

Junctions 9			
ARCADY 9 - Roundabout Module			
Version: 9.0.2.5947			
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Filename: 2019 A27-A29 West-PM-Cal.j9

Path: J:\38848 - GH - Wandleys Lane, Fontwell\BRIEF 5501 - Transport\MODELLING\TRANSPORT\JUNCTIONS 9\HE Analysis\West

Report generation date: 09/01/2018 17:31:11

»2019 Opening Year Base, PM

»2019 Opening Year Base + Wandleys, PM

Summary of junction performance

	PM			
	Queue (Veh)	Delay (s)	RFC	LOS
2019 Opening Year Base				
1 - A29 (N)	5.7	10.79	0.86	B
2 - Arundel Road	1.1	26.94	0.54	D
3 - A29	1.0	8.45	0.50	A
4 - A27 (W)	2.8	4.31	0.74	A
2019 Opening Year Base + Wandleys				
1 - A29 (N)	5.7	10.86	0.86	B
2 - Arundel Road	1.3	29.56	0.58	D
3 - A29	1.0	8.61	0.51	A
4 - A27 (W)	2.8	4.31	0.74	A

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	A27-A29 West
Location	
Site number	
Date	16/05/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	I-TRANSPORT\Hotdesk
Description	A27-A29 Western roundabout junction - Calibrated - SATURN

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	mph	Veh	Veh	perHour	s	-Hour	perHour

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue 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	2019 Opening Year Base	PM	ONE HOUR	16:30	18:00	15	✓
D2	2019 Opening Year Base + Wandleys	PM	ONE HOUR	16:30	18:00	15	✓

Analysis Set Details

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

2019 Opening Year Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/A29 (W)	Standard Roundabout	1, 2, 3, 4	8.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A29 (N)	
2	Arundel Road	
3	A29	
4	A27 (W)	

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 - A29 (N)	7.40	11.30	22.0	42.0	56.0	23.0	
2 - Arundel Road	4.50	6.70	3.9	28.0	56.0	22.0	
3 - A29	3.70	7.70	22.0	19.0	56.0	24.0	
4 - A27 (W)	8.00	11.80	15.0	28.0	56.0	19.0	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Direct intercept adjustment (PCU/hr)
1 - A29 (N)	Direct	Queue length survey	-260
2 - Arundel Road	None		
3 - A29	None		
4 - A27 (W)	Direct	Queue length survey	320

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A29 (N)	0.853	2886
2 - Arundel Road	0.585	1668
3 - A29	0.624	1922
4 - A27 (W)	0.867	3539

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	2019 Opening Year Base	PM	ONE HOUR	16:30	18:00	15	✓

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	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A29 (N)		ONE HOUR	✓	1783	100.000
2 - Arundel Road		ONE HOUR	✓	140	100.000
3 - A29		ONE HOUR	✓	392	100.000
4 - A27 (W)		ONE HOUR	✓	2155	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A29 (N)	2 - Arundel Road	3 - A29	4 - A27 (W)
From	1 - A29 (N)	1	67	409	1306
	2 - Arundel Road	32	0	42	66
	3 - A29	213	25	0	154
	4 - A27 (W)	1697	154	272	32

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A29 (N)	2 - Arundel Road	3 - A29	4 - A27 (W)
From	1 - A29 (N)	0	0	5	6
	2 - Arundel Road	6	0	4	5
	3 - A29	2	8	0	2
	4 - A27 (W)	2	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A29 (N)	0.86	10.79	5.7	B	1636	2454
2 - Arundel Road	0.54	26.94	1.1	D	128	193
3 - A29	0.50	8.45	1.0	A	360	540
4 - A27 (W)	0.74	4.31	2.8	A	1977	2966

