Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.1.305 [25 May 2012]

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 E-mail: software@trl.co.uk Web: http://www.trlsoftware.co.uk

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Summary of junction performance

	AM				
	Queue (PCU)	Delay (min)	RFC	LOS	Network Residual Capacity
	Assessment - 2031+CommDev(Ref Case)				
Arm A	2.46	0.37	0.72	C	1 %
Arm B	2.47	0.27	0.72	C	
Arm C	5.96	0.54	0.87	D	[Arm C]

Values shown are the maximum values 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.

"D1 - 2014 Base, AM" model duration: 07:45 - 09:15
"D2 - 2014 Base, PM" model duration: 16:45 - 18:15
"D4 - 2021+Phase2, AM" model duration: 07:45 - 09:15
"D5 - 2031+All Dev, AM" model duration: 07:45 - 09:15
"D6 - 2031+All Dev, PM" model duration: 16:45 - 18:15
"D7 - 2031+CommDev(Ref Case), AM " model duration: 07:45 - 09:15
"D8 - 2031+CommDev(Ref Case), PM" model duration: 16:45 - 18:15
"D9 - 2016 +CommDev+Phase1, AM" model duration: 07:45 - 09:15
"D10 - 2016+CommDev+Phase1, PM" model duration: 16:45 - 18:15
"D11 - 2021+Phase2, PM" model duration: 16:45 - 18:15
"D12 - 2026+CommDev+Phase3, PM" model duration: 16:45 - 18:15
"D13 - 2026+CommDev+Phase3, AM" model duration: 07:45 - 09:15

Run using Junctions 8.0.1.305 at 05/08/2014 17:47:56

File summary

File Description

Title	Syston mini roundabout assessment
Location	Barkby Lane - Melton Road
Site Number	
Date	19/03/2014
Version	
Status	
Identifier	

Client	
Jobnumber	A046980-6
Enumerator	WYG\david.cope
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (min)	Queue Threshold (PCU)
5.75		✓	Delay	0.85	0.60	20.00

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	min	-Min	perMin

Assessment - 2031+CommDev(Ref Case), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Assessment	ARCADY						100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship
2031+CommDev (Ref Case), AM	2031+CommDev (Ref Case)	AM		ONE HOUR	07:45	09:15	90	15				✓	

Junction Network

Junctions

Name	Junction Type	Arm Order	Junction Delay (min)	Junction LOS
Barkby Lane - Melton Road	Mini-roundabout	A,B,C	0.41	C

Junction Network Options

Driving Side	Lighting	Road Surface	In London	Network Residual Capacity (%)	First Arm Reaching Threshold
Left	Normal/unknown	Normal/unknown		1	Arm C

Arms

Arms

Arm	Name	Description
A	Barkby Lane	
B	Melton Road (S)	
C	Melton Road (N)	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	99999.00		0.00
B	0.00	99999.00		0.00
C	0.00	99999.00		0.00

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	3.31	3.31	4.21	11.51	14.04	11.54	0.00	✓
B	3.65	3.65	3.95	2.65	16.00	15.35	0.00	✓
C	4.30	4.30	5.17	1.34	13.85	10.74	0.00	✓

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A		(calculated)	(calculated)	0.432	823.597
B		(calculated)	(calculated)	0.472	860.509
C		(calculated)	(calculated)	0.457	902.214

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	PCU Factors	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	376.00	100.000
B	ONE HOUR	✓	512.00	100.000
C	ONE HOUR	✓	642.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction (for whole period)

		To		
		A	B	C
From	A	0.000	231.000	145.000
	B	180.000	0.000	332.000
	C	117.000	525.000	0.000

Turning Proportions (PCU) - Junction (for whole period)

		To		
		A	B	C
From	A	0.00	0.61	0.39
	B	0.35	0.00	0.65
	C	0.18	0.82	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction (for whole period)

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction (for whole period)

