

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.5.1.7462 © Copyright TRL Limited, 2019
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: A1077 Falkland Way Southern Access Road Roundabout.j9
Path: Z:\Projects\3628 Barton Link Road\Data\Junction Capacity Modelling
Report generation date: 28/02/2020 15:40:36

- »Proposed Layout - 2036 Future Year, AM
- »Proposed Layout - 2036 Future Year, PM

Summary of junction performance

	AM					PM				
	Set ID	Q (PCU)	Delay (s)	RFC	LOS	Set ID	Q (PCU)	Delay (s)	RFC	LOS
Proposed Layout - 2036 Future Year										
1 - Falkland Way	D1	0.1	2.83	0.12	A	D2	0.5	4.04	0.33	A
2 - A1077 (E)		0.6	3.68	0.35	A		0.6	4.13	0.36	A
3 - Southern Access Road		0.2	3.11	0.17	A		0.1	2.86	0.07	A
4 - A1077 (W)		0.8	4.84	0.42	A		1.1	5.45	0.51	A

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

File summary

File Description

Title	A1077/Falkland Way/Southern Access Road Roundabout
Location	Barton upon Humber, North Lincolnshire
Site number	
Date	19/02/2020
Version	
Status	
Identifier	
Client	NLC
Jobnumber	3928
Enumerator	LTPWMR
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
5.75				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)	Run automatically
D1	2036 Future Year	AM	ONE HOUR	07:45	09:15	15	✓
D2	2036 Future Year	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Proposed Layout	✓	100.000	100.000

Proposed Layout - 2036 Future Year, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1077/Falkland Way Roundabout	Standard Roundabout		1, 2, 3, 4	3.91	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Falkland Way	
2	A1077 (E)	
3	Southern Access Road	
4	A1077 (W)	

Roundabout Geometry

Arm	V (m)	E (m)	I' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - Falkland Way	3.56	7.29	26.2	23.0	60.0	38.0	
2 - A1077 (E)	3.15	7.28	28.6	20.0	60.0	41.0	
3 - Southern Access Road	3.87	7.35	27.9	30.4	60.0	36.0	
4 - A1077 (W)	3.40	6.42	16.1	20.7	60.0	40.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Falkland Way	0.571	1815
2 - A1077 (E)	0.554	1741
3 - Southern Access Road	0.594	1918
4 - A1077 (W)	0.522	1549

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)	Run automatically
D1	2036 Future Year	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - Falkland Way		ONE HOUR	✓	170	100.000
2 - A1077 (E)		ONE HOUR	✓	518	100.000
3 - Southern Access Road		ONE HOUR	✓	242	100.000
4 - A1077 (W)		ONE HOUR	✓	529	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Falkland Way	2 - A1077 (E)	3 - Southern Access Road	4 - A1077 (W)
From	1 - Falkland Way	0	58	14	98
	2 - A1077 (E)	140	0	35	343
	3 - Southern Access Road	32	85	0	125
	4 - A1077 (W)	250	235	44	0

Vehicle Mix

HV %s

		To			
		1 - Falkland Way	2 - A1077 (E)	3 - Southern Access Road	4 - A1077 (W)
From	1 - Falkland Way	10	10	10	10
	2 - A1077 (E)	10	10	10	10
	3 - Southern Access Road	10	10	10	10
	4 - A1077 (W)	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Falkland Way	0.12	2.83	0.1	A	156	234
2 - A1077 (E)	0.35	3.68	0.6	A	475	713
3 - Southern Access Road	0.17	3.11	0.2	A	222	333
4 - A1077 (W)	0.42	4.84	0.8	A	485	728

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	128	32	273	1659	0.077	128	316	0.0	0.1	2.585	A
2 - A1077 (E)	390	97	117	1676	0.233	389	284	0.0	0.3	3.073	A
3 - Southern Access Road	182	46	436	1659	0.110	182	70	0.0	0.1	2.680	A
4 - A1077 (W)	398	100	193	1448	0.275	397	425	0.0	0.4	3.754	A

