

Junctions 11
ARCADY 11 - Roundabout Module
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Path: \\uk-lon-fas02\projects\UNIF\Projects\BESP0016 Kent Countywide Model\KCC Model Custodian Framework\Call-off Tasks\Tonbridge & Malling and Sevenoaks LP\15 Local Modelling\July 2025 Modelling\J1_A20_A227_Bull Ln
Report generation date: 23.07.2025 16:06:23

- »AM Base - D1 - 2019 | Base | AM
- »PM Base - D4 - 2019 | Base | PM
- »AM Future Base - D2 - 2040 | Future Base | AM
- »PM Future Base - D5 - 2040 | Future Base | PM
- »AM LP Test - D3 - 2040 | LP Test 2 Base | AM
- »PM LP Test - D6 - 2040 | LP Test 2 Base | PM
- »AM LP High - D7 - 2040 | T&M LP_High | AM
- »PM LP High - D8 - 2040 | T&M LP_High | PM
- »AM Forecast BL - D9 - 2042 | Forecast Baseline | AM
- »PM Forecast BL - D10 - 2042 | Forecast Baseline | PM

Summary of junction performance

	AM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	AM Base - 2019 - Base					
1 - A20 N	A1 D1	41,6	107,02	1,04	F	-24 % [3 - A20 E]
3 - A20 E		101,3	261,97	1,14	F	
4 - A227		1,4	8,38	0,57	A	
5 - Bull Ln		2,5	23,86	0,72	C	

	PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	PM Base - 2019 - Base					
1 - A20 N	A2 D4	85,0	230,21	1,15	F	-19 % [1 - A20 N]
3 - A20 E		10,6	34,91	0,93	D	
4 - A227		2,8	12,87	0,74	B	
5 - Bull Ln		3,6	26,38	0,79	D	

	AM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	AM Future Base - 2040 - Future Base					
1 - A20 N	A3 D2	82,4	189,80	1,12	F	-28 % [3 - A20 E]
3 - A20 E		156,1	427,79	1,21	F	
4 - A227		3,8	17,09	0,79	C	
5 - Bull Ln		1,1	16,79	0,52	C	

	PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	PM Future Base - 2040 - Future Base					
1 - A20 N	A4 D5	147,2	479,20	1,27	F	-25 % [1 - A20 N]
3 - A20 E		50,0	127,16	1,06	F	
4 - A227		26,7	86,47	1,02	F	
5 - Bull Ln		3,5	36,25	0,80	E	

	AM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	AM LP Test - 2040 - LP Test 2 Base					
1 - A20 N	A5 D3	129,0	370,96	1,20	F	-28 % [3 - A20 E]
3 - A20 E		149,3	378,47	1,19	F	
4 - A227		64,6	195,12	1,11	F	
5 - Bull Ln		0,4	13,94	0,26	B	

	PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	PM LP Test - 2040 - LP Test 2 Base					
1 - A20 N	A6 D6	214,9	652,06	1,33	F	-28 % [1 - A20 N]
3 - A20 E		73,0	157,38	1,09	F	
4 - A227		66,2	194,73	1,11	F	
5 - Bull Ln		2,9	30,18	0,75	D	

	AM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	AM LP High - 2040 - T&M LP_High					
1 - A20 N	A7 D7	77,7	194,07	1,11	F	-32 % [4 - A227]
3 - A20 E		71,9	153,44	1,08	F	
4 - A227		346,4	1110,71	1,50	F	
5 - Bull Ln		0,0	0,00	0,00	A	

	PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	PM LP High - 2040 - T&M LP_High					
1 - A20 N	A8 D8	137,7	375,30	1,20	F	-26 % [4 - A227]
3 - A20 E		22,4	55,20	0,98	F	
4 - A227		181,8	550,06	1,32	F	
5 - Bull Ln		2,4	30,37	0,70	D	

	AM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	AM Forecast BL - 2042 - Forecast Baseline					
1 - A20 N	A9 D9	77,8	186,30	1,11	F	-21 % [3 - A20 E]
3 - A20 E		69,2	149,42	1,08	F	
4 - A227		2,9	14,20	0,74	B	
5 - Bull Ln		1,1	11,48	0,51	B	

	PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	PM Forecast BL - 2042 - Forecast Baseline					
1 - A20 N	A10 D10	113,4	313,02	1,20	F	-21 % [1 - A20 N]
3 - A20 E		26,0	75,19	1,00	F	
4 - A227		6,4	26,18	0,87	D	
5 - Bull Ln		5,0	42,17	0,85	E	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	23.07.2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	JEGINTLWITOWSJJ
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5,75					✓	RFC/DOS	0,85	36,00	20,00		

Demand Set Summary

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019	Base	AM	ONE HOUR	08:00	09:30	15	✓
D2	2040	Future Base	AM	ONE HOUR	08:00	09:30	15	✓
D3	2040	LP Test 2 Base	AM	ONE HOUR	08:00	09:30	15	✓
D4	2019	Base	PM	ONE HOUR	15:00	16:30	15	✓
D5	2040	Future Base	PM	ONE HOUR	15:00	16:30	15	✓
D6	2040	LP Test 2 Base	PM	ONE HOUR	15:00	16:30	15	✓
D7	2040	T&M LP_High	AM	ONE HOUR	08:00	09:30	15	✓
D8	2040	T&M LP_High	PM	ONE HOUR	15:00	16:30	15	✓
D9	2042	Forecast Baseline	AM	ONE HOUR	08:00	09:30	15	✓
D10	2042	Forecast Baseline	PM	ONE HOUR	15:00	16:30	15	✓

AM Base - D1 - 2019 | Base | AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	AM Base	✓	✓	D1	100,000	100,000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bull Ln-A227-A20-M20	Standard Roundabout		1, 2, 3, 4, 5	142,90	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-24	3 - A20 E	142,90	F

Arms

Arms

Arm	Name	Description	No give-way line
1	A20 N		
2	M20 Off-Slip		
3	A20 E		
4	A227		
5	Bull Ln		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A20 N	3,98	8,17	13,0	36,1	54,9	11,0		
2 - M20 Off-Slip								✓
3 - A20 E	3,59	8,67	27,9	17,0	54,9	20,0		
4 - A227	3,94	8,41	12,2	12,6	54,9	22,0		
5 - Bull Ln	2,50	8,75	18,4	12,9	54,9	20,0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A20 N	0,662	1993
2 - M20 Off-Slip		
3 - A20 E	0,668	2115
4 - A227	0,606	1816
5 - Bull Ln	0,583	1679

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A20 N	Percentage		99,00
3 - A20 E	Percentage		69,00
5 - Bull Ln	Percentage		70,00