		To		
		A	B	C
From	A	0.000	0.000	0.000
	B	0.000	0.000	0.000
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (min)
A	0.72	0.37	2.46	C	345.02	517.54	127.37	0.25	1.42	127.40	0.25
B	0.72	0.27	2.47	C	469.82	704.73	137.98	0.20	1.53	138.01	0.20
C	0.87	0.54	5.96	D	589.11	883.67	266.81	0.30	2.96	266.87	0.30

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
A	283.07	70.77	280.08	221.38	390.94	0.00	654.76	548.10	0.432	0.00	0.75	0.159	A
B	385.46	96.37	381.89	563.01	108.01	0.00	809.54	760.76	0.476	0.00	0.89	0.139	A

C	483.33	120.83	478.06	355.64	134.26	0.00	840.89	780.05	0.575	0.00	1.32	0.163	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
A	338.02	84.50	336.36	265.76	469.11	0.00	620.99	548.10	0.544	0.75	1.16	0.210	B
B	460.28	115.07	458.56	675.76	129.72	0.00	799.29	760.76	0.576	0.89	1.32	0.175	B
C	577.14	144.29	573.66	427.06	161.21	0.00	828.58	780.05	0.697	1.32	2.19	0.232	B

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
A	413.98	103.50	409.29	323.12	567.39	0.00	578.55	548.10	0.716	1.16	2.33	0.345	C
B	563.72	140.93	559.43	818.84	157.84	0.00	786.02	760.76	0.717	1.32	2.40	0.260	C
C	706.86	176.71	693.84	520.59	196.67	0.00	812.38	780.05	0.870	2.19	5.44	0.462	D

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
A	413.98	103.50	413.49	326.53	576.34	0.00	574.68	548.10	0.720	2.33	2.46	0.370	C
B	563.72	140.93	563.44	830.37	159.46	0.00	785.26	760.76	0.718	2.40	2.47	0.270	C
C	706.86	176.71	704.78	524.81	198.08	0.00	811.74	780.05	0.871	5.44	5.96	0.538	D

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
A	338.02	84.50	342.82	271.08	483.54	0.00	614.76	548.10	0.550	2.46	1.26	0.224	B
B	460.28	115.07	464.55	694.16	132.20	0.00	798.12	760.76	0.577	2.47	1.40	0.182	B
C	577.14	144.29	591.31	433.43	163.32	0.00	827.62	780.05	0.697	5.96	2.42	0.268	C

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
A	283.07	70.77	284.98	225.01	398.62	0.00	651.44	548.10	0.435	1.26	0.78	0.165	A
B	385.46	96.37	387.35	573.70	109.90	0.00	808.64	760.76	0.477	1.40	0.93	0.143	A
C	483.33	120.83	487.46	361.07	136.18	0.00	840.01	780.05	0.575	2.42	1.39	0.172	B

Queueing Delay Results for each time segment

Queueing Delay results: (07:45-08:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	10.61	0.71	0.159	A	A
B	12.70	0.85	0.139	A	A
C	18.47	1.23	0.163	A	A

Queueing Delay results: (08:00-08:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	16.51	1.10	0.210	B	B
B	18.92	1.26	0.175	B	B
C	30.53	2.04	0.232	B	B

Queueing Delay results: (08:15-08:30)

Queueing Delay results: (08:15-08:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	31.57	2.10	0.345	C	C
B	33.01	2.20	0.260	C	B
C	68.32	4.55	0.462	D	C

Queueing Delay results: (08:30-08:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	36.17	2.41	0.370	C	C
B	36.58	2.44	0.270	C	B
C	86.19	5.75	0.538	D	C

Queueing Delay results: (08:45-09:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	20.22	1.35	0.224	B	B
B	22.28	1.49	0.182	B	B
C	41.22	2.75	0.268	C	B

Queueing Delay results: (09:00-09:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	12.29	0.82	0.165	A	A
B	14.49	0.97	0.143	A	A
C	22.08	1.47	0.172	B	B