.4	4.874	A
2	508	47	925	0.550	503	1.2	8.456	A
3	83	418	754	0.110	82	0.1	5.448	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	388	64	1061	0.366	388	0.6	5.384	A
2	607	57	920	0.659	604	1.9	11.288	B
3	99	501	711	0.139	99	0.2	5.979	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	476	78	1053	0.452	475	0.8	6.258	A
2	743	69	914	0.813	735	3.9	19.222	C
3	121	610	655	0.185	121	0.2	6.851	A

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	476	78	1053	0.452	476	0.8	6.279	A
2	743	69	914	0.813	742	4.1	20.704	C
3	121	616	652	0.186	121	0.2	6.897	A

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	388	64	1060	0.366	389	0.6	5.408	A
2	607	57	920	0.660	615	2.0	12.110	B
3	99	510	706	0.140	99	0.2	6.035	A

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	325	54	1066	0.305	326	0.4	4.903	A
2	508	48	924	0.550	511	1.2	8.776	A
3	83	424	751	0.110	83	0.1	5.486	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	0.44	0.00	0.00	0.44	0.44			N/A	N/A
2	1.20	0.55	1.00	1.40	1.45			N/A	N/A
3	0.12	0.00	0.00	0.12	0.12			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	0.58	0.55	1.01	1.41	1.46			N/A	N/A
2	1.87	0.07	1.04	4.46	6.39			N/A	N/A
3	0.16	0.00	0.00	0.16	0.16			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	0.82	0.03	0.26	0.82	0.82			N/A	N/A
2	3.91	0.03	0.35	8.54	21.22			N/A	N/A
3	0.23	0.03	0.26	0.47	0.49			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	0.82	0.03	0.28	0.82	2.32			N/A	N/A
2	4.10	0.03	0.30	4.10	17.18			N/A	N/A
3	0.23	0.03	0.28	0.50	0.88			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	0.59	0.55	1.01	1.41	1.46			N/A	N/A
2	2.01	0.05	0.46	5.43	8.88			N/A	N/A
3	0.17	0.00	0.00	0.17	0.17			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	0.45	0.03	0.33	1.09	1.30			N/A	N/A
2	1.25	0.04	0.36	3.07	6.02			N/A	N/A
3	0.13	0.00	0.00	0.13	0.13			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	Northern Junction	Standard Roundabout		1, 2, 3	9.35	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	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		✓	650	100.000
2		✓	356	100.000
3		✓	190	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	622	28
	2	305	0	51
	3	67	123	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	0	5
	2	0	0	0
	3	5	0	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	0.70	11.72	2.3	7.6	B
2	0.42	6.66	0.7	2.6	A
3	0.26	6.24	0.4	1.1	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	489	92	1046	0.468	486	0.9	6.406	A
2	268	21	937	0.286	266	0.4	5.355	A
3	143	228	852	0.168	142	0.2	5.156	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	584	110	1036	0.564	583	1.3	7.932	A
2	320	25	935	0.342	320	0.5	5.843	A
3	171	274	828	0.206	171	0.3	5.567	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	716	135	1023	0.700	712	2.2	11.453	B
2	392	31	932	0.420	391	0.7	6.645	A
3	209	335	797	0.263	209	0.4	6.225	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	716	135	1023	0.700	715	2.3	11.724	B
2	392	31	932	0.421	392	0.7	6.664	A
3	209	336	796	0.263	209	0.4	6.236	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	584	111	1036	0.564	588	1.3	8.131	A
2	320	25	935	0.342	321	0.5	5.872	A
3	171	275	828	0.206	171	0.3	5.580	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	489	93	1045	0.468	491	0.9	6.531	A
2	268	21	937	0.286	269	0.4	5.394	A
3	143	230	851	0.168	143	0.2	5.177	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	0.87	0.55	1.00	1.40	1.45			N/A	N/A
2	0.40	0.00	0.00	0.40	0.40			N/A	N/A
3	0.20	0.00	0.00	0.20	0.20			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	1.27	0.07	0.96	2.56	3.47			N/A	N/A
2	0.52	0.52	1.00	1.40	1.45			N/A	N/A
3	0.26	0.00	0.00	0.26	0.26			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	2.24	0.03	0.29	2.24	7.63			N/A	N/A
2	0.72	0.03	0.26	0.72	0.72			N/A	N/A
3	0.36	0.03	0.26	0.47	0.49			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	2.29	0.03	0.27	2.29	3.49			N/A	N/A
2	0.72	0.03	0.28	0.72	2.59			N/A	N/A
3	0.36	0.03	0.32	1.12	1.12			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	1.32	0.07	0.89	2.83	3.94			N/A	N/A
2	0.53	0.53	1.00	1.40	1.45			N/A	N/A
3	0.27	0.00	0.00	0.27	0.27			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	0.89	0.04	0.44	1.96	3.01			N/A	N/A
2	0.40	0.00	0.00	0.40	0.40			N/A	N/A
3	0.21	0.00	0.00	0.21	0.21			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	Northern Junction	Standard Roundabout		1, 2, 3	17.32	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)
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		✓	453	100.000
2		✓	707	100.000
3		✓	116	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	387	66
	2	587	0	120
	3	41	75	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	0	5
	2	0	0	0
	3	5	0	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	0.47	6.57	0.9	2.1	A
2	0.85	25.87	5.3	26.8	D
3	0.20	7.19	0.3	1.1	A