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019	Base	AM	ONE HOUR	08:00	09:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A20 N		ONE HOUR	✓	1187	100,000
2 - M20 Off-Slip					
3 - A20 E		ONE HOUR	✓	1316	100,000
4 - A227		ONE HOUR	✓	537	100,000
5 - Bull Ln		ONE HOUR	✓	352	100,000

Origin-Destination Data

Demand (PCU/hr)

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	105	686	314	83
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	469	535	0	73	239
	4 - A227	267	167	104	0	0
	5 - Bull Ln	95	72	185	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2,00

Heavy Vehicle %

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	1	6	6	3
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	2	9	0	8	6
	4 - A227	3	6	5	0	0
	5 - Bull Ln	0	6	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A20 N	1,04	107,02	41,6	F	1089	1634
2 - M20 Off-Slip						
3 - A20 E	1,14	261,97	101,3	F	1208	1812
4 - A227	0,57	8,38	1,4	A	493	739
5 - Bull Ln	0,72	23,86	2,5	C	323	485

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	894	223	792	1453	0,615	887	619	0,0	1,6	6,622	A
2 - M20 Off-Slip			1024				655				
3 - A20 E	991	248	296	1323	0,749	979	728	0,0	3,0	10,733	B
4 - A227	404	101	986	1218	0,332	402	289	0,0	0,5	4,589	A
5 - Bull Ln	265	66	1149	706	0,375	263	240	0,0	0,6	8,214	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1067	267	944	1353	0,788	1059	738	1,6	3,7	12,533	B
2 - M20 Off-Slip			1223				780				
3 - A20 E	1183	296	353	1296	0,913	1162	870	3,0	8,4	24,987	C
4 - A227	483	121	1171	1107	0,436	482	344	0,5	0,8	5,995	A
5 - Bull Ln	317	79	1367	617	0,513	315	285	0,6	1,0	12,046	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1307	327	1088	1259	1,038	1220	844	3,7	25,5	55,132	F
2 - M20 Off-Slip			1426				881				
3 - A20 E	1449	362	407	1272	1,140	1260	1019	8,4	55,6	102,801	F
4 - A227	591	148	1275	1043	0,567	589	392	0,8	1,3	8,223	A
5 - Bull Ln	388	97	1550	542	0,715	383	314	1,0	2,4	22,211	C

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1307	327	1095	1255	1,042	1242	849	25,5	41,6	107,020	F
2 - M20 Off-Slip			1450				888				
3 - A20 E	1449	362	415	1268	1,143	1267	1035	55,6	101,3	230,905	F
4 - A227	591	148	1282	1039	0,569	591	399	1,3	1,4	8,379	A
5 - Bull Ln	388	97	1557	540	0,719	387	317	2,4	2,5	23,860	C

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1067	267	991	1323	0,806	1213	776	41,6	5,1	53,102	F
2 - M20 Off-Slip			1368				835				
3 - A20 E	1183	296	405	1273	0,930	1260	963	101,3	82,3	261,972	F
4 - A227	483	121	1274	1044	0,462	484	391	1,4	0,9	6,728	A
5 - Bull Ln	317	79	1445	585	0,541	322	313	2,5	1,2	14,133	B

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	894	223	927	1365	0,655	906	736	5,1	2,0	8,466	A
2 - M20 Off-Slip			1044				789				
3 - A20 E	991	248	302	1320	0,751	1301	742	82,3	4,9	125,496	F
4 - A227	404	101	1291	1034	0,391	405	312	0,9	0,7	5,982	A
5 - Bull Ln	265	66	1397	605	0,438	267	299	1,2	0,8	10,888	B

PM Base - D4 - 2019 | Base | PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	PM Base	✓	✓	D4	100,000	100,000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bull Ln-A227-A20-M20	Standard Roundabout		1, 2, 3, 4, 5	92,39	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-19	1 - A20 N	92,39	F

Arms

Arms

Arm	Name	Description	No give-way line
1	A20 N		
2	M20 Off-Slip		
3	A20 E		
4	A227		
5	Bull Ln		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A20 N	3,98	8,17	13,0	36,1	54,9	11,0		
2 - M20 Off-Slip								✓
3 - A20 E	3,59	8,67	27,9	17,0	54,9	20,0		
4 - A227	3,94	8,41	12,2	12,6	54,9	22,0		
5 - Bull Ln	2,50	8,75	18,4	12,9	54,9	20,0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A20 N	0,662	1993
2 - M20 Off-Slip		
3 - A20 E	0,668	2115
4 - A227	0,606	1816
5 - Bull Ln	0,583	1679

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A20 N	Percentage		84,00
3 - A20 E	Percentage		64,00

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2019	Base	PM	ONE HOUR	15:00	16:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A20 N		ONE HOUR	✓	1093	100,000
2 - M20 Off-Slip					
3 - A20 E		ONE HOUR	✓	1059	100,000
4 - A227		ONE HOUR	✓	741	100,000
5 - Bull Ln		ONE HOUR	✓	467	100,000

Origin-Destination Data

Demand (PCU/hr)

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	42	817	175	59
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	475	392	0	35	157
	4 - A227	434	137	170	0	0
	5 - Bull Ln	141	55	272	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2,00

Heavy Vehicle %

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	1	5	4	1
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	1	7	0	6	5
	4 - A227	2	7	1	0	0
	5 - Bull Ln	0	10	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A20 N	1,15	230,21	85,0	F	1003	1504
2 - M20 Off-Slip						
3 - A20 E	0,93	34,91	10,6	D	972	1457
4 - A227	0,74	12,87	2,8	B	680	1020
5 - Bull Ln	0,79	26,38	3,6	D	429	643

Main Results for each time segment

15:00 - 15:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	823	206	767	1247	0,660	815	785	0,0	2,0	8,555	A
2 - M20 Off-Slip			1114				468				
3 - A20 E	797	199	175	1279	0,623	790	939	0,0	1,7	7,561	A
4 - A227	558	139	809	1326	0,421	555	156	0,0	0,7	4,776	A
5 - Bull Ln	352	88	1203	977	0,360	349	161	0,0	0,6	5,808	A

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	983	246	918	1163	0,845	970	940	2,0	5,0	18,440	C
2 - M20 Off-Slip			1329				560				
3 - A20 E	952	238	208	1265	0,753	947	1121	1,7	3,0	11,568	B
4 - A227	666	167	968	1229	0,542	664	186	0,7	1,2	6,523	A
5 - Bull Ln	420	105	1440	839	0,501	418	193	0,6	1,0	8,663	A

