A	12.56	188.36	12.65	14.07	15.62	0.00	22.71	21.10	0.553	2.69	1.26
B	14.25	213.77	14.32	20.16	8.12	0.00	26.07	22.06	0.547	2.23	1.22
C	22.23	333.48	25.58	18.33	4.11	0.00	30.80	29.18	0.722	52.97	2.71

Queueing Delay Results

Queueing Delay results: (16:45-17:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	15.27	1.02	0.084	A	A
B	17.06	1.14	0.083	A	A
C	35.26	2.35	0.112	A	A

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	28.05	1.87	0.133	A	A
B	29.66	1.98	0.124	A	A
C	82.84	5.52	0.239	B	B

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	73.96	4.93	0.312	C	B
B	83.71	5.58	0.312	C	B
C	485.18	32.35	1.224	F	E

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	91.88	6.13	0.364	C	C
B	106.15	7.08	0.374	C	C
C	1193.51	79.57	2.806	F	F

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	44.68	2.98	0.188	B	B
B	37.80	2.52	0.139	A	A
C	1168.61	77.91	2.626	F	F

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	19.72	1.31	0.100	A	A
B	19.00	1.27	0.086	A	A
C	200.17	13.34	0.351	C	C

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.40	7.00	6.00	41.00	35.00	32.00		0.741	35.242
B	4.60	6.50	32.00	55.00	35.00	28.00		0.714	32.484

C	4.80	9.30	11.00	62.00	35.00	34.00		0.735	34.737

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
16:45-17:00	**A**	12.56	24.28	0.517	0.00	0.00	1.06	15.27	(0.00)	0.084
16:45-17:00	**B**	14.25	26.15	0.545	0.00	0.00	1.18	17.06	(0.00)	0.083
16:45-17:00	**C**	22.23	30.83	0.721	0.00	0.00	2.52	35.26	(0.00)	0.112
17:00-17:15	**A**	14.99	22.39	0.670	0.00	1.06	1.98	28.05	(0.00)	0.133
17:00-17:15	**B**	17.02	24.98	0.681	0.00	1.18	2.08	29.66	(0.00)	0.124
17:00-17:15	**C**	26.55	30.25	0.878	0.00	2.52	6.36	82.84	(0.00)	0.239
17:15-17:30	**A**	18.36	21.09	0.871	0.00	1.98	5.80	73.96	(0.00)	0.312
17:15-17:30	**B**	20.84	23.48	0.888	0.00	2.08	6.66	83.71	(0.00)	0.312
17:15-17:30	**C**	32.51	29.50	1.102	0.00	6.36	56.17	485.18	(0.00)	1.224
17:30-17:45	**A**	18.36	21.00	0.875	0.00	5.80	6.34	91.88	(0.00)	0.364
17:30-17:45	**B**	20.84	23.37	0.892	0.00	6.66	7.36	106.15	(0.00)	0.374
17:30-17:45	**C**	32.51	29.44	1.104	0.00	56.17	102.85	1193.51	(0.00)	2.806
17:45-18:00	**A**	14.99	20.79	0.721	0.00	6.34	2.69	44.68	(0.00)	0.188
17:45-18:00	**B**	17.02	24.84	0.685	0.00	7.36	2.23	37.80	(0.00)	0.139
17:45-18:00	**C**	26.55	30.16	0.880	0.00	102.85	52.97	1168.61	(0.00)	2.626
18:00-18:15	**A**	12.56	22.71	0.553	0.00	2.69	1.26	19.72	(0.00)	0.100
18:00-18:15	**B**	14.25	26.07	0.547	0.00	2.23	1.22	19.00	(0.00)	0.086
18:00-18:15	**C**	22.23	30.80	0.722	0.00	52.97	2.71	200.17	(0.00)	0.351

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J6 Barry Docks Link RBT\Rev A\Import of J6 Barry Docks Link RBT AM Peak Rev A.arc7
Report generation date: 04/01/2011 14:37:49

« A1 - Barry Docks Link Roundabout - D5 - 2015 Base Flows + Comm Dev, AM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Barry Docks Link Roundabout - 2015 Base Flows + Comm + 350 units Dev AM			
Arm A	1.74	0.11	0.64	A
Arm B	4.50	0.20	0.82	B
Arm C	2.76	0.14	0.74	A

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

2015 Base Flows + Comm + 350 units Dev AM - AM runs from 08:00:00 to 09:00:00
2015 Base Flows + Comm + 700 units Dev AM - AM runs from 08:00:00 to 09:00:00
2015 Base Flows + Comm Dev - AM runs from 08:00:00 to 09:00:00

File summary

File Description

Title	J6 Barry Docks Link RBT
Location	Rhoose
Date	28/05/2010
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style

	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - Barry Docks Link Roundabout - D5 - 2015 Base Flows + Comm Dev, AM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Barry Docks Link Roundabout		Yes	Yes	D3		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm Dev, AM	2015 Base Flows + Comm Dev	AM			Yes			08:00	09:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	A4231	
B	Port Road East	
C	Port Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)

A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.40	7.00	6.00	41.00	35.00	32.00	
B	4.80	7.80	32.00	55.00	35.00	28.00	
C	4.80	9.30	11.00	62.00	35.00	34.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.741	35.242
B		((calculated))	((calculated))	0.772	37.260
C		((calculated))	((calculated))	0.735	34.737

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		15.47	100.000	1.00
B	FLAT		20.13	100.000	1.00
C	FLAT		19.75	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
08:00-08:15	**A**	15.47	16.51	N/A	N/A
08:00-08:15	**B**	20.13	20.67	N/A	N/A
08:00-08:15	**C**	19.75	21.00	N/A	N/A

08:15-08:30	**A**	15.47	16.51	N/A	N/A
08:15-08:30	**B**	20.13	20.67	N/A	N/A
08:15-08:30	**C**	19.75	21.00	N/A	N/A
08:30-08:45	**A**	15.47	16.51	N/A	N/A
08:30-08:45	**B**	20.13	20.67	N/A	N/A
08:30-08:45	**C**	19.75	21.00	N/A	N/A
08:45-09:00	**A**	15.47	16.51	N/A	N/A
08:45-09:00	**B**	20.13	20.67	N/A	N/A
08:45-09:00	**C**	19.75	21.00	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	289.00	639.00
	B	397.00	0.00	811.00
	C	653.00	532.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.31	0.69
	B	0.33	0.00	0.67
	C	0.55	0.45	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.04	1.08
	B	1.02	1.00	1.03
	C	1.05	1.08	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	4.00	8.00
	B	2.00	0.00	3.00
	C	5.00	8.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.59	0.09	1.41	A	15.47	928.20	83.37	0.09	1.39	83.40	0.09	0.741	35.242
B	0.73	0.13	2.66	A	20.13	1207.80	154.52	0.13	2.58	154.65	0.13	0.772	37.260

C	0.71	0.12	2.38	A	19.75	1185.00	138.83	0.12	2.31	138.93	0.12	0.735	34.737

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.47	232.05	15.38	17.36	8.80	0.00	26.42	23.81	0.586	0.00	1.39
B	20.13	301.95	19.96	13.59	10.59	0.00	27.69	22.98	0.727	0.00	2.58
C	19.75	296.25	19.60	23.99	6.56	0.00	28.04	27.34	0.704	0.00	2.32

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.47	232.05	15.47	17.50	8.87	0.00	26.37	23.81	0.587	1.39	1.41
B	20.13	301.95	20.13	13.68	10.65	0.00	27.64	22.98	0.728	2.58	2.63
C	19.75	296.25	19.75	24.16	6.61	0.00	28.00	27.34	0.705	2.32	2.36

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.47	232.05	15.47	17.50	8.87	0.00	26.36	23.81	0.587	1.41	1.41
B	20.13	301.95	20.13	13.68	10.65	0.00	27.64	22.98	0.728	2.63	2.65
C	19.75	296.25	19.75	24.17	6.62	0.00	28.00	27.34	0.705	2.36	2.37

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.47	232.05	15.47	17.50	8.87	0.00	26.36	23.81	0.587	1.41	1.41
B	20.13	301.95	20.13	13.68	10.65	0.00	27.64	22.98	0.728	2.65	2.66
C	19.75	296.25	19.75	24.17	6.62	0.00	28.00	27.34	0.705	2.37	2.38

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	19.97	1.33	0.090	A	A
B	35.89	2.39	0.127	A	A
C	32.54	2.17	0.116	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	21.04	1.40	0.092	A	A
B	39.19	2.61	0.133	A	A
C	35.17	2.34	0.121	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	21.16	1.41	0.092	A	A
B	39.63	2.64	0.133	A	A
C	35.50	2.37	0.121	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	21.20	1.41	0.092	A	A
B	39.80	2.65	0.133	A	A
C	35.62	2.37	0.121	A	A

Overview: Standard Roundabout Geometry

Standard 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	Final Slope	Final Intercept (PCU/min)
A	6.40	7.00	6.00	41.00	35.00	32.00		0.741	35.242
B	4.80	7.80	32.00	55.00	35.00	28.00		0.772	37.260
C	4.80	9.30	11.00	62.00	35.00	34.00		0.735	34.737

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
08:00-08:15	A	15.47	26.42	0.586	0.00	0.00	1.39	19.97	(0.00)	0.090
08:00-08:15	B	20.13	27.69	0.727	0.00	0.00	2.58	35.89	(0.00)	0.127
08:00-08:15	C	19.75	28.04	0.704	0.00	0.00	2.32	32.54	(0.00)	0.116
08:15-08:30	A	15.47	26.37	0.587	0.00	1.39	1.41	21.04	(0.00)	0.092
08:15-08:30	B	20.13	27.64	0.728	0.00	2.58	2.63	39.19	(0.00)	0.133
08:15-08:30	C	19.75	28.00	0.705	0.00	2.32	2.36	35.17	(0.00)	0.121
08:30-08:45	A	15.47	26.36	0.587	0.00	1.41	1.41	21.16	(0.00)	0.092
08:30-08:45	B	20.13	27.64	0.728	0.00	2.63	2.65	39.63	(0.00)	0.133
08:30-08:45	C	19.75	28.00	0.705	0.00	2.36	2.37	35.50	(0.00)	0.121
08:45-09:00	A	15.47	26.36	0.587	0.00	1.41	1.41	21.20	(0.00)	0.092
08:45-09:00	B	20.13	27.64	0.728	0.00	2.65	2.66	39.80	(0.00)	0.133
08:45-09:00	C	19.75	28.00	0.705	0.00	2.37	2.38	35.62	(0.00)	0.121

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J6 Barry Docks Link RBT\Rev A\Import of J6 Barry Docks Link RBT PM Peak Rev A.arc7
Report generation date: 04/01/2011 14:43:05

« A1 - Barry Docks Link Roundabout - PM Peak - D5 - 2015 Base Flows + Comm Dev, PM
» Roundabout Network
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» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Barry Docks Link Roundabout - PM Peak - 2015 Base Flows + Comm Dev + 350 units			
Arm A	2.66	0.17	0.73	A
Arm B	2.86	0.16	0.74	A
Arm C	14.05	0.52	0.94	D
	Barry Docks Link Roundabout - PM Peak - 2015 Base Flows + Comm Dev + 700 units			
Arm A	3.72	0.23	0.79	B
Arm B	3.56	0.19	0.78	B
Arm C	33.42	1.17	0.99	F

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

2015 Base Flows + Comm Dev + 350 units - PM runs from 17:00:00 to 18:00:00
2015 Base Flows + Comm Dev + 700 units - PM runs from 17:00:00 to 18:00:00
2015 Base Flows + Comm Dev - PM runs from 17:00:00 to 18:00:00

File summary

File Description

Title	J6 Barry Docks Link RBT PM Peak
Location	Rhoose
Date	28/05/2010
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations

0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - Barry Docks Link Roundabout - PM Peak - D5 - 2015 Base Flows + Comm Dev, PM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Barry Docks Link Roundabout - PM Peak		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm Dev, PM	2015 Base Flows + Comm Dev	PM						17:00	18:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	A4231	
B	Port Road East	

C	Port Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.40	7.00	6.00	41.00	35.00	32.00	
B	4.60	6.50	32.00	55.00	35.00	28.00	
C	4.80	9.30	11.00	62.00	35.00	34.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.741	35.242
B		((calculated))	((calculated))	0.714	32.484
C		((calculated))	((calculated))	0.735	34.737

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		15.83	100.000	1.00
B	FLAT		16.68	100.000	1.00
C	FLAT		26.90	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
17:00-17:15	A	15.83	16.36	N/A	N/A
17:00-17:15	B	16.68	16.90	N/A	N/A
17:00-17:15	C	26.90	27.67	N/A	N/A
17:15-17:30	A	15.83	16.36	N/A	N/A
17:15-17:30	B	16.68	16.90	N/A	N/A
17:15-17:30	C	26.90	27.67	N/A	N/A
17:30-17:45	A	15.83	16.36	N/A	N/A
17:30-17:45	B	16.68	16.90	N/A	N/A
17:30-17:45	C	26.90	27.67	N/A	N/A
17:45-18:00	A	15.83	16.36	N/A	N/A
17:45-18:00	B	16.68	16.90	N/A	N/A
17:45-18:00	C	26.90	27.67	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	308.00	642.00
	B	293.00	0.00	708.00
	C	690.00	924.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.32	0.68
	B	0.29	0.00	0.71
	C	0.43	0.57	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	1.00	1.00	1.05
	B	1.02	1.00	1.01
	C	1.04	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	5.00
	B	2.00	0.00	1.00
	C	4.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.69	0.14	2.24	A	15.83	949.80	129.58	0.14	2.16	129.69	0.14	0.741	35.242
B	0.69	0.13	2.21	A	16.68	1000.80	128.98	0.13	2.15	129.08	0.13	0.714	32.484
C	0.89	0.30	7.77	C	26.90	1614.00	425.22	0.26	7.09	426.22	0.26	0.735	34.737

Main Results

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.83	237.45	15.69	16.14	15.13	0.00	23.02	21.84	0.688	0.00	2.14
B	16.68	250.20	16.54	20.22	10.60	0.00	24.23	21.15	0.689	0.00	2.15
C	26.90	403.50	26.44	22.30	4.84	0.00	30.24	29.26	0.889	0.00	6.95

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.83	237.45	15.83	16.37	15.38	0.00	22.84	21.84	0.693	2.14	2.21
B	16.68	250.20	16.68	20.51	10.69	0.00	24.16	21.15	0.690	2.15	2.20
C	26.90	403.50	26.87	22.49	4.88	0.00	30.21	29.26	0.890	6.95	7.47

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.83	237.45	15.83	16.38	15.39	0.00	22.83	21.84	0.693	2.21	2.23
B	16.68	250.20	16.68	20.52	10.70	0.00	24.16	21.15	0.691	2.20	2.21
C	26.90	403.50	26.89	22.49	4.88	0.00	30.21	29.26	0.890	7.47	7.67

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.83	237.45	15.83	16.38	15.40	0.00	22.83	21.84	0.693	2.23	2.24
B	16.68	250.20	16.68	20.53	10.70	0.00	24.15	21.15	0.691	2.21	2.21
C	26.90	403.50	26.89	22.49	4.88	0.00	30.21	29.26	0.890	7.67	7.77

Queueing Delay Results

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	29.86	1.99	0.134	A	A
B	30.09	2.01	0.128	A	A
C	86.88	5.79	0.239	B	B

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	32.82	2.19	0.142	A	A
B	32.68	2.18	0.134	A	A
C	108.84	7.26	0.292	C	B

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	33.36	2.22	0.143	A	A
B	33.04	2.20	0.134	A	A
C	113.66	7.58	0.296	C	B

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	33.55	2.24	0.143	A	A
B	33.17	2.21	0.134	A	A
C	115.85	7.72	0.298	C	B

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.40	7.00	6.00	41.00	35.00	32.00		0.741	35.242
B	4.60	6.50	32.00	55.00	35.00	28.00		0.714	32.484
C	4.80	9.30	11.00	62.00	35.00	34.00		0.735	34.737

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
17:00-17:15	A	15.83	23.02	0.688	0.00	0.00	2.14	29.86	(0.00)	0.134
17:00-17:15	B	16.68	24.23	0.689	0.00	0.00	2.15	30.09	(0.00)	0.128
17:00-17:15	C	26.90	30.24	0.889	0.00	0.00	6.95	86.88	(0.00)	0.239
17:15-17:30	A	15.83	22.84	0.693	0.00	2.14	2.21	32.82	(0.00)	0.142
17:15-17:30	B	16.68	24.16	0.690	0.00	2.15	2.20	32.68	(0.00)	0.134
17:15-17:30	C	26.90	30.21	0.890	0.00	6.95	7.47	108.84	(0.00)	0.292
17:30-17:45	A	15.83	22.83	0.693	0.00	2.21	2.23	33.36	(0.00)	0.143
17:30-17:45	B	16.68	24.16	0.691	0.00	2.20	2.21	33.04	(0.00)	0.134
17:30-17:45	C	26.90	30.21	0.890	0.00	7.47	7.67	113.66	(0.00)	0.296
17:45-18:00	A	15.83	22.83	0.693	0.00	2.23	2.24	33.55	(0.00)	0.143
17:45-18:00	B	16.68	24.15	0.691	0.00	2.21	2.21	33.17	(0.00)	0.134
17:45-18:00	C	26.90	30.21	0.890	0.00	7.67	7.77	115.85	(0.00)	0.298

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J6 Barry Docks Link RBT\Rev A\Import of J6 Barry Docks Link RBT AM Peak Rev A.arc7
Report generation date: 13/12/2010 12:48:48

« A1 - Barry Docks Link Roundabout - D3 - 2015 Base Flows + Comm + 350 units Dev AM, AM
» Roundabout Network
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Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Barry Docks Link Roundabout - 2015 Base Flows + Comm + 350 units Dev AM			
Arm A	1.74	0.11	0.64	A
Arm B	4.50	0.20	0.82	B
Arm C	2.76	0.14	0.74	A

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

2015 Base Flows + Comm + 350 units Dev AM - AM runs from 08:00:00 to 09:00:00
2015 Base Flows + Comm + 700 units Dev AM - AM runs from 08:00:00 to 09:00:00

File summary

File Description

Title	J6 Barry Docks Link RBT
Location	Rhoose
Date	28/05/2010
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - Barry Docks Link Roundabout - D3 - 2015 Base Flows + Comm + 350 units Dev AM, AM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Barry Docks Link Roundabout		Yes	Yes	D3		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm + 350 units Dev AM, AM	2015 Base Flows + Comm + 350 units Dev AM	AM			Yes			08:00	09:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	A4231	
B	Port Road East	
C	Port Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)

A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.40	7.00	6.00	41.00	35.00	32.00	
B	4.80	7.80	32.00	55.00	35.00	28.00	
C	4.80	9.30	11.00	62.00	35.00	34.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.741	35.242
B		((calculated))	((calculated))	0.772	37.260
C		((calculated))	((calculated))	0.735	34.737

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		15.61	100.000	1.00
B	FLAT		22.70	100.000	1.00
C	FLAT		20.20	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
08:00-08:15	**A**	15.61	16.66	N/A	N/A
08:00-08:15	**B**	22.70	23.31	N/A	N/A
08:00-08:15	**C**	20.20	21.55	N/A	N/A

08:15-08:30	**A**	15.61	16.66	N/A	N/A
08:15-08:30	**B**	22.70	23.31	N/A	N/A
08:15-08:30	**C**	20.20	21.55	N/A	N/A
08:30-08:45	**A**	15.61	16.66	N/A	N/A
08:30-08:45	**B**	22.70	23.31	N/A	N/A
08:30-08:45	**C**	20.20	21.55	N/A	N/A
08:45-09:00	**A**	15.61	16.66	N/A	N/A
08:45-09:00	**B**	22.70	23.31	N/A	N/A
08:45-09:00	**C**	20.20	21.55	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	298.00	639.00
	B	435.00	0.00	927.00
	C	532.00	680.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.32	0.68
	B	0.32	0.00	0.68
	C	0.44	0.56	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.04	1.08
	B	1.02	1.00	1.03
	C	1.05	1.08	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	4.00	8.00
	B	2.00	0.00	3.00
	C	5.00	8.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.64	0.11	1.74	A	15.61	936.60	102.09	0.11	1.70	102.15	0.11	0.741	35.242
B	0.82	0.20	4.50	B	22.70	1361.99	255.62	0.19	4.26	255.99	0.19	0.772	37.260

C	0.74	0.14	2.76	A	20.20	1212.00	159.95	0.13	2.67	160.09	0.13	0.735	34.737

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.61	234.15	15.50	15.95	11.23	0.00	24.60	21.62	0.635	0.00	1.70
B	22.70	340.50	22.42	16.16	10.57	0.00	27.71	24.32	0.819	0.00	4.24
C	20.20	303.00	20.02	25.83	7.16	0.00	27.53	27.10	0.734	0.00	2.67

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.61	234.15	15.61	16.11	11.33	0.00	24.52	21.62	0.637	1.70	1.73
B	22.70	340.50	22.69	16.30	10.64	0.00	27.65	24.32	0.821	4.24	4.41
C	20.20	303.00	20.20	26.09	7.25	0.00	27.47	27.10	0.735	2.67	2.73

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.61	234.15	15.61	16.11	11.33	0.00	24.52	21.62	0.637	1.73	1.74
B	22.70	340.50	22.70	16.30	10.65	0.00	27.65	24.32	0.821	4.41	4.47
C	20.20	303.00	20.20	26.09	7.25	0.00	27.47	27.10	0.735	2.73	2.75

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.61	234.15	15.61	16.12	11.33	0.00	24.52	21.62	0.637	1.74	1.74
B	22.70	340.50	22.70	16.30	10.65	0.00	27.65	24.32	0.821	4.47	4.50
C	20.20	303.00	20.20	26.09	7.25	0.00	27.46	27.10	0.735	2.75	2.76

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	24.15	1.61	0.109	A	A
B	56.36	3.76	0.180	B	B
C	37.02	2.47	0.130	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	25.81	1.72	0.112	A	A
B	65.20	4.35	0.201	B	B
C	40.58	2.71	0.137	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	26.03	1.74	0.112	A	A
B	66.72	4.45	0.201	B	B
C	41.08	2.74	0.138	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	26.11	1.74	0.112	A	A
B	67.35	4.49	0.202	B	B
C	41.27	2.75	0.138	A	A

Overview: Standard Roundabout Geometry

Standard 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	Final Slope	Final Intercept (PCU/min)
A	6.40	7.00	6.00	41.00	35.00	32.00		0.741	35.242
B	4.80	7.80	32.00	55.00	35.00	28.00		0.772	37.260
C	4.80	9.30	11.00	62.00	35.00	34.00		0.735	34.737

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
08:00-08:15	A	15.61	24.60	0.635	0.00	0.00	1.70	24.15	(0.00)	0.109
08:00-08:15	B	22.70	27.71	0.819	0.00	0.00	4.24	56.36	(0.00)	0.180
08:00-08:15	C	20.20	27.53	0.734	0.00	0.00	2.67	37.02	(0.00)	0.130
08:15-08:30	A	15.61	24.52	0.637	0.00	1.70	1.73	25.81	(0.00)	0.112
08:15-08:30	B	22.70	27.65	0.821	0.00	4.24	4.41	65.20	(0.00)	0.201
08:15-08:30	C	20.20	27.47	0.735	0.00	2.67	2.73	40.58	(0.00)	0.137
08:30-08:45	A	15.61	24.52	0.637	0.00	1.73	1.74	26.03	(0.00)	0.112
08:30-08:45	B	22.70	27.65	0.821	0.00	4.41	4.47	66.72	(0.00)	0.201
08:30-08:45	C	20.20	27.47	0.735	0.00	2.73	2.75	41.08	(0.00)	0.138
08:45-09:00	A	15.61	24.52	0.637	0.00	1.74	1.74	26.11	(0.00)	0.112
08:45-09:00	B	22.70	27.65	0.821	0.00	4.47	4.50	67.35	(0.00)	0.202
08:45-09:00	C	20.20	27.46	0.735	0.00	2.75	2.76	41.27	(0.00)	0.138

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J6 Barry Docks Link RBT\Rev A\Import of J6 Barry Docks Link RBT PM Peak Rev A.arc7
Report generation date: 13/12/2010 12:51:44

« A1 - Barry Docks Link Roundabout - PM Peak - D3 - 2015 Base Flows + Comm Dev + 350 units, PM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Barry Docks Link Roundabout - PM Peak - 2015 Base Flows + Comm Dev + 350 units			
Arm A	2.84	0.18	0.74	B
Arm B	2.77	0.16	0.74	A
Arm C	13.71	0.51	0.94	D
	Barry Docks Link Roundabout - PM Peak - 2015 Base Flows + Comm Dev + 700 units			
Arm A	3.72	0.23	0.79	B
Arm B	3.56	0.19	0.78	B
Arm C	33.42	1.17	0.99	F

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

2015 Base Flows + Comm Dev + 350 units - PM runs from 17:00:00 to 18:00:00
2015 Base Flows + Comm Dev + 700 units - PM runs from 17:00:00 to 18:00:00

File summary

File Description

Title	J6 Barry Docks Link RBT PM Peak
Location	Rhoose
Date	28/05/2010
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - Barry Docks Link Roundabout - PM Peak - D3 - 2015 Base Flows + Comm Dev + 350 units, PM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Barry Docks Link Roundabout - PM Peak		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm Dev + 350 units, PM	2015 Base Flows + Comm Dev + 350 units	PM			Yes			17:00	18:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	A4231	
B	Port Road East	
C	Port Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.40	7.00	6.00	41.00	35.00	32.00	
B	4.60	6.50	32.00	55.00	35.00	28.00	
C	4.80	9.30	11.00	62.00	35.00	34.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.741	35.242
B		((calculated))	((calculated))	0.714	32.484
C		((calculated))	((calculated))	0.735	34.737

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		16.25	100.000	1.00
B	FLAT		17.80	100.000	1.00
C	FLAT		28.22	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)

17:00-17:15	**A**	16.25	16.79	N/A	N/A
17:00-17:15	**B**	17.80	18.03	N/A	N/A
17:00-17:15	**C**	28.22	29.01	N/A	N/A
17:15-17:30	**A**	16.25	16.79	N/A	N/A
17:15-17:30	**B**	17.80	18.03	N/A	N/A
17:15-17:30	**C**	28.22	29.01	N/A	N/A
17:30-17:45	**A**	16.25	16.79	N/A	N/A
17:30-17:45	**B**	17.80	18.03	N/A	N/A
17:30-17:45	**C**	28.22	29.01	N/A	N/A
17:45-18:00	**A**	16.25	16.79	N/A	N/A
17:45-18:00	**B**	17.80	18.03	N/A	N/A
17:45-18:00	**C**	28.22	29.01	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	333.00	642.00
	B	309.00	0.00	759.00
	C	690.00	1003.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.34	0.66
	B	0.29	0.00	0.71
	C	0.41	0.59	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.00	1.05
	B	1.02	1.00	1.01
	C	1.04	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	5.00
	B	2.00	0.00	1.00
	C	4.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.74	0.18	2.84	B	16.25	975.00	161.40	0.17	2.69	161.58	0.17	0.741	35.242
B	0.74	0.16	2.77	A	17.80	1068.00	160.13	0.15	2.67	160.29	0.15	0.714	32.484
C	0.94	0.51	13.71	D	28.22	1693.20	694.92	0.41	11.58	698.05	0.41	0.735	34.737

Main Results

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.25	243.75	16.07	16.31	16.29	0.00	22.19	21.45	0.732	0.00	2.63
B	17.80	267.00	17.62	21.78	10.58	0.00	24.24	21.62	0.734	0.00	2.66
C	28.22	423.30	27.50	23.11	5.10	0.00	30.07	29.22	0.939	0.00	10.73

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.25	243.75	16.24	16.60	16.65	0.00	21.93	21.45	0.741	2.63	2.78
B	17.80	267.00	17.80	22.20	10.69	0.00	24.16	21.62	0.737	2.66	2.74
C	28.22	423.30	28.11	23.34	5.15	0.00	30.03	29.22	0.940	10.73	12.44