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	341	56	1065	0.320	339	0.5	4.984	A
2	532	49	924	0.576	527	1.3	8.963	A
3	87	438	744	0.117	87	0.1	5.568	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	407	67	1059	0.385	407	0.6	5.555	A
2	636	59	919	0.692	632	2.2	12.409	B
3	104	525	699	0.149	104	0.2	6.156	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	499	82	1051	0.475	498	0.9	6.541	A
2	778	73	913	0.853	767	5.0	23.072	C
3	128	637	641	0.199	127	0.3	7.126	A

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	499	83	1051	0.475	499	0.9	6.568	A
2	778	73	913	0.853	777	5.3	25.868	D
3	128	645	637	0.201	128	0.3	7.190	A

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	407	68	1059	0.385	408	0.6	5.584	A
2	636	59	919	0.692	647	2.3	13.795	B
3	104	538	692	0.151	105	0.2	6.232	A

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	341	57	1064	0.320	342	0.5	5.022	A
2	532	50	923	0.576	536	1.4	9.384	A
3	87	445	740	0.118	88	0.1	5.613	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	0.47	0.00	0.00	0.47	0.47			N/A	N/A
2	1.33	0.55	1.00	1.40	1.45			N/A	N/A
3	0.13	0.00	0.00	0.13	0.13			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	0.62	0.13	0.89	1.39	1.45			N/A	N/A
2	2.15	0.07	1.08	5.32	7.73			N/A	N/A
3	0.18	0.00	0.00	0.18	0.18			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	0.90	0.03	0.26	0.90	0.90			N/A	N/A
2	4.96	0.04	0.40	13.12	26.67			N/A	N/A
3	0.25	0.03	0.26	0.47	0.49			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	0.90	0.03	0.27	0.90	2.06			N/A	N/A
2	5.31	0.03	0.32	7.94	26.81			N/A	N/A
3	0.25	0.03	0.29	0.73	1.13			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	0.64	0.16	0.91	1.39	1.45			N/A	N/A
2	2.34	0.04	0.44	6.44	11.07			N/A	N/A
3	0.18	0.00	0.00	0.18	0.18			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	0.48	0.04	0.41	1.25	1.38			N/A	N/A
2	1.39	0.03	0.34	3.26	7.11			N/A	N/A
3	0.14	0.00	0.00	0.14	0.14			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	Northern Junction	Standard Roundabout		1, 2, 3	10.28	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)
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		✓	680	100.000
2		✓	373	100.000
3		✓	198	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	651	29
	2	319	0	54
	3	70	128	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	0	5
	2	0	0	0
	3	5	0	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	0.73	13.26	2.7	11.1	B
2	0.44	6.91	0.8	2.5	A
3	0.28	6.42	0.4	1.4	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	512	96	1044	0.491	508	1.0	6.691	A
2	281	22	936	0.300	279	0.4	5.463	A
3	149	239	846	0.176	148	0.2	5.239	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	611	115	1033	0.591	609	1.4	8.468	A
2	335	26	934	0.359	335	0.6	6.000	A
3	178	286	822	0.217	178	0.3	5.682	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	749	141	1020	0.734	744	2.6	12.841	B
2	411	32	932	0.441	410	0.8	6.887	A
3	218	350	789	0.276	218	0.4	6.408	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	749	141	1020	0.734	748	2.7	13.261	B
2	411	32	932	0.441	411	0.8	6.910	A
3	218	351	788	0.277	218	0.4	6.420	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	611	115	1033	0.592	616	1.5	8.747	A
2	335	26	934	0.359	336	0.6	6.028	A
3	178	288	821	0.217	178	0.3	5.700	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	512	97	1043	0.491	514	1.0	6.843	A
2	281	22	936	0.300	281	0.4	5.503	A
3	149	241	845	0.176	149	0.2	5.263	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	0.95	0.55	1.00	1.40	1.45			N/A	N/A
2	0.42	0.00	0.00	0.42	0.42			N/A	N/A
3	0.22	0.00	0.00	0.22	0.22			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	1.42	0.07	0.95	3.00	4.26			N/A	N/A
2	0.55	0.55	1.00	1.40	1.45			N/A	N/A
3	0.28	0.00	0.00	0.28	0.28			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	2.63	0.03	0.30	2.63	11.12			N/A	N/A
2	0.78	0.03	0.26	0.78	0.78			N/A	N/A
3	0.38	0.03	0.26	0.47	0.49			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	2.70	0.03	0.28	2.70	5.48			N/A	N/A
2	0.78	0.03	0.28	0.78	2.47			N/A	N/A
3	0.39	0.03	0.32	1.29	1.43			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	1.48	0.06	0.78	3.53	5.11			N/A	N/A
2	0.57	0.55	1.00	1.40	1.45			N/A	N/A
3	0.28	0.00	0.00	0.28	0.28			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	0.98	0.04	0.41	2.39	3.85			N/A	N/A
2	0.43	0.03	0.31	1.01	1.26			N/A	N/A
3	0.22	0.00	0.00	0.22	0.22			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	Northern Junction	Standard Roundabout		1, 2, 3	21.87	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
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		✓	473	100.000
2		✓	739	100.000
3		✓	121	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	404	69
	2	614	0	125
	3	43	78	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	0	5
	2	0	0	0
	3	5	0	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	0.50	6.86	1.0	1.9	A
2	0.89	33.84	7.2	39.4	D
3	0.21	7.49	0.3	1.2	A

