

Junctions 9			
ARCADY 9 - Roundabout Module			
Version: 9.0.2.5947			
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Filename: 2019 A27-A29 West-AM-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 17:27:42

»2019 Opening Year Base, AM

»2019 Opening Year Base + Wandleys, AM

Summary of junction performance

	AM			
	Queue (Veh)	Delay (s)	RFC	LOS
2019 Opening Year Base				
1 - A29 (N)	4.9	7.81	0.83	A
2 - Arundel Road	1.2	18.06	0.55	C
3 - A29	102.9	535.18	1.45	F
4 - A27 (W)	1.8	3.77	0.64	A
2019 Opening Year Base + Wandleys				
1 - A29 (N)	5.0	7.95	0.84	A
2 - Arundel Road	1.5	20.63	0.61	C
3 - A29	111.0	585.90	1.50	F
4 - A27 (W)	1.8	3.76	0.64	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	AM	ONE HOUR	07:00	08:30	15	✓
D2	2019 Opening Year Base + Wandleys	AM	ONE HOUR	07:00	08:30	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, AM

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	76.03	F

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)	None		
2 - Arundel Road	Direct	Queue length survey	320
3 - A29	Direct	Queue length survey	68
4 - A27 (W)	None		

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A29 (N)	0.853	3146
2 - Arundel Road	0.585	1988
3 - A29	0.624	1990
4 - A27 (W)	0.867	3219

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	AM	ONE HOUR	07:00	08:30	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	✓	2109	100.000
2 - Arundel Road		ONE HOUR	✓	224	100.000
3 - A29		ONE HOUR	✓	594	100.000
4 - A27 (W)		ONE HOUR	✓	1532	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A29 (N)	2 - Arundel Road	3 - A29	4 - A27 (W)
From	1 - A29 (N)	2	37	192	1878
	2 - Arundel Road	38	0	40	146
	3 - A29	417	14	0	163
	4 - A27 (W)	1319	54	122	37

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A29 (N)	2 - Arundel Road	3 - A29	4 - A27 (W)
From	1 - A29 (N)	0	8	7	5
	2 - Arundel Road	2	0	15	7
	3 - A29	4	26	0	6
	4 - A27 (W)	10	5	5	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)	0.83	7.81	4.9	A	1935	2903
2 - Arundel Road	0.55	18.06	1.2	C	206	308
3 - A29	1.45	535.18	102.9	F	545	818
4 - A27 (W)	0.64	3.77	1.8	A	1406	2109

Main Results for each time segment

07:00 - 07:15

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)	1588	397	170	2844	0.558	1583	1332	0.0	1.3	2.841	A
2 - Arundel Road	169	42	1674	892	0.189	168	79	0.0	0.2	4.965	A
3 - A29	447	112	1576	912	0.490	443	266	0.0	0.9	7.623	A
4 - A27 (W)	1153	288	352	2657	0.434	1150	1668	0.0	0.8	2.383	A

07:15 - 07:30

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)	1896	474	204	2816	0.673	1893	1590	1.3	2.0	3.886	A
2 - Arundel Road	201	50	2002	705	0.286	201	94	0.2	0.4	7.136	A
3 - A29	534	133	1885	719	0.743	527	318	0.9	2.7	18.133	C
4 - A27 (W)	1377	344	418	2602	0.529	1376	1994	0.8	1.1	2.933	A

07:30 - 07:45

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)	2322	581	245	2781	0.835	2311	1813	2.0	4.8	7.479	A
2 - Arundel Road	247	62	2445	452	0.546	244	111	0.4	1.2	17.053	C
3 - A29	654	164	2301	460	1.422	455	388	2.7	52.4	235.027	F
4 - A27 (W)	1687	422	374	2639	0.639	1684	2382	1.1	1.8	3.760	A

07:45 - 08:00

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)	2322	581	245	2781	0.835	2322	1814	4.8	4.9	7.810	A
2 - Arundel Road	247	62	2456	446	0.553	246	111	1.2	1.2	18.060	C
3 - A29	654	164	2313	452	1.446	452	390	52.4	102.9	535.183	F
4 - A27 (W)	1687	422	372	2641	0.639	1687	2393	1.8	1.8	3.772	A