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.25	243.75	16.25	16.63	16.69	0.00	21.91	21.45	0.742	2.78	2.82
B	17.80	267.00	17.80	22.24	10.70	0.00	24.16	21.62	0.737	2.74	2.76
C	28.22	423.30	28.17	23.35	5.15	0.00	30.03	29.22	0.940	12.44	13.24

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.25	243.75	16.25	16.64	16.70	0.00	21.90	21.45	0.742	2.82	2.84
B	17.80	267.00	17.80	22.25	10.70	0.00	24.15	21.62	0.737	2.76	2.77
C	28.22	423.30	28.19	23.35	5.15	0.00	30.03	29.22	0.940	13.24	13.71

Queueing Delay Results

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	36.07	2.40	0.159	A	A
B	36.71	2.45	0.147	A	A
C	123.54	8.24	0.330	C	B

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	40.90	2.73	0.175	B	B
B	40.66	2.71	0.157	A	A
C	175.75	11.72	0.470	D	C

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	42.01	2.80	0.176	B	B
B	41.27	2.75	0.157	A	A
C	193.21	12.88	0.498	D	C

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	42.42	2.83	0.177	B	B
B	41.50	2.77	0.157	A	A
C	202.43	13.50	0.511	D	C

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.40	7.00	6.00	41.00	35.00	32.00		0.741	35.242
B	4.60	6.50	32.00	55.00	35.00	28.00		0.714	32.484
C	4.80	9.30	11.00	62.00	35.00	34.00		0.735	34.737

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
17:00-17:15	A	16.25	22.19	0.732	0.00	0.00	2.63	36.07	(0.00)	0.159
17:00-17:15	B	17.80	24.24	0.734	0.00	0.00	2.66	36.71	(0.00)	0.147
17:00-17:15	C	28.22	30.07	0.939	0.00	0.00	10.73	123.54	(0.00)	0.330
17:15-17:30	A	16.25	21.93	0.741	0.00	2.63	2.78	40.90	(0.00)	0.175
17:15-17:30	B	17.80	24.16	0.737	0.00	2.66	2.74	40.66	(0.00)	0.157
17:15-17:30	C	28.22	30.03	0.940	0.00	10.73	12.44	175.75	(0.00)	0.470
17:30-17:45	A	16.25	21.91	0.742	0.00	2.78	2.82	42.01	(0.00)	0.176
17:30-17:45	B	17.80	24.16	0.737	0.00	2.74	2.76	41.27	(0.00)	0.157
17:30-17:45	C	28.22	30.03	0.940	0.00	12.44	13.24	193.21	(0.00)	0.498
17:45-18:00	A	16.25	21.90	0.742	0.00	2.82	2.84	42.42	(0.00)	0.177
17:45-18:00	B	17.80	24.15	0.737	0.00	2.76	2.77	41.50	(0.00)	0.157
17:45-18:00	C	28.22	30.03	0.940	0.00	13.24	13.71	202.43	(0.00)	0.511

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J6 Barry Docks Link RBT\Rev A\Import of J6 Barry Docks Link RBT AM Peak Rev A.arc7
Report generation date: 13/12/2010 12:49:11

« A1 - Barry Docks Link Roundabout - D4 - 2015 Base Flows + Comm + 700 units Dev AM, AM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Barry Docks Link Roundabout - 2015 Base Flows + Comm + 350 units Dev AM			
Arm A	1.74	0.11	0.64	A
Arm B	4.50	0.20	0.82	B
Arm C	2.76	0.14	0.74	A

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

2015 Base Flows + Comm + 350 units Dev AM - AM runs from 08:00:00 to 09:00:00
2015 Base Flows + Comm + 700 units Dev AM - AM runs from 08:00:00 to 09:00:00

File summary

File Description

Title	J6 Barry Docks Link RBT
Location	Rhoose
Date	28/05/2010
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - Barry Docks Link Roundabout - D4 - 2015 Base Flows + Comm + 700 units Dev AM, AM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Barry Docks Link Roundabout		Yes	Yes	D3		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm + 700 units Dev AM, AM	2015 Base Flows + Comm + 700 units Dev AM	AM			Yes			08:00	09:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	A4231	
B	Port Road East	
C	Port Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)

A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.40	7.00	6.00	41.00	35.00	32.00	
B	4.80	7.80	32.00	55.00	35.00	28.00	
C	4.80	9.30	11.00	62.00	35.00	34.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.741	35.242
B		((calculated))	((calculated))	0.772	37.260
C		((calculated))	((calculated))	0.735	34.737

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		15.77	100.000	1.00
B	FLAT		25.25	100.000	1.00
C	FLAT		20.65	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
08:00-08:15	**A**	15.77	16.83	N/A	N/A
08:00-08:15	**B**	25.25	25.93	N/A	N/A
08:00-08:15	**C**	20.65	22.04	N/A	N/A

08:15-08:30	**A**	15.77	16.83	N/A	N/A
08:15-08:30	**B**	25.25	25.93	N/A	N/A
08:15-08:30	**C**	20.65	22.04	N/A	N/A
08:30-08:45	**A**	15.77	16.83	N/A	N/A
08:30-08:45	**B**	25.25	25.93	N/A	N/A
08:30-08:45	**C**	20.65	22.04	N/A	N/A
08:45-09:00	**A**	15.77	16.83	N/A	N/A
08:45-09:00	**B**	25.25	25.93	N/A	N/A
08:45-09:00	**C**	20.65	22.04	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	307.00	639.00
	B	472.00	0.00	1043.00
	C	532.00	707.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.32	0.68
	B	0.31	0.00	0.69
	C	0.43	0.57	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.04	1.08
	B	1.02	1.00	1.03
	C	1.05	1.08	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	4.00	8.00
	B	2.00	0.00	3.00
	C	5.00	8.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.65	0.12	1.86	A	15.77	946.20	108.85	0.12	1.81	108.92	0.12	0.741	35.242
B	0.91	0.41	9.81	C	25.25	1515.01	517.90	0.34	8.63	519.64	0.34	0.772	37.260

C	0.76	0.16	3.20	A	20.65	1239.00	184.09	0.15	3.07	184.28	0.15	0.735	34.737

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.77	236.55	15.65	16.48	11.67	0.00	24.28	21.40	0.650	0.00	1.81
B	25.25	378.75	24.70	16.75	10.57	0.00	27.70	24.55	0.911	0.00	8.23
C	20.65	309.75	20.45	27.58	7.70	0.00	27.14	27.18	0.761	0.00	3.05

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.77	236.55	15.77	16.71	11.78	0.00	24.19	21.40	0.652	1.81	1.85
B	25.25	378.75	25.19	16.90	10.65	0.00	27.64	24.55	0.914	8.23	9.20
C	20.65	309.75	20.64	27.99	7.85	0.00	27.04	27.18	0.764	3.05	3.15

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.77	236.55	15.77	16.72	11.78	0.00	24.19	21.40	0.652	1.85	1.86
B	25.25	378.75	25.22	16.90	10.65	0.00	27.64	24.55	0.914	9.20	9.59
C	20.65	309.75	20.65	28.02	7.86	0.00	27.03	27.18	0.764	3.15	3.18

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.77	236.55	15.77	16.73	11.78	0.00	24.19	21.40	0.652	1.86	1.86
B	25.25	378.75	25.24	16.90	10.65	0.00	27.64	24.55	0.914	9.59	9.81
C	20.65	309.75	20.65	28.03	7.86	0.00	27.03	27.18	0.764	3.18	3.20

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	25.62	1.71	0.114	A	A
B	98.96	6.60	0.294	C	B
C	41.89	2.79	0.145	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	27.53	1.84	0.119	A	A
B	131.98	8.80	0.387	C	C
C	46.75	3.12	0.156	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	27.80	1.85	0.119	A	A
B	141.26	9.42	0.400	C	C
C	47.57	3.17	0.157	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	27.89	1.86	0.119	A	A
B	145.70	9.71	0.405	C	C
C	47.89	3.19	0.157	A	A

Overview: Standard Roundabout Geometry

Standard 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	Final Slope	Final Intercept (PCU/min)
A	6.40	7.00	6.00	41.00	35.00	32.00		0.741	35.242
B	4.80	7.80	32.00	55.00	35.00	28.00		0.772	37.260
C	4.80	9.30	11.00	62.00	35.00	34.00		0.735	34.737

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
08:00-08:15	A	15.77	24.28	0.650	0.00	0.00	1.81	25.62	(0.00)	0.114
08:00-08:15	B	25.25	27.70	0.911	0.00	0.00	8.23	98.96	(0.00)	0.294
08:00-08:15	C	20.65	27.14	0.761	0.00	0.00	3.05	41.89	(0.00)	0.145
08:15-08:30	A	15.77	24.19	0.652	0.00	1.81	1.85	27.53	(0.00)	0.119
08:15-08:30	B	25.25	27.64	0.914	0.00	8.23	9.20	131.98	(0.00)	0.387
08:15-08:30	C	20.65	27.04	0.764	0.00	3.05	3.15	46.75	(0.00)	0.156
08:30-08:45	A	15.77	24.19	0.652	0.00	1.85	1.86	27.80	(0.00)	0.119
08:30-08:45	B	25.25	27.64	0.914	0.00	9.20	9.59	141.26	(0.00)	0.400
08:30-08:45	C	20.65	27.03	0.764	0.00	3.15	3.18	47.57	(0.00)	0.157
08:45-09:00	A	15.77	24.19	0.652	0.00	1.86	1.86	27.89	(0.00)	0.119
08:45-09:00	B	25.25	27.64	0.914	0.00	9.59	9.81	145.70	(0.00)	0.405
08:45-09:00	C	20.65	27.03	0.764	0.00	3.18	3.20	47.89	(0.00)	0.157

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J6 Barry Docks Link RBT\Rev A\Import of J6 Barry Docks Link RBT PM Peak Rev A.arc7
Report generation date: 13/12/2010 12:52:06

« A1 - Barry Docks Link Roundabout - PM Peak - D4 - 2015 Base Flows + Comm Dev + 700 units, PM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Barry Docks Link Roundabout - PM Peak - 2015 Base Flows + Comm Dev + 350 units			
Arm A	2.84	0.18	0.74	B
Arm B	2.77	0.16	0.74	A
Arm C	13.71	0.51	0.94	D
	Barry Docks Link Roundabout - PM Peak - 2015 Base Flows + Comm Dev + 700 units			
Arm A	3.72	0.23	0.79	B
Arm B	3.56	0.19	0.78	B
Arm C	33.42	1.17	0.99	F

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

2015 Base Flows + Comm Dev + 350 units - PM runs from 17:00:00 to 18:00:00
2015 Base Flows + Comm Dev + 700 units - PM runs from 17:00:00 to 18:00:00

File summary

File Description

Title	J6 Barry Docks Link RBT PM Peak
Location	Rhoose
Date	28/05/2010
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - Barry Docks Link Roundabout - PM Peak - D4 - 2015 Base Flows + Comm Dev + 700 units, PM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Barry Docks Link Roundabout - PM Peak		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm Dev + 700 units, PM	2015 Base Flows + Comm Dev + 700 units	PM			Yes			17:00	18:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	A4231	
B	Port Road East	
C	Port Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.40	7.00	6.00	41.00	35.00	32.00	
B	4.60	6.50	32.00	55.00	35.00	28.00	
C	4.80	9.30	11.00	62.00	35.00	34.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.741	35.242
B		((calculated))	((calculated))	0.714	32.484
C		((calculated))	((calculated))	0.735	34.737

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		16.68	100.000	1.00
B	FLAT		18.93	100.000	1.00
C	FLAT		29.53	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)

17:00-17:15	**A**	16.68	17.21	N/A	N/A
17:00-17:15	**B**	18.93	19.17	N/A	N/A
17:00-17:15	**C**	29.53	30.35	N/A	N/A
17:15-17:30	**A**	16.68	17.21	N/A	N/A
17:15-17:30	**B**	18.93	19.17	N/A	N/A
17:15-17:30	**C**	29.53	30.35	N/A	N/A
17:30-17:45	**A**	16.68	17.21	N/A	N/A
17:30-17:45	**B**	18.93	19.17	N/A	N/A
17:30-17:45	**C**	29.53	30.35	N/A	N/A
17:45-18:00	**A**	16.68	17.21	N/A	N/A
17:45-18:00	**B**	18.93	19.17	N/A	N/A
17:45-18:00	**C**	29.53	30.35	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	359.00	642.00
	B	326.00	0.00	810.00
	C	690.00	1082.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.36	0.64
	B	0.29	0.00	0.71
	C	0.39	0.61	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.00	1.05
	B	1.02	1.00	1.01
	C	1.04	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	5.00
	B	2.00	0.00	1.00
	C	4.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.79	0.23	3.72	B	16.68	1000.80	206.01	0.21	3.43	206.34	0.21	0.741	35.242
B	0.78	0.19	3.56	B	18.93	1135.80	203.47	0.18	3.39	203.73	0.18	0.714	32.484
C	0.99	1.17	33.42	F	29.53	1771.80	1397.28	0.79	23.29	1416.01	0.80	0.735	34.737

Main Results

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.68	250.20	16.46	16.40	17.29	0.00	21.48	21.10	0.777	0.00	3.28
B	18.93	283.95	18.71	23.20	10.56	0.00	24.26	22.06	0.780	0.00	3.37
C	29.53	442.95	28.32	23.90	5.37	0.00	29.88	29.18	0.988	0.00	18.15

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.68	250.20	16.66	16.75	17.76	0.00	21.14	21.10	0.789	3.28	3.57
B	18.93	283.95	18.92	23.73	10.69	0.00	24.17	22.06	0.783	3.37	3.50
C	29.53	442.95	29.08	24.18	5.43	0.00	29.84	29.18	0.990	18.15	24.92

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.68	250.20	16.67	16.81	17.84	0.00	21.08	21.10	0.791	3.57	3.67
B	18.93	283.95	18.93	23.82	10.69	0.00	24.16	22.06	0.784	3.50	3.54
C	29.53	442.95	29.21	24.19	5.43	0.00	29.83	29.18	0.990	24.92	29.68

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.68	250.20	16.68	16.83	17.88	0.00	21.05	21.10	0.792	3.67	3.72
B	18.93	283.95	18.93	23.86	10.70	0.00	24.16	22.06	0.784	3.54	3.56
C	29.53	442.95	29.28	24.19	5.43	0.00	29.83	29.18	0.990	29.68	33.42

Queueing Delay Results

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	44.04	2.94	0.192	B	B
B	45.48	3.03	0.174	B	B
C	185.00	12.33	0.474	D	C

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	52.09	3.47	0.221	B	B
B	51.77	3.45	0.190	B	B
C	326.81	21.79	0.858	F	D

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	54.43	3.63	0.226	B	B
B	52.89	3.53	0.191	B	B
C	411.20	27.41	1.035	F	E

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	55.45	3.70	0.228	B	B
B	53.33	3.56	0.191	B	B
C	474.28	31.62	1.167	F	E

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.40	7.00	6.00	41.00	35.00	32.00		0.741	35.242
B	4.60	6.50	32.00	55.00	35.00	28.00		0.714	32.484
C	4.80	9.30	11.00	62.00	35.00	34.00		0.735	34.737

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
17:00-17:15	A	16.68	21.48	0.777	0.00	0.00	3.28	44.04	(0.00)	0.192
17:00-17:15	B	18.93	24.26	0.780	0.00	0.00	3.37	45.48	(0.00)	0.174
17:00-17:15	C	29.53	29.88	0.988	0.00	0.00	18.15	185.00	(0.00)	0.474
17:15-17:30	A	16.68	21.14	0.789	0.00	3.28	3.57	52.09	(0.00)	0.221
17:15-17:30	B	18.93	24.17	0.783	0.00	3.37	3.50	51.77	(0.00)	0.190
17:15-17:30	C	29.53	29.84	0.990	0.00	18.15	24.92	326.81	(0.00)	0.858
17:30-17:45	A	16.68	21.08	0.791	0.00	3.57	3.67	54.43	(0.00)	0.226
17:30-17:45	B	18.93	24.16	0.784	0.00	3.50	3.54	52.89	(0.00)	0.191
17:30-17:45	C	29.53	29.83	0.990	0.00	24.92	29.68	411.20	(0.00)	1.035
17:45-18:00	A	16.68	21.05	0.792	0.00	3.67	3.72	55.45	(0.00)	0.228
17:45-18:00	B	18.93	24.16	0.784	0.00	3.54	3.56	53.33	(0.00)	0.191
17:45-18:00	C	29.53	29.83	0.990	0.00	29.68	33.42	474.28	(0.00)	1.167

ARCADY 7

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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\ODTAB\Import of J7 Colcot Cross RBT AM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:34:01

« A1 - (Default Analysis Set) - D5 - 2015 Base + Com Dev, AM
» Roundabout Network
» Arms
» Traffic Flows
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» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Com Dev			
Arm A	1.14	0.11	0.54	A
Arm B	35.89	1.49	1.02	F
Arm C	2.26	0.11	0.70	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units AM Peak			
Arm A	1.20	0.11	0.55	A
Arm B	124.29	4.88	1.17	F
Arm C	2.40	0.12	0.71	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	1.25	0.12	0.56	A
Arm B	211.71	9.05	1.28	F
Arm C	2.59	0.12	0.72	A

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

2015 Base + Comm Dev + 350 units AM Peak - AM runs from 07:45:00 to 09:15:00
2015 Base + Comm Dev + 700 units AM Peak - AM runs from 07:45:00 to 09:15:00
2015 Base + Com Dev - AM runs from 07:45:00 to 09:15:00

File summary

File Description

Title	J7 Colcot Cross RBT
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum

Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D5 - 2015 Base + Com Dev, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Com Dev, AM	2015 Base + Com Dev	AM			Yes			07:45	09:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		9.97	100.000	N/A
B	ONE HOUR		20.92	100.000	N/A
C	ONE HOUR		18.22	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
07:45-08:00	A	7.51	7.55	N/A	N/A
07:45-08:00	B	15.75	16.09	N/A	N/A
07:45-08:00	C	13.72	14.42	N/A	N/A
08:00-08:15	A	8.96	9.02	N/A	N/A
08:00-08:15	B	18.81	19.22	N/A	N/A
08:00-08:15	C	16.38	17.22	N/A	N/A
08:15-08:30	A	10.98	11.04	N/A	N/A
08:15-08:30	B	23.03	23.53	N/A	N/A
08:15-08:30	C	20.06	21.09	N/A	N/A
08:30-08:45	A	10.98	11.04	N/A	N/A
08:30-08:45	B	23.03	23.53	N/A	N/A
08:30-08:45	C	20.06	21.09	N/A	N/A
08:45-09:00	A	8.96	9.02	N/A	N/A
08:45-09:00	B	18.81	19.22	N/A	N/A
08:45-09:00	C	16.38	17.22	N/A	N/A
09:00-09:15	A	7.51	7.55	N/A	N/A
09:00-09:15	B	15.75	16.09	N/A	N/A
09:00-09:15	C	13.72	14.42	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	235.00	363.00
	B	344.00	0.00	911.00
	C	409.00	684.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.39	0.61
	B	0.27	0.00	0.73
	C	0.37	0.63	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	1.00	1.00	1.01
	B	1.00	1.00	1.03
	C	1.02	1.07	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

	To		
	A	B	C

From	A	0.00	0.00	1.00
	B	0.00	0.00	3.00
	C	2.00	7.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.54	0.11	1.14	A	9.15	823.38	68.73	0.08	0.76	68.74	0.08	0.597	28.639
B	1.02	1.49	35.89	F	19.20	1727.68	990.63	0.57	11.01	990.72	0.57	0.610	27.065
C	0.70	0.11	2.26	A	16.72	1504.71	129.10	0.09	1.43	129.11	0.09	0.679	34.415

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.51	112.59	7.47	9.39	8.55	0.00	23.04	16.89	0.326	0.00	0.48
B	15.75	236.24	15.62	11.49	4.54	0.00	23.75	20.31	0.663	0.00	1.92
C	13.72	205.75	13.66	15.88	4.28	0.00	29.97	29.14	0.458	0.00	0.84

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.96	134.44	8.95	11.24	10.23	0.00	21.97	16.89	0.408	0.48	0.68
B	18.81	282.10	18.67	13.75	5.43	0.00	23.21	20.31	0.810	1.92	3.98
C	16.38	245.69	16.35	18.98	5.12	0.00	29.43	29.14	0.557	0.84	1.24

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.98	164.66	10.95	13.44	12.51	0.00	20.52	16.89	0.535	0.68	1.13
B	23.03	345.50	21.75	16.82	6.65	0.00	22.48	20.31	1.024	3.98	23.29
C	20.06	300.91	20.00	22.43	5.96	0.00	28.89	29.14	0.694	1.24	2.22

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.98	164.66	10.98	13.59	12.55	0.00	20.50	16.89	0.535	1.13	1.14
B	23.03	345.50	22.19	16.87	6.66	0.00	22.47	20.31	1.025	23.29	35.89
C	20.06	300.91	20.06	22.77	6.08	0.00	28.81	29.14	0.696	2.22	2.26

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.96	134.44	8.99	11.88	10.29	0.00	21.94	16.89	0.409	1.14	0.70
B	18.81	282.10	20.88	13.82	5.46	0.00	23.20	20.31	0.811	35.89	4.81
C	16.38	245.69	16.44	20.61	5.72	0.00	29.04	29.14	0.564	2.26	1.31

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.51	112.59	7.52	9.51	8.60	0.00	23.01	16.89	0.326	0.70	0.49
B	15.75	236.24	15.94	11.56	4.56	0.00	23.74	20.31	0.664	4.81	2.02
C	13.72	205.75	13.75	16.13	4.37	0.00	29.92	29.14	0.459	1.31	0.85

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	7.02	0.47	0.064	A	A
B	27.03	1.80	0.121	A	A
C	12.21	0.81	0.061	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	10.02	0.67	0.077	A	A
B	53.94	3.60	0.214	B	B
C	18.09	1.21	0.076	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	16.39	1.09	0.104	A	A
B	227.18	15.15	0.814	E	D
C	31.65	2.11	0.112	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.10	1.14	0.105	A	A
B	446.63	29.78	1.489	F	F
C	33.69	2.25	0.114	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	10.75	0.72	0.077	A	A
B	203.26	13.55	0.651	E	D
C	20.34	1.36	0.080	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	7.46	0.50	0.065	A	A
B	32.60	2.17	0.131	A	A
C	13.11	0.87	0.062	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)

A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
07:45-08:00	**A**	7.51	23.04	0.326	0.00	0.00	0.48	7.02	(0.00)	0.064
07:45-08:00	**B**	15.75	23.75	0.663	0.00	0.00	1.92	27.03	(0.00)	0.121
07:45-08:00	**C**	13.72	29.97	0.458	0.00	0.00	0.84	12.21	(0.00)	0.061
08:00-08:15	**A**	8.96	21.97	0.408	0.00	0.48	0.68	10.02	(0.00)	0.077
08:00-08:15	**B**	18.81	23.21	0.810	0.00	1.92	3.98	53.94	(0.00)	0.214
08:00-08:15	**C**	16.38	29.43	0.557	0.00	0.84	1.24	18.09	(0.00)	0.076
08:15-08:30	**A**	10.98	20.52	0.535	0.00	0.68	1.13	16.39	(0.00)	0.104
08:15-08:30	**B**	23.03	22.48	1.024	0.00	3.98	23.29	227.18	(0.00)	0.814
08:15-08:30	**C**	20.06	28.89	0.694	0.00	1.24	2.22	31.65	(0.00)	0.112
08:30-08:45	**A**	10.98	20.50	0.535	0.00	1.13	1.14	17.10	(0.00)	0.105
08:30-08:45	**B**	23.03	22.47	1.025	0.00	23.29	35.89	446.63	(0.00)	1.489
08:30-08:45	**C**	20.06	28.81	0.696	0.00	2.22	2.26	33.69	(0.00)	0.114
08:45-09:00	**A**	8.96	21.94	0.409	0.00	1.14	0.70	10.75	(0.00)	0.077
08:45-09:00	**B**	18.81	23.20	0.811	0.00	35.89	4.81	203.26	(0.00)	0.651
08:45-09:00	**C**	16.38	29.04	0.564	0.00	2.26	1.31	20.34	(0.00)	0.080
09:00-09:15	**A**	7.51	23.01	0.326	0.00	0.70	0.49	7.46	(0.00)	0.065
09:00-09:15	**B**	15.75	23.74	0.664	0.00	4.81	2.02	32.60	(0.00)	0.131
09:00-09:15	**C**	13.72	29.92	0.459	0.00	1.31	0.85	13.11	(0.00)	0.062

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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Report generation date: 04/01/2011 16:37:39

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Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev			
Arm A	1.41	0.13	0.59	A
Arm B	3.26	0.18	0.77	B
Arm C	2.09	0.10	0.68	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units PM Peak			
Arm A	1.65	0.15	0.63	A
Arm B	4.25	0.23	0.82	B
Arm C	2.82	0.13	0.74	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.99	0.19	0.67	B
Arm B	6.46	0.33	0.88	C
Arm C	3.98	0.17	0.80	A

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

2015 Base + Comm Dev + 350 units PM Peak - PM runs from 16:45:00 to 18:15:00
2015 Base + Comm Dev + 700 units PM Peak - PM runs from 16:45:00 to 18:15:00
2015 Base + Comm Dev - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J7 Colcot Cross RBT PM Peak
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum

Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D5 - 2015 Base + Comm Dev, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev, PM	2015 Base + Comm Dev	PM			Yes			16:45	18:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		9.95	100.000	N/A
B	ONE HOUR		16.46	100.000	N/A
C	ONE HOUR		18.95	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
16:45-17:00	A	7.49	7.53	N/A	N/A
16:45-17:00	B	12.39	12.58	N/A	N/A
16:45-17:00	C	14.27	14.49	N/A	N/A
17:00-17:15	A	8.94	8.99	N/A	N/A
17:00-17:15	B	14.80	15.02	N/A	N/A
17:00-17:15	C	17.04	17.30	N/A	N/A
17:15-17:30	A	10.96	11.01	N/A	N/A
17:15-17:30	B	18.12	18.39	N/A	N/A
17:15-17:30	C	20.86	21.19	N/A	N/A
17:30-17:45	A	10.96	11.01	N/A	N/A
17:30-17:45	B	18.12	18.39	N/A	N/A
17:30-17:45	C	20.86	21.19	N/A	N/A
17:45-18:00	A	8.94	8.99	N/A	N/A
17:45-18:00	B	14.80	15.02	N/A	N/A
17:45-18:00	C	17.04	17.30	N/A	N/A
18:00-18:15	A	7.49	7.53	N/A	N/A
18:00-18:15	B	12.39	12.58	N/A	N/A
18:00-18:15	C	14.27	14.49	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	316.00	281.00
	B	256.00	0.00	732.00
	C	251.00	886.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.53	0.47
	B	0.26	0.00	0.74
	C	0.22	0.78	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	1.00	1.00	1.01
	B	1.00	1.00	1.02
	C	1.00	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

	To		
	A	B	C

From	A	0.00	0.00	1.00
	B	0.00	0.00	2.00
	C	0.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.59	0.13	1.41	A	9.13	821.72	80.02	0.10	0.89	80.03	0.10	0.597	28.639
B	0.77	0.18	3.26	B	15.10	1359.36	170.90	0.13	1.90	170.92	0.13	0.610	27.065
C	0.68	0.10	2.09	A	17.39	1565.00	121.15	0.08	1.35	121.17	0.08	0.679	34.415

Main Results

Main results: (16:45-17:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.49	112.36	7.46	6.33	11.08	0.00	21.79	14.35	0.344	0.00	0.52
B	12.39	185.88	12.32	15.02	3.51	0.00	24.54	22.57	0.505	0.00	1.01
C	14.27	214.00	14.21	12.64	3.19	0.00	31.75	29.98	0.449	0.00	0.81