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	153	38	327	1629	0.094	153	379	0.1	0.1	2.682	A
2 - A1077 (E)	466	116	140	1663	0.280	465	340	0.3	0.4	3.306	A
3 - Southern Access Road	218	54	522	1608	0.135	217	84	0.1	0.2	2.846	A
4 - A1077 (W)	476	119	231	1428	0.333	475	508	0.4	0.5	4.153	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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	187	47	400	1587	0.118	187	464	0.1	0.1	2.828	A
2 - A1077 (E)	570	143	172	1646	0.347	570	416	0.4	0.6	3.678	A
3 - Southern Access Road	266	67	639	1539	0.173	266	102	0.2	0.2	3.111	A
4 - A1077 (W)	582	146	283	1401	0.416	582	623	0.5	0.8	4.826	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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	187	47	401	1586	0.118	187	465	0.1	0.1	2.829	A
2 - A1077 (E)	570	143	172	1646	0.347	570	416	0.6	0.6	3.681	A
3 - Southern Access Road	266	67	640	1538	0.173	266	102	0.2	0.2	3.112	A
4 - A1077 (W)	582	146	283	1401	0.416	582	623	0.8	0.8	4.837	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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	153	38	328	1628	0.094	153	380	0.1	0.1	2.686	A
2 - A1077 (E)	466	116	140	1663	0.280	466	340	0.6	0.4	3.309	A
3 - Southern Access Road	218	54	523	1608	0.135	218	84	0.2	0.2	2.848	A
4 - A1077 (W)	476	119	231	1428	0.333	476	509	0.8	0.6	4.166	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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	128	32	274	1659	0.077	128	318	0.1	0.1	2.586	A
2 - A1077 (E)	390	97	118	1676	0.233	390	285	0.4	0.3	3.083	A
3 - Southern Access Road	182	46	438	1658	0.110	182	70	0.2	0.1	2.684	A
4 - A1077 (W)	398	100	194	1448	0.275	399	426	0.6	0.4	3.776	A

Proposed Layout - 2036 Future Year, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1077/Falkland Way Roundabout	Standard Roundabout		1, 2, 3, 4	4.56	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)	Run automatically
D2	2036 Future Year	PM	ONE HOUR	16:45	18:15	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - Falkland Way		ONE HOUR	✓	431	100.000
2 - A1077 (E)		ONE HOUR	✓	489	100.000
3 - Southern Access Road		ONE HOUR	✓	96	100.000
4 - A1077 (W)		ONE HOUR	✓	673	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Falkland Way	2 - A1077 (E)	3 - Southern Access Road	4 - A1077 (W)
From	1 - Falkland Way	0	149	35	247
	2 - A1077 (E)	98	0	83	308
	3 - Southern Access Road	8	36	0	52
	4 - A1077 (W)	137	420	116	0

Vehicle Mix

HV %s

		To			
		1 - Falkland Way	2 - A1077 (E)	3 - Southern Access Road	4 - A1077 (W)
From	1 - Falkland Way	10	10	10	10
	2 - A1077 (E)	10	10	10	10
	3 - Southern Access Road	10	10	10	10
	4 - A1077 (W)	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Falkland Way	0.33	4.04	0.5	A	395	593
2 - A1077 (E)	0.36	4.13	0.6	A	449	673
3 - Southern Access Road	0.07	2.86	0.1	A	88	132
4 - A1077 (W)	0.51	5.45	1.1	A	618	926

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	324	81	429	1570	0.207	323	182	0.0	0.3	3.172	A
2 - A1077 (E)	368	92	299	1575	0.234	367	454	0.0	0.3	3.274	A
3 - Southern Access Road	72	18	490	1627	0.044	72	175	0.0	0.1	2.545	A
4 - A1077 (W)	507	127	107	1493	0.339	504	455	0.0	0.6	3.996	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	387	97	514	1522	0.255	387	218	0.3	0.4	3.489	A
2 - A1077 (E)	440	110	357	1543	0.285	439	543	0.3	0.4	3.588	A
3 - Southern Access Road	86	22	586	1570	0.055	86	210	0.1	0.1	2.668	A
4 - A1077 (W)	605	151	128	1482	0.408	604	545	0.6	0.8	4.507	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	475	119	629	1456	0.326	474	267	0.4	0.5	4.028	A
2 - A1077 (E)	538	135	438	1498	0.359	538	665	0.4	0.6	4.120	A
3 - Southern Access Road	106	26	718	1492	0.071	106	257	0.1	0.1	2.856	A
4 - A1077 (W)	741	185	156	1467	0.505	740	667	0.8	1.1	5.430	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	475	119	630	1456	0.326	475	268	0.5	0.5	4.036	A
2 - A1077 (E)	538	135	438	1498	0.359	538	666	0.6	0.6	4.126	A
3 - Southern Access Road	106	26	719	1491	0.071	106	258	0.1	0.1	2.857	A
4 - A1077 (W)	741	185	156	1467	0.505	741	668	1.1	1.1	5.452	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	387	97	515	1521	0.255	388	219	0.5	0.4	3.499	A
2 - A1077 (E)	440	110	358	1542	0.285	440	545	0.6	0.4	3.598	A
3 - Southern Access Road	86	22	588	1569	0.055	86	211	0.1	0.1	2.670	A
4 - A1077 (W)	605	151	128	1482	0.408	606	547	1.1	0.8	4.531	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Falkland Way	324	81	431	1569	0.207	325	183	0.4	0.3	3.185	A
2 - A1077 (E)	368	92	300	1575	0.234	369	456	0.4	0.3	3.286	A
3 - Southern Access Road	72	18	492	1626	0.044	72	176	0.1	0.1	2.548	A
4 - A1077 (W)	507	127	107	1493	0.339	507	457	0.8	0.6	4.021	A