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	356	58	1063	0.335	354	0.5	5.096	A
2	556	52	922	0.603	550	1.5	9.532	A
3	91	457	734	0.124	91	0.1	5.689	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	425	70	1057	0.402	425	0.7	5.724	A
2	664	62	918	0.724	660	2.5	13.759	B
3	109	549	687	0.158	109	0.2	6.334	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	521	86	1049	0.496	520	1.0	6.830	A
2	814	76	911	0.893	798	6.5	28.321	D
3	133	663	628	0.212	133	0.3	7.394	A

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	521	86	1049	0.497	521	1.0	6.864	A
2	814	76	911	0.893	811	7.2	33.837	D
3	133	674	622	0.214	133	0.3	7.488	A

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	425	70	1057	0.402	426	0.7	5.761	A
2	664	62	918	0.724	682	2.8	16.281	C
3	109	567	677	0.161	109	0.2	6.447	A

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	356	59	1063	0.335	357	0.5	5.138	A
2	556	52	922	0.603	561	1.6	10.097	B
3	91	466	729	0.125	91	0.1	5.745	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	0.50	0.00	0.00	0.50	0.50			N/A	N/A
2	1.48	0.59	1.40	1.79	1.90			N/A	N/A
3	0.14	0.00	0.00	0.14	0.14			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	0.67	0.14	0.90	1.39	1.45			N/A	N/A
2	2.49	0.07	1.15	6.34	9.27			N/A	N/A
3	0.19	0.00	0.00	0.19	0.19			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	0.98	0.03	0.26	0.98	0.98			N/A	N/A
2	6.47	0.05	0.57	18.64	32.45			N/A	N/A
3	0.27	0.03	0.26	0.47	0.49			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	0.99	0.03	0.27	0.99	1.87			N/A	N/A
2	7.17	0.04	0.37	16.93	39.39			N/A	N/A
3	0.28	0.03	0.30	0.92	1.24			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	0.68	0.17	0.92	1.39	1.45			N/A	N/A
2	2.77	0.04	0.42	7.64	13.74			N/A	N/A
3	0.20	0.00	0.00	0.20	0.20			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	0.51	0.05	0.48	1.30	1.41			N/A	N/A
2	1.56	0.03	0.33	3.31	8.12			N/A	N/A
3	0.15	0.00	0.00	0.15	0.15			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	Northern Junction	Standard Roundabout		1, 2, 3	11.49	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	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		✓	710	100.000
2		✓	388	100.000
3		✓	207	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	679	31
	2	332	0	56
	3	73	134	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	0	5
	2	0	0	0
	3	5	0	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	0.77	15.29	3.2	15.2	C
2	0.46	7.15	0.8	2.3	A
3	0.29	6.62	0.4	1.7	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	535	100	1041	0.513	530	1.0	7.007	A
2	292	23	936	0.312	290	0.4	5.563	A
3	156	248	841	0.185	155	0.2	5.329	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	638	120	1031	0.619	636	1.6	9.091	A
2	349	28	933	0.374	348	0.6	6.144	A
3	186	298	816	0.228	186	0.3	5.810	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	782	147	1016	0.769	776	3.1	14.608	B
2	427	34	931	0.459	426	0.8	7.121	A
3	228	365	781	0.292	227	0.4	6.605	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	782	148	1016	0.769	781	3.2	15.285	C
2	427	34	931	0.459	427	0.8	7.150	A
3	228	366	781	0.292	228	0.4	6.620	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	638	121	1030	0.619	644	1.7	9.493	A
2	349	28	933	0.374	350	0.6	6.180	A
3	186	299	815	0.228	187	0.3	5.831	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	535	101	1041	0.514	537	1.1	7.194	A
2	292	23	935	0.312	293	0.5	5.605	A