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.94	134.17	8.93	7.58	13.26	0.00	20.47	14.35	0.437	0.52	0.77
B	14.80	221.96	14.76	17.98	4.20	0.00	24.12	22.57	0.613	1.01	1.56
C	17.04	255.54	17.01	15.14	3.82	0.00	31.33	29.98	0.544	0.81	1.18

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.96	164.33	10.91	9.26	16.21	0.00	18.68	14.35	0.586	0.77	1.39
B	18.12	271.84	18.01	21.99	5.14	0.00	23.55	22.57	0.769	1.56	3.18
C	20.86	312.97	20.81	18.48	4.67	0.00	30.77	29.98	0.678	1.18	2.07

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.96	164.33	10.95	9.30	16.26	0.00	18.65	14.35	0.587	1.39	1.41
B	18.12	271.84	18.12	22.06	5.16	0.00	23.54	22.57	0.770	3.18	3.26
C	20.86	312.97	20.86	18.58	4.69	0.00	30.75	29.98	0.679	2.07	2.09

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.94	134.17	8.99	7.64	13.32	0.00	20.43	14.35	0.438	1.41	0.79
B	14.80	221.96	14.91	18.08	4.23	0.00	24.10	22.57	0.614	3.26	1.62
C	17.04	255.54	17.09	15.27	3.86	0.00	31.30	29.98	0.544	2.09	1.21

Main results: (18:00-18:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.49	112.36	7.51	6.38	11.14	0.00	21.76	14.35	0.344	0.79	0.53
B	12.39	185.88	12.43	15.11	3.53	0.00	24.53	22.57	0.505	1.62	1.03
C	14.27	214.00	14.29	12.74	3.22	0.00	31.73	29.98	0.450	1.21	0.82

Queueing Delay Results

Queueing Delay results: (16:45-17:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	7.59	0.51	0.070	A	A
B	14.58	0.97	0.081	A	A
C	11.84	0.79	0.057	A	A

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	11.22	0.75	0.086	A	A
B	22.49	1.50	0.106	A	A
C	17.25	1.15	0.070	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	19.90	1.33	0.128	A	A
B	43.91	2.93	0.177	B	B
C	29.60	1.97	0.100	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	21.01	1.40	0.130	A	A
B	48.41	3.23	0.184	B	B
C	31.19	2.08	0.101	A	A

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	12.19	0.81	0.088	A	A
B	25.53	1.70	0.110	A	A
C	18.67	1.24	0.071	A	A

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	8.11	0.54	0.070	A	A
B	15.98	1.07	0.083	A	A
C	12.61	0.84	0.057	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)

A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
16:45-17:00	**A**	7.49	21.79	0.344	0.00	0.00	0.52	7.59	(0.00)	0.070
16:45-17:00	**B**	12.39	24.54	0.505	0.00	0.00	1.01	14.58	(0.00)	0.081
16:45-17:00	**C**	14.27	31.75	0.449	0.00	0.00	0.81	11.84	(0.00)	0.057
17:00-17:15	**A**	8.94	20.47	0.437	0.00	0.52	0.77	11.22	(0.00)	0.086
17:00-17:15	**B**	14.80	24.12	0.613	0.00	1.01	1.56	22.49	(0.00)	0.106
17:00-17:15	**C**	17.04	31.33	0.544	0.00	0.81	1.18	17.25	(0.00)	0.070
17:15-17:30	**A**	10.96	18.68	0.586	0.00	0.77	1.39	19.90	(0.00)	0.128
17:15-17:30	**B**	18.12	23.55	0.769	0.00	1.56	3.18	43.91	(0.00)	0.177
17:15-17:30	**C**	20.86	30.77	0.678	0.00	1.18	2.07	29.60	(0.00)	0.100
17:30-17:45	**A**	10.96	18.65	0.587	0.00	1.39	1.41	21.01	(0.00)	0.130
17:30-17:45	**B**	18.12	23.54	0.770	0.00	3.18	3.26	48.41	(0.00)	0.184
17:30-17:45	**C**	20.86	30.75	0.679	0.00	2.07	2.09	31.19	(0.00)	0.101
17:45-18:00	**A**	8.94	20.43	0.438	0.00	1.41	0.79	12.19	(0.00)	0.088
17:45-18:00	**B**	14.80	24.10	0.614	0.00	3.26	1.62	25.53	(0.00)	0.110
17:45-18:00	**C**	17.04	31.30	0.544	0.00	2.09	1.21	18.67	(0.00)	0.071
18:00-18:15	**A**	7.49	21.76	0.344	0.00	0.79	0.53	8.11	(0.00)	0.070
18:00-18:15	**B**	12.39	24.53	0.505	0.00	1.62	1.03	15.98	(0.00)	0.083
18:00-18:15	**C**	14.27	31.73	0.450	0.00	1.21	0.82	12.61	(0.00)	0.057

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\ODTAB\Import of J7 Colcot Cross RBT AM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:34:30

« A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units AM Peak, AM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Com Dev			
Arm A	1.14	0.11	0.54	A
Arm B	35.89	1.49	1.02	F
Arm C	2.26	0.11	0.70	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units AM Peak			
Arm A	1.20	0.11	0.55	A
Arm B	124.29	4.88	1.17	F
Arm C	2.40	0.12	0.71	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	1.25	0.12	0.56	A
Arm B	211.71	9.05	1.28	F
Arm C	2.59	0.12	0.72	A

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

2015 Base + Comm Dev + 350 units AM Peak - AM runs from 07:45:00 to 09:15:00
2015 Base + Comm Dev + 700 units AM Peak - AM runs from 07:45:00 to 09:15:00
2015 Base + Com Dev - AM runs from 07:45:00 to 09:15:00

File summary

File Description

Title	J7 Colcot Cross RBT
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum

Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units AM Peak, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 350 units AM Peak, AM	2015 Base + Comm Dev + 350 units AM Peak	AM			Yes			07:45	09:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		9.97	100.000	N/A
B	ONE HOUR		23.82	100.000	N/A
C	ONE HOUR		18.82	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
07:45-08:00	A	7.51	7.55	N/A	N/A
07:45-08:00	B	17.93	18.34	N/A	N/A
07:45-08:00	C	14.17	14.90	N/A	N/A
08:00-08:15	A	8.96	9.02	N/A	N/A
08:00-08:15	B	21.41	21.90	N/A	N/A
08:00-08:15	C	16.92	17.80	N/A	N/A
08:15-08:30	A	10.98	11.04	N/A	N/A
08:15-08:30	B	26.23	26.82	N/A	N/A
08:15-08:30	C	20.72	21.80	N/A	N/A
08:30-08:45	A	10.98	11.04	N/A	N/A
08:30-08:45	B	26.23	26.82	N/A	N/A
08:30-08:45	C	20.72	21.80	N/A	N/A
08:45-09:00	A	8.96	9.02	N/A	N/A
08:45-09:00	B	21.41	21.90	N/A	N/A
08:45-09:00	C	16.92	17.80	N/A	N/A
09:00-09:15	A	7.51	7.55	N/A	N/A
09:00-09:15	B	17.93	18.34	N/A	N/A
09:00-09:15	C	14.17	14.90	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	235.00	363.00
	B	344.00	0.00	1085.00
	C	409.00	720.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.39	0.61
	B	0.24	0.00	0.76
	C	0.36	0.64	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	1.00	1.00	1.01
	B	1.00	1.00	1.03
	C	1.02	1.07	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

	To		
	A	B	C

From	A	0.00	0.00	1.00
	B	0.00	0.00	3.00
	C	2.00	7.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.55	0.11	1.20	A	9.15	823.38	71.04	0.09	0.79	71.05	0.09	0.597	28.639
B	1.17	4.88	124.29	F	21.86	1967.18	4738.63	2.41	52.65	4745.04	2.41	0.610	27.065
C	0.71	0.12	2.40	A	17.27	1554.26	138.47	0.09	1.54	138.49	0.09	0.679	34.415

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.51	112.59	7.47	9.38	9.00	0.00	22.76	16.51	0.330	0.00	0.49
B	17.93	268.99	17.74	11.93	4.54	0.00	23.73	20.43	0.756	0.00	2.96
C	14.17	212.53	14.11	18.00	4.27	0.00	29.96	29.54	0.473	0.00	0.89

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.96	134.44	8.95	11.18	10.77	0.00	21.63	16.51	0.414	0.49	0.70
B	21.41	321.20	21.02	14.29	5.43	0.00	23.19	20.43	0.923	2.96	8.89
C	16.92	253.78	16.89	21.39	5.06	0.00	29.45	29.54	0.574	0.89	1.33

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.98	164.66	10.95	12.86	13.17	0.00	20.11	16.51	0.546	0.70	1.18
B	26.23	393.39	22.32	17.47	6.64	0.00	22.46	20.43	1.168	8.89	67.42
C	20.72	310.82	20.65	23.59	5.37	0.00	29.25	29.54	0.708	1.33	2.37

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.98	164.66	10.98	12.91	13.21	0.00	20.08	16.51	0.547	1.18	1.20
B	26.23	393.39	22.43	17.53	6.66	0.00	22.45	20.43	1.168	67.42	124.29
C	20.72	310.82	20.72	23.70	5.40	0.00	29.23	29.54	0.709	2.37	2.40

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.96	134.44	8.99	11.69	10.83	0.00	21.59	16.51	0.415	1.20	0.72
B	21.41	321.20	22.99	14.37	5.46	0.00	23.17	20.43	0.924	124.29	100.65
C	16.92	253.78	16.99	22.92	5.53	0.00	29.15	29.54	0.581	2.40	1.40

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.51	112.59	7.52	10.80	9.05	0.00	22.72	16.51	0.330	0.72	0.50
B	17.93	268.99	23.48	12.01	4.57	0.00	23.71	20.43	0.756	100.65	17.43
C	14.17	212.53	14.20	22.39	5.65	0.00	29.07	29.54	0.487	1.40	0.96

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	7.15	0.48	0.065	A	A
B	40.37	2.69	0.162	A	A
C	12.96	0.86	0.063	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	10.28	0.69	0.079	A	A
B	107.44	7.16	0.401	C	C
C	19.41	1.29	0.079	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.09	1.14	0.109	A	A
B	580.00	38.67	1.876	F	F
C	33.70	2.25	0.115	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.87	1.19	0.110	A	A
B	1438.17	95.88	4.357	F	F
C	35.84	2.39	0.117	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	11.05	0.74	0.080	A	A
B	1687.04	112.47	4.876	F	F
C	21.81	1.45	0.083	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	7.60	0.51	0.066	A	A
B	885.61	59.04	2.574	F	F
C	14.76	0.98	0.067	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)

A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
07:45-08:00	**A**	7.51	22.76	0.330	0.00	0.00	0.49	7.15	(0.00)	0.065
07:45-08:00	**B**	17.93	23.73	0.756	0.00	0.00	2.96	40.37	(0.00)	0.162
07:45-08:00	**C**	14.17	29.96	0.473	0.00	0.00	0.89	12.96	(0.00)	0.063
08:00-08:15	**A**	8.96	21.63	0.414	0.00	0.49	0.70	10.28	(0.00)	0.079
08:00-08:15	**B**	21.41	23.19	0.923	0.00	2.96	8.89	107.44	(0.00)	0.401
08:00-08:15	**C**	16.92	29.45	0.574	0.00	0.89	1.33	19.41	(0.00)	0.079
08:15-08:30	**A**	10.98	20.11	0.546	0.00	0.70	1.18	17.09	(0.00)	0.109
08:15-08:30	**B**	26.23	22.46	1.168	0.00	8.89	67.42	580.00	(0.00)	1.876
08:15-08:30	**C**	20.72	29.25	0.708	0.00	1.33	2.37	33.70	(0.00)	0.115
08:30-08:45	**A**	10.98	20.08	0.547	0.00	1.18	1.20	17.87	(0.00)	0.110
08:30-08:45	**B**	26.23	22.45	1.168	0.00	67.42	124.29	1438.17	(0.00)	4.357
08:30-08:45	**C**	20.72	29.23	0.709	0.00	2.37	2.40	35.84	(0.00)	0.117
08:45-09:00	**A**	8.96	21.59	0.415	0.00	1.20	0.72	11.05	(0.00)	0.080
08:45-09:00	**B**	21.41	23.17	0.924	0.00	124.29	100.65	1687.04	(0.00)	4.876
08:45-09:00	**C**	16.92	29.15	0.581	0.00	2.40	1.40	21.81	(0.00)	0.083
09:00-09:15	**A**	7.51	22.72	0.330	0.00	0.72	0.50	7.60	(0.00)	0.066
09:00-09:15	**B**	17.93	23.71	0.756	0.00	100.65	17.43	885.61	(0.00)	2.574
09:00-09:15	**C**	14.17	29.07	0.487	0.00	1.40	0.96	14.76	(0.00)	0.067

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\ODTAB\Import of J7 Colcot Cross RBT PM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:38:37

« A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units PM Peak, PM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev			
Arm A	1.41	0.13	0.59	A
Arm B	3.26	0.18	0.77	B
Arm C	2.09	0.10	0.68	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units PM Peak			
Arm A	1.65	0.15	0.63	A
Arm B	4.25	0.23	0.82	B
Arm C	2.82	0.13	0.74	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.99	0.19	0.67	B
Arm B	6.46	0.33	0.88	C
Arm C	3.98	0.17	0.80	A

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

2015 Base + Comm Dev + 350 units PM Peak - PM runs from 16:45:00 to 18:15:00
2015 Base + Comm Dev + 700 units PM Peak - PM runs from 16:45:00 to 18:15:00
2015 Base + Comm Dev - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J7 Colcot Cross RBT PM Peak
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum

Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units PM Peak, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 350 units PM Peak, PM	2015 Base + Comm Dev + 350 units PM Peak	PM			Yes			16:45	18:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		9.95	100.000	N/A
B	ONE HOUR		17.43	100.000	N/A
C	ONE HOUR		20.70	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
16:45-17:00	A	7.49	7.53	N/A	N/A
16:45-17:00	B	13.12	13.32	N/A	N/A
16:45-17:00	C	15.58	15.83	N/A	N/A
17:00-17:15	A	8.94	8.99	N/A	N/A
17:00-17:15	B	15.67	15.91	N/A	N/A
17:00-17:15	C	18.61	18.91	N/A	N/A
17:15-17:30	A	10.96	11.01	N/A	N/A
17:15-17:30	B	19.19	19.48	N/A	N/A
17:15-17:30	C	22.79	23.15	N/A	N/A
17:30-17:45	A	10.96	11.01	N/A	N/A
17:30-17:45	B	19.19	19.48	N/A	N/A
17:30-17:45	C	22.79	23.15	N/A	N/A
17:45-18:00	A	8.94	8.99	N/A	N/A
17:45-18:00	B	15.67	15.91	N/A	N/A
17:45-18:00	C	18.61	18.91	N/A	N/A
18:00-18:15	A	7.49	7.53	N/A	N/A
18:00-18:15	B	13.12	13.32	N/A	N/A
18:00-18:15	C	15.58	15.83	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	316.00	281.00
	B	256.00	0.00	790.00
	C	251.00	991.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.53	0.47
	B	0.24	0.00	0.76
	C	0.20	0.80	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	1.00	1.00	1.01
	B	1.00	1.00	1.02
	C	1.00	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

	To		
	A	B	C

From	A	0.00	0.00	1.00
	B	0.00	0.00	2.00
	C	0.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.63	0.15	1.65	A	9.13	821.72	89.86	0.11	1.00	89.86	0.11	0.597	28.639
B	0.82	0.23	4.25	B	15.99	1439.46	208.90	0.15	2.32	208.92	0.15	0.610	27.065
C	0.74	0.13	2.82	A	18.99	1709.52	154.29	0.09	1.71	154.30	0.09	0.679	34.415

Main Results

Main results: (16:45-17:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.49	112.36	7.45	6.33	12.38	0.00	21.00	13.92	0.357	0.00	0.55
B	13.12	196.83	13.05	16.33	3.51	0.00	24.53	22.69	0.535	0.00	1.14
C	15.58	233.76	15.52	13.36	3.19	0.00	31.74	30.16	0.491	0.00	0.96

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.94	134.17	8.93	7.58	14.82	0.00	19.52	13.92	0.458	0.55	0.84
B	15.67	235.04	15.62	19.55	4.20	0.00	24.11	22.69	0.650	1.14	1.82
C	18.61	279.13	18.58	16.00	3.82	0.00	31.32	30.16	0.594	0.96	1.45

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.96	164.33	10.90	9.25	18.11	0.00	17.53	13.92	0.625	0.84	1.62
B	19.19	287.86	19.04	23.89	5.13	0.00	23.55	22.69	0.815	1.82	4.09
C	22.79	341.87	22.70	19.51	4.66	0.00	30.76	30.16	0.741	1.45	2.77

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.96	164.33	10.95	9.30	18.18	0.00	17.49	13.92	0.626	1.62	1.65
B	19.19	287.86	19.18	23.98	5.16	0.00	23.53	22.69	0.815	4.09	4.25
C	22.79	341.87	22.79	19.64	4.69	0.00	30.74	30.16	0.741	2.77	2.82

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.94	134.17	9.00	7.65	14.92	0.00	19.47	13.92	0.460	1.65	0.86
B	15.67	235.04	15.83	19.68	4.24	0.00	24.09	22.69	0.650	4.25	1.90
C	18.61	279.13	18.70	16.19	3.87	0.00	31.29	30.16	0.595	2.82	1.49

Main results: (18:00-18:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.49	112.36	7.51	6.38	12.46	0.00	20.95	13.92	0.357	0.86	0.56
B	13.12	196.83	13.17	16.44	3.54	0.00	24.52	22.69	0.535	1.90	1.17
C	15.58	233.76	15.62	13.48	3.22	0.00	31.72	30.16	0.491	1.49	0.97

Queueing Delay Results

Queueing Delay results: (16:45-17:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	8.02	0.53	0.074	A	A
B	16.35	1.09	0.086	A	A
C	13.93	0.93	0.061	A	A

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	12.18	0.81	0.094	A	A
B	26.04	1.74	0.117	A	A
C	21.03	1.40	0.078	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	23.04	1.54	0.150	A	A
B	55.21	3.68	0.215	B	B
C	39.14	2.61	0.123	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	24.62	1.64	0.153	A	A
B	62.78	4.19	0.228	B	B
C	42.05	2.80	0.126	A	A

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.38	0.89	0.096	A	A
B	30.40	2.03	0.123	A	A
C	23.17	1.54	0.080	A	A

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	8.62	0.57	0.075	A	A
B	18.11	1.21	0.089	A	A
C	14.97	1.00	0.062	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)

A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
16:45-17:00	**A**	7.49	21.00	0.357	0.00	0.00	0.55	8.02	(0.00)	0.074
16:45-17:00	**B**	13.12	24.53	0.535	0.00	0.00	1.14	16.35	(0.00)	0.086
16:45-17:00	**C**	15.58	31.74	0.491	0.00	0.00	0.96	13.93	(0.00)	0.061
17:00-17:15	**A**	8.94	19.52	0.458	0.00	0.55	0.84	12.18	(0.00)	0.094
17:00-17:15	**B**	15.67	24.11	0.650	0.00	1.14	1.82	26.04	(0.00)	0.117
17:00-17:15	**C**	18.61	31.32	0.594	0.00	0.96	1.45	21.03	(0.00)	0.078
17:15-17:30	**A**	10.96	17.53	0.625	0.00	0.84	1.62	23.04	(0.00)	0.150
17:15-17:30	**B**	19.19	23.55	0.815	0.00	1.82	4.09	55.21	(0.00)	0.215
17:15-17:30	**C**	22.79	30.76	0.741	0.00	1.45	2.77	39.14	(0.00)	0.123
17:30-17:45	**A**	10.96	17.49	0.626	0.00	1.62	1.65	24.62	(0.00)	0.153
17:30-17:45	**B**	19.19	23.53	0.815	0.00	4.09	4.25	62.78	(0.00)	0.228
17:30-17:45	**C**	22.79	30.74	0.741	0.00	2.77	2.82	42.05	(0.00)	0.126
17:45-18:00	**A**	8.94	19.47	0.460	0.00	1.65	0.86	13.38	(0.00)	0.096
17:45-18:00	**B**	15.67	24.09	0.650	0.00	4.25	1.90	30.40	(0.00)	0.123
17:45-18:00	**C**	18.61	31.29	0.595	0.00	2.82	1.49	23.17	(0.00)	0.080
18:00-18:15	**A**	7.49	20.95	0.357	0.00	0.86	0.56	8.62	(0.00)	0.075
18:00-18:15	**B**	13.12	24.52	0.535	0.00	1.90	1.17	18.11	(0.00)	0.089
18:00-18:15	**C**	15.58	31.72	0.491	0.00	1.49	0.97	14.97	(0.00)	0.062

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\ODTAB\Import of J7 Colcot Cross RBT AM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:34:50

« A1 - (Default Analysis Set) - D4 - 2015 Base + Comm Dev + 700 units AM Peak, AM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Com Dev			
Arm A	1.14	0.11	0.54	A
Arm B	35.89	1.49	1.02	F
Arm C	2.26	0.11	0.70	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units AM Peak			
Arm A	1.20	0.11	0.55	A
Arm B	124.29	4.88	1.17	F
Arm C	2.40	0.12	0.71	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	1.25	0.12	0.56	A
Arm B	211.71	9.05	1.28	F
Arm C	2.59	0.12	0.72	A

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

2015 Base + Comm Dev + 350 units AM Peak - AM runs from 07:45:00 to 09:15:00
2015 Base + Comm Dev + 700 units AM Peak - AM runs from 07:45:00 to 09:15:00
2015 Base + Com Dev - AM runs from 07:45:00 to 09:15:00

File summary

File Description

Title	J7 Colcot Cross RBT
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum

Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D4 - 2015 Base + Comm Dev + 700 units AM Peak, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 700 units AM Peak, AM	2015 Base + Comm Dev + 700 units AM Peak	AM			Yes			07:45	09:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		9.97	100.000	N/A
B	ONE HOUR		26.03	100.000	N/A
C	ONE HOUR		19.42	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
07:45-08:00	A	7.51	7.55	N/A	N/A
07:45-08:00	B	19.60	20.06	N/A	N/A
07:45-08:00	C	14.62	15.39	N/A	N/A
08:00-08:15	A	8.96	9.02	N/A	N/A
08:00-08:15	B	23.40	23.95	N/A	N/A
08:00-08:15	C	17.46	18.37	N/A	N/A
08:15-08:30	A	10.98	11.04	N/A	N/A
08:15-08:30	B	28.66	29.33	N/A	N/A
08:15-08:30	C	21.38	22.50	N/A	N/A
08:30-08:45	A	10.98	11.04	N/A	N/A
08:30-08:45	B	28.66	29.33	N/A	N/A
08:30-08:45	C	21.38	22.50	N/A	N/A
08:45-09:00	A	8.96	9.02	N/A	N/A
08:45-09:00	B	23.40	23.95	N/A	N/A
08:45-09:00	C	17.46	18.37	N/A	N/A
09:00-09:15	A	7.51	7.55	N/A	N/A
09:00-09:15	B	19.60	20.06	N/A	N/A
09:00-09:15	C	14.62	15.39	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	235.00	363.00
	B	344.00	0.00	1218.00
	C	409.00	756.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.39	0.61
	B	0.22	0.00	0.78
	C	0.35	0.65	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	1.00	1.00	1.01
	B	1.00	1.00	1.03
	C	1.02	1.07	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

	To		
	A	B	C

From	A	0.00	0.00	1.00
	B	0.00	0.00	3.00
	C	2.00	7.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.56	0.12	1.25	A	9.15	823.38	73.53	0.09	0.82	73.53	0.09	0.597	28.639
B	1.28	9.05	211.71	F	23.89	2149.71	9568.48	4.45	106.32	10054.93	4.68	0.610	27.065
C	0.72	0.12	2.59	A	17.82	1603.81	147.88	0.09	1.64	147.89	0.09	0.679	34.415

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.51	112.59	7.47	9.36	9.45	0.00	22.47	16.20	0.334	0.00	0.50
B	19.60	293.95	19.31	12.38	4.54	0.00	23.72	20.53	0.826	0.00	4.38
C	14.62	219.31	14.56	19.59	4.25	0.00	29.96	29.78	0.488	0.00	0.95

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.96	134.44	8.95	11.03	11.31	0.00	21.29	16.20	0.421	0.50	0.72
B	23.40	351.01	22.32	14.82	5.43	0.00	23.18	20.53	1.010	4.38	20.64
C	17.46	261.87	17.43	22.83	4.91	0.00	29.53	29.78	0.591	0.95	1.43

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.98	164.66	10.94	12.42	13.83	0.00	19.69	16.20	0.557	0.72	1.24
B	28.66	429.89	22.42	18.13	6.64	0.00	22.45	20.53	1.277	20.64	114.31
C	21.38	320.73	21.31	24.12	4.94	0.00	29.52	29.78	0.724	1.43	2.56

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.98	164.66	10.98	12.45	13.87	0.00	19.66	16.20	0.558	1.24	1.25
B	28.66	429.89	22.43	18.19	6.66	0.00	22.44	20.53	1.277	114.31	207.71
C	21.38	320.73	21.38	24.16	4.94	0.00	29.51	29.78	0.724	2.56	2.59

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.96	134.44	9.00	11.25	11.38	0.00	21.25	16.20	0.422	1.25	0.74
B	23.40	351.01	23.13	14.91	5.46	0.00	23.16	20.53	1.010	207.71	211.71
C	17.46	261.87	17.53	23.50	5.09	0.00	29.41	29.78	0.594	2.59	1.48

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.51	112.59	7.52	10.34	9.51	0.00	22.43	16.20	0.335	0.74	0.51
B	19.60	293.95	23.59	12.46	4.57	0.00	23.70	20.53	0.827	211.71	151.85
C	14.62	219.31	14.65	22.96	5.19	0.00	29.35	29.78	0.498	1.48	1.00

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	7.28	0.49	0.067	A	A
B	57.29	3.82	0.214	B	B
C	13.75	0.92	0.065	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	10.55	0.70	0.081	A	A
B	209.47	13.96	0.742	E	D
C	20.74	1.38	0.082	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.85	1.19	0.114	A	A
B	1014.07	67.60	3.157	F	F
C	36.23	2.42	0.121	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	18.71	1.25	0.115	A	A
B	2415.27	161.02	7.195	F	F
C	38.67	2.58	0.123	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	11.38	0.76	0.082	A	A
B	3145.68	209.71	9.055	F	F
C	23.07	1.54	0.085	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	7.76	0.52	0.067	A	A
B	2726.69	181.78	7.715	F	F
C	15.42	1.03	0.068	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)

A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
07:45-08:00	**A**	7.51	22.47	0.334	0.00	0.00	0.50	7.28	(0.00)	0.067
07:45-08:00	**B**	19.60	23.72	0.826	0.00	0.00	4.38	57.29	(0.00)	0.214
07:45-08:00	**C**	14.62	29.96	0.488	0.00	0.00	0.95	13.75	(0.00)	0.065
08:00-08:15	**A**	8.96	21.29	0.421	0.00	0.50	0.72	10.55	(0.00)	0.081
08:00-08:15	**B**	23.40	23.18	1.010	0.00	4.38	20.64	209.47	(0.00)	0.742
08:00-08:15	**C**	17.46	29.53	0.591	0.00	0.95	1.43	20.74	(0.00)	0.082
08:15-08:30	**A**	10.98	19.69	0.557	0.00	0.72	1.24	17.85	(0.00)	0.114
08:15-08:30	**B**	28.66	22.45	1.277	0.00	20.64	114.31	1014.07	(0.00)	3.157
08:15-08:30	**C**	21.38	29.52	0.724	0.00	1.43	2.56	36.23	(0.00)	0.121
08:30-08:45	**A**	10.98	19.66	0.558	0.00	1.24	1.25	18.71	(0.00)	0.115
08:30-08:45	**B**	28.66	22.44	1.277	0.00	114.31	207.71	2415.27	(0.00)	7.195
08:30-08:45	**C**	21.38	29.51	0.724	0.00	2.56	2.59	38.67	(0.00)	0.123
08:45-09:00	**A**	8.96	21.25	0.422	0.00	1.25	0.74	11.38	(0.00)	0.082
08:45-09:00	**B**	23.40	23.16	1.010	0.00	207.71	211.71	3145.68	(0.00)	9.055
08:45-09:00	**C**	17.46	29.41	0.594	0.00	2.59	1.48	23.07	(0.00)	0.085
09:00-09:15	**A**	7.51	22.43	0.335	0.00	0.74	0.51	7.76	(0.00)	0.067
09:00-09:15	**B**	19.60	23.70	0.827	0.00	211.71	151.85	2726.69	(0.00)	7.715
09:00-09:15	**C**	14.62	29.35	0.498	0.00	1.48	1.00	15.42	(0.00)	0.068