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1203	301	1112	1055	1,140	1041	1139	5,0	45,5	100,001	F
2 - M20 Off-Slip			1481				672				
3 - A20 E	1166	291	223	1258	0,927	1141	1258	3,0	9,2	27,426	D
4 - A227	816	204	1160	1113	0,733	810	204	1,2	2,7	11,969	B
5 - Bull Ln	514	129	1745	661	0,778	506	225	1,0	3,2	22,371	C

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1203	301	1126	1047	1,149	1046	1153	45,5	85,0	230,207	F
2 - M20 Off-Slip			1490				681				
3 - A20 E	1166	291	224	1258	0,927	1160	1266	9,2	10,6	34,910	D
4 - A227	816	204	1179	1101	0,741	815	205	2,7	2,8	12,868	B
5 - Bull Ln	514	129	1766	649	0,793	513	229	3,2	3,6	26,385	D

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	983	246	942	1150	0,855	1136	963	85,0	46,7	210,014	F
2 - M20 Off-Slip			1496				582				
3 - A20 E	952	238	243	1249	0,762	980	1253	10,6	3,5	15,168	C
4 - A227	666	167	1010	1204	0,553	672	214	2,8	1,3	7,031	A
5 - Bull Ln	420	105	1475	818	0,513	430	207	3,6	1,1	9,654	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	823	206	777	1241	0,663	1001	795	46,7	2,2	30,918	D
2 - M20 Off-Slip			1297				482				
3 - A20 E	797	199	215	1262	0,632	804	1082	3,5	1,8	8,288	A
4 - A227	558	139	832	1312	0,425	560	186	1,3	0,8	4,931	A
5 - Bull Ln	352	88	1219	968	0,363	354	173	1,1	0,6	5,980	A

AM Future Base - D2 - 2040 | Future Base | AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A3	AM Future Base	✓	✓	D2	100,000	100,000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bull Ln-A227-A20-M20	Standard Roundabout		1, 2, 3, 4, 5	238,53	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-28	3 - A20 E	238,53	F

Arms

Arms

Arm	Name	Description	No give-way line
1	A20 N		
2	M20 Off-Slip		
3	A20 E		
4	A227		
5	Bull Ln		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A20 N	3,98	8,17	13,0	36,1	54,9	11,0		
2 - M20 Off-Slip								✓
3 - A20 E	3,59	8,67	27,9	17,0	54,9	20,0		
4 - A227	3,94	8,41	12,2	12,6	54,9	22,0		
5 - Bull Ln	2,50	8,75	18,4	12,9	54,9	20,0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A20 N	0,662	1993
2 - M20 Off-Slip		
3 - A20 E	0,668	2115
4 - A227	0,606	1816
5 - Bull Ln	0,583	1679

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A20 N	Percentage		98,00
3 - A20 E	Percentage		72,00
5 - Bull Ln	Percentage		73,00

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2040	Future Base	AM	ONE HOUR	08:00	09:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A20 N		ONE HOUR	✓	1278	100,000
2 - M20 Off-Slip					
3 - A20 E		ONE HOUR	✓	1459	100,000
4 - A227		ONE HOUR	✓	746	100,000
5 - Bull Ln		ONE HOUR	✓	220	100,000

Origin-Destination Data

Demand (PCU/hr)

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	112	751	329	87
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	587	480	0	136	255
	4 - A227	355	180	212	0	0
	5 - Bull Ln	39	65	116	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2,00

Heavy Vehicle %

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	1	6	7	3
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	2	8	0	5	9
	4 - A227	3	7	1	0	0
	5 - Bull Ln	1	8	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A20 N	1,12	189,80	82,4	F	1173	1759
2 - M20 Off-Slip						
3 - A20 E	1,21	427,79	156,1	F	1339	2008
4 - A227	0,79	17,09	3,8	C	684	1026
5 - Bull Ln	0,52	16,79	1,1	C	202	303

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	962	240	784	1444	0,666	954	730	0,0	2,1	7,634	A
2 - M20 Off-Slip			1115				622				
3 - A20 E	1098	275	310	1373	0,800	1082	805	0,0	3,9	12,450	B
4 - A227	561	140	1046	1182	0,475	558	347	0,0	0,9	5,924	A
5 - Bull Ln	165	41	1350	651	0,254	164	254	0,0	0,3	7,634	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1149	287	929	1350	0,851	1135	862	2,1	5,4	16,795	C
2 - M20 Off-Slip			1330				735				
3 - A20 E	1311	328	369	1345	0,975	1268	960	3,9	14,8	36,676	E
4 - A227	670	168	1226	1073	0,625	667	411	0,9	1,7	9,104	A
5 - Bull Ln	198	49	1595	546	0,362	197	299	0,3	0,6	10,626	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1407	352	1060	1265	1,112	1247	962	5,4	45,3	84,767	F
2 - M20 Off-Slip			1496				811				
3 - A20 E	1606	402	406	1328	1,210	1323	1090	14,8	85,6	146,260	F
4 - A227	821	205	1284	1038	0,791	813	445	1,7	3,6	16,011	C
5 - Bull Ln	242	61	1781	467	0,518	240	316	0,6	1,1	16,261	C

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1407	352	1066	1261	1,116	1258	966	45,3	82,4	189,803	F
2 - M20 Off-Slip			1509				815				
3 - A20 E	1606	402	409	1326	1,211	1325	1100	85,6	155,8	334,825	F
4 - A227	821	205	1287	1036	0,792	820	448	3,6	3,8	17,092	C
5 - Bull Ln	242	61	1790	463	0,522	242	317	1,1	1,1	16,794	C

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1149	287	951	1335	0,860	1319	885	82,4	40,0	169,379	F
2 - M20 Off-Slip			1501				769				
3 - A20 E	1311	328	429	1316	0,996	1310	1072	155,8	156,1	427,791	F
4 - A227	670	168	1277	1042	0,643	678	462	3,8	1,9	10,407	B
5 - Bull Ln	198	49	1636	529	0,374	200	318	1,1	0,6	11,380	B

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	962	240	874	1386	0,694	1112	837	40,0	2,5	22,897	C
2 - M20 Off-Slip			1263				723				
3 - A20 E	1098	275	362	1349	0,814	1340	901	156,1	95,7	339,587	F
4 - A227	561	140	1290	1034	0,543	564	411	1,9	1,2	7,953	A
5 - Bull Ln	165	41	1544	568	0,291	166	310	0,6	0,4	9,294	A

PM Future Base - D5 - 2040 | Future Base | PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A4	PM Future Base	✓	✓	D5	100,000	100,000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bull Ln-A227-A20-M20	Standard Roundabout		1, 2, 3, 4, 5	221,10	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-25	1 - A20 N	221,10	F