3	156	250	840	0.185	156	0.2	5.354	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	1.04	0.55	1.00	1.40	1.45			N/A	N/A
2	0.45	0.00	0.00	0.45	0.45			N/A	N/A
3	0.23	0.00	0.00	0.23	0.23			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	1.59	0.07	0.94	3.66	5.20			N/A	N/A
2	0.59	0.55	1.00	1.40	1.45			N/A	N/A
3	0.30	0.00	0.00	0.30	0.30			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	3.13	0.03	0.31	4.07	15.16			N/A	N/A
2	0.84	0.03	0.26	0.84	0.84			N/A	N/A
3	0.41	0.03	0.26	0.47	0.49			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	3.23	0.03	0.28	3.23	8.94			N/A	N/A
2	0.84	0.03	0.28	0.84	2.33			N/A	N/A
3	0.42	0.03	0.32	1.34	1.68			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	1.67	0.05	0.60	4.25	6.52			N/A	N/A
2	0.60	0.12	0.87	1.37	1.44			N/A	N/A
3	0.30	0.00	0.00	0.30	0.30			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	1.07	0.04	0.38	2.72	4.75			N/A	N/A
2	0.46	0.04	0.37	1.19	1.35			N/A	N/A
3	0.23	0.00	0.00	0.23	0.23			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	Northern Junction	Standard Roundabout		1, 2, 3	29.07	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)
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		✓	494	100.000
2		✓	771	100.000
3		✓	127	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	422	72
	2	640	0	131
	3	45	82	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	0	5
	2	0	0	0
	3	5	0	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	0.52	7.21	1.1	1.7	A
2	0.93	46.59	10.3	53.1	E
3	0.23	7.81	0.3	1.3	A

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	372	61	1062	0.350	370	0.5	5.223	A
2	580	54	921	0.630	574	1.7	10.175	B
3	96	476	724	0.132	95	0.2	5.819	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	444	74	1055	0.421	443	0.7	5.916	A
2	693	65	916	0.756	688	2.9	15.413	C
3	114	571	675	0.169	114	0.2	6.526	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	544	90	1047	0.520	543	1.1	7.170	A
2	849	79	910	0.933	826	8.7	35.495	E
3	140	685	616	0.227	139	0.3	7.676	A

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	544	90	1047	0.520	544	1.1	7.211	A
2	849	79	910	0.933	843	10.3	46.586	E
3	140	700	609	0.230	140	0.3	7.806	A

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	444	74	1055	0.421	445	0.7	5.960	A
2	693	65	916	0.756	721	3.3	20.572	C
3	114	598	661	0.173	115	0.2	6.704	A

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	372	62	1062	0.350	373	0.5	5.268	A
2	580	54	921	0.630	587	1.8	10.955	B
3	96	487	718	0.133	96	0.2	5.884	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	1.01	1.41	1.46			N/A	N/A
2	1.65	0.61	1.15	1.94	2.26			N/A	N/A
3	0.15	0.00	0.00	0.15	0.15			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	0.14	0.89	1.39	1.45			N/A	N/A
2	2.91	0.07	1.27	7.52	10.99			N/A	N/A
3	0.21	0.00	0.00	0.21	0.21			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	1.07	0.03	0.26	1.07	1.07			N/A	N/A
2	8.72	0.08	1.77	24.90	38.48			N/A	N/A
3	0.30	0.03	0.26	0.47	0.49			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	1.08	0.03	0.27	1.08	1.69			N/A	N/A
2	10.27	0.05	0.70	29.71	53.12			N/A	N/A
3	0.30	0.03	0.31	1.04	1.33			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	0.16	0.92	1.40	1.46			N/A	N/A
2	3.33	0.04	0.42	9.17	16.94			N/A	N/A
3	0.21	0.00	0.00	0.21	0.21			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	0.57	1.32	1.42			N/A	N/A
2	1.75	0.03	0.32	3.30	9.15			N/A	N/A
3	0.16	0.00	0.00	0.16	0.16			N/A	N/A