ARCADY 7

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File: \\fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\ODTAB\Import of J7 Colcot Cross RBT PM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:39:08

« A1 - (Default Analysis Set) - D4 - 2015 Base + Comm Dev + 700 units PM Peak, PM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev			
Arm A	1.41	0.13	0.59	A
Arm B	3.26	0.18	0.77	B
Arm C	2.09	0.10	0.68	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units PM Peak			
Arm A	1.65	0.15	0.63	A
Arm B	4.25	0.23	0.82	B
Arm C	2.82	0.13	0.74	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.99	0.19	0.67	B
Arm B	6.46	0.33	0.88	C
Arm C	3.98	0.17	0.80	A

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

2015 Base + Comm Dev + 350 units PM Peak - PM runs from 16:45:00 to 18:15:00
2015 Base + Comm Dev + 700 units PM Peak - PM runs from 16:45:00 to 18:15:00
2015 Base + Comm Dev - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J7 Colcot Cross RBT PM Peak
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum

Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D4 - 2015 Base + Comm Dev + 700 units PM Peak, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 700 units PM Peak, PM	2015 Base + Comm Dev + 700 units PM Peak	PM			Yes			16:45	18:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		9.95	100.000	N/A
B	ONE HOUR		18.70	100.000	N/A
C	ONE HOUR		22.43	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
16:45-17:00	A	7.49	7.53	N/A	N/A
16:45-17:00	B	14.08	14.30	N/A	N/A
16:45-17:00	C	16.89	17.16	N/A	N/A
17:00-17:15	A	8.94	8.99	N/A	N/A
17:00-17:15	B	16.81	17.07	N/A	N/A
17:00-17:15	C	20.16	20.49	N/A	N/A
17:15-17:30	A	10.96	11.01	N/A	N/A
17:15-17:30	B	20.59	20.91	N/A	N/A
17:15-17:30	C	24.70	25.10	N/A	N/A
17:30-17:45	A	10.96	11.01	N/A	N/A
17:30-17:45	B	20.59	20.91	N/A	N/A
17:30-17:45	C	24.70	25.10	N/A	N/A
17:45-18:00	A	8.94	8.99	N/A	N/A
17:45-18:00	B	16.81	17.07	N/A	N/A
17:45-18:00	C	20.16	20.49	N/A	N/A
18:00-18:15	A	7.49	7.53	N/A	N/A
18:00-18:15	B	14.08	14.30	N/A	N/A
18:00-18:15	C	16.89	17.16	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	316.00	281.00
	B	256.00	0.00	866.00
	C	251.00	1095.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.53	0.47
	B	0.23	0.00	0.77
	C	0.19	0.81	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	1.00	1.00	1.01
	B	1.00	1.00	1.02
	C	1.00	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C

From	A	0.00	0.00	1.00
	B	0.00	0.00	2.00
	C	0.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.67	0.19	1.99	B	9.13	821.72	102.66	0.12	1.14	102.67	0.12	0.597	28.639
B	0.88	0.33	6.46	C	17.16	1544.35	283.52	0.18	3.15	283.56	0.18	0.610	27.065
C	0.80	0.17	3.98	A	20.58	1852.40	201.22	0.11	2.24	201.24	0.11	0.679	34.415

Main Results

Main results: (16:45-17:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.49	112.36	7.45	6.33	13.68	0.00	20.22	13.53	0.370	0.00	0.58
B	14.08	211.17	13.99	17.62	3.51	0.00	24.53	22.79	0.574	0.00	1.33
C	16.89	253.30	16.81	14.31	3.19	0.00	31.73	30.39	0.532	0.00	1.13

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.94	134.17	8.92	7.57	16.37	0.00	18.59	13.53	0.481	0.58	0.92
B	16.81	252.16	16.75	21.09	4.20	0.00	24.11	22.79	0.697	1.33	2.24
C	20.16	302.46	20.12	17.13	3.82	0.00	31.31	30.39	0.644	1.13	1.78

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.96	164.33	10.89	9.22	19.98	0.00	16.40	13.53	0.668	0.92	1.94
B	20.59	308.84	20.34	25.74	5.12	0.00	23.55	22.79	0.874	2.24	6.04
C	24.70	370.44	24.56	20.82	4.64	0.00	30.76	30.39	0.803	1.78	3.87

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.96	164.33	10.95	9.30	20.08	0.00	16.34	13.53	0.671	1.94	1.99
B	20.59	308.84	20.56	25.88	5.15	0.00	23.53	22.79	0.875	6.04	6.46
C	24.70	370.44	24.69	21.02	4.69	0.00	30.73	30.39	0.804	3.87	3.98

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.94	134.17	9.01	7.68	16.52	0.00	18.50	13.53	0.484	1.99	0.95
B	16.81	252.16	17.08	21.29	4.24	0.00	24.08	22.79	0.698	6.46	2.38
C	20.16	302.46	20.31	17.43	3.90	0.00	31.26	30.39	0.645	3.98	1.85

Main results: (18:00-18:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.49	112.36	7.51	6.39	13.78	0.00	20.16	13.53	0.372	0.95	0.60
B	14.08	211.17	14.15	17.75	3.54	0.00	24.51	22.79	0.574	2.38	1.37
C	16.89	253.30	16.93	14.46	3.23	0.00	31.71	30.39	0.533	1.85	1.15

Queueing Delay Results

Queueing Delay results: (16:45-17:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	8.49	0.57	0.078	A	A
B	19.02	1.27	0.094	A	A
C	16.34	1.09	0.067	A	A

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.30	0.89	0.103	A	A
B	31.79	2.12	0.135	A	A
C	25.72	1.71	0.089	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	27.20	1.81	0.179	B	B
B	77.51	5.17	0.291	C	B
C	53.22	3.55	0.158	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	29.63	1.98	0.185	B	B
B	94.32	6.29	0.330	C	B
C	59.04	3.94	0.165	A	A

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	14.86	0.99	0.106	A	A
B	39.49	2.63	0.148	A	A
C	29.14	1.94	0.092	A	A

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	9.18	0.61	0.079	A	A
B	21.40	1.43	0.097	A	A
C	17.76	1.18	0.068	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)

A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
16:45-17:00	**A**	7.49	20.22	0.370	0.00	0.00	0.58	8.49	(0.00)	0.078
16:45-17:00	**B**	14.08	24.53	0.574	0.00	0.00	1.33	19.02	(0.00)	0.094
16:45-17:00	**C**	16.89	31.73	0.532	0.00	0.00	1.13	16.34	(0.00)	0.067
17:00-17:15	**A**	8.94	18.59	0.481	0.00	0.58	0.92	13.30	(0.00)	0.103
17:00-17:15	**B**	16.81	24.11	0.697	0.00	1.33	2.24	31.79	(0.00)	0.135
17:00-17:15	**C**	20.16	31.31	0.644	0.00	1.13	1.78	25.72	(0.00)	0.089
17:15-17:30	**A**	10.96	16.40	0.668	0.00	0.92	1.94	27.20	(0.00)	0.179
17:15-17:30	**B**	20.59	23.55	0.874	0.00	2.24	6.04	77.51	(0.00)	0.291
17:15-17:30	**C**	24.70	30.76	0.803	0.00	1.78	3.87	53.22	(0.00)	0.158
17:30-17:45	**A**	10.96	16.34	0.671	0.00	1.94	1.99	29.63	(0.00)	0.185
17:30-17:45	**B**	20.59	23.53	0.875	0.00	6.04	6.46	94.32	(0.00)	0.330
17:30-17:45	**C**	24.70	30.73	0.804	0.00	3.87	3.98	59.04	(0.00)	0.165
17:45-18:00	**A**	8.94	18.50	0.484	0.00	1.99	0.95	14.86	(0.00)	0.106
17:45-18:00	**B**	16.81	24.08	0.698	0.00	6.46	2.38	39.49	(0.00)	0.148
17:45-18:00	**C**	20.16	31.26	0.645	0.00	3.98	1.85	29.14	(0.00)	0.092
18:00-18:15	**A**	7.49	20.16	0.372	0.00	0.95	0.60	9.18	(0.00)	0.079
18:00-18:15	**B**	14.08	24.51	0.574	0.00	2.38	1.37	21.40	(0.00)	0.097
18:00-18:15	**C**	16.89	31.71	0.533	0.00	1.85	1.15	17.76	(0.00)	0.068

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\Rev A\Import of J7 Colcot Cross RBT AM Peak Rev A.arc7
Report generation date: 04/01/2011 14:26:35

« A1 - (Default Analysis Set) - D5 - 2015 Base + Com Dev, AM
» Roundabout Network
» Arms
» Traffic Flows
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» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Com Dev			
Arm A	0.88	0.09	0.47	A
Arm B	9.94	0.50	0.92	D
Arm C	1.68	0.09	0.63	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units AM Peak			
Arm A	0.91	0.09	0.48	A
Arm B	77.33	3.16	1.04	F
Arm C	1.81	0.10	0.64	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	0.95	0.10	0.49	A
Arm B	200.00	7.79	1.14	F
Arm C	1.92	0.10	0.66	A

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

2015 Base + Comm Dev + 350 units AM Peak - AM runs from 08:00:00 to 09:00:00
2015 Base + Comm Dev + 700 units AM Peak - AM runs from 08:00:00 to 09:00:00
2015 Base + Com Dev - AM runs from 08:00:00 to 09:00:00

File summary

File Description

Title	J7 Colcot Cross RBT
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum

Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D5 - 2015 Base + Com Dev, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Com Dev, AM	2015 Base + Com Dev	AM			Yes			08:00	09:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		9.97	100.000	1.00
B	FLAT		20.92	100.000	1.00
C	FLAT		18.22	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
08:00-08:15	A	9.97	10.03	N/A	N/A
08:00-08:15	B	20.92	21.38	N/A	N/A
08:00-08:15	C	18.22	19.15	N/A	N/A
08:15-08:30	A	9.97	10.03	N/A	N/A
08:15-08:30	B	20.92	21.38	N/A	N/A
08:15-08:30	C	18.22	19.15	N/A	N/A
08:30-08:45	A	9.97	10.03	N/A	N/A
08:30-08:45	B	20.92	21.38	N/A	N/A
08:30-08:45	C	18.22	19.15	N/A	N/A
08:45-09:00	A	9.97	10.03	N/A	N/A
08:45-09:00	B	20.92	21.38	N/A	N/A
08:45-09:00	C	18.22	19.15	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	235.00	363.00
	B	344.00	0.00	911.00
	C	409.00	684.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.39	0.61
	B	0.27	0.00	0.73
	C	0.37	0.63	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	1.00	1.00	1.01
	B	1.00	1.00	1.03
	C	1.02	1.07	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.00	0.00	3.00
	C	2.00	7.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.47	0.09	0.88	A	9.97	598.20	52.21	0.09	0.87	52.23	0.09	0.597	28.639
B	0.92	0.50	9.94	D	20.92	1255.20	517.85	0.41	8.63	520.01	0.41	0.610	27.065
C	0.63	0.09	1.68	A	18.22	1093.20	98.55	0.09	1.64	98.60	0.09	0.679	34.415

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.91	12.36	11.33	0.00	21.27	16.89	0.469	0.00	0.87
B	20.92	313.80	20.37	15.23	6.02	0.00	22.86	20.31	0.915	0.00	8.19
C	18.22	273.30	18.11	20.81	5.58	0.00	29.13	29.14	0.625	0.00	1.64

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.97	12.53	11.40	0.00	21.23	16.89	0.470	0.87	0.88
B	20.92	313.80	20.85	15.32	6.05	0.00	22.84	20.31	0.916	8.19	9.23
C	18.22	273.30	18.22	21.19	5.72	0.00	29.05	29.14	0.627	1.64	1.67

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.97	12.54	11.40	0.00	21.23	16.89	0.470	0.88	0.88
B	20.92	313.80	20.89	15.32	6.05	0.00	22.84	20.31	0.916	9.23	9.68
C	18.22	273.30	18.22	21.22	5.73	0.00	29.04	29.14	0.627	1.67	1.67

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.97	12.55	11.40	0.00	21.23	16.89	0.470	0.88	0.88
B	20.92	313.80	20.90	15.32	6.05	0.00	22.84	20.31	0.916	9.68	9.94
C	18.22	273.30	18.22	21.23	5.73	0.00	29.04	29.14	0.628	1.67	1.68

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	12.60	0.84	0.088	A	A
B	96.49	6.43	0.348	C	C
C	23.49	1.57	0.090	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.16	0.88	0.089	A	A
B	131.89	8.79	0.470	D	C
C	24.88	1.66	0.092	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.22	0.88	0.089	A	A
B	142.16	9.48	0.489	D	C
C	25.06	1.67	0.092	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.24	0.88	0.089	A	A
B	147.30	9.82	0.497	D	C
C	25.13	1.68	0.092	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
08:00-08:15	A	9.97	21.27	0.469	0.00	0.00	0.87	12.60	(0.00)	0.088
08:00-08:15	B	20.92	22.86	0.915	0.00	0.00	8.19	96.49	(0.00)	0.348
08:00-08:15	C	18.22	29.13	0.625	0.00	0.00	1.64	23.49	(0.00)	0.090
08:15-08:30	A	9.97	21.23	0.470	0.00	0.87	0.88	13.16	(0.00)	0.089
08:15-08:30	B	20.92	22.84	0.916	0.00	8.19	9.23	131.89	(0.00)	0.470
08:15-08:30	C	18.22	29.05	0.627	0.00	1.64	1.67	24.88	(0.00)	0.092
08:30-08:45	A	9.97	21.23	0.470	0.00	0.88	0.88	13.22	(0.00)	0.089
08:30-08:45	B	20.92	22.84	0.916	0.00	9.23	9.68	142.16	(0.00)	0.489
08:30-08:45	C	18.22	29.04	0.627	0.00	1.67	1.67	25.06	(0.00)	0.092
08:45-09:00	A	9.97	21.23	0.470	0.00	0.88	0.88	13.24	(0.00)	0.089
08:45-09:00	B	20.92	22.84	0.916	0.00	9.68	9.94	147.30	(0.00)	0.497
08:45-09:00	C	18.22	29.04	0.628	0.00	1.67	1.68	25.13	(0.00)	0.092

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\Rev A\Import of J7 Colcot Cross RBT PM Peak Rev A.arc7
Report generation date: 04/01/2011 14:29:07

« A1 - (Default Analysis Set) - D5 - 2015 Base + Comm Dev, PM
» Roundabout Network
» Arms
» Traffic Flows
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» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
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» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev			
Arm A	1.03	0.10	0.51	A
Arm B	2.22	0.14	0.69	A
Arm C	1.56	0.08	0.61	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units PM Peak			
Arm A	1.16	0.12	0.54	A
Arm B	2.70	0.16	0.73	A
Arm C	2.00	0.10	0.67	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.32	0.13	0.57	A
Arm B	3.60	0.20	0.79	B
Arm C	2.59	0.12	0.72	A

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

2015 Base + Comm Dev + 350 units PM Peak - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev + 700 units PM Peak - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev - PM runs from 17:00:00 to 18:00:00

File summary

File Description

Title	J7 Colcot Cross RBT PM Peak
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum

Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D5 - 2015 Base + Comm Dev, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev, PM	2015 Base + Comm Dev	PM			Yes			17:00	18:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		9.95	100.000	1.00
B	FLAT		16.46	100.000	1.00
C	FLAT		18.95	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
17:00-17:15	A	9.95	10.00	N/A	N/A
17:00-17:15	B	16.46	16.70	N/A	N/A
17:00-17:15	C	18.95	19.25	N/A	N/A
17:15-17:30	A	9.95	10.00	N/A	N/A
17:15-17:30	B	16.46	16.70	N/A	N/A
17:15-17:30	C	18.95	19.25	N/A	N/A
17:30-17:45	A	9.95	10.00	N/A	N/A
17:30-17:45	B	16.46	16.70	N/A	N/A
17:30-17:45	C	18.95	19.25	N/A	N/A
17:45-18:00	A	9.95	10.00	N/A	N/A
17:45-18:00	B	16.46	16.70	N/A	N/A
17:45-18:00	C	18.95	19.25	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	316.00	281.00
	B	256.00	0.00	732.00
	C	251.00	886.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.53	0.47
	B	0.26	0.00	0.74
	C	0.22	0.78	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	1.00	1.00	1.01
	B	1.00	1.00	1.02
	C	1.00	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.00	0.00	2.00
	C	0.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.51	0.10	1.03	A	9.95	597.00	60.83	0.10	1.01	60.86	0.10	0.597	28.639
B	0.69	0.14	2.22	A	16.46	987.60	129.41	0.13	2.16	129.51	0.13	0.610	27.065
C	0.61	0.08	1.56	A	18.95	1137.01	92.22	0.08	1.54	92.26	0.08	0.679	34.415

Main Results

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.88	8.39	14.69	0.00	19.61	14.35	0.507	0.00	1.02
B	16.46	246.90	16.32	19.92	4.65	0.00	23.85	22.57	0.690	0.00	2.17
C	18.95	284.25	18.85	16.74	4.23	0.00	31.06	29.98	0.610	0.00	1.54

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.95	8.45	14.77	0.00	19.56	14.35	0.509	1.02	1.03
B	16.46	246.90	16.46	20.03	4.68	0.00	23.83	22.57	0.691	2.17	2.20
C	18.95	284.25	18.95	16.88	4.26	0.00	31.04	29.98	0.611	1.54	1.56

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.95	8.45	14.77	0.00	19.56	14.35	0.509	1.03	1.03
B	16.46	246.90	16.46	20.03	4.68	0.00	23.83	22.57	0.691	2.20	2.21
C	18.95	284.25	18.95	16.88	4.26	0.00	31.04	29.98	0.611	1.56	1.56

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.95	8.45	14.77	0.00	19.56	14.35	0.509	1.03	1.03
B	16.46	246.90	16.46	20.03	4.68	0.00	23.83	22.57	0.691	2.21	2.22
C	18.95	284.25	18.95	16.88	4.26	0.00	31.04	29.98	0.611	1.56	1.56

Queueing Delay Results

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	14.58	0.97	0.102	A	A
B	30.27	2.02	0.130	A	A
C	22.15	1.48	0.081	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	15.35	1.02	0.104	A	A
B	32.81	2.19	0.136	A	A
C	23.27	1.55	0.083	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	15.43	1.03	0.104	A	A
B	33.11	2.21	0.136	A	A
C	23.38	1.56	0.083	A	A

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	15.47	1.03	0.104	A	A
B	33.22	2.21	0.136	A	A
C	23.42	1.56	0.083	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
17:00-17:15	A	9.95	19.61	0.507	0.00	0.00	1.02	14.58	(0.00)	0.102
17:00-17:15	B	16.46	23.85	0.690	0.00	0.00	2.17	30.27	(0.00)	0.130
17:00-17:15	C	18.95	31.06	0.610	0.00	0.00	1.54	22.15	(0.00)	0.081
17:15-17:30	A	9.95	19.56	0.509	0.00	1.02	1.03	15.35	(0.00)	0.104
17:15-17:30	B	16.46	23.83	0.691	0.00	2.17	2.20	32.81	(0.00)	0.136
17:15-17:30	C	18.95	31.04	0.611	0.00	1.54	1.56	23.27	(0.00)	0.083
17:30-17:45	A	9.95	19.56	0.509	0.00	1.03	1.03	15.43	(0.00)	0.104
17:30-17:45	B	16.46	23.83	0.691	0.00	2.20	2.21	33.11	(0.00)	0.136
17:30-17:45	C	18.95	31.04	0.611	0.00	1.56	1.56	23.38	(0.00)	0.083
17:45-18:00	A	9.95	19.56	0.509	0.00	1.03	1.03	15.47	(0.00)	0.104
17:45-18:00	B	16.46	23.83	0.691	0.00	2.21	2.22	33.22	(0.00)	0.136
17:45-18:00	C	18.95	31.04	0.611	0.00	1.56	1.56	23.42	(0.00)	0.083

ARCADY 7

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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\Rev A\Import of J7 Colcot Cross RBT AM Peak Rev A.arc7
Report generation date: 13/12/2010 11:08:07

« A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units AM Peak, AM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units AM Peak			
Arm A	0.91	0.09	0.48	A
Arm B	77.33	3.16	1.04	F
Arm C	1.81	0.10	0.64	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	0.95	0.10	0.49	A
Arm B	200.00	7.79	1.14	F
Arm C	1.92	0.10	0.66	A

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

2015 Base + Comm Dev + 350 units AM Peak - AM runs from 08:00:00 to 09:00:00
2015 Base + Comm Dev + 700 units AM Peak - AM runs from 08:00:00 to 09:00:00

File summary

File Description

Title	J7 Colcot Cross RBT
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum
Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations

0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units AM Peak, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 350 units AM Peak, AM	2015 Base + Comm Dev + 350 units AM Peak	AM			Yes			08:00	09:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		9.97	100.000	1.00
B	FLAT		23.82	100.000	1.00
C	FLAT		18.82	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
08:00-08:15	A	9.97	10.03	N/A	N/A

08:00-08:15	**B**	23.82	24.36	N/A	N/A
08:00-08:15	**C**	18.82	19.80	N/A	N/A
08:15-08:30	**A**	9.97	10.03	N/A	N/A
08:15-08:30	**B**	23.82	24.36	N/A	N/A
08:15-08:30	**C**	18.82	19.80	N/A	N/A
08:30-08:45	**A**	9.97	10.03	N/A	N/A
08:30-08:45	**B**	23.82	24.36	N/A	N/A
08:30-08:45	**C**	18.82	19.80	N/A	N/A
08:45-09:00	**A**	9.97	10.03	N/A	N/A
08:45-09:00	**B**	23.82	24.36	N/A	N/A
08:45-09:00	**C**	18.82	19.80	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	235.00	363.00
	B	344.00	0.00	1085.00
	C	409.00	720.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.39	0.61
	B	0.24	0.00	0.76
	C	0.36	0.64	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.00	1.01
	B	1.00	1.00	1.03
	C	1.02	1.07	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00
	B	0.00	0.00	3.00
	C	2.00	7.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)

A	0.48	0.09	0.91	A	9.97	598.20	53.99	0.09	0.90	54.01	0.09	0.597	28.639
B	1.04	3.16	77.33	F	23.82	1429.20	2619.92	1.83	43.67	2750.96	1.92	0.610	27.065
C	0.64	0.10	1.81	A	18.82	1129.20	105.96	0.09	1.77	106.01	0.09	0.679	34.415

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.91	12.08	11.93	0.00	20.90	16.51	0.477	0.00	0.90
B	23.82	357.30	22.02	15.82	6.02	0.00	22.84	20.43	1.043	0.00	26.95
C	18.82	282.30	18.70	22.74	5.30	0.00	29.30	29.54	0.642	0.00	1.77

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.97	12.27	12.00	0.00	20.85	16.51	0.478	0.90	0.91
B	23.82	357.30	22.63	15.92	6.05	0.00	22.82	20.43	1.044	26.95	44.74
C	18.82	282.30	18.82	23.24	5.45	0.00	29.20	29.54	0.645	1.77	1.79

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.97	12.29	12.00	0.00	20.85	16.51	0.478	0.91	0.91
B	23.82	357.30	22.72	15.92	6.05	0.00	22.82	20.43	1.044	44.74	61.30
C	18.82	282.30	18.82	23.30	5.47	0.00	29.19	29.54	0.645	1.79	1.80

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.97	12.29	12.00	0.00	20.85	16.51	0.478	0.91	0.91
B	23.82	357.30	22.75	15.92	6.05	0.00	22.82	20.43	1.044	61.30	77.33
C	18.82	282.30	18.82	23.33	5.48	0.00	29.18	29.54	0.645	1.80	1.81

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.01	0.87	0.091	A	A
B	243.28	16.22	0.784	E	D
C	25.16	1.68	0.093	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.61	0.91	0.092	A	A
B	540.15	36.01	1.743	F	F
C	26.75	1.78	0.096	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.67	0.91	0.092	A	A

B	796.25	53.08	2.467	F	F
C	26.98	1.80	0.096	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.70	0.91	0.092	A	A
B	1040.23	69.35	3.163	F	F
C	27.07	1.80	0.096	A	A

Overview: Standard Roundabout Geometry

Standard 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	Final Slope	Final Intercept (PCU/min)
A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
08:00-08:15	**A**	9.97	20.90	0.477	0.00	0.00	0.90	13.01	(0.00)	0.091
08:00-08:15	**B**	23.82	22.84	1.043	0.00	0.00	26.95	243.28	(0.00)	0.784
08:00-08:15	**C**	18.82	29.30	0.642	0.00	0.00	1.77	25.16	(0.00)	0.093
08:15-08:30	**A**	9.97	20.85	0.478	0.00	0.90	0.91	13.61	(0.00)	0.092
08:15-08:30	**B**	23.82	22.82	1.044	0.00	26.95	44.74	540.15	(0.00)	1.743
08:15-08:30	**C**	18.82	29.20	0.645	0.00	1.77	1.79	26.75	(0.00)	0.096
08:30-08:45	**A**	9.97	20.85	0.478	0.00	0.91	0.91	13.67	(0.00)	0.092
08:30-08:45	**B**	23.82	22.82	1.044	0.00	44.74	61.30	796.25	(0.00)	2.467
08:30-08:45	**C**	18.82	29.19	0.645	0.00	1.79	1.80	26.98	(0.00)	0.096
08:45-09:00	**A**	9.97	20.85	0.478	0.00	0.91	0.91	13.70	(0.00)	0.092
08:45-09:00	**B**	23.82	22.82	1.044	0.00	61.30	77.33	1040.23	(0.00)	3.163
08:45-09:00	**C**	18.82	29.18	0.645	0.00	1.80	1.81	27.07	(0.00)	0.096

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\Rev A\Import of J7 Colcot Cross RBT PM Peak Rev A.arc7
Report generation date: 13/12/2010 11:17:45

« A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units PM Peak, PM
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» Arms
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» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units PM Peak			
Arm A	1.16	0.12	0.54	A
Arm B	2.70	0.16	0.73	A
Arm C	2.00	0.10	0.67	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.32	0.13	0.57	A
Arm B	3.60	0.20	0.79	B
Arm C	2.59	0.12	0.72	A

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

2015 Base + Comm Dev + 350 units PM Peak - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev + 700 units PM Peak - PM runs from 17:00:00 to 18:00:00

File summary

File Description

Title	J7 Colcot Cross RBT PM Peak
Location	Rhoose
Site Number	
Date	13/12/2010
Version	
Status	
Identifier	
Client	
Jobnumber	FMW0408
Enumerator	NH