Arms

Arms

Arm	Name	Description	No give-way line
1	A20 N		
2	M20 Off-Slip		
3	A20 E		
4	A227		
5	Bull Ln		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A20 N	3,98	8,17	13,0	36,1	54,9	11,0		
2 - M20 Off-Slip								✓
3 - A20 E	3,59	8,67	27,9	17,0	54,9	20,0		
4 - A227	3,94	8,41	12,2	12,6	54,9	22,0		
5 - Bull Ln	2,50	8,75	18,4	12,9	54,9	20,0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A20 N	0,662	1993
2 - M20 Off-Slip		
3 - A20 E	0,668	2115
4 - A227	0,606	1816
5 - Bull Ln	0,583	1679

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A20 N	Percentage		83,00
3 - A20 E	Percentage		63,00

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2040	Future Base	PM	ONE HOUR	15:00	16:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A20 N		ONE HOUR	✓	1191	100,000
2 - M20 Off-Slip					
3 - A20 E		ONE HOUR	✓	1192	100,000
4 - A227		ONE HOUR	✓	985	100,000
5 - Bull Ln		ONE HOUR	✓	340	100,000

Origin-Destination Data

Demand (PCU/hr)

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	65	879	185	63
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	607	384	0	51	149
	4 - A227	569	159	257	0	0
	5 - Bull Ln	79	58	204	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2,00

Heavy Vehicle %

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	2	4	4	1
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	1	7	0	4	3
	4 - A227	1	7	1	0	0
	5 - Bull Ln	1	11	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A20 N	1,27	479,20	147,2	F	1093	1640
2 - M20 Off-Slip						
3 - A20 E	1,06	127,16	50,0	F	1094	1640
4 - A227	1,02	86,47	26,7	F	904	1356
5 - Bull Ln	0,80	36,25	3,5	E	312	468

Main Results for each time segment

15:00 - 15:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	897	224	792	1218	0,736	886	936	0,0	2,8	10,893	B
2 - M20 Off-Slip			1182				496				
3 - A20 E	897	224	184	1255	0,715	887	998	0,0	2,5	9,864	A
4 - A227	742	185	896	1273	0,583	736	176	0,0	1,4	6,766	A
5 - Bull Ln	256	64	1474	819	0,313	254	158	0,0	0,5	6,516	A

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1071	268	946	1134	0,945	1040	1118	2,8	10,4	32,582	D
2 - M20 Off-Slip			1395				592				
3 - A20 E	1071	268	216	1241	0,863	1059	1179	2,5	5,7	19,115	C
4 - A227	886	221	1068	1169	0,758	879	207	1,4	3,0	12,394	B
5 - Bull Ln	306	76	1760	653	0,469	304	187	0,5	0,9	10,544	B

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1312	328	1107	1046	1,254	1041	1297	10,4	78,0	164,050	F
2 - M20 Off-Slip			1472				676				
3 - A20 E	1312	328	216	1241	1,057	1213	1255	5,7	30,4	65,665	F
4 - A227	1085	271	1216	1079	1,005	1028	214	3,0	17,2	47,817	E
5 - Bull Ln	374	94	2037	491	0,763	366	207	0,9	2,9	28,053	D

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1312	328	1125	1035	1,267	1035	1319	78,0	147,2	394,037	F
2 - M20 Off-Slip			1474				686				
3 - A20 E	1312	328	215	1242	1,057	1234	1259	30,4	50,0	127,157	F
4 - A227	1085	271	1235	1068	1,016	1047	214	17,2	26,7	86,473	F
5 - Bull Ln	374	94	2073	470	0,797	372	209	2,9	3,5	36,245	E

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1071	268	1042	1081	0,991	1072	1252	147,2	146,9	479,202	F
2 - M20 Off-Slip			1455				660				
3 - A20 E	1071	268	223	1239	0,865	1213	1232	50,0	14,5	100,914	F
4 - A227	886	221	1218	1078	0,821	971	219	26,7	5,4	45,728	E
5 - Bull Ln	306	76	1980	524	0,583	314	208	3,5	1,5	18,191	C

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	897	224	823	1201	0,747	1193	978	146,9	72,9	333,460	F
2 - M20 Off-Slip			1481				536				
3 - A20 E	897	224	248	1228	0,731	943	1233	14,5	2,9	15,000	B
4 - A227	742	185	966	1231	0,603	757	226	5,4	1,6	7,988	A
5 - Bull Ln	256	64	1542	780	0,328	260	181	1,5	0,5	7,159	A

AM LP Test - D3 - 2040 | LP Test 2 Base | AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A5	AM LP Test	✓	✓	D3	100,000	100,000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bull Ln-A227-A20-M20	Standard Roundabout		1, 2, 3, 4, 5	319,99	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-28	3 - A20 E	319,99	F

Arms

Arms

Arm	Name	Description	No give-way line
1	A20 N		
2	M20 Off-Slip		
3	A20 E		
4	A227		
5	Bull Ln		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A20 N	3,98	8,17	13,0	36,1	54,9	11,0		
2 - M20 Off-Slip								✓
3 - A20 E	3,59	8,67	27,9	17,0	54,9	20,0		
4 - A227	3,94	8,41	12,2	12,6	54,9	22,0		
5 - Bull Ln	2,50	8,75	18,4	12,9	54,9	20,0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A20 N	0,662	1993
2 - M20 Off-Slip		
3 - A20 E	0,668	2115
4 - A227	0,606	1816
5 - Bull Ln	0,583	1679

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A20 N	Percentage		95,00
3 - A20 E	Percentage		75,00
5 - Bull Ln	Percentage		75,00

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2040	LP Test 2 Base	AM	ONE HOUR	08:00	09:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A20 N		ONE HOUR	✓	1311	100,000
2 - M20 Off-Slip					
3 - A20 E		ONE HOUR	✓	1515	100,000
4 - A227		ONE HOUR	✓	1020	100,000
5 - Bull Ln		ONE HOUR	✓	92	100,000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
From	1 - A20 N	0	125	781	310	95
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	610	455	0	176	274
	4 - A227	419	287	315	0	0
	5 - Bull Ln	22	20	50	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2,00

Heavy Vehicle %

	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
From	1 - A20 N	0	1	5	6	3
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	2	9	0	4	7
	4 - A227	2	4	1	0	0
	5 - Bull Ln	2	40	6	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A20 N	1,20	370,96	129,0	F	1203	1804
2 - M20 Off-Slip						
3 - A20 E	1,19	378,47	149,3	F	1390	2085
4 - A227	1,11	195,12	64,6	F	936	1404
5 - Bull Ln	0,26	13,94	0,4	B	84	126