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1342	336	363	2434	0.552	1337	1459	0.0	1.2	3.269	A
2 - Arundel Road	105	26	1516	702	0.150	105	185	0.0	0.2	6.027	A
3 - A29	295	74	1078	1182	0.250	294	542	0.0	0.3	4.047	A
4 - A27 (W)	1622	406	203	3291	0.493	1619	1168	0.0	1.0	2.148	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1603	401	434	2375	0.675	1600	1745	1.2	2.0	4.624	A
2 - Arundel Road	126	31	1812	528	0.239	125	221	0.2	0.3	8.938	A
3 - A29	352	88	1289	1046	0.337	352	649	0.3	0.5	5.181	A
4 - A27 (W)	1937	484	243	3256	0.595	1935	1398	1.0	1.5	2.723	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1963	491	531	2295	0.856	1949	2133	2.0	5.5	10.045	B
2 - Arundel Road	154	39	2210	295	0.523	151	270	0.3	1.0	24.632	C
3 - A29	432	108	1570	865	0.499	430	791	0.5	1.0	8.242	A
4 - A27 (W)	2373	593	297	3209	0.739	2367	1703	1.5	2.8	4.250	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1963	491	532	2294	0.856	1962	2139	5.5	5.7	10.792	B
2 - Arundel Road	154	39	2223	287	0.537	154	271	1.0	1.1	26.941	D
3 - A29	432	108	1581	857	0.503	432	796	1.0	1.0	8.452	A
4 - A27 (W)	2373	593	298	3208	0.740	2373	1715	2.8	2.8	4.309	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1603	401	435	2373	0.675	1617	1753	5.7	2.1	4.850	A
2 - Arundel Road	126	31	1831	517	0.243	129	222	1.1	0.3	9.351	A
3 - A29	352	88	1305	1036	0.340	354	655	1.0	0.5	5.299	A
4 - A27 (W)	1937	484	246	3254	0.595	1943	1413	2.8	1.5	2.758	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1342	336	364	2433	0.552	1346	1465	2.1	1.2	3.322	A
2 - Arundel Road	105	26	1524	696	0.151	106	186	0.3	0.2	6.105	A
3 - A29	295	74	1085	1177	0.251	296	546	0.5	0.3	4.088	A
4 - A27 (W)	1622	406	205	3290	0.493	1624	1176	1.5	1.0	2.164	A

2019 Opening Year Base + Wandleys, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/A29 (W)	Standard Roundabout	1, 2, 3, 4	8.20	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	2019 Opening Year Base + Wandleys	PM	ONE HOUR	16:30	18:00	15	✓

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	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A29 (N)		ONE HOUR	✓	1785	100.000
2 - Arundel Road		ONE HOUR	✓	151	100.000
3 - A29		ONE HOUR	✓	392	100.000
4 - A27 (W)		ONE HOUR	✓	2155	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A29 (N)	2 - Arundel Road	3 - A29	4 - A27 (W)
From	1 - A29 (N)	1	69	409	1306
	2 - Arundel Road	32	0	42	77
	3 - A29	213	25	0	154
	4 - A27 (W)	1697	154	272	32

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A29 (N)	2 - Arundel Road	3 - A29	4 - A27 (W)
From	1 - A29 (N)	0	0	5	6
	2 - Arundel Road	6	0	4	5
	3 - A29	2	8	0	2
	4 - A27 (W)	2	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A29 (N)	0.86	10.86	5.7	B	1638	2457
2 - Arundel Road	0.58	29.56	1.3	D	139	208
3 - A29	0.51	8.61	1.0	A	360	540
4 - A27 (W)	0.74	4.31	2.8	A	1977	2966

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1344	336	363	2434	0.552	1339	1459	0.0	1.2	3.273	A
2 - Arundel Road	114	28	1516	702	0.162	113	186	0.0	0.2	6.108	A
3 - A29	295	74	1086	1177	0.251	294	542	0.0	0.3	4.071	A
4 - A27 (W)	1622	406	203	3291	0.493	1619	1177	0.0	1.0	2.148	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1605	401	434	2375	0.676	1601	1745	1.2	2.1	4.634	A
2 - Arundel Road	136	34	1812	528	0.257	135	223	0.2	0.3	9.160	A
3 - A29	352	88	1299	1039	0.339	352	649	0.3	0.5	5.228	A
4 - A27 (W)	1937	484	243	3256	0.595	1935	1407	1.0	1.5	2.723	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1965	491	531	2295	0.856	1951	2133	2.1	5.5	10.097	B
2 - Arundel Road	166	42	2210	295	0.564	163	272	0.3	1.2	26.633	D
3 - A29	432	108	1581	857	0.504	430	791	0.5	1.0	8.382	A
4 - A27 (W)	2373	593	296	3209	0.739	2367	1715	1.5	2.8	4.249	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1965	491	532	2294	0.857	1964	2139	5.5	5.7	10.858	B
2 - Arundel Road	166	42	2223	287	0.580	166	273	1.2	1.3	29.562	D
3 - A29	432	108	1593	850	0.508	432	796	1.0	1.0	8.608	A
4 - A27 (W)	2373	593	298	3208	0.740	2373	1727	2.8	2.8	4.309	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1605	401	435	2374	0.676	1619	1753	5.7	2.1	4.862	A
2 - Arundel Road	136	34	1831	517	0.263	140	224	1.3	0.4	9.632	A
3 - A29	352	88	1315	1029	0.342	354	655	1.0	0.5	5.353	A
4 - A27 (W)	1937	484	246	3254	0.595	1943	1424	2.8	1.5	2.756	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - A29 (N)	1344	336	364	2433	0.552	1347	1465	2.1	1.2	3.326	A
2 - Arundel Road	114	28	1524	696	0.163	114	187	0.4	0.2	6.194	A
3 - A29	295	74	1093	1172	0.252	296	546	0.5	0.3	4.113	A
4 - A27 (W)	1622	406	205	3290	0.493	1624	1184	1.5	1.0	2.165	A