Description	Rev A for TA Addendum
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units PM Peak, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 350 units PM Peak, PM	2015 Base + Comm Dev + 350 units PM Peak	PM			Yes			17:00	18:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		9.95	100.000	1.00
B	FLAT		17.43	100.000	1.00
C	FLAT		20.70	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
17:00-17:15	A	9.95	10.00	N/A	N/A
17:00-17:15	B	17.43	17.69	N/A	N/A
17:00-17:15	C	20.70	21.03	N/A	N/A
17:15-17:30	A	9.95	10.00	N/A	N/A
17:15-17:30	B	17.43	17.69	N/A	N/A
17:15-17:30	C	20.70	21.03	N/A	N/A
17:30-17:45	A	9.95	10.00	N/A	N/A
17:30-17:45	B	17.43	17.69	N/A	N/A
17:30-17:45	C	20.70	21.03	N/A	N/A
17:45-18:00	A	9.95	10.00	N/A	N/A
17:45-18:00	B	17.43	17.69	N/A	N/A
17:45-18:00	C	20.70	21.03	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	316.00	281.00
	B	256.00	0.00	790.00
	C	251.00	991.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.53	0.47
	B	0.24	0.00	0.76
	C	0.20	0.80	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	1.00	1.00	1.01
	B	1.00	1.00	1.02
	C	1.00	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.00	0.00	2.00
	C	0.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.54	0.12	1.16	A	9.95	597.00	68.11	0.11	1.14	68.15	0.11	0.597	28.639
B	0.73	0.16	2.70	A	17.43	1045.80	156.61	0.15	2.61	156.76	0.15	0.610	27.065
C	0.67	0.10	2.00	A	20.70	1242.00	117.25	0.09	1.95	117.32	0.09	0.679	34.415

Main Results

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.87	8.38	16.41	0.00	18.56	13.92	0.536	0.00	1.14
B	17.43	261.45	17.26	21.64	4.65	0.00	23.84	22.69	0.731	0.00	2.62
C	20.70	310.50	20.57	17.68	4.22	0.00	31.05	30.16	0.667	0.00	1.96

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.95	8.45	16.52	0.00	18.50	13.92	0.538	1.14	1.15
B	17.43	261.45	17.43	21.78	4.68	0.00	23.82	22.69	0.732	2.62	2.67
C	20.70	310.50	20.70	17.84	4.26	0.00	31.02	30.16	0.667	1.96	1.98

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.95	8.45	16.52	0.00	18.50	13.92	0.538	1.15	1.16
B	17.43	261.45	17.43	21.78	4.68	0.00	23.82	22.69	0.732	2.67	2.69
C	20.70	310.50	20.70	17.85	4.27	0.00	31.02	30.16	0.667	1.98	1.99

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.95	8.45	16.52	0.00	18.50	13.92	0.538	1.16	1.16
B	17.43	261.45	17.43	21.78	4.68	0.00	23.82	22.69	0.732	2.69	2.70
C	20.70	310.50	20.70	17.85	4.27	0.00	31.02	30.16	0.667	1.99	2.00

Queueing Delay Results

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	16.22	1.08	0.114	A	A
B	36.12	2.41	0.148	A	A
C	27.88	1.86	0.094	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.20	1.15	0.117	A	A

B	39.79	2.65	0.156	A	A
C	29.64	1.98	0.097	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.32	1.15	0.117	A	A
B	40.26	2.68	0.156	A	A
C	29.83	1.99	0.097	A	A

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.37	1.16	0.117	A	A
B	40.45	2.70	0.156	A	A
C	29.90	1.99	0.097	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
17:00-17:15	**A**	9.95	18.56	0.536	0.00	0.00	1.14	16.22	(0.00)	0.114
17:00-17:15	**B**	17.43	23.84	0.731	0.00	0.00	2.62	36.12	(0.00)	0.148
17:00-17:15	**C**	20.70	31.05	0.667	0.00	0.00	1.96	27.88	(0.00)	0.094
17:15-17:30	**A**	9.95	18.50	0.538	0.00	1.14	1.15	17.20	(0.00)	0.117
17:15-17:30	**B**	17.43	23.82	0.732	0.00	2.62	2.67	39.79	(0.00)	0.156
17:15-17:30	**C**	20.70	31.02	0.667	0.00	1.96	1.98	29.64	(0.00)	0.097
17:30-17:45	**A**	9.95	18.50	0.538	0.00	1.15	1.16	17.32	(0.00)	0.117
17:30-17:45	**B**	17.43	23.82	0.732	0.00	2.67	2.69	40.26	(0.00)	0.156
17:30-17:45	**C**	20.70	31.02	0.667	0.00	1.98	1.99	29.83	(0.00)	0.097
17:45-18:00	**A**	9.95	18.50	0.538	0.00	1.16	1.16	17.37	(0.00)	0.117
17:45-18:00	**B**	17.43	23.82	0.732	0.00	2.69	2.70	40.45	(0.00)	0.156
17:45-18:00	**C**	20.70	31.02	0.667	0.00	1.99	2.00	29.90	(0.00)	0.097

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\Rev A\Import of J7 Colcot Cross RBT AM Peak Rev A.arc7
Report generation date: 13/12/2010 11:08:37

« A1 - (Default Analysis Set) - D4 - 2015 Base + Comm Dev + 700 units AM Peak, AM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units AM Peak			
Arm A	0.91	0.09	0.48	A
Arm B	77.33	3.16	1.04	F
Arm C	1.81	0.10	0.64	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	0.95	0.10	0.49	A
Arm B	200.00	7.79	1.14	F
Arm C	1.92	0.10	0.66	A

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

2015 Base + Comm Dev + 350 units AM Peak - AM runs from 08:00:00 to 09:00:00
2015 Base + Comm Dev + 700 units AM Peak - AM runs from 08:00:00 to 09:00:00

File summary

File Description

Title	J7 Colcot Cross RBT
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum
Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations

0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D4 - 2015 Base + Comm Dev + 700 units AM Peak, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 700 units AM Peak, AM	2015 Base + Comm Dev + 700 units AM Peak	AM			Yes			08:00	09:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		9.97	100.000	1.00
B	FLAT		26.03	100.000	1.00
C	FLAT		19.42	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
08:00-08:15	A	9.97	10.03	N/A	N/A

08:00-08:15	**B**	26.03	26.64	N/A	N/A
08:00-08:15	**C**	19.42	20.44	N/A	N/A
08:15-08:30	**A**	9.97	10.03	N/A	N/A
08:15-08:30	**B**	26.03	26.64	N/A	N/A
08:15-08:30	**C**	19.42	20.44	N/A	N/A
08:30-08:45	**A**	9.97	10.03	N/A	N/A
08:30-08:45	**B**	26.03	26.64	N/A	N/A
08:30-08:45	**C**	19.42	20.44	N/A	N/A
08:45-09:00	**A**	9.97	10.03	N/A	N/A
08:45-09:00	**B**	26.03	26.64	N/A	N/A
08:45-09:00	**C**	19.42	20.44	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	235.00	363.00
	B	344.00	0.00	1218.00
	C	409.00	756.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.39	0.61
	B	0.22	0.00	0.78
	C	0.35	0.65	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.00	1.01
	B	1.00	1.00	1.03
	C	1.02	1.07	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00
	B	0.00	0.00	3.00
	C	2.00	7.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)

A	0.49	0.10	0.95	A	9.97	598.20	55.90	0.09	0.93	55.92	0.09	0.597	28.639
B	1.14	7.79	200.00	F	26.03	1561.80	6164.03	3.95	102.73	7041.07	4.51	0.610	27.065
C	0.66	0.10	1.92	A	19.42	1165.20	112.97	0.10	1.88	113.03	0.10	0.679	34.415

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.91	11.71	12.52	0.00	20.52	16.20	0.486	0.00	0.93
B	26.03	390.45	22.41	16.41	6.01	0.00	22.83	20.53	1.140	0.00	54.24
C	19.42	291.30	19.29	23.49	4.94	0.00	29.52	29.78	0.658	0.00	1.89

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.97	11.83	12.60	0.00	20.47	16.20	0.487	0.93	0.94
B	26.03	390.45	22.78	16.52	6.05	0.00	22.81	20.53	1.141	54.24	103.01
C	19.42	291.30	19.42	23.81	5.02	0.00	29.46	29.78	0.659	1.89	1.91

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.97	11.84	12.60	0.00	20.47	16.20	0.487	0.94	0.95
B	26.03	390.45	22.79	16.52	6.05	0.00	22.80	20.53	1.141	103.01	151.54
C	19.42	291.30	19.42	23.83	5.02	0.00	29.46	29.78	0.659	1.91	1.92

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.97	149.55	9.97	11.84	12.60	0.00	20.47	16.20	0.487	0.95	0.95
B	26.03	390.45	22.80	16.52	6.05	0.00	22.80	20.53	1.141	151.54	200.00
C	19.42	291.30	19.42	23.83	5.02	0.00	29.46	29.78	0.659	1.92	1.92

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.45	0.90	0.094	A	A
B	438.13	29.21	1.341	F	F
C	26.82	1.79	0.097	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	14.09	0.94	0.095	A	A
B	1179.93	78.66	3.575	F	F
C	28.55	1.90	0.100	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	14.17	0.94	0.095	A	A

B	1909.31	127.29	5.679	F	F
C	28.76	1.92	0.100	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	14.19	0.95	0.095	A	A
B	2636.67	175.78	7.792	F	F
C	28.84	1.92	0.100	A	A

Overview: Standard Roundabout Geometry

Standard 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	Final Slope	Final Intercept (PCU/min)
A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
08:00-08:15	**A**	9.97	20.52	0.486	0.00	0.00	0.93	13.45	(0.00)	0.094
08:00-08:15	**B**	26.03	22.83	1.140	0.00	0.00	54.24	438.13	(0.00)	1.341
08:00-08:15	**C**	19.42	29.52	0.658	0.00	0.00	1.89	26.82	(0.00)	0.097
08:15-08:30	**A**	9.97	20.47	0.487	0.00	0.93	0.94	14.09	(0.00)	0.095
08:15-08:30	**B**	26.03	22.81	1.141	0.00	54.24	103.01	1179.93	(0.00)	3.575
08:15-08:30	**C**	19.42	29.46	0.659	0.00	1.89	1.91	28.55	(0.00)	0.100
08:30-08:45	**A**	9.97	20.47	0.487	0.00	0.94	0.95	14.17	(0.00)	0.095
08:30-08:45	**B**	26.03	22.80	1.141	0.00	103.01	151.54	1909.31	(0.00)	5.679
08:30-08:45	**C**	19.42	29.46	0.659	0.00	1.91	1.92	28.76	(0.00)	0.100
08:45-09:00	**A**	9.97	20.47	0.487	0.00	0.95	0.95	14.19	(0.00)	0.095
08:45-09:00	**B**	26.03	22.80	1.141	0.00	151.54	200.00	2636.67	(0.00)	7.792
08:45-09:00	**C**	19.42	29.46	0.659	0.00	1.92	1.92	28.84	(0.00)	0.100

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\Rev A\Import of J7 Colcot Cross RBT PM Peak Rev A.arc7
Report generation date: 13/12/2010 11:18:26

« A1 - (Default Analysis Set) - D4 - 2015 Base + Comm Dev + 700 units PM Peak, PM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units PM Peak			
Arm A	1.16	0.12	0.54	A
Arm B	2.70	0.16	0.73	A
Arm C	2.00	0.10	0.67	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.32	0.13	0.57	A
Arm B	3.60	0.20	0.79	B
Arm C	2.59	0.12	0.72	A

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

2015 Base + Comm Dev + 350 units PM Peak - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev + 700 units PM Peak - PM runs from 17:00:00 to 18:00:00

File summary

File Description

Title	J7 Colcot Cross RBT PM Peak
Location	Rhoose
Site Number	
Date	13/12/2010
Version	
Status	
Identifier	
Client	
Jobnumber	FMW0408
Enumerator	NH

Description	Rev A for TA Addendum
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D4 - 2015 Base + Comm Dev + 700 units PM Peak, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 700 units PM Peak, PM	2015 Base + Comm Dev + 700 units PM Peak	PM			Yes			17:00	18:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.40	9.00	25.00	45.00	36.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.610	27.065
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	FLAT		9.95	100.000	1.00
B	FLAT		18.70	100.000	1.00
C	FLAT		22.43	100.000	1.00

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
17:00-17:15	A	9.95	10.00	N/A	N/A
17:00-17:15	B	18.70	18.99	N/A	N/A
17:00-17:15	C	22.43	22.79	N/A	N/A
17:15-17:30	A	9.95	10.00	N/A	N/A
17:15-17:30	B	18.70	18.99	N/A	N/A
17:15-17:30	C	22.43	22.79	N/A	N/A
17:30-17:45	A	9.95	10.00	N/A	N/A
17:30-17:45	B	18.70	18.99	N/A	N/A
17:30-17:45	C	22.43	22.79	N/A	N/A
17:45-18:00	A	9.95	10.00	N/A	N/A
17:45-18:00	B	18.70	18.99	N/A	N/A
17:45-18:00	C	22.43	22.79	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	316.00	281.00
	B	256.00	0.00	866.00
	C	251.00	1095.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.53	0.47
	B	0.23	0.00	0.77
	C	0.19	0.81	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	1.00	1.00	1.01
	B	1.00	1.00	1.02
	C	1.00	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.00	0.00	2.00
	C	0.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.57	0.13	1.32	A	9.95	597.00	77.23	0.13	1.29	77.28	0.13	0.597	28.639
B	0.79	0.20	3.60	B	18.70	1122.00	206.33	0.18	3.44	206.60	0.18	0.610	27.065
C	0.72	0.12	2.59	A	22.43	1345.80	151.47	0.11	2.52	151.58	0.11	0.679	34.415

Main Results

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.86	8.37	18.11	0.00	17.53	13.53	0.568	0.00	1.29
B	18.70	280.50	18.47	23.33	4.64	0.00	23.84	22.79	0.784	0.00	3.44
C	22.43	336.45	22.26	18.90	4.21	0.00	31.05	30.39	0.722	0.00	2.53

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.95	8.45	18.25	0.00	17.45	13.53	0.570	1.29	1.31
B	18.70	280.50	18.69	23.51	4.68	0.00	23.81	22.79	0.785	3.44	3.55
C	22.43	336.45	22.43	19.11	4.27	0.00	31.01	30.39	0.723	2.53	2.57

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.95	8.45	18.25	0.00	17.45	13.53	0.570	1.31	1.32
B	18.70	280.50	18.70	23.51	4.68	0.00	23.81	22.79	0.785	3.55	3.58
C	22.43	336.45	22.43	19.11	4.27	0.00	31.01	30.39	0.723	2.57	2.59

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	9.95	149.25	9.95	8.45	18.25	0.00	17.45	13.53	0.570	1.32	1.32
B	18.70	280.50	18.70	23.51	4.68	0.00	23.81	22.79	0.785	3.58	3.60
C	22.43	336.45	22.43	19.12	4.27	0.00	31.01	30.39	0.723	2.59	2.59

Queueing Delay Results

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	18.23	1.22	0.129	A	A
B	46.32	3.09	0.179	B	B
C	35.49	2.37	0.112	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	19.53	1.30	0.133	A	A

B	52.59	3.51	0.195	B	B
C	38.38	2.56	0.116	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	19.71	1.31	0.133	A	A
B	53.52	3.57	0.195	B	B
C	38.73	2.58	0.116	A	A

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	19.77	1.32	0.133	A	A
B	53.90	3.59	0.195	B	B
C	38.87	2.59	0.116	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.40	9.00	25.00	45.00	36.00		0.610	27.065
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
17:00-17:15	**A**	9.95	17.53	0.568	0.00	0.00	1.29	18.23	(0.00)	0.129
17:00-17:15	**B**	18.70	23.84	0.784	0.00	0.00	3.44	46.32	(0.00)	0.179
17:00-17:15	**C**	22.43	31.05	0.722	0.00	0.00	2.53	35.49	(0.00)	0.112
17:15-17:30	**A**	9.95	17.45	0.570	0.00	1.29	1.31	19.53	(0.00)	0.133
17:15-17:30	**B**	18.70	23.81	0.785	0.00	3.44	3.55	52.59	(0.00)	0.195
17:15-17:30	**C**	22.43	31.01	0.723	0.00	2.53	2.57	38.38	(0.00)	0.116
17:30-17:45	**A**	9.95	17.45	0.570	0.00	1.31	1.32	19.71	(0.00)	0.133
17:30-17:45	**B**	18.70	23.81	0.785	0.00	3.55	3.58	53.52	(0.00)	0.195
17:30-17:45	**C**	22.43	31.01	0.723	0.00	2.57	2.59	38.73	(0.00)	0.116
17:45-18:00	**A**	9.95	17.45	0.570	0.00	1.32	1.32	19.77	(0.00)	0.133
17:45-18:00	**B**	18.70	23.81	0.785	0.00	3.58	3.60	53.90	(0.00)	0.195
17:45-18:00	**C**	22.43	31.01	0.723	0.00	2.59	2.59	38.87	(0.00)	0.116

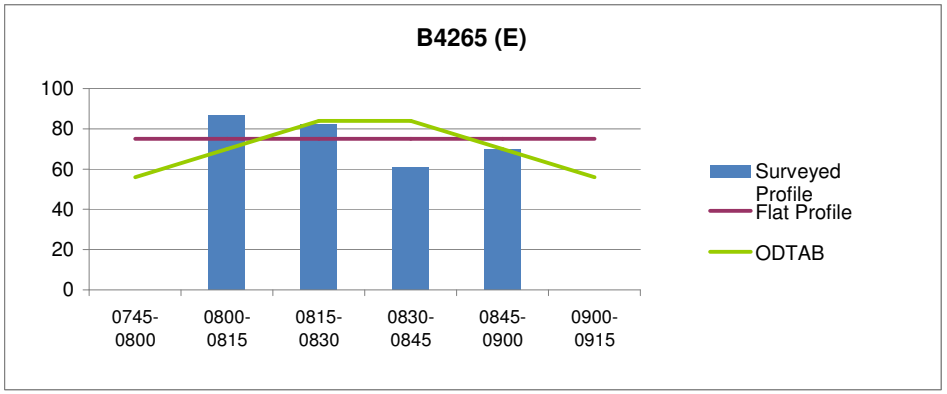
APPENDIX D

FLOW PROFILE COMPARISON

FONMON ROAD / B4265 AM

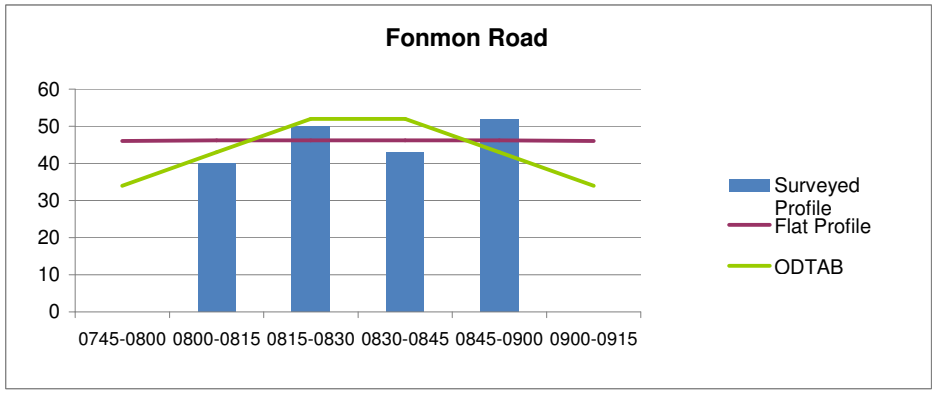
B4265 (East)

Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	75	56
0800-0815	87	75	70
0815-0830	82	75	84
0830-0845	61	75	84
0845-0900	70	75	70
0900-0915	0	75	56
Total	300		



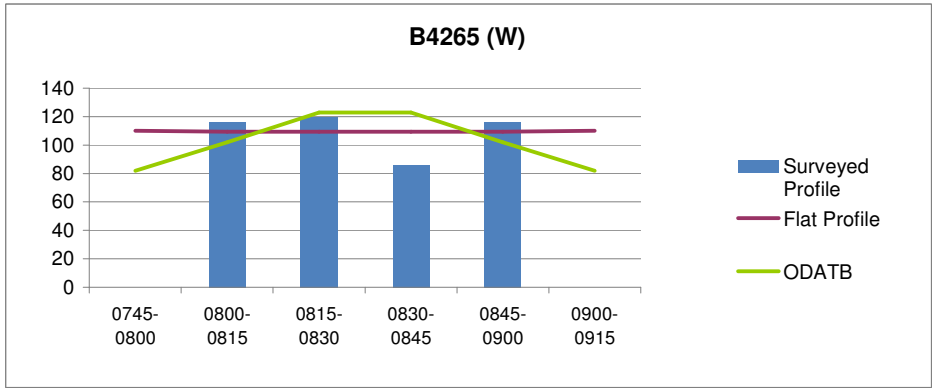
Fonmon Road

Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	46	34
0800-0815	40	46	43
0815-0830	50	46	52
0830-0845	43	46	52
0845-0900	52	46	43
0900-0915	0	46	34
Total	185		



B4265 (W)

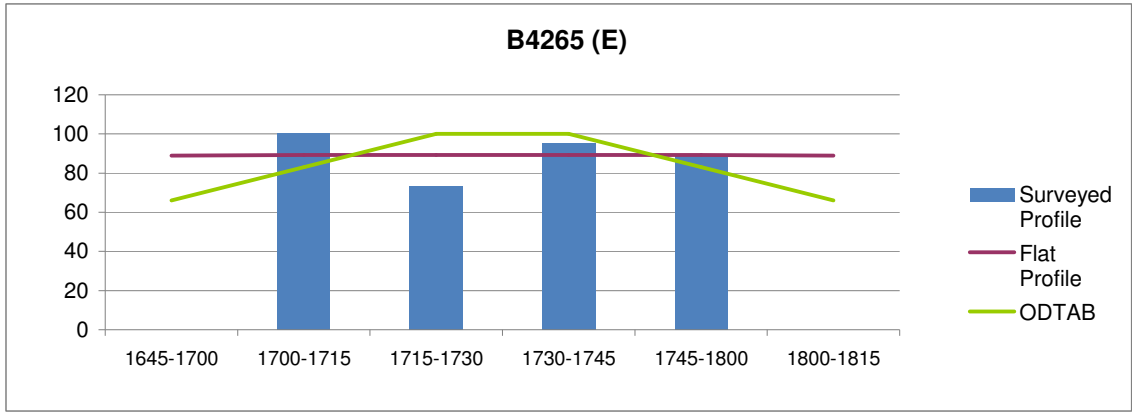
Time	Surveyed Profile	Flat Profile	ODATB
0745-0800	0	110	82
0800-0815	116	110	102
0815-0830	120	110	123
0830-0845	86	110	123
0845-0900	116	110	102
0900-0915	0	110	82
Total	438		



FONMON ROAD / B4265 PM

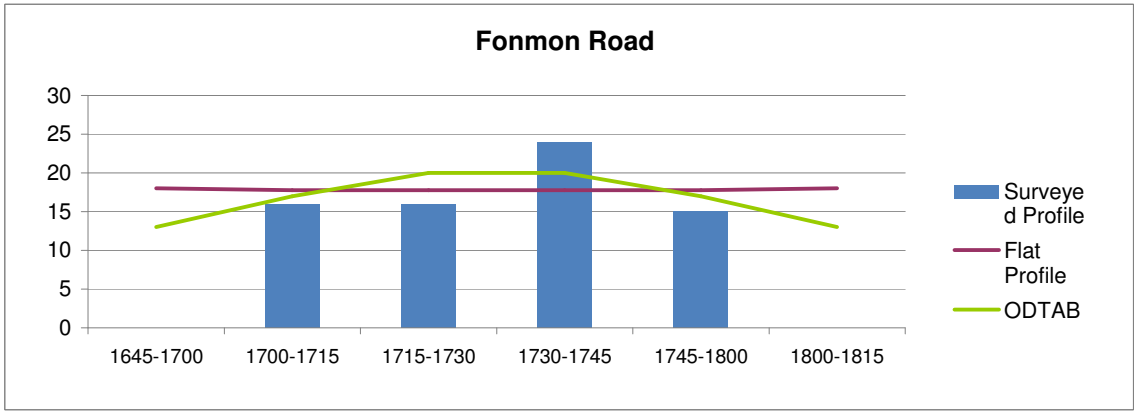
B4265 (East)

Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	89	66
1700-1715	100	89	83
1715-1730	73	89	100
1730-1745	95	89	100
1745-1800	89	89	83
1800-1815	0	89	66
Total	357		



Fonmon Road

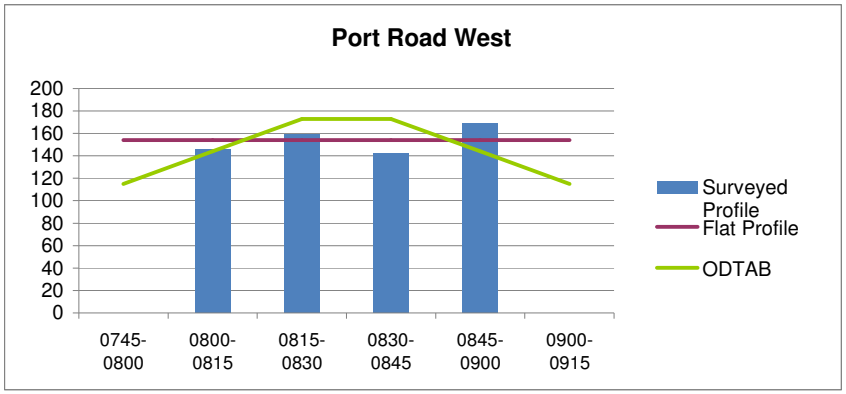
Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	18	13
1700-1715	16	18	17
1715-1730	16	18	20
1730-1745	24	18	20
1745-1800	15	18	17
1800-1815	0	18	13
Total	71		



WALES AIRPORT HOTEL ROUNDABOUT AM

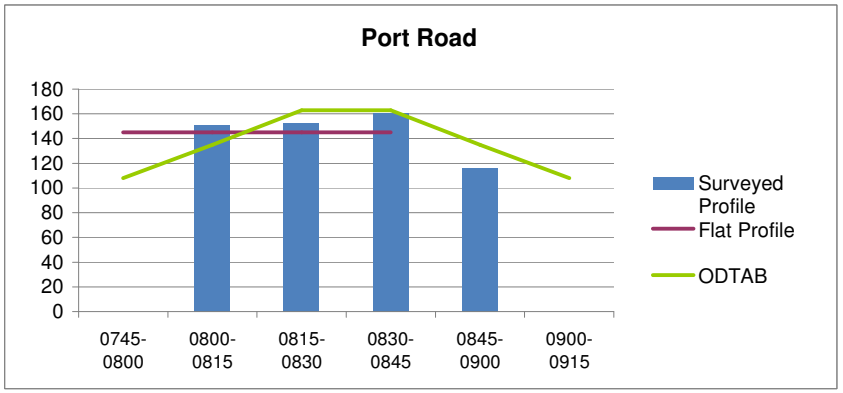
Port Road West

Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	154	115
0800-0815	146	154	144
0815-0830	159	154	173
0830-0845	142	154	173
0845-0900	169	154	144
0900-0915	0	154	115
Total	616		



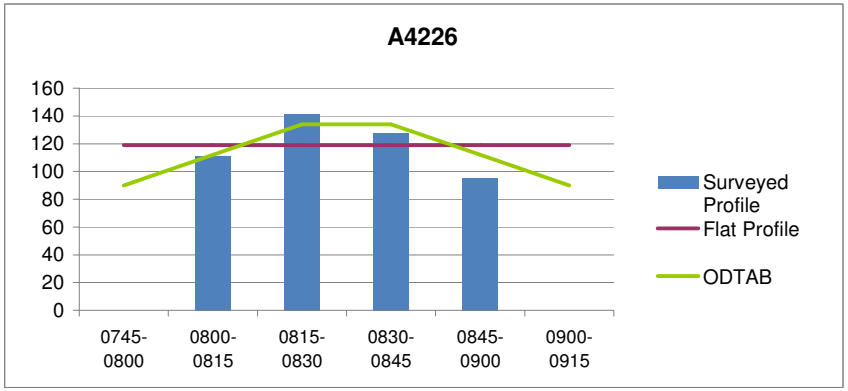
Port Road

Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	145	108
0800-0815	151	145	135
0815-0830	152	145	163
0830-0845	160	145	163
0845-0900	116	145	135
0900-0915	0	145	108
Total	579		