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	987	247	838	1366	0,723	976	782	0,0	2,6	9,447	A
2 - M20 Off-Slip			1155				659				
3 - A20 E	1140	285	302	1435	0,795	1125	854	0,0	3,8	11,696	B
4 - A227	768	192	1065	1171	0,656	760	362	0,0	1,9	8,818	A
5 - Bull Ln	69	17	1552	580	0,119	68	274	0,0	0,1	7,777	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1179	295	991	1269	0,928	1151	922	2,6	9,4	27,237	D
2 - M20 Off-Slip			1365				778				
3 - A20 E	1362	340	356	1408	0,967	1321	1009	3,8	13,9	33,617	D
4 - A227	917	229	1251	1058	0,867	902	426	1,9	5,6	21,804	C
5 - Bull Ln	82	21	1831	458	0,180	82	322	0,1	0,2	10,585	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1443	361	1084	1211	1,192	1204	996	9,4	69,4	128,592	F
2 - M20 Off-Slip			1452				836				
3 - A20 E	1667	417	372	1400	1,191	1394	1080	13,9	82,2	133,658	F
4 - A227	1123	281	1319	1016	1,105	1000	447	5,6	36,5	89,124	F
5 - Bull Ln	101	25	1980	393	0,256	100	339	0,2	0,4	13,594	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1443	361	1093	1205	1,197	1205	1003	69,4	129,0	302,919	F
2 - M20 Off-Slip			1457				841				
3 - A20 E	1667	417	372	1400	1,191	1399	1085	82,2	149,3	304,274	F
4 - A227	1123	281	1324	1014	1,108	1011	448	36,5	64,6	190,112	F
5 - Bull Ln	101	25	1995	387	0,261	101	340	0,4	0,4	13,936	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1179	295	1071	1219	0,967	1209	991	129,0	121,4	370,958	F
2 - M20 Off-Slip			1449				832				
3 - A20 E	1362	340	373	1399	0,973	1389	1075	149,3	142,4	378,467	F
4 - A227	917	229	1315	1019	0,900	1003	447	64,6	43,1	195,124	F
5 - Bull Ln	82	21	1980	393	0,209	83	338	0,4	0,3	12,857	B

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	987	247	1014	1255	0,787	1244	954	121,4	57,1	260,445	F
2 - M20 Off-Slip			1449				809				
3 - A20 E	1140	285	384	1394	0,818	1383	1065	142,4	81,6	292,998	F
4 - A227	768	192	1313	1021	0,753	926	455	43,1	3,5	68,069	F
5 - Bull Ln	69	17	1899	429	0,161	69	340	0,3	0,2	11,107	B

PM LP Test - D6 - 2040 | LP Test 2 Base | PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A6	PM LP Test	✓	✓	D6	100,000	100,000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bull Ln-A227-A20-M20	Standard Roundabout		1, 2, 3, 4, 5	317,62	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-28	1 - A20 N	317,62	F

Arms

Arms

Arm	Name	Description	No give-way line
1	A20 N		
2	M20 Off-Slip		
3	A20 E		
4	A227		
5	Bull Ln		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A20 N	3,98	8,17	13,0	36,1	54,9	11,0		
2 - M20 Off-Slip								✓
3 - A20 E	3,59	8,67	27,9	17,0	54,9	20,0		
4 - A227	3,94	8,41	12,2	12,6	54,9	22,0		
5 - Bull Ln	2,50	8,75	18,4	12,9	54,9	20,0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A20 N	0,662	1993
2 - M20 Off-Slip		
3 - A20 E	0,668	2115
4 - A227	0,606	1816
5 - Bull Ln	0,583	1679

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A20 N	Percentage		87,00
3 - A20 E	Percentage		72,00
5 - Bull Ln	Percentage		99,00

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2040	LP Test 2 Base	PM	ONE HOUR	15:00	16:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A20 N		ONE HOUR	✓	1324	100,000
2 - M20 Off-Slip					
3 - A20 E		ONE HOUR	✓	1375	100,000
4 - A227		ONE HOUR	✓	1043	100,000
5 - Bull Ln		ONE HOUR	✓	328	100,000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
From	1 - A20 N	0	74	927	247	76
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	627	379	0	157	212
	4 - A227	575	171	297	0	0
	5 - Bull Ln	90	56	182	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2,00

Heavy Vehicle %

	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
From	1 - A20 N	0	1	3	3	1
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	1	7	0	1	2
	4 - A227	1	6	4	0	0
	5 - Bull Ln	1	12	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A20 N	1,33	652,06	214,9	F	1215	1822
2 - M20 Off-Slip						
3 - A20 E	1,09	157,38	73,0	F	1262	1893
4 - A227	1,11	194,73	66,2	F	957	1436
5 - Bull Ln	0,75	30,18	2,9	D	301	451

Main Results for each time segment

15:00 - 15:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	997	249	809	1267	0,787	983	963	0,0	3,5	12,445	B
2 - M20 Off-Slip			1285				507				
3 - A20 E	1035	259	240	1407	0,736	1024	1046	0,0	2,7	9,405	A
4 - A227	785	196	964	1232	0,637	778	300	0,0	1,8	8,024	A
5 - Bull Ln	247	62	1528	780	0,317	245	214	0,0	0,5	6,928	A

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1190	298	964	1178	1,010	1128	1147	3,5	19,1	48,221	E
2 - M20 Off-Slip			1491				601				
3 - A20 E	1236	309	275	1390	0,889	1220	1216	2,7	6,9	19,937	C
4 - A227	938	234	1145	1122	0,836	926	350	1,8	4,7	17,870	C
5 - Bull Ln	295	74	1818	612	0,482	293	253	0,5	0,9	11,582	B

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1458	364	1094	1103	1,322	1101	1287	19,1	108,2	217,593	F
2 - M20 Off-Slip			1527				668				
3 - A20 E	1514	378	269	1393	1,086	1374	1259	6,9	42,0	75,244	F
4 - A227	1148	287	1280	1040	1,104	1022	362	4,7	36,3	85,206	F
5 - Bull Ln	361	90	2027	492	0,734	355	275	0,9	2,6	25,947	D

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1458	364	1106	1096	1,330	1096	1300	108,2	198,6	505,342	F
2 - M20 Off-Slip			1528				674				
3 - A20 E	1514	378	267	1394	1,086	1390	1260	42,0	73,0	157,383	F
4 - A227	1148	287	1294	1032	1,113	1029	363	36,3	66,2	189,263	F
5 - Bull Ln	361	90	2046	481	0,751	360	277	2,6	2,9	30,179	D

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1190	298	1055	1125	1,058	1125	1273	198,6	214,9	652,055	F
2 - M20 Off-Slip			1520				660				
3 - A20 E	1236	309	274	1391	0,889	1371	1246	73,0	39,2	149,588	F
4 - A227	938	234	1279	1041	0,901	1025	366	66,2	44,4	194,735	F
5 - Bull Ln	295	74	2028	491	0,601	300	276	2,9	1,6	19,925	C

