

Junctions 9			
ARCADY 9 - Roundabout Module			
Version: 9.0.2.5947 © Copyright TRL Limited, 2017			
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 770558 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: 2019 A27 - A29 East-AM-Cal.j9

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

Report generation date: 09/01/2018 14:48:12

»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 (E)	2.7	14.90	0.73	B
2 - A27 (S)	2.5	5.33	0.72	A
3 - A27 (W)	2.0	3.98	0.66	A
2019 Opening Year Base + Wandleys				
1 - A29 (E)	2.7	14.37	0.74	B
2 - A27 (S)	2.9	5.94	0.75	A
3 - A27 (W)	2.0	3.95	0.66	A

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

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

File summary

File Description

Title	A27-A29 East
Location	
Site number	
Date	19/04/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	I-TRANSPORT\Hotdesk
Description	A27-A29 Eastern roundabout junction - calibrated

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	-Min	perMin

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	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2019 Opening Year Base	AM	2017 Base Flows	DIRECT	07:15	08:15	60	15	✓
D2	2019 Opening Year Base + Wandleys	AM	2017 Base Flows	DIRECT	07:15	08:15	60	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

Severity	Area	Item	Description
Warning	Geometry	1 - A29 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Profile Type	D1 - 2019 Opening Year Base, AM	The DIRECT profile type is intended to be used for demand that varies over time. You are using it with the 'Use O-D data' option, but your O-D data does not vary over time. Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/A29 (E)	Standard Roundabout	1, 2, 3	6.28	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A29 (E)	
2	A27 (S)	
3	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 (E)	3.50	8.50	50.0	42.0	46.0	20.0	
2 - A27 (S)	8.00	11.20	13.4	34.0	46.0	19.0	
3 - A27 (W)	9.60	9.60	0.0	45.0	46.0	19.0	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Direct intercept adjustment (PCU/hr)
1 - A29 (E)	Direct	Queue length survey	-492
2 - A27 (S)	None		
3 - A27 (W)	None		

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A29 (E)	0.767	1849
2 - A27 (S)	0.923	3147
3 - A27 (W)	0.915	3099

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2019 Opening Year Base	AM	2017 Base Flows	DIRECT	07:15	08:15	60	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	Scaling Factor (%)
1 - A29 (E)		DIRECT	✓	100.000
2 - A27 (S)		DIRECT	✓	100.000
3 - A27 (W)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		1 - A29 (E)	2 - A27 (S)	3 - A27 (W)
From	1 - A29 (E)	0	21	645
	2 - A27 (S)	155	67	1488
	3 - A27 (W)	777	989	7

Vehicle Mix

Heavy Vehicle Percentages

	To			
		1 - A29 (E)	2 - A27 (S)	3 - A27 (W)
From	1 - A29 (E)	0	25	6
	2 - A27 (S)	4	8	5
	3 - A27 (W)	7	9	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 (E)	0.73	14.90	2.7	B	666	666
2 - A27 (S)	0.72	5.33	2.5	A	1710	1710
3 - A27 (W)	0.66	3.98	2.0	A	1773	1773

Main Results for each time segment

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 (E)	666	167	1058	911	0.731	656	928	0.0	2.6	13.617	B
2 - A27 (S)	1710	428	642	2394	0.714	1700	1072	0.0	2.4	5.117	A
3 - A27 (W)	1773	443	221	2678	0.662	1765	2121	0.0	1.9	3.911	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 (E)	666	167	1063	907	0.734	666	932	2.6	2.7	14.844	B
2 - A27 (S)	1710	428	652	2385	0.717	1710	1077	2.4	2.5	5.324	A
3 - A27 (W)	1773	443	222	2677	0.662	1773	2139	1.9	1.9	3.981	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 (E)	666	167	1063	907	0.734	666	932	2.7	2.7	14.889	B
2 - A27 (S)	1710	428	652	2385	0.717	1710	1077	2.5	2.5	5.330	A
3 - A27 (W)	1773	443	222	2677	0.662	1773	2140	1.9	2.0	3.981	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 (E)	666	167	1063	907	0.734	666	932	2.7	2.7	14.904	B
2 - A27 (S)	1710	428	652	2385	0.717	1710	1077	2.5	2.5	5.331	A
3 - A27 (W)	1773	443	222	2677	0.662	1773	2140	2.0	2.0	3.981	A

2019 Opening Year Base + Wandleys, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A29 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A27/A29 (E)	Standard Roundabout	1, 2, 3	6.52	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2019 Opening Year Base + Wandleys	AM	2017 Base Flows	DIRECT	07:15	08:15	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - A29 (E)		DIRECT	✓	100.000
2 - A27 (S)		DIRECT	✓	100.000
3 - A27 (W)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/hr)

07:15 - 07:30

	To			
		1 - A29 (E)	2 - A27 (S)	3 - A27 (W)
From	1 - A29 (E)	0	21	646
	2 - A27 (S)	157	76	1488
	3 - A27 (W)	777	989	7

Demand (Veh/hr)

07:30 - 07:45

	To			
		1 - A29 (E)	2 - A27 (S)	3 - A27 (W)
From	1 - A29 (E)	0	28	612
	2 - A27 (S)	160	72	1576
	3 - A27 (W)	732	968	12

Demand (Veh/hr)

07:45 - 08:00

	To			
		1 - A29 (E)	2 - A27 (S)	3 - A27 (W)
From	1 - A29 (E)	0	16	696
	2 - A27 (S)	188	56	1444
	3 - A27 (W)	740	816	8

Demand (Veh/hr)

08:00 - 08:15

	To			
		1 - A29 (E)	2 - A27 (S)	3 - A27 (W)
From	1 - A29 (E)	0	20	660
	2 - A27 (S)	120	92	1164
	3 - A27 (W)	712	940	8

Vehicle Mix

Heavy Vehicle Percentages

	To			
		1 - A29 (E)	2 - A27 (S)	3 - A27 (W)
From	1 - A29 (E)	0	25	6
	2 - A27 (S)	4	8	5
	3 - A27 (W)	7	9	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 (E)	0.74	14.37	2.7	B	675	675
2 - A27 (S)	0.75	5.94	2.9	A	1648	1648
3 - A27 (W)	0.66	3.95	2.0	A	1677	1677

Main Results for each time segment

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 (E)	667	167	1067	904	0.738	656	930	0.0	2.7	14.005	B
2 - A27 (S)	1721	430	643	2393	0.719	1711	1081	0.0	2.5	5.202	A
3 - A27 (W)	1773	443	232	2668	0.664	1765	2122	0.0	2.0	3.953	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 (E)	640	160	1052	914	0.700	641	892	2.7	2.4	13.254	B
2 - A27 (S)	1808	452	625	2410	0.750	1806	1068	2.5	2.9	5.941	A
3 - A27 (W)	1712	428	232	2668	0.642	1713	2199	2.0	1.8	3.768	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 (E)	712	178	881	1051	0.677	713	928	2.4	2.2	10.692	B
2 - A27 (S)	1688	422	705	2337	0.722	1689	889	2.9	2.6	5.569	A
3 - A27 (W)	1564	391	244	2660	0.588	1565	2150	1.8	1.4	3.293	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 (E)	680	170	1039	926	0.734	678	833	2.2	2.6	14.370	B
2 - A27 (S)	1376	344	666	2370	0.581	1381	1051	2.6	1.4	3.655	A
3 - A27 (W)	1660	415	213	2684	0.618	1659	1835	1.4	1.6	3.511	A