A4226

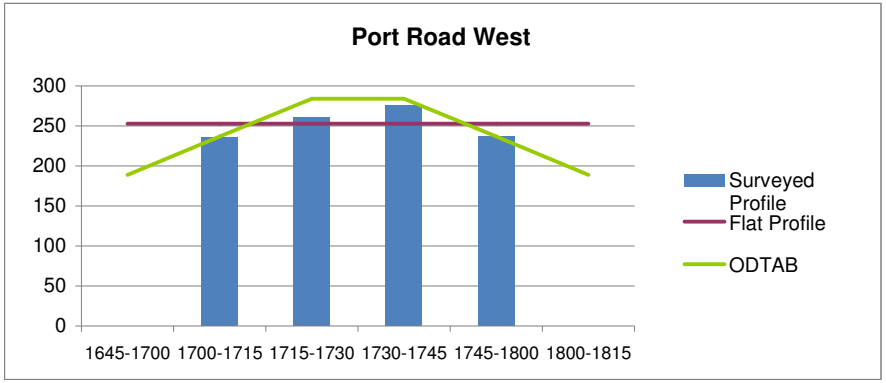
Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	119	90
0800-0815	111	119	112
0815-0830	141	119	134
0830-0845	128	119	134
0845-0900	95	119	112
0900-0915	0	119	90
Total	475		



WALES AIRPORT HOTEL ROUNDABOUT PM

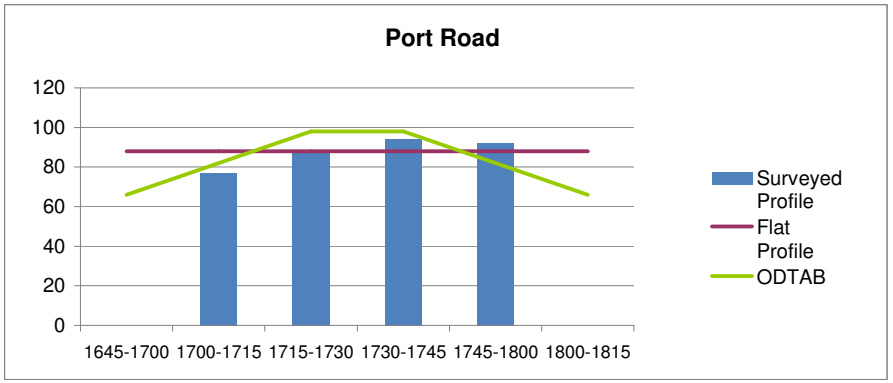
Port Road West

Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	253	189
1700-1715	236	253	237
1715-1730	261	253	284
1730-1745	276	253	284
1745-1800	237	253	237
1800-1815	0	253	189
Total	1010		



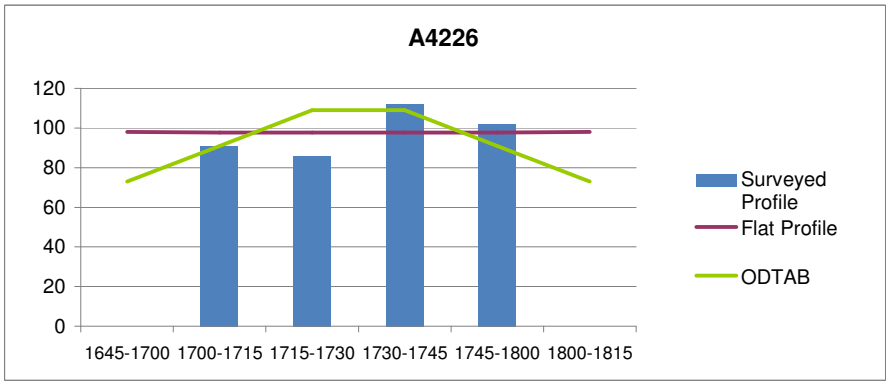
Port Road

Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	88	66
1700-1715	77	88	82
1715-1730	87	88	98
1730-1745	94	88	98
1745-1800	92	88	82
1800-1815	0	88	66
Total	350		



A4226

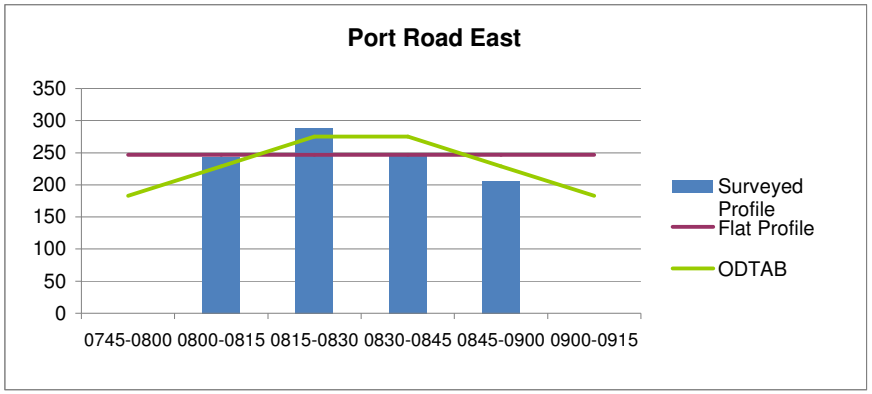
Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	98	73
1700-1715	91	98	91
1715-1730	86	98	109
1730-1745	112	98	109
1745-1800	102	98	91
1800-1815	0	98	73
Total	391		



COLCOT CROSS ROUNDABOUT AM

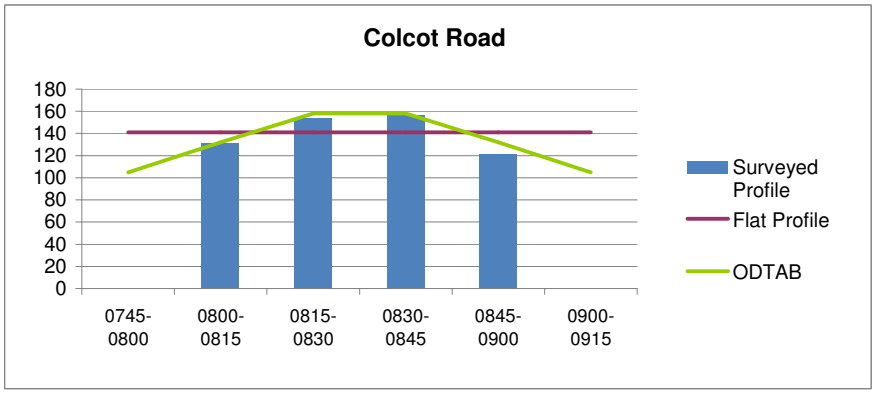
Port Road East

Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	247	183
0800-0815	244	247	229
0815-0830	288	247	275
0830-0845	249	247	275
0845-0900	206	247	229
0900-0915	0	247	183
Total	987		



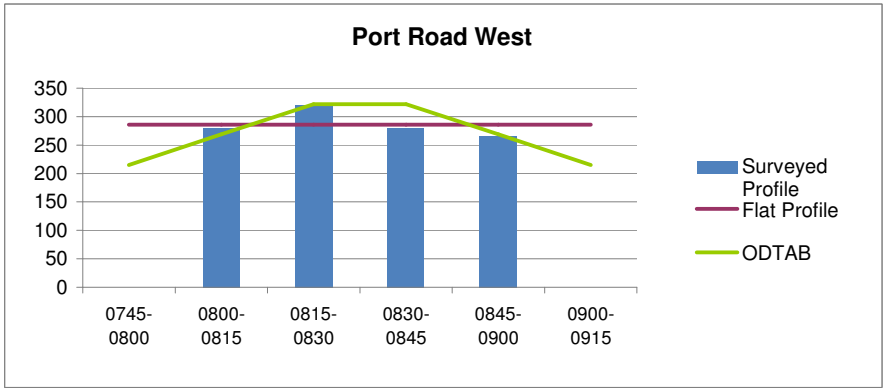
Colcot Road

Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	141	105
0800-0815	131	141	132
0815-0830	154	141	158
0830-0845	156	141	158
0845-0900	121	141	132
0900-0915	0	141	105
Total	562		



Port Road West

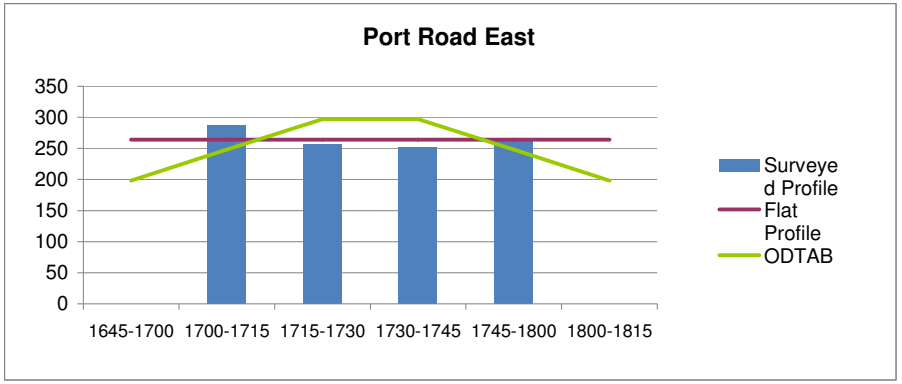
Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	286	215
0800-0815	279	286	269
0815-0830	320	286	322
0830-0845	280	286	322
0845-0900	266	286	269
0900-0915	0	286	215
Total	1145		



COLCOT CROSS ROUNDABOUT PM

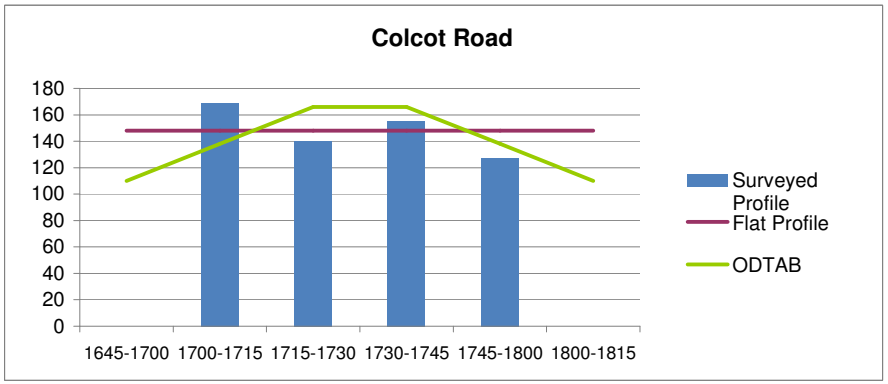
Port Road East

Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	264	198
1700-1715	287	264	248
1715-1730	257	264	297
1730-1745	251	264	297
1745-1800	262	264	248
1800-1815	0	264	198
Total	1057		



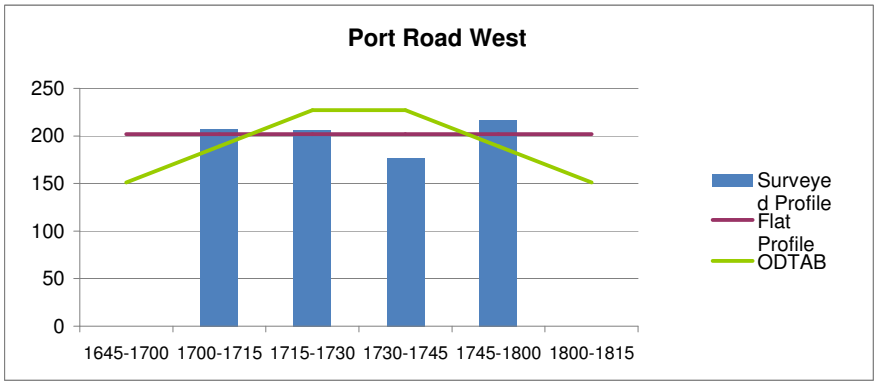
Colcot Road

Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	148	110
1700-1715	169	148	138
1715-1730	140	148	166
1730-1745	155	148	166
1745-1800	127	148	138
1800-1815	0	148	110
Total	591		



Port Road West

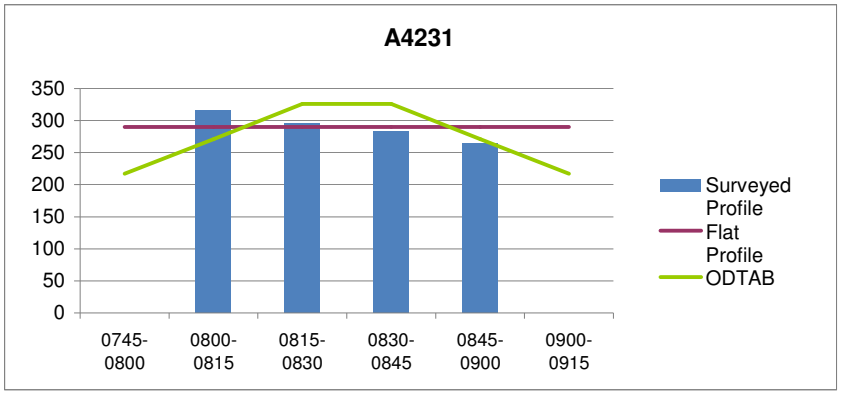
Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	202	151
1700-1715	207	202	189
1715-1730	206	202	227
1730-1745	177	202	227
1745-1800	217	202	189
1800-1815	0	202	151
Total	807		



BARRY DOCKS LINK ROUNDABOUT AM

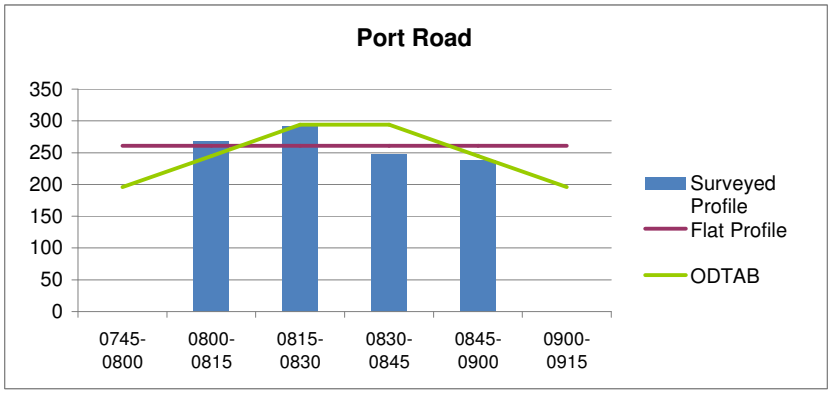
A4231

Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	290	217
0800-0815	316	290	271
0815-0830	296	290	326
0830-0845	284	290	326
0845-0900	264	290	271
0900-0915	0	290	217
Total	1160		



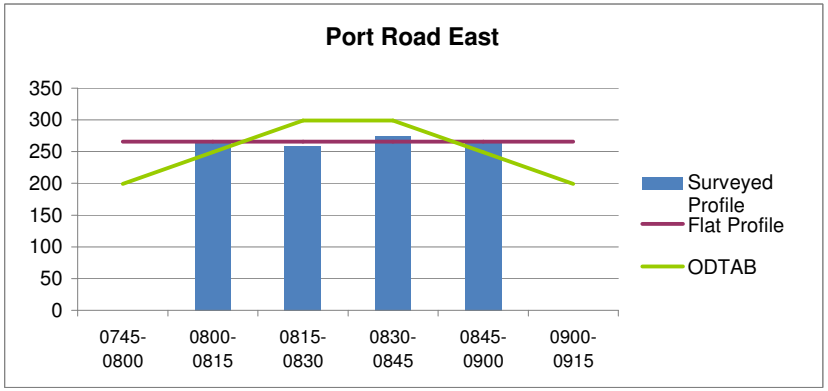
Port Road

Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	261	196
0800-0815	268	261	245
0815-0830	292	261	294
0830-0845	247	261	294
0845-0900	238	261	245
0900-0915	0	261	196
Total	1045		



Port Road East

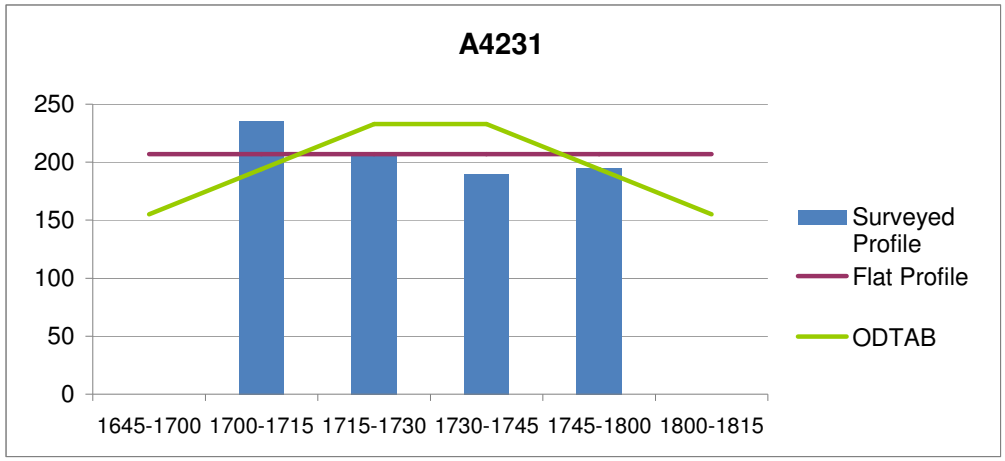
Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	266	199
0800-0815	266	266	249
0815-0830	258	266	299
0830-0845	274	266	299
0845-0900	265	266	249
0900-0915	0	266	199
Total	1063		



BARRY DOCKS LINK ROUNDABOUT PM

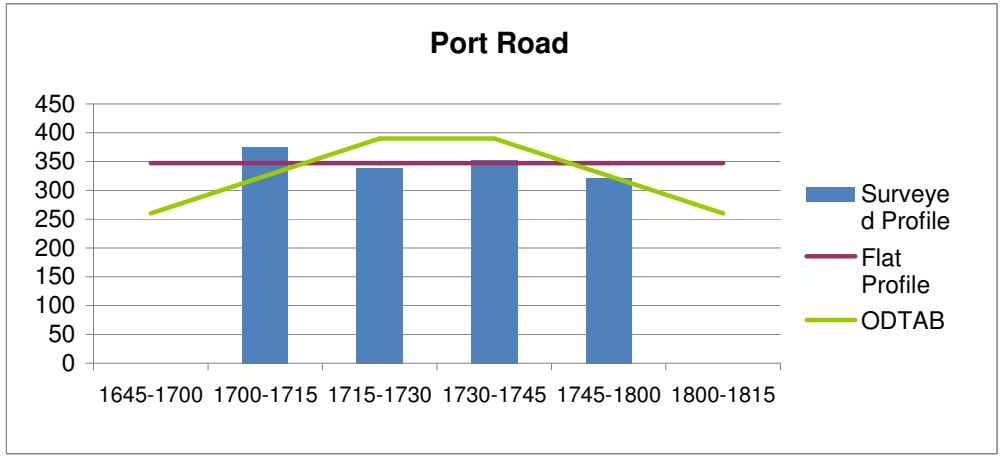
A4231

Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	207	155
1700-1715	236	207	194
1715-1730	206	207	233
1730-1745	190	207	233
1745-1800	195	207	194
1800-1815	0	207	155
Total	827		



Port Road

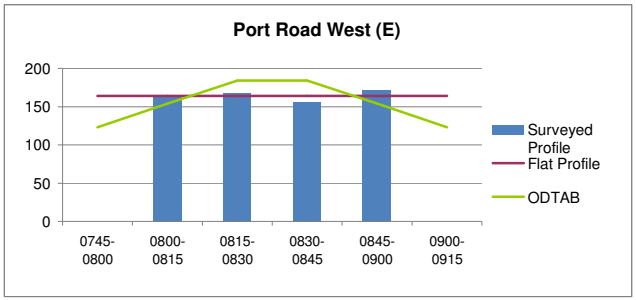
Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	347	260
1700-1715	375	347	325
1715-1730	339	347	390
1730-1745	352	347	390
1745-1800	322	347	325
1800-1815	0	347	260
Total	1388		



WAYCOCK CROSS ROUNDABOUT AM

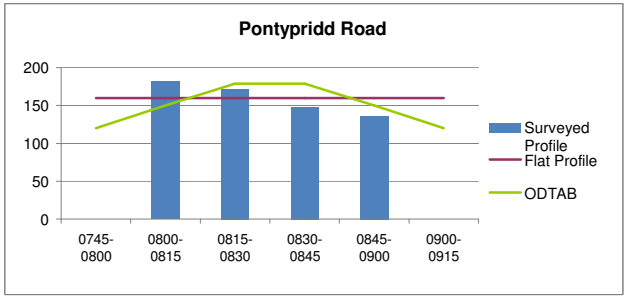
Port Road West (E)

Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	164	123
0800-0815	162	164	154
0815-0830	167	164	184
0830-0845	156	164	184
0845-0900	171	164	154
0900-0915	0	164	123
Total	656		



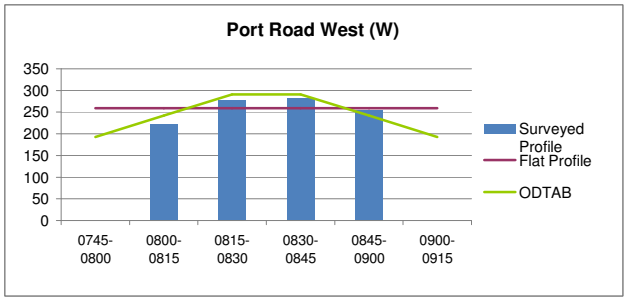
Pontypridd Road

Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	160	120
0800-0815	182	160	150
0815-0830	172	160	179
0830-0845	148	160	179
0845-0900	136	160	150
0900-0915	0	160	120
Total	638		



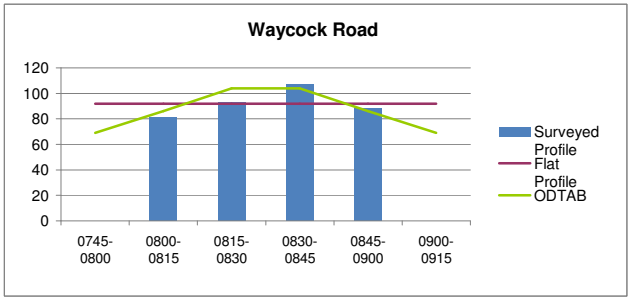
Port Road West (W)

Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	259	193
0800-0815	222	259	242
0815-0830	277	259	291
0830-0845	281	259	291
0845-0900	254	259	242
0900-0915	0	259	193
Total	1034		



Waycock Road

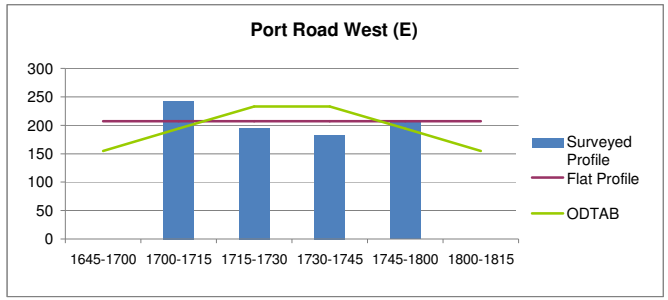
Time	Surveyed Profile	Flat Profile	ODTAB
0745-0800	0	92	69
0800-0815	81	92	86
0815-0830	93	92	104
0830-0845	107	92	104
0845-0900	88	92	86
0900-0915	0	92	69
Total	369		



WAYCOCK CROSS ROUNDABOUT PM

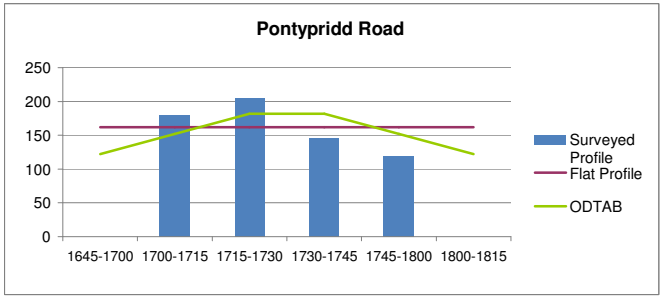
Port Road West (E)

Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	207	155
1700-1715	243	207	194
1715-1730	195	207	233
1730-1745	183	207	233
1745-1800	208	207	194
1800-1815	0	207	155
Total	829		



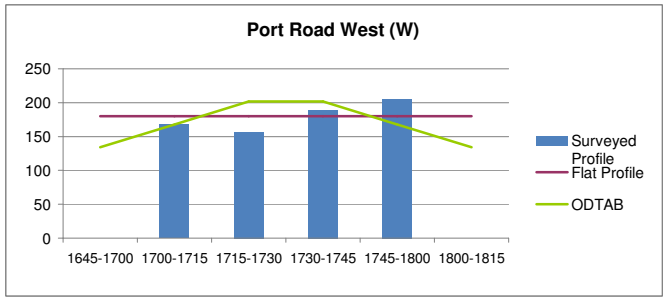
Pontypridd Road

Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	162	122
1700-1715	179	162	152
1715-1730	205	162	182
1730-1745	145	162	182
1745-1800	119	162	152
1800-1815	0	162	122
Total	648		



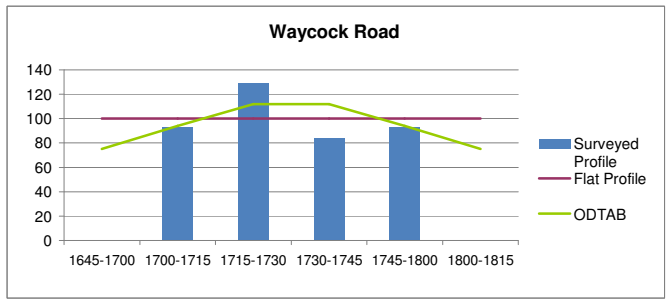
Port Road West (W)

Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	180	134
1700-1715	168	180	168
1715-1730	157	180	202
1730-1745	189	180	202
1745-1800	205	180	168
1800-1815	0	180	134
Total	719		



Waycock Road

Time	Surveyed Profile	Flat Profile	ODTAB
1645-1700	0	100	75
1700-1715	93	100	94
1715-1730	129	100	112
1730-1745	84	100	112
1745-1800	93	100	94
1800-1815	0	100	75
Total	399		



LAND NORTH OF THE RAILWAY LINE, RHOOSE

PROPOSED
OFF SITE JUNCTION
IMPROVEMENTS

NOVEMBER 2011

LAND NORTH OF THE RAILWAY LINE RHOOSE

PROPOSED OFF SITE JUNCTION IMPROVEMENTS

PREPARED FOR

FMW CONSULTANCY LIMITED
TRYM LODGE
1 HENBURY ROAD
WESTBURY-ON-TRYM
BRISTOL
BS9 3HQ

NOVEMBER 2011

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3	**JUNCTION IDENTIFICATION AND METHODOLOGY**	5
4	**JUNCTION IMPROVEMENTS – 350 UNITS**	6
5	**JUNCTION IMPROVEMENTS – 700 UNITS**	9
6	**CONCLUSIONS**	12

FIGURES

FIGURE 4.1	WAYCOCK CROSS ROUNDABOUT IMPROVEMENTS – 350 UNITS
FIGURE 4.2	BARRY DOCKS LINK ROUNDABOUT IMPROVEMENTS – 350 UNITS
FIGURE 4.3	COLCOT CROSS ROUNDABOUT IMPROVEMENTS – 350 UNITS
FIGURE 5.1	WAYCOCK CROSS ROUNDABOUT IMPROVEMENTS – 700 UNITS

APPENDICES

APPENDIX A	ARCADY OUTPUT: WAYCOCK CROSS IMPROVEMENTS – 350 UNITS
APPENDIX B	ARCADY OUTPUT: COLCOT CROSS IMPROVEMENTS – 350 UNITS
APPENDIX C	ARCADY OUTPUT: BARRY DOCKS LINK IMPROVEMENTS – 350 UNITS
APPENDIX D	ARCADY OUTPUT: WAYCOCK CROSS IMPROVEMENTS – 350 UNITS
APPENDIX E	ARCADY OUTPUT: COLCOT CROSS IMPROVEMENTS – 350 UNITS
APPENDIX F	ARCADY OUTPUT: BARRY DOCKS LINK IMPROVEMENTS – 350 UNITS

1 INTRODUCTION

1.1 FMW have been appointed by Persimmon Homes (Wales) and Bellway to prepare a report identifying junction improvements required to mitigate against the development of 350 and 700 residential units on Land of the Railway Line Rhoose. The report will also identify the indicative costs associated with the proposed junction improvements.