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	997	249	934	1195	0,834	1189	1132	214,9	166,7	578,189	F
2 - M20 Off-Slip			1533				590				
3 - A20 E	1035	259	290	1383	0,748	1179	1243	39,2	3,3	30,667	D
4 - A227	785	196	1112	1142	0,688	953	356	44,4	2,4	39,463	E
5 - Bull Ln	247	62	1815	614	0,402	251	250	1,6	0,7	10,339	B

AM LP High - D7 - 2040 | T&M LP_High | AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A7	AM LP High	✓	✓	D7	100,000	100,000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bull Ln-A227-A20-M20	Standard Roundabout		1, 2, 3, 4, 5	494,74	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-32	4 - A227	494,74	F

Arms

Arms

Arm	Name	Description	No give-way line
1	A20 N		
2	M20 Off-Slip		
3	A20 E		
4	A227		
5	Bull Ln		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A20 N	3,98	8,17	13,0	36,1	54,9	11,0		
2 - M20 Off-Slip								✓
3 - A20 E	3,59	8,67	27,9	17,0	54,9	20,0		
4 - A227	3,94	8,41	12,2	12,6	54,9	22,0		
5 - Bull Ln	2,50	8,75	18,4	12,9	54,9	20,0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A20 N	0,662	1993
2 - M20 Off-Slip		
3 - A20 E	0,668	2115
4 - A227	0,606	1816
5 - Bull Ln	0,583	1679

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A20 N	Percentage		96,00
3 - A20 E	Percentage		76,00

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2040	T&M LP_High	AM	ONE HOUR	08:00	09:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A20 N		ONE HOUR	✓	1237	100,000
2 - M20 Off-Slip					
3 - A20 E		ONE HOUR	✓	1390	100,000
4 - A227		ONE HOUR	✓	1374	100,000
5 - Bull Ln		ONE HOUR	✓	0	100,000

Origin-Destination Data

Demand (PCU/hr)

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	127	723	279	108
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	513	449	0	179	249
	4 - A227	532	500	342	0	0
	5 - Bull Ln	0	0	0	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2,00

Heavy Vehicle %

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	2	6	8	5
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	5	12	0	7	11
	4 - A227	2	6	2	0	0
	5 - Bull Ln	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A20 N	1,11	194,07	77,7	F	1135	1703
2 - M20 Off-Slip						
3 - A20 E	1,08	153,44	71,9	F	1275	1913
4 - A227	1,50	1110,71	346,4	F	1261	1891
5 - Bull Ln	0,00	0,00	0,0	A	0	0

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	931	233	956	1305	0,714	921	775	0,0	2,5	9,693	A
2 - M20 Off-Slip			1079				798				
3 - A20 E	1046	262	288	1461	0,716	1036	791	0,0	2,6	8,981	A
4 - A227	1034	259	983	1220	0,848	1014	341	0,0	5,1	16,700	C
5 - Bull Ln	0	0	1731	669	0,000	0	266	0,0	0,0	0,000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1112	278	1067	1235	0,901	1092	878	2,5	7,6	23,909	C
2 - M20 Off-Slip			1251				908				
3 - A20 E	1250	312	342	1434	0,872	1235	909	2,6	6,4	18,353	C
4 - A227	1235	309	1171	1106	1,116	1090	405	5,1	41,4	90,144	F
5 - Bull Ln	0	0	1944	545	0,000	0	317	0,0	0,0	0,000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1362	340	1073	1231	1,106	1215	907	7,6	44,2	88,787	F
2 - M20 Off-Slip			1344				944				
3 - A20 E	1530	383	380	1414	1,082	1391	963	6,4	41,2	73,002	F
4 - A227	1513	378	1318	1017	1,487	1017	453	41,4	165,4	375,131	F
5 - Bull Ln	0	0	1980	524	0,000	0	355	0,0	0,0	0,000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1362	340	1072	1231	1,106	1228	910	44,2	77,7	187,668	F
2 - M20 Off-Slip			1353				948				
3 - A20 E	1530	383	384	1412	1,084	1407	969	41,2	71,9	153,441	F
4 - A227	1513	378	1333	1008	1,501	1008	458	165,4	291,6	817,841	F
5 - Bull Ln	0	0	1982	523	0,000	0	359	0,0	0,0	0,000	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1112	278	1073	1231	0,903	1214	908	77,7	52,1	194,072	F
2 - M20 Off-Slip			1343				945				
3 - A20 E	1250	312	380	1414	0,883	1393	963	71,9	36,0	142,017	F
4 - A227	1235	309	1320	1016	1,215	1016	453	291,6	346,4	1110,705	F
5 - Bull Ln	0	0	1980	524	0,000	0	356	0,0	0,0	0,000	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	931	233	1074	1230	0,757	1125	873	52,1	3,7	67,076	F
2 - M20 Off-Slip			1291				908				
3 - A20 E	1046	262	352	1429	0,733	1178	939	36,0	3,1	24,076	C
4 - A227	1034	259	1124	1135	0,912	1131	405	346,4	322,2	1063,862	F
5 - Bull Ln	0	0	1946	544	0,000	0	309	0,0	0,0	0,000	A

PM LP High - D8 - 2040 | T&M LP_High | PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A8	PM LP High	✓	✓	D8	100,000	100,000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bull Ln-A227-A20-M20	Standard Roundabout		1, 2, 3, 4, 5	304,57	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-26	4 - A227	304,57	F

Arms

Arms

Arm	Name	Description	No give-way line
1	A20 N		
2	M20 Off-Slip		
3	A20 E		
4	A227		
5	Bull Ln		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A20 N	3,98	8,17	13,0	36,1	54,9	11,0		
2 - M20 Off-Slip								✓
3 - A20 E	3,59	8,67	27,9	17,0	54,9	20,0		
4 - A227	3,94	8,41	12,2	12,6	54,9	22,0		
5 - Bull Ln	2,50	8,75	18,4	12,9	54,9	20,0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A20 N	0,662	1993
2 - M20 Off-Slip		
3 - A20 E	0,668	2115
4 - A227	0,606	1816
5 - Bull Ln	0,583	1679

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A20 N	Percentage		99,00
3 - A20 E	Percentage		83,00
5 - Bull Ln	Percentage		83,00

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2040	T&M LP_High	PM	ONE HOUR	15:00	16:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A20 N		ONE HOUR	✓	1363	100,000
2 - M20 Off-Slip					
3 - A20 E		ONE HOUR	✓	1363	100,000
4 - A227		ONE HOUR	✓	1290	100,000
5 - Bull Ln		ONE HOUR	✓	267	100,000