08:00 - 08:15

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)	1896	474	208	2811	0.674	1907	1717	4.9	2.1	4.030	A
2 - Arundel Road	201	50	2017	696	0.289	205	99	1.2	0.4	7.369	A
3 - A29	534	133	1902	709	0.753	702	320	102.9	60.8	406.069	F
4 - A27 (W)	1377	344	546	2496	0.552	1379	2058	1.8	1.2	3.231	A

08:15 - 08:30

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)	1588	397	177	2838	0.559	1591	1506	2.1	1.3	2.893	A
2 - Arundel Road	169	42	1683	887	0.190	169	85	0.4	0.2	5.022	A
3 - A29	447	112	1585	906	0.493	686	267	60.8	1.0	51.905	F
4 - A27 (W)	1153	288	528	2511	0.459	1155	1743	1.2	0.9	2.657	A

2019 Opening Year Base + Wandleys, AM

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	82.48	F

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	AM	ONE HOUR	07:00	08:30	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	✓	2110	100.000
2 - Arundel Road		ONE HOUR	✓	247	100.000
3 - A29		ONE HOUR	✓	594	100.000
4 - A27 (W)		ONE HOUR	✓	1539	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A29 (N)	2 - Arundel Road	3 - A29	4 - A27 (W)
From	1 - A29 (N)	2	38	192	1878
	2 - Arundel Road	38	0	40	169
	3 - A29	417	14	0	163
	4 - A27 (W)	1319	61	122	37

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A29 (N)	2 - Arundel Road	3 - A29	4 - A27 (W)
From	1 - A29 (N)	0	8	7	5
	2 - Arundel Road	2	0	15	7
	3 - A29	4	26	0	6
	4 - A27 (W)	10	5	5	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)	0.84	7.95	5.0	A	1936	2904
2 - Arundel Road	0.61	20.63	1.5	C	227	340
3 - A29	1.50	585.90	111.0	F	545	818
4 - A27 (W)	0.64	3.76	1.8	A	1412	2118

Main Results for each time segment

07:00 - 07:15

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)	1589	397	176	2839	0.560	1583	1332	0.0	1.3	2.855	A
2 - Arundel Road	186	46	1674	892	0.208	185	85	0.0	0.3	5.083	A
3 - A29	447	112	1594	900	0.497	443	266	0.0	1.0	7.820	A
4 - A27 (W)	1159	290	352	2657	0.436	1156	1685	0.0	0.8	2.392	A

07:15 - 07:30

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)	1897	474	210	2810	0.675	1894	1590	1.3	2.1	3.916	A
2 - Arundel Road	222	56	2002	705	0.315	221	101	0.3	0.5	7.434	A
3 - A29	534	133	1906	705	0.757	526	318	1.0	2.9	19.380	C
4 - A27 (W)	1384	346	418	2603	0.532	1382	2015	0.8	1.1	2.945	A

07:30 - 07:45

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)	2323	581	252	2775	0.837	2312	1802	2.1	4.9	7.598	A
2 - Arundel Road	272	68	2445	452	0.602	268	119	0.5	1.4	19.200	C
3 - A29	654	164	2325	444	1.474	440	388	2.9	56.4	260.162	F
4 - A27 (W)	1694	424	363	2649	0.640	1692	2402	1.1	1.8	3.754	A

07:45 - 08:00

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)	2323	581	252	2774	0.837	2323	1802	4.9	5.0	7.947	A
2 - Arundel Road	272	68	2456	446	0.610	272	119	1.4	1.5	20.626	C
3 - A29	654	164	2338	436	1.501	436	390	56.4	111.0	585.901	F
4 - A27 (W)	1694	424	360	2651	0.639	1694	2413	1.8	1.8	3.763	A

08:00 - 08:15

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)	1897	474	214	2806	0.676	1908	1707	5.0	2.1	4.063	A
2 - Arundel Road	222	56	2017	696	0.319	226	106	1.5	0.5	7.726	A
3 - A29	534	133	1923	694	0.769	688	320	111.0	72.5	458.612	F
4 - A27 (W)	1384	346	536	2504	0.552	1386	2076	1.8	1.2	3.225	A

08:15 - 08:30

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)	1589	397	183	2832	0.561	1592	1539	2.1	1.3	2.910	A
2 - Arundel Road	186	46	1683	887	0.210	187	92	0.5	0.3	5.147	A
3 - A29	447	112	1603	894	0.500	733	267	72.5	1.0	90.820	F
4 - A27 (W)	1159	290	562	2482	0.467	1160	1774	1.2	0.9	2.724	A