Origin-Destination Data

Demand (PCU/hr)

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	80	829	369	85
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	556	309	0	311	187
	4 - A227	665	239	386	0	0
	5 - Bull Ln	41	52	174	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2,00

Heavy Vehicle %

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	1	5	3	2
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	2	12	0	1	5
	4 - A227	1	8	1	0	0
	5 - Bull Ln	4	20	3	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A20 N	1,20	375,30	137,7	F	1251	1876
2 - M20 Off-Slip						
3 - A20 E	0,98	55,20	22,4	F	1251	1876
4 - A227	1,32	550,06	181,8	F	1184	1776
5 - Bull Ln	0,70	30,37	2,4	D	245	368

Main Results for each time segment

15:00 - 15:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1026	257	864	1406	0,730	1015	941	0,0	2,7	9,345	A
2 - M20 Off-Slip			1373				507				
3 - A20 E	1026	257	338	1568	0,655	1018	1034	0,0	1,9	6,743	A
4 - A227	971	243	849	1301	0,746	960	507	0,0	2,9	10,453	B
5 - Bull Ln	201	50	1606	616	0,326	199	203	0,0	0,5	9,116	A

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1225	306	1020	1304	0,940	1194	1111	2,7	10,4	28,557	D
2 - M20 Off-Slip			1615				600				
3 - A20 E	1225	306	398	1535	0,798	1217	1217	1,9	3,9	11,553	B
4 - A227	1160	290	1014	1201	0,965	1121	601	2,9	12,6	35,203	E
5 - Bull Ln	240	60	1893	477	0,503	238	242	0,5	1,0	15,837	C

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1501	375	1101	1251	1,200	1245	1197	10,4	74,4	132,932	F
2 - M20 Off-Slip			1686				659				
3 - A20 E	1501	375	415	1525	0,984	1449	1271	3,9	16,9	35,528	E
4 - A227	1420	355	1196	1091	1,301	1088	668	12,6	95,6	189,217	F
5 - Bull Ln	294	73	2008	422	0,697	289	276	1,0	2,2	27,902	D

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1501	375	1105	1248	1,203	1247	1203	74,4	137,7	311,304	F
2 - M20 Off-Slip			1687				665				
3 - A20 E	1501	375	415	1525	0,984	1479	1272	16,9	22,4	55,200	F
4 - A227	1420	355	1219	1077	1,318	1077	675	95,6	181,4	457,860	F
5 - Bull Ln	294	73	2015	418	0,704	293	281	2,2	2,4	30,366	D

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1225	306	1061	1277	0,960	1267	1163	137,7	127,3	375,305	F
2 - M20 Off-Slip			1698				630				
3 - A20 E	1225	306	422	1521	0,805	1296	1276	22,4	4,7	20,917	C
4 - A227	1160	290	1079	1162	0,998	1158	639	181,4	181,8	550,060	F
5 - Bull Ln	240	60	1980	435	0,552	244	257	2,4	1,4	20,421	C

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1026	257	1025	1301	0,789	1290	1111	127,3	61,2	264,969	F
2 - M20 Off-Slip			1729				586				
3 - A20 E	1026	257	430	1517	0,676	1036	1299	4,7	2,2	7,954	A
4 - A227	971	243	880	1283	0,757	1276	586	181,8	105,7	407,058	F
5 - Bull Ln	201	50	1933	458	0,439	203	223	1,4	0,9	15,112	C

AM Forecast BL - D9 - 2042 | Forecast Baseline | AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A9	AM Forecast BL	✓	✓	D9	100,000	100,000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bull Ln-A227-A20-M20	Standard Roundabout		1, 2, 3, 4, 5	124,62	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-21	3 - A20 E	124,62	F

Arms

Arms

Arm	Name	Description	No give-way line
1	A20 N		
2	M20 Off-Slip		
3	A20 E		
4	A227		
5	Bull Ln		

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)	Entry only	Exit only
1 - A20 N	3,98	8,17	13,0	36,1	54,9	11,0		
2 - M20 Off-Slip								✓
3 - A20 E	3,59	8,67	27,9	17,0	54,9	20,0		
4 - A227	3,94	8,41	12,2	12,6	54,9	22,0		
5 - Bull Ln	2,50	8,75	18,4	12,9	54,9	20,0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A20 N	0,662	1993
2 - M20 Off-Slip		
3 - A20 E	0,668	2115
4 - A227	0,606	1816
5 - Bull Ln	0,583	1679

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A20 N	Percentage		94,00
3 - A20 E	Percentage		75,00

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2042	Forecast Baseline	AM	ONE HOUR	08:00	09:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A20 N		ONE HOUR	✓	1230	100,000
2 - M20 Off-Slip					
3 - A20 E		ONE HOUR	✓	1378	100,000
4 - A227		ONE HOUR	✓	679	100,000
5 - Bull Ln		ONE HOUR	✓	310	100,000

Origin-Destination Data

Demand (PCU/hr)

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	125	739	277	89
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	548	419	0	165	246
	4 - A227	329	226	124	0	0
	5 - Bull Ln	89	74	147	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2,00

Heavy Vehicle %

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	2	7	13	6
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	5	13	0	7	11
	4 - A227	6	9	4	0	0
	5 - Bull Ln	2	11	4	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A20 N	1,11	186,30	77,8	F	1129	1693
2 - M20 Off-Slip						
3 - A20 E	1,08	149,42	69,2	F	1264	1897
4 - A227	0,74	14,20	2,9	B	623	935
5 - Bull Ln	0,51	11,48	1,1	B	284	427

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	926	232	740	1413	0,656	918	721	0,0	2,0	7,718	A
2 - M20 Off-Slip			1028				630				
3 - A20 E	1037	259	273	1449	0,716	1027	754	0,0	2,6	9,048	A
4 - A227	511	128	970	1228	0,416	508	330	0,0	0,8	5,309	A
5 - Bull Ln	233	58	1229	962	0,243	232	250	0,0	0,3	5,167	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1106	276	884	1323	0,836	1094	861	2,0	5,0	16,157	C
2 - M20 Off-Slip			1226				752				
3 - A20 E	1239	310	326	1423	0,871	1224	900	2,6	6,3	18,398	C
4 - A227	610	153	1157	1115	0,547	608	393	0,8	1,3	7,543	A
5 - Bull Ln	279	70	1467	823	0,339	278	298	0,3	0,5	6,923	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1354	339	1045	1223	1,108	1203	1007	5,0	42,7	83,360	F
2 - M20 Off-Slip			1377				871				
3 - A20 E	1517	379	358	1407	1,079	1383	1019	6,3	39,9	71,775	F
4 - A227	748	187	1304	1026	0,729	742	437	1,3	2,7	13,252	B
5 - Bull Ln	341	85	1712	680	0,502	339	334	0,5	1,0	11,023	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1354	339	1054	1217	1,113	1214	1017	42,7	77,8	186,304	F
2 - M20 Off-Slip			1389				879				
3 - A20 E	1517	379	361	1405	1,080	1400	1028	39,9	69,2	149,416	F
4 - A227	748	187	1320	1016	0,736	747	441	2,7	2,9	14,201	B
5 - Bull Ln	341	85	1729	670	0,509	341	338	1,0	1,1	11,478	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1106	276	935	1291	0,857	1273	925	77,8	35,9	163,243	F
2 - M20 Off-Slip			1389				819				
3 - A20 E	1239	310	379	1396	0,887	1375	1010	69,2	35,2	139,390	F
4 - A227	610	153	1302	1027	0,594	615	451	2,9	1,6	9,437	A
5 - Bull Ln	279	70	1580	757	0,368	280	338	1,1	0,6	7,958	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	926	232	787	1383	0,669	1061	780	35,9	2,3	17,923	C
2 - M20 Off-Slip			1158				689				
3 - A20 E	1037	259	316	1428	0,727	1166	842	35,2	3,0	22,725	C
4 - A227	511	128	1103	1147	0,446	514	379	1,6	0,9	6,086	A
5 - Bull Ln	233	58	1332	902	0,259	234	285	0,6	0,4	5,674	A

PM Forecast BL - D10 - 2042 | Forecast Baseline | PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A10	PM Forecast BL	✓	✓	D10	100,000	100,000

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bull Ln-A227-A20-M20	Standard Roundabout		1, 2, 3, 4, 5	137,97	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-21	1 - A20 N	137,97	F

Arms

Arms

Arm	Name	Description	No give-way line
1	A20 N		
2	M20 Off-Slip		
3	A20 E		
4	A227		
5	Bull Ln		

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)	Entry only	Exit only
1 - A20 N	3,98	8,17	13,0	36,1	54,9	11,0		
2 - M20 Off-Slip								✓
3 - A20 E	3,59	8,67	27,9	17,0	54,9	20,0		
4 - A227	3,94	8,41	12,2	12,6	54,9	22,0		
5 - Bull Ln	2,50	8,75	18,4	12,9	54,9	20,0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A20 N	0,662	1993
2 - M20 Off-Slip		
3 - A20 E	0,668	2115
4 - A227	0,606	1816
5 - Bull Ln	0,583	1679

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A20 N	Percentage		85,00
3 - A20 E	Percentage		64,00
5 - Bull Ln	Percentage		97,00

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2042	Forecast Baseline	PM	ONE HOUR	15:00	16:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A20 N		ONE HOUR	✓	1178	100,000
2 - M20 Off-Slip					
3 - A20 E		ONE HOUR	✓	1135	100,000
4 - A227		ONE HOUR	✓	850	100,000
5 - Bull Ln		ONE HOUR	✓	416	100,000

Origin-Destination Data

Demand (PCU/hr)

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	86	823	201	68
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	593	335	0	47	160
	4 - A227	476	177	197	0	0
	5 - Bull Ln	128	58	230	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2,00

Heavy Vehicle %

From	To					
		1 - A20 N	2 - M20 Off-Slip	3 - A20 E	4 - A227	5 - Bull Ln
	1 - A20 N	0	1	5	8	3
	2 - M20 Off-Slip	0	0	0	0	0
	3 - A20 E	2	11	0	5	6
	4 - A227	3	11	2	0	0
	5 - Bull Ln	1	19	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A20 N	1,20	313,02	113,4	F	1081	1621
2 - M20 Off-Slip						
3 - A20 E	1,00	75,19	26,0	F	1041	1562
4 - A227	0,87	26,18	6,4	D	780	1170
5 - Bull Ln	0,85	42,17	5,0	E	382	573

Main Results for each time segment

15:00 - 15:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	887	222	745	1274	0,696	877	894	0,0	2,3	9,321	A
2 - M20 Off-Slip			1133				490				
3 - A20 E	854	214	200	1268	0,674	846	932	0,0	2,1	8,812	A
4 - A227	640	160	861	1294	0,495	636	185	0,0	1,0	5,674	A
5 - Bull Ln	313	78	1328	877	0,357	311	170	0,0	0,6	6,568	A

15:15 - 15:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1059	265	891	1192	0,888	1041	1069	2,3	6,8	22,699	C
2 - M20 Off-Slip			1347				585				
3 - A20 E	1020	255	237	1252	0,815	1012	1109	2,1	4,3	15,231	C
4 - A227	764	191	1030	1192	0,641	761	220	1,0	1,8	8,646	A
5 - Bull Ln	374	93	1588	730	0,512	372	202	0,6	1,1	10,375	B

15:30 - 15:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1297	324	1066	1094	1,186	1085	1276	6,8	59,8	122,308	F
2 - M20 Off-Slip			1465				685				
3 - A20 E	1250	312	247	1248	1,002	1193	1218	4,3	18,5	45,849	E
4 - A227	936	234	1206	1085	0,862	921	235	1,8	5,6	21,139	C
5 - Bull Ln	458	115	1896	556	0,824	446	230	1,1	4,0	31,234	D

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1297	324	1085	1083	1,197	1082	1299	59,8	113,4	291,347	F
2 - M20 Off-Slip			1470				696				
3 - A20 E	1250	312	247	1248	1,001	1219	1224	18,5	26,0	75,190	F
4 - A227	936	234	1231	1070	0,875	933	235	5,6	6,4	26,178	D
5 - Bull Ln	458	115	1930	537	0,853	454	234	4,0	5,0	42,167	E

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	1059	265	938	1166	0,908	1155	1133	113,4	89,3	313,025	F
2 - M20 Off-Slip			1466				627				
3 - A20 E	1020	255	263	1241	0,822	1102	1203	26,0	5,5	36,380	E
4 - A227	764	191	1123	1135	0,673	781	243	6,4	2,2	11,059	B
5 - Bull Ln	374	93	1682	677	0,553	389	222	5,0	1,3	13,592	B

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A20 N	887	222	758	1267	0,700	1231	911	89,3	3,1	131,923	F
2 - M20 Off-Slip			1466				524				
3 - A20 E	854	214	281	1233	0,693	867	1185	5,5	2,5	10,655	B
4 - A227	640	160	902	1270	0,504	645	246	2,2	1,1	6,053	A
5 - Bull Ln	313	78	1353	863	0,363	316	193	1,3	0,6	6,865	A