1.2 This report should be read in continuation with the Transport Assessment (TA) and the Addendum dated June 2010 and January 2011 respectively.

1.3 The structure of this report is as follows:

- Section 2: Summarises the work previously undertaken in the June 2010 TA and the January 2011 TA addendum;
- Section 3: Identifies the junctions requiring junction improvements and outlines the methodology of the proposed mitigation measures;
- Section 4: Identifies the junction improvements and indicative costs to mitigate against a residential development of 350 units;
- Section 5: Identifies the junction improvements and indicative costs to mitigate against a residential development of 700 units;
- Section 6: Presents a summary of the report and identifies the main conclusions that can be drawn from the TA addendum.

2 SUMMARY OF WORK UNDERTAKEN

June 2010 TA

2.1 The Land to the North of the Railway Line TA, in agreement with the Vale of Glamorgan (VoG), previously assessed the following off site junctions in Rhoose and Barry:

- Waycock Cross Roundabout;
- Fonmon Road / B4265 Junction;
- Wales Airport Hotel Roundabout;
- British Airways Maintenance Cardiff (BAMC) Roundabout;
- Station Road Junction;
- Barry Docks Link Roundabout;
- Colcot Cross Roundabout;
- Fonmon Road Signals; and
- Rhoose Point Roundabout.

2.2 These junctions were assessed for a design year of 2015 with committed development and proposed residential development trips. The flow profile for the junction capacity assessments were based on a 'flat profile'.

2.3 The conclusion of the capacity assessments is summarised in Table 2.1 overleaf.

Junction	Scenario			
	2015	2015 + Com Dev	2015 + Com + 350 units	2015 + Com + 700 units
Site Access				
Waycock Cross				
Fonmon Road Junction				
Airport Hotel RBT				
BAMC RBT				
Station Road Junction				
Barry Dock Link RBT				
Colcot Cross RBT				
Fonmon Road Signals				
Rhoose Point Roundabout				

Key			
	RFC < 85	RFC 85 - 100	> 100

Table 2.1: Summary of June 2010 TA Capacity Analysis

2.4 Table 2.1 identified that the majority of junctions assessed operated within capacity. Only the junctions of Waycock Cross, Barry Dock Link Roundabout and Colcot Cross Roundabout had a noticeable adverse impact due to the proposed residential development of 350 and 700 units.

January 2011 TA Addendum

2.5 Subsequent to the submission of the June 2010 TA, an addendum was prepared to address VoG comments. One of these was the removal of the Defence Technical College (DTC) trips as a committed development. Therefore the junctions that previously had DTC trips through them were reassessed. These junctions were as follows:

- Waycock Cross Roundabout;
- Fonmon Road / B4265 Junction;
- Wales Airport Hotel Roundabout;
- Barry Docks Link Roundabout; and
- Colcot Cross Roundabout.

2.6 The removal of the DTC trips meant that the above junctions operated with more capacity than in the June 2010 TA. However the conclusions of the June 2010 TA remained the same, in that, Waycock Cross Roundabout, Barry Dock Link Roundabout and Colcot Cross Roundabout had a noticeable adverse impact due to the proposed residential development of 350 and 700 units.

2.7 A sensitivity test was also undertaken in the TA addendum. The sensitivity test assessed the above junctions with a worst case ODTAB profile. The results of the sensitivity test identified that the junctions operated with slightly less capacity than the 'flat profile' assessment.

3 JUNCTION IDENTIFICATION AND METHODOLOGY

Rhoose Junctions

3.1 Based on the work undertaken in the January 20111 TA addendum the following junctions requires improvements:

- Waycock Cross Roundabout;
- Colcot Cross Roundabout; and
- Barry Docks Link Roundabout.

3.2 All these junctions have an adverse impact due to the residential development of 350 units, which would be exacerbated with a residential development of up to 700 units. It should be noted that these junctions were shown to be operating with an RFC of over 85%.

Mitigation Methodology

3.3 It is important to note that the mitigation measures proposed in this report are such that they will only mitigate against the impact associated with a development of 350 and 700 residential units to bring the operational capacity to the same level or better than the RFCs found in the 2015 with committed development and no DTC trips scenario.

3.4 Mitigation measures are based on the sensitivity tests undertaken in the January 2011 TA addendum. This ensures a worst case assessment so that junction improvements are robust.

3.5 All junction improvements proposed are within relevant design standards and can be implemented within the extents of the adopted highway.

4 JUNCTION IMPROVEMENTS – 350 UNITS

4.1 This section of the report identifies the junction improvements required to mitigate against the development of 350 units in 2015 with committed development trips and no DTC trips.

Waycock Cross Roundabout

4.2 The proposed junction improvements are shown in Figure 4.1. It is proposed that the Effective Flare Length (EFL) and entry width be increased on both Port Road West (W) and Waycock Road. The indicative costs associated with these improvements is in the region of £20,000. The cost does not include costs associated with traffic management, ground conditions or the diversion of existing services.

Scenario	Road	RFC (%)		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 + Com Dev (existing geometry)	Port Road West (E)	0.64	0.73	0.12	0.15	2	3
	Pontypridd Road	0.53	0.61	0.09	0.11	1	2
	Port Road West (W)	1.05	0.68	1.97	0.14	47	2
	Waycock Road	0.76	0.63	0.38	0.19	3	2
2015 + Com Dev + 350 units (existing geometry)	Port Road West (E)	0.65	0.82	0.13	0.22	2	4
	Pontypridd Road	0.55	0.68	0.09	0.15	1	2
	Port Road West (W)	1.28	0.78	8.64	0.21	189	4
	Waycock Road	0.78	0.71	0.41	0.27	3	2
2015 + Com Dev + 350 units (junction improvements)	Port Road West (E)	0.69	0.82	0.15	0.22	2	4
	Pontypridd Road	0.55	0.68	0.09	0.15	1	2
	Port Road West (W)	1.03	0.64	1.48	0.10	41	2
	Waycock Road	0.76	0.58	0.37	0.15	3	1

Table 4.1: Waycock Cross Roundabout Capacity Summary

4.3 The results demonstrate that the proposed junction improvements will be adequate to mitigate against the impact of trips associated with the 350 unit development. The ARCADY output for the proposed junction improvement is attached as Appendix A.

Colcot Cross Roundabout

4.4 The proposed junction improvements are shown in Figure 4.2. It is proposed that the EFL and entry width be increased on Port Road West. A deflector island is also proposed. The indicative costs associated with these improvements is in the region of £15,000. The cost does not include costs associated with traffic management, ground conditions or the diversion of existing services.

4.5 The operational performance of the junction is shown below in Table 4.2. The results demonstrate that the proposed junction improvements will be adequate to mitigate against the impact of trips associated with the proposed 350 unit development

Scenario	Road	RFC (%)		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 + Com Dev (existing geometry)	Colcot Road	0.54	0.59	0.11	0.13	1	1
	Port Road West	1.02	0.77	1.49	0.18	36	3
	Port Road East	0.70	0.68	0.11	0.10	2	2
2015 + Com Dev + 350 units (existing geometry)	Colcot Road	0.55	0.63	0.11	0.15	1	2
	Port Road West	1.17	0.82	4.88	0.23	124	4
	Port Road East	0.71	0.74	0.12	0.13	2	3
2015 + Com Dev + 350 units (junction improvements)	Colcot Road	0.55	0.63	0.11	0.15	1	2
	Port Road West	0.91	0.64	0.35	0.09	9	2
	Port Road East	0.72	0.74	0.13	0.13	3	3

Table 4.2: Colcot cross Roundabout Capacity Summary

4.6 The traffic ARCADY output for the proposed junction improvement is attached as Appendix B.

Barry Docks Link Roundabout

4.7 The proposed junction improvements are shown in Figure 4.3. It is proposed that a segregated left turn lane be provided on Port Road East and the EFL be increased on Port Road. The indicative cost associated with these improvements is in the region of £100,000. The cost does not include costs associated with traffic management, ground conditions or the diversion of existing services.

4.8 The junction capacity of these proposed improvements are shown below in Table 4.3. The results demonstrate that the proposed junction improvements will be adequate to mitigate against the trips associated with the proposed 350 unit development.

Scenario	Road	RFC (%)		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 + Com Dev (existing geometry)	A4231	0.65	0.78	0.11	0.20	2	3
	Port Road East	0.83	0.79	0.22	0.20	5	4
	Port Road	0.79	0.99	0.17	0.99	4	26
2015 + Com Dev + 350 units (existing geometry)	A4231	0.71	0.82	0.14	0.26	2	4
	Port Road East	0.93	0.84	0.48	0.26	11	5
	Port Road	0.82	1.05	0.21	1.71	5	58
2015 + Com Dev + 350 units (junction improvements)	A4231	0.71	0.85	0.15	0.31	2	5
	Port Road East	0.35	0.24	0.07	0.06	1	0
	Port Road	0.69	0.88	0.10	0.24	2	7

Table 4.3: Barry Docks Link Roundabout Capacity Summary

4.9 The traffic ARCADY output for the proposed junction improvement is attached as Appendix C.

5 JUNCTION IMPROVEMENTS – 700 UNITS

5.1 This section of the report identifies the junction improvements required to mitigate against the development of 700 units in 2015 with committed development trips and no DTC trips.

Waycock Cross Roundabout

5.2 The proposed junction improvements are shown in Figure 5.1. The proposed improvements are similar for the improvements for the 350 units scenario. However the Port Road West (E) has the entry width increased. The entry widths on Waycock Road and Port Road West (W) are slightly wider than those shown in Figure 4.1 (350 unit scenario). The indicative costs associated with these improvements is in the region of £35,000. The cost does not include costs associated with traffic management, ground conditions or the diversion of existing services.

Scenario	Road	RFC (%)		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 + Com Dev (existing geometry)	Port Road West (E)	0.64	0.73	0.12	0.15	2	3
	Pontypridd Road	0.53	0.61	0.09	0.11	1	2
	Port Road West (W)	1.05	0.68	1.97	0.14	47	2
	Waycock Road	0.76	0.63	0.38	0.19	3	2
2015 + Com Dev + 700 units (existing geometry)	Port Road West (E)	0.67	0.91	0.13	0.43	2	9
	Pontypridd Road	0.57	0.84	0.10	0.34	1	4
	Port Road West (W)	1.46	0.93	16.93	0.57	389	10
	Waycock Road	0.79	0.79	0.43	0.39	4	3
2015 + Com Dev + 700 units (junction improvements)	Port Road West (E)	0.66	0.84	0.12	0.23	2	5
	Pontypridd Road	0.57	0.76	0.10	0.21	1	3
	Port Road West (W)	1.02	0.76	1.34	0.17	40	3
	Waycock Road	0.80	0.61	0.79	0.61	4	2

Table 4.1: Waycock Cross Roundabout Capacity Summary

5.3 The proposed improvements for Waycock Cross Roundabout are adequate to mitigate for a development of 700 units. The ARCADY output for the proposed junction improvement is attached as Appendix D.

Colcot Cross Roundabout

5.4 The junction improvements proposed to mitigate against the development of 350 residential units would be adequate to mitigate against the development of up to 750 residential units.

5.5 The operational performance of the junction is shown below in Table 5.2.

Scenario	Road	RFC (%)		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 + Com Dev (existing geometry)	Colcot Road	0.54	0.59	0.11	0.13	1	1
	Port Road West	1.02	0.77	1.49	0.18	36	3
	Port Road East	0.70	0.68	0.11	0.10	2	2
2015 + Com Dev + 700 units (existing geometry)	Colcot Road	0.56	0.67	0.12	0.19	1	2
	Port Road West	1.28	0.88	9.05	0.33	212	6
	Port Road East	0.72	0.80	0.12	0.17	3	4
2015 + Com Dev + 700 units (junction improvements)	Colcot Road	0.56	0.67	0.12	0.18	1	2
	Port Road West	0.99	0.68	0.90	0.10	25	2
	Port Road East	0.74	0.80	0.14	0.17	3	4

Table 5.2: Colcot Roundabout Capacity Summary

5.6 The traffic ARCADY output for the proposed junction improvement is attached as Appendix E.

Barry Docks Link Roundabout

5.7 The junction improvements proposed to mitigate against the development of 350 residential units would be adequate to mitigate against the development of up to 750 residential units.

5.8 The operational performance of the junction is shown below in Table 5.3.

Scenario	Road	RFC (%)		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 + Com Dev (existing geometry)	A4231	0.65	0.78	0.11	0.20	2	3
	Port Road East	0.83	0.79	0.22	0.20	5	4
	Port Road	0.79	0.99	0.17	0.99	4	26
2015 + Com Dev + 700 units (existing geometry)	A4231	0.56	0.67	0.12	0.19	1	2
	Port Road East	1.28	0.88	9.05	0.33	212	6
	Port Road	0.72	0.80	0.12	0.17	3	4
2015 + Com Dev + 700 units (junction improvements)	A4231	0.73	0.83	0.16	0.28	3	4
	Port Road East	0.38	0.25	0.07	0.06	1	0
	Port Road	0.72	0.93	0.11	0.38	3	12

Table 5.3: Barry Docks Link Roundabout Capacity Summary

5.9 The traffic ARCADY output for the proposed junction improvement is attached as Appendix F.

6 CONCLUSIONS

6.1 This report has summarised the capacity assessment work undertaken for the Land to the North of Railway.

6.2 The report has identified the proposed improvements at the following junctions:

- Waycock Cross Roundabout;
- Colcot Cross Roundabout; and
- Barry Docks Link Roundabout.

6.3 The proposed improvements mitigates against the development of 350 residential units and up to 700 residential units;

6.4 The junction improvements include increasing of the entry width, flare lengths and providing a segregated left turn lane where appropriate;

6.5 The indicative costs associated with each junction improvement to mitigate against the proposed 350 units are as follow:

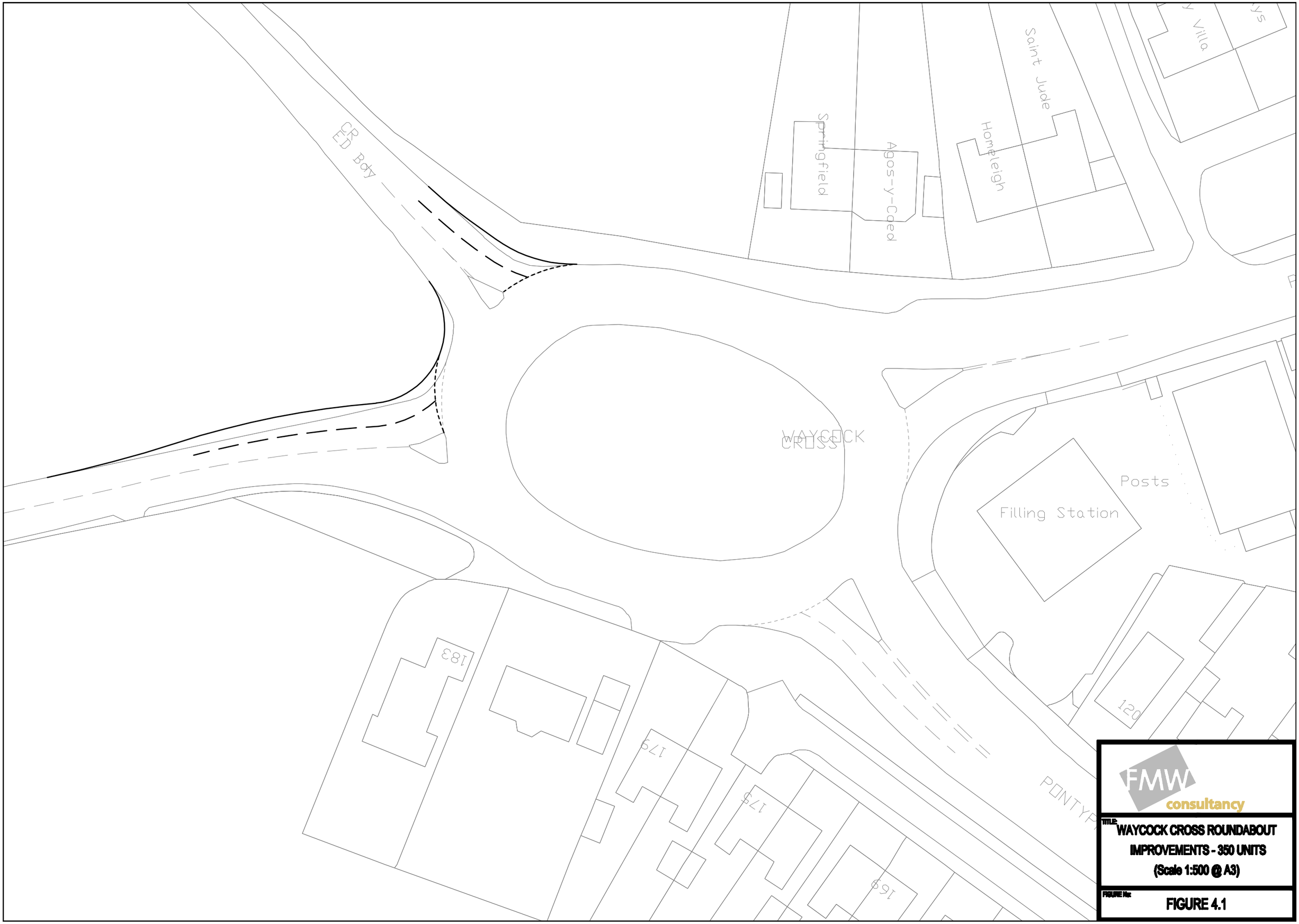
- Waycock Cross Roundabout: £20,000;
- Colcot Cross Roundabout £15,000; and
- Barry Docks Link Roundabout: £100,000.
- Total = £135,000.

6.6 Capacity assessments identified that improvements proposed to mitigate against the 350 residential units would be adequate for the junctions of Colcot Cross and Barry Docks Link Roundabout in the 700 units scenario;

6.7 The junction of Waycock Cross would require additional widening compared to those proposed for the 350 unit scenario to mitigate against the 700 unit scenario, which would cost in the region of £35,000 (i.e. an additional £15,000 giving a total of £150,000 for all three junctions);

6.8 In conclusion the junction improvements proposed are adequate will mitigate against the impact of the development in Rhoose and can be implemented using adopted highway land.

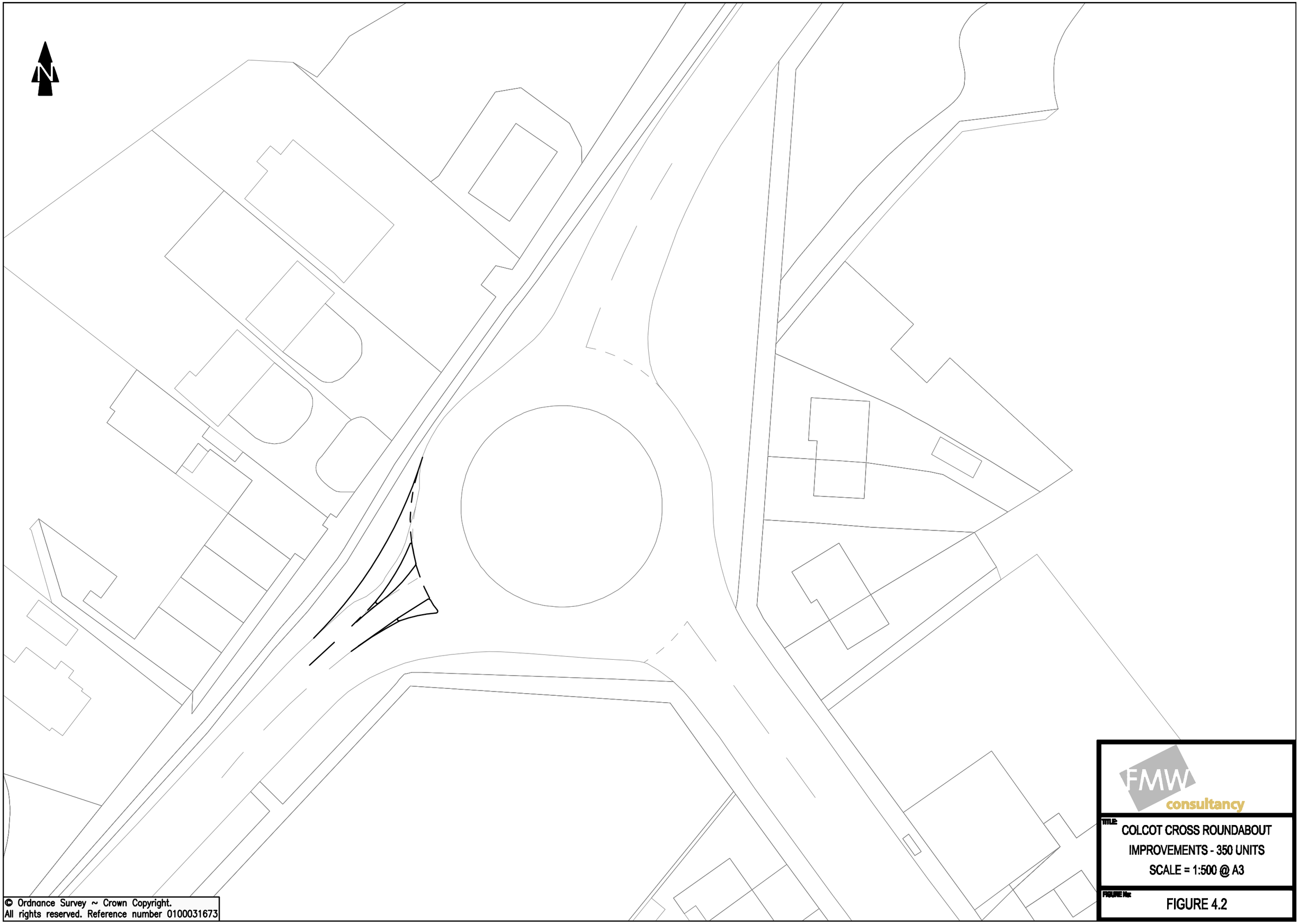
FIGURES



FMW consultancy

TITLE: WAYCOCK CROSS ROUNDABOUT IMPROVEMENTS - 350 UNITS (Scale 1:500 @ A3)

FIGURE No: FIGURE 4.1



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FMW consultancy

TITLE:
COLCOT CROSS ROUNDABOUT
IMPROVEMENTS - 350 UNITS
SCALE = 1:500 @ A3

FIGURE No:
FIGURE 4.2

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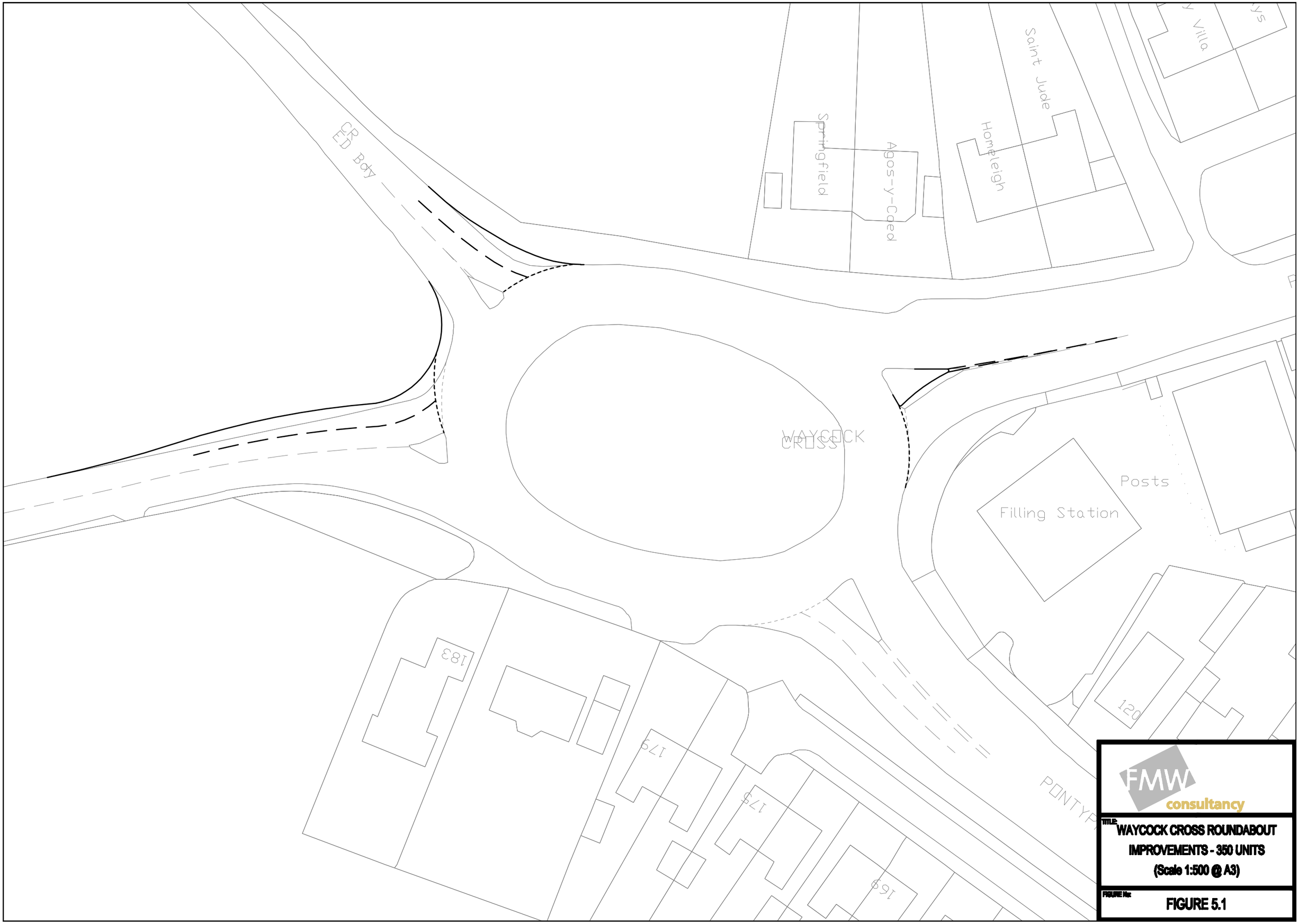
FMW consultancy

TITLE
BARRY DOCKS LINK ROUNDABOUT
IMPROVEMENTS - 350 UNITS
SCALE = 1:500 @ A3

FIGURE No:
FIGURE 4.3



FMW consultancy

TITLE: WAYCOCK CROSS ROUNDABOUT IMPROVEMENTS - 350 UNITS (Scale 1:500 @ A3)

FIGURE No: FIGURE 5.1

APPENDIX

APPENDIX A

ARCADY OUTPUT:

WAYCOCK CROSS IMPROVEMENTS

350 UNITS

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\fmw-server\Data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J1 Waycock Cross\improvements\Import of J1 Waycock Cross AM Peak ODTAB improvements.arc7
Report generation date: 21/01/2011 13:51:15

« A1 - (Default Analysis Set) - D1 - 2015 Base Flows + Comm Dev + 350 units AM, AM

» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 350 units AM			
Arm A	2.13	0.15	0.69	A
Arm B	1.22	0.09	0.55	A
Arm C	41.49	1.48	1.03	F
Arm D	2.95	0.37	0.76	C

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

2015 Base Flows + Comm Dev + 350 units AM - AM runs from 07:45:00 to 09:15:00

File summary

File Description

Title	J1 Waycock Cross Junction
Location	Rhoose
Date	10/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev B for TA Addendum
Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D1 - 2015 Base Flows + Comm Dev + 350 units AM, AM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm Dev + 350 units AM, AM	2015 Base Flows + Comm Dev + 350 units AM	AM			Yes			07:45	09:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C,D	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Port Road West (E)	
B	Pontypridd Road	
C	Port Road West (W)	
D	Waycock Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00
D	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	5.00	6.60	38.00	20.00	51.00	27.00	
B	5.60	7.20	4.50	23.00	51.00	27.00	
C	4.00	8.00	24.00	11.50	60.00	26.00	
D	3.60	6.40	15.00	20.00	54.00	28.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None
D	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.656	32.708
B		((calculated))	((calculated))	0.657	32.598
C		((calculated))	((calculated))	0.596	32.631
D		((calculated))	((calculated))	0.579	27.220

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		13.35	100.000	N/A
B	ONE HOUR		12.05	100.000	N/A
C	ONE HOUR		24.02	100.000	N/A
D	ONE HOUR		7.55	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
07:45-08:00	A	10.05	10.42	N/A	N/A
07:45-08:00	B	9.07	9.13	N/A	N/A
07:45-08:00	C	18.08	18.50	N/A	N/A
07:45-08:00	D	5.68	5.73	N/A	N/A
08:00-08:15	A	12.00	12.44	N/A	N/A
08:00-08:15	B	10.83	10.91	N/A	N/A
08:00-08:15	C	21.59	22.09	N/A	N/A
08:00-08:15	D	6.79	6.84	N/A	N/A
08:15-08:30	A	14.70	15.24	N/A	N/A
08:15-08:30	B	13.27	13.36	N/A	N/A
08:15-08:30	C	26.45	27.05	N/A	N/A
08:15-08:30	D	8.31	8.37	N/A	N/A
08:30-08:45	A	14.70	15.24	N/A	N/A
08:30-08:45	B	13.27	13.36	N/A	N/A
08:30-08:45	C	26.45	27.05	N/A	N/A
08:30-08:45	D	8.31	8.37	N/A	N/A
08:45-09:00	A	12.00	12.44	N/A	N/A
08:45-09:00	B	10.83	10.91	N/A	N/A
08:45-09:00	C	21.59	22.09	N/A	N/A
08:45-09:00	D	6.79	6.84	N/A	N/A
09:00-09:15	A	10.05	10.42	N/A	N/A
09:00-09:15	B	9.07	9.13	N/A	N/A
09:00-09:15	C	18.08	18.50	N/A	N/A
09:00-09:15	D	5.68	5.73	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	224.00	477.00	100.00
	B	292.00	0.00	249.00	182.00
	C	683.00	564.00	0.00	194.00
	D	133.00	206.00	114.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	0.28	0.60	0.12
	B	0.40	0.00	0.34	0.25
	C	0.47	0.39	0.00	0.13
	D	0.29	0.45	0.25	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

	To

		A	B	C	D
From	A	1.00	1.10	1.00	1.07
	B	1.00	1.00	1.02	1.00
	C	1.04	1.01	1.00	1.00
	D	1.01	1.01	1.00	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	10.00	0.00	7.00
	B	0.00	0.00	2.00	0.00
	C	4.00	1.00	0.00	0.00
	D	1.00	1.00	0.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.69	0.15	2.13	A	12.25	1102.52	115.48	0.10	1.28	115.49	0.10	0.656	32.708
B	0.55	0.09	1.22	A	11.06	995.15	73.47	0.07	0.82	73.48	0.07	0.657	32.598
C	1.03	1.48	41.49	F	22.04	1983.71	1093.07	0.55	12.15	1093.14	0.55	0.596	32.631
D	0.76	0.37	2.95	C	6.93	623.52	130.24	0.21	1.45	130.25	0.21	0.579	27.220

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.05	150.76	10.00	13.82	11.02	0.00	24.51	21.08	0.410	0.00	0.69
B	9.07	136.08	9.04	12.40	8.63	0.00	26.69	20.57	0.340	0.00	0.51
C	18.08	271.25	17.96	10.49	7.17	0.00	27.67	22.40	0.654	0.00	1.85
D	5.68	85.26	5.65	5.94	19.19	0.00	15.75	10.80	0.361	0.00	0.56

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	12.00	180.02	11.98	16.52	13.17	0.00	23.14	21.08	0.519	0.69	1.06
B	10.83	162.49	10.82	14.82	10.33	0.00	25.57	20.57	0.424	0.51	0.73
C	21.59	323.90	21.46	12.56	8.59	0.00	26.84	22.40	0.805	1.85	3.88
D	6.79	101.81	6.76	7.11	22.94	0.00	13.55	10.80	0.501	0.56	0.98

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	14.70	220.48	14.63	19.58	15.56	0.00	21.61	21.08	0.680	1.06	2.07
B	13.27	199.01	13.24	17.59	12.60	0.00	24.07	20.57	0.551	0.73	1.21
C	26.45	396.70	24.95	15.34	10.50	0.00	25.71	22.40	1.029	3.88	26.30
D	8.31	124.69	8.20	8.52	26.94	0.00	11.20	10.80	0.742	0.98	2.66

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	14.70	220.48	14.69	19.85	15.81	0.00	21.45	21.08	0.685	2.07	2.13
B	13.27	199.01	13.27	17.83	12.67	0.00	24.02	20.57	0.552	1.21	1.22
C	26.45	396.70	25.43	15.41	10.53	0.00	25.69	22.40	1.029	26.30	41.49
D	8.31	124.69	8.29	8.60	27.37	0.00	10.95	10.80	0.759	2.66	2.95

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	12.00	180.02	12.07	17.81	14.29	0.00	22.42	21.08	0.535	2.13	1.17
B	10.83	162.49	10.86	15.93	10.43	0.00	25.50	20.57	0.425	1.22	0.74
C	21.59	323.90	24.05	12.66	8.63	0.00	26.81	22.40	0.805	41.49	4.57
D	6.79	101.81	6.90	7.48	25.20	0.00	12.21	10.80	0.556	2.95	1.28

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.05	150.76	10.08	14.01	11.20	0.00	24.40	21.08	0.412	1.17	0.71
B	9.07	136.08	9.09	12.57	8.70	0.00	26.64	20.57	0.341	0.74	0.52
C	18.08	271.25	18.26	10.58	7.22	0.00	27.65	22.40	0.654	4.57	1.93
D	5.68	85.26	5.73	6.00	19.47	0.00	15.58	10.80	0.365	1.28	0.58

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	10.04	0.67	0.069	A	A
B	7.50	0.50	0.057	A	A
C	26.24	1.75	0.102	A	A
D	8.09	0.54	0.099	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	15.49	1.03	0.089	A	A
B	10.71	0.71	0.068	A	A
C	53.13	3.54	0.181	B	B
D	14.13	0.94	0.147	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	29.20	1.95	0.142	A	A
B	17.57	1.17	0.092	A	A
C	251.84	16.79	0.780	E	D
D	35.43	2.36	0.322	C	B

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	31.66	2.11	0.148	A	A
B	18.29	1.22	0.093	A	A
C	511.24	34.08	1.476	F	F

D	42.76	2.85	0.371	C	C

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	18.21	1.21	0.097	A	A
B	11.46	0.76	0.068	A	A
C	219.81	14.65	0.583	E	D
D	20.79	1.39	0.192	B	B

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	10.87	0.72	0.070	A	A
B	7.94	0.53	0.057	A	A
C	30.81	2.05	0.108	A	A
D	9.04	0.60	0.102	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	5.00	6.60	38.00	20.00	51.00	27.00		0.656	32.708
B	5.60	7.20	4.50	23.00	51.00	27.00		0.657	32.598
C	4.00	8.00	24.00	11.50	60.00	26.00		0.596	32.631
D	3.60	6.40	15.00	20.00	54.00	28.00		0.579	27.220

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
07:45-08:00	A	10.05	24.51	0.410	0.00	0.00	0.69	10.04	(0.00)	0.069
07:45-08:00	B	9.07	26.69	0.340	0.00	0.00	0.51	7.50	(0.00)	0.057
07:45-08:00	C	18.08	27.67	0.654	0.00	0.00	1.85	26.24	(0.00)	0.102
07:45-08:00	D	5.68	15.75	0.361	0.00	0.00	0.56	8.09	(0.00)	0.099
08:00-08:15	A	12.00	23.14	0.519	0.00	0.69	1.06	15.49	(0.00)	0.089
08:00-08:15	B	10.83	25.57	0.424	0.00	0.51	0.73	10.71	(0.00)	0.068
08:00-08:15	C	21.59	26.84	0.805	0.00	1.85	3.88	53.13	(0.00)	0.181
08:00-08:15	D	6.79	13.55	0.501	0.00	0.56	0.98	14.13	(0.00)	0.147
08:15-08:30	A	14.70	21.61	0.680	0.00	1.06	2.07	29.20	(0.00)	0.142
08:15-08:30	B	13.27	24.07	0.551	0.00	0.73	1.21	17.57	(0.00)	0.092
08:15-08:30	C	26.45	25.71	1.029	0.00	3.88	26.30	251.84	(0.00)	0.780
08:15-08:30	D	8.31	11.20	0.742	0.00	0.98	2.66	35.43	(0.00)	0.322
08:30-08:45	A	14.70	21.45	0.685	0.00	2.07	2.13	31.66	(0.00)	0.148
08:30-08:45	B	13.27	24.02	0.552	0.00	1.21	1.22	18.29	(0.00)	0.093
08:30-08:45	C	26.45	25.69	1.029	0.00	26.30	41.49	511.24	(0.00)	1.476
08:30-08:45	D	8.31	10.95	0.759	0.00	2.66	2.95	42.76	(0.00)	0.371
08:45-09:00	A	12.00	22.42	0.535	0.00	2.13	1.17	18.21	(0.00)	0.097
08:45-09:00	B	10.83	25.50	0.425	0.00	1.22	0.74	11.46	(0.00)	0.068
08:45-09:00	C	21.59	26.81	0.805	0.00	41.49	4.57	219.81	(0.00)	0.583

08:45-09:00	**D**	6.79	12.21	0.556	0.00	2.95	1.28	20.79	(0.00)	0.192
09:00-09:15	**A**	10.05	24.40	0.412	0.00	1.17	0.71	10.87	(0.00)	0.070
09:00-09:15	**B**	9.07	26.64	0.341	0.00	0.74	0.52	7.94	(0.00)	0.057
09:00-09:15	**C**	18.08	27.65	0.654	0.00	4.57	1.93	30.81	(0.00)	0.108
09:00-09:15	**D**	5.68	15.58	0.365	0.00	1.28	0.58	9.04	(0.00)	0.102

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\fmw-server\Data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J1 Waycock Cross\improvements\Import of J1 Waycock Cross PM Peak ODTAB improvements.arc7
Report generation date: 21/01/2011 13:51:42

« A1 - (Default Analysis Set) - D1 - 2015 Base Flows + Comm Dev + 350 units PM, PM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 350 units PM			
Arm A	4.39	0.22	0.82	B
Arm B	2.06	0.15	0.68	A
Arm C	1.74	0.10	0.64	A
Arm D	1.37	0.15	0.58	A

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

2015 Base Flows + Comm Dev + 350 units PM - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J1 Waycock Cross Junction PM Peak
Location	Rhoose
Date	10/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum
Results Upto Date	False

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D1 - 2015 Base Flows + Comm Dev + 350 units PM, PM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm Dev + 350 units PM, PM	2015 Base Flows + Comm Dev + 350 units PM	PM			Yes			16:45	18:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C,D	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Port Road West (E)	
B	Pontypridd Road	
C	Port Road West (W)	
D	Waycock Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00
D	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	5.00	6.60	38.00	20.00	51.00	27.00	
B	5.60	7.20	4.50	23.00	51.00	27.00	
C	4.00	8.00	24.00	11.50	60.00	26.00	
D	3.60	6.40	15.00	20.00	54.00	28.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None
D	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.656	32.708
B		((calculated))	((calculated))	0.657	32.598
C		((calculated))	((calculated))	0.596	32.631
D		((calculated))	((calculated))	0.579	27.220

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		18.32	100.000	N/A
B	ONE HOUR		12.90	100.000	N/A
C	ONE HOUR		15.92	100.000	N/A
D	ONE HOUR		8.35	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
16:45-17:00	A	13.79	13.94	N/A	N/A
16:45-17:00	B	9.71	9.71	N/A	N/A
16:45-17:00	C	11.99	12.24	N/A	N/A
16:45-17:00	D	6.29	6.35	N/A	N/A
17:00-17:15	A	16.47	16.65	N/A	N/A
17:00-17:15	B	11.60	11.60	N/A	N/A
17:00-17:15	C	14.31	14.61	N/A	N/A
17:00-17:15	D	7.51	7.58	N/A	N/A
17:15-17:30	A	20.17	20.39	N/A	N/A
17:15-17:30	B	14.20	14.20	N/A	N/A
17:15-17:30	C	17.53	17.90	N/A	N/A
17:15-17:30	D	9.19	9.28	N/A	N/A
17:30-17:45	A	20.17	20.39	N/A	N/A
17:30-17:45	B	14.20	14.20	N/A	N/A
17:30-17:45	C	17.53	17.90	N/A	N/A
17:30-17:45	D	9.19	9.28	N/A	N/A
17:45-18:00	A	16.47	16.65	N/A	N/A
17:45-18:00	B	11.60	11.60	N/A	N/A
17:45-18:00	C	14.31	14.61	N/A	N/A
17:45-18:00	D	7.51	7.58	N/A	N/A
18:00-18:15	A	13.79	13.94	N/A	N/A
18:00-18:15	B	9.71	9.71	N/A	N/A
18:00-18:15	C	11.99	12.24	N/A	N/A
18:00-18:15	D	6.29	6.35	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	269.00	711.00	119.00
	B	179.00	0.00	478.00	117.00
	C	579.00	280.00	0.00	96.00
	D	136.00	234.00	131.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	0.24	0.65	0.11
	B	0.23	0.00	0.62	0.15
	C	0.61	0.29	0.00	0.10
	D	0.27	0.47	0.26	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

	To

		A	B	C	D
From	A	1.00	1.04	1.00	1.01
	B	1.00	1.00	1.00	1.00
	C	1.03	1.01	1.00	1.00
	D	1.00	1.01	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	4.00	0.00	1.00
	B	0.00	0.00	0.00	0.00
	C	3.00	1.00	0.00	0.00
	D	0.00	1.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.82	0.22	4.39	B	16.81	1512.97	205.42	0.14	2.28	205.44	0.14	0.656	32.708
B	0.68	0.15	2.06	A	11.84	1065.35	109.10	0.10	1.21	109.11	0.10	0.657	32.598
C	0.64	0.10	1.74	A	14.61	1314.76	102.78	0.08	1.14	102.79	0.08	0.596	32.631
D	0.58	0.15	1.37	A	7.66	689.59	75.98	0.11	0.84	75.98	0.11	0.579	27.220

Main Results

Main results: (16:45-17:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	13.79	206.88	13.72	11.17	8.06	0.00	27.06	22.28	0.510	0.00	1.03
B	9.71	145.68	9.67	9.78	12.00	0.00	24.68	19.68	0.393	0.00	0.64
C	11.99	179.78	11.94	16.49	5.18	0.00	28.92	26.14	0.414	0.00	0.70
D	6.29	94.29	6.25	4.15	12.97	0.00	19.37	10.54	0.325	0.00	0.48

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.47	247.04	16.43	13.37	9.65	0.00	26.02	22.28	0.633	1.03	1.69
B	11.60	173.95	11.57	11.71	14.36	0.00	23.13	19.68	0.501	0.64	0.99
C	14.31	214.68	14.29	19.73	6.20	0.00	28.32	26.14	0.505	0.70	1.01
D	7.51	112.60	7.49	4.96	15.53	0.00	17.87	10.54	0.420	0.48	0.72

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	20.17	302.56	20.00	16.35	11.79	0.00	24.61	22.28	0.820	1.69	4.22
B	14.20	213.05	14.14	14.30	17.50	0.00	21.06	19.68	0.675	0.99	2.01
C	17.53	262.92	17.48	24.06	7.57	0.00	27.52	26.14	0.637	1.01	1.72
D	9.19	137.90	9.15	6.06	18.99	0.00	15.85	10.54	0.580	0.72	1.35

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	20.17	302.56	20.16	16.41	11.84	0.00	24.58	22.28	0.821	4.22	4.39
B	14.20	213.05	14.20	14.37	17.63	0.00	20.97	19.68	0.677	2.01	2.06
C	17.53	262.92	17.53	24.22	7.61	0.00	27.50	26.14	0.637	1.72	1.74
D	9.19	137.90	9.19	6.09	19.05	0.00	15.82	10.54	0.581	1.35	1.37

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.47	247.04	16.64	13.45	9.71	0.00	25.98	22.28	0.634	4.39	1.77
B	11.60	173.95	11.67	11.81	14.54	0.00	23.01	19.68	0.504	2.06	1.03
C	14.31	214.68	14.36	19.95	6.26	0.00	28.29	26.14	0.506	1.74	1.03
D	7.51	112.60	7.55	5.01	15.61	0.00	17.82	10.54	0.421	1.37	0.74

Main results: (18:00-18:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	13.79	206.88	13.84	11.24	8.11	0.00	27.03	22.28	0.510	1.77	1.05
B	9.71	145.68	9.74	9.85	12.10	0.00	24.62	19.68	0.395	1.03	0.66
C	11.99	179.78	12.01	16.61	5.22	0.00	28.90	26.14	0.415	1.03	0.71
D	6.29	94.29	6.30	4.18	13.05	0.00	19.32	10.54	0.325	0.74	0.49

Queueing Delay Results

Queueing Delay results: (16:45-17:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	14.90	0.99	0.075	A	A
B	9.39	0.63	0.066	A	A
C	10.27	0.68	0.059	A	A
D	6.95	0.46	0.076	A	A

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	24.37	1.62	0.104	A	A
B	14.49	0.97	0.086	A	A
C	14.81	0.99	0.071	A	A
D	10.45	0.70	0.096	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	56.73	3.78	0.210	B	B
B	28.46	1.90	0.143	A	A
C	24.79	1.65	0.099	A	A
D	19.24	1.28	0.148	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	64.88	4.33	0.225	B	B
B	30.67	2.04	0.148	A	A
C	26.01	1.73	0.100	A	A

D	20.44	1.36	0.151	A	A

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	28.24	1.88	0.109	A	A
B	16.01	1.07	0.089	A	A
C	15.98	1.07	0.072	A	A
D	11.43	0.76	0.098	A	A

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	16.29	1.09	0.076	A	A
B	10.08	0.67	0.067	A	A
C	10.93	0.73	0.059	A	A
D	7.46	0.50	0.077	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	5.00	6.60	38.00	20.00	51.00	27.00		0.656	32.708
B	5.60	7.20	4.50	23.00	51.00	27.00		0.657	32.598
C	4.00	8.00	24.00	11.50	60.00	26.00		0.596	32.631
D	3.60	6.40	15.00	20.00	54.00	28.00		0.579	27.220

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
16:45-17:00	A	13.79	27.06	0.510	0.00	0.00	1.03	14.90	(0.00)	0.075
16:45-17:00	B	9.71	24.68	0.393	0.00	0.00	0.64	9.39	(0.00)	0.066
16:45-17:00	C	11.99	28.92	0.414	0.00	0.00	0.70	10.27	(0.00)	0.059
16:45-17:00	D	6.29	19.37	0.325	0.00	0.00	0.48	6.95	(0.00)	0.076
17:00-17:15	A	16.47	26.02	0.633	0.00	1.03	1.69	24.37	(0.00)	0.104
17:00-17:15	B	11.60	23.13	0.501	0.00	0.64	0.99	14.49	(0.00)	0.086
17:00-17:15	C	14.31	28.32	0.505	0.00	0.70	1.01	14.81	(0.00)	0.071
17:00-17:15	D	7.51	17.87	0.420	0.00	0.48	0.72	10.45	(0.00)	0.096
17:15-17:30	A	20.17	24.61	0.820	0.00	1.69	4.22	56.73	(0.00)	0.210
17:15-17:30	B	14.20	21.06	0.675	0.00	0.99	2.01	28.46	(0.00)	0.143
17:15-17:30	C	17.53	27.52	0.637	0.00	1.01	1.72	24.79	(0.00)	0.099
17:15-17:30	D	9.19	15.85	0.580	0.00	0.72	1.35	19.24	(0.00)	0.148
17:30-17:45	A	20.17	24.58	0.821	0.00	4.22	4.39	64.88	(0.00)	0.225
17:30-17:45	B	14.20	20.97	0.677	0.00	2.01	2.06	30.67	(0.00)	0.148
17:30-17:45	C	17.53	27.50	0.637	0.00	1.72	1.74	26.01	(0.00)	0.100
17:30-17:45	D	9.19	15.82	0.581	0.00	1.35	1.37	20.44	(0.00)	0.151
17:45-18:00	A	16.47	25.98	0.634	0.00	4.39	1.77	28.24	(0.00)	0.109
17:45-18:00	B	11.60	23.01	0.504	0.00	2.06	1.03	16.01	(0.00)	0.089
17:45-18:00	C	14.31	28.29	0.506	0.00	1.74	1.03	15.98	(0.00)	0.072

17:45-18:00	**D**	7.51	17.82	0.421	0.00	1.37	0.74	11.43	(0.00)	0.098
18:00-18:15	**A**	13.79	27.03	0.510	0.00	1.77	1.05	16.29	(0.00)	0.076
18:00-18:15	**B**	9.71	24.62	0.395	0.00	1.03	0.66	10.08	(0.00)	0.067
18:00-18:15	**C**	11.99	28.90	0.415	0.00	1.03	0.71	10.93	(0.00)	0.059
18:00-18:15	**D**	6.29	19.32	0.325	0.00	0.74	0.49	7.46	(0.00)	0.077

APPENDIX B

ARCADY OUTPUT:

COLCOT CROSS IMPROVEMENTS

350 UNITS

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\Data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\Improvements\Import of J7 Colcot Cross RBT AM Peak ODTAB Improvements.arc7
Report generation date: 20/01/2011 09:26:29

« A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units AM Peak, AM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units AM Peak			
Arm A	1.20	0.11	0.55	A
Arm B	8.69	0.35	0.91	C
Arm C	2.57	0.13	0.72	A

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

2015 Base + Comm Dev + 350 units AM Peak - AM runs from 07:45:00 to 09:15:00

File summary

File Description

Title	J7 Colcot Cross RBT
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style

	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units AM Peak, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 350 units AM Peak, AM	2015 Base + Comm Dev + 350 units AM Peak	AM			Yes			07:45	09:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00

B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.90	22.00	65.00	45.00	21.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.718	34.416
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		9.97	100.000	N/A
B	ONE HOUR		23.82	100.000	N/A
C	ONE HOUR		18.82	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
07:45-08:00	**A**	7.51	7.55	N/A	N/A
07:45-08:00	**B**	17.93	18.34	N/A	N/A
07:45-08:00	**C**	14.17	14.90	N/A	N/A
08:00-08:15	**A**	8.96	9.02	N/A	N/A

08:00-08:15	**B**	21.41	21.90	N/A	N/A
08:00-08:15	**C**	16.92	17.80	N/A	N/A
08:15-08:30	**A**	10.98	11.04	N/A	N/A
08:15-08:30	**B**	26.23	26.82	N/A	N/A
08:15-08:30	**C**	20.72	21.80	N/A	N/A
08:30-08:45	**A**	10.98	11.04	N/A	N/A
08:30-08:45	**B**	26.23	26.82	N/A	N/A
08:30-08:45	**C**	20.72	21.80	N/A	N/A
08:45-09:00	**A**	8.96	9.02	N/A	N/A
08:45-09:00	**B**	21.41	21.90	N/A	N/A
08:45-09:00	**C**	16.92	17.80	N/A	N/A
09:00-09:15	**A**	7.51	7.55	N/A	N/A
09:00-09:15	**B**	17.93	18.34	N/A	N/A
09:00-09:15	**C**	14.17	14.90	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	235.00	363.00
	B	344.00	0.00	1085.00
	C	409.00	720.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.39	0.61
	B	0.24	0.00	0.76
	C	0.36	0.64	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.00	1.01
	B	1.00	1.00	1.03
	C	1.02	1.07	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00
	B	0.00	0.00	3.00
	C	2.00	7.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.55	0.11	1.20	A	9.15	823.38	71.04	0.09	0.79	71.04	0.09	0.597	28.639
B	0.91	0.35	8.69	C	21.86	1967.18	348.45	0.18	3.87	348.48	0.18	0.718	34.416
C	0.72	0.13	2.57	A	17.27	1554.26	141.93	0.09	1.58	141.94	0.09	0.679	34.415

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.51	112.59	7.47	9.41	9.00	0.00	22.76	16.88	0.330	0.00	0.49
B	17.93	268.99	17.84	11.93	4.54	0.00	30.43	26.38	0.589	0.00	1.42
C	14.17	212.53	14.11	18.08	4.29	0.00	29.95	28.62	0.473	0.00	0.89

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.96	134.44	8.95	11.26	10.77	0.00	21.63	16.88	0.414	0.49	0.70
B	21.41	321.20	21.34	14.29	5.43	0.00	29.80	26.38	0.719	1.42	2.49
C	16.92	253.78	16.89	21.64	5.14	0.00	29.40	28.62	0.575	0.89	1.34

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.98	164.66	10.95	13.70	13.16	0.00	20.11	16.88	0.546	0.70	1.18
B	26.23	393.39	25.86	17.47	6.64	0.00	28.94	26.38	0.906	2.49	7.97
C	20.72	310.82	20.64	26.28	6.23	0.00	28.70	28.62	0.722	1.34	2.52

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.98	164.66	10.98	13.81	13.21	0.00	20.08	16.88	0.547	1.18	1.20
B	26.23	393.39	26.18	17.53	6.66	0.00	28.92	26.38	0.907	7.97	8.69
C	20.72	310.82	20.72	26.54	6.30	0.00	28.65	28.62	0.723	2.52	2.57

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.96	134.44	8.99	11.41	10.84	0.00	21.59	16.88	0.415	1.20	0.72
B	21.41	321.20	21.82	14.38	5.46	0.00	29.78	26.38	0.719	8.69	2.63
C	16.92	253.78	17.00	22.03	5.25	0.00	29.33	28.62	0.577	2.57	1.38

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.51	112.59	7.52	9.48	9.06	0.00	22.72	16.88	0.330	0.72	0.50
B	17.93	268.99	18.01	12.01	4.57	0.00	30.41	26.38	0.590	2.63	1.46
C	14.17	212.53	14.20	18.24	4.34	0.00	29.92	28.62	0.474	1.38	0.91

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	7.15	0.48	0.065	A	A
B	20.38	1.36	0.079	A	A
C	12.97	0.86	0.063	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	10.28	0.69	0.079	A	A
B	35.33	2.36	0.117	A	A
C	19.48	1.30	0.080	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.09	1.14	0.109	A	A
B	99.34	6.62	0.295	C	B
C	35.72	2.38	0.123	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.86	1.19	0.110	A	A
B	125.88	8.39	0.351	C	C
C	38.31	2.55	0.126	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	11.06	0.74	0.080	A	A
B	44.83	2.99	0.132	A	A
C	21.50	1.43	0.082	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	7.61	0.51	0.066	A	A
B	22.67	1.51	0.081	A	A
C	13.94	0.93	0.064	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.90	22.00	65.00	45.00	21.00		0.718	34.416
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
07:45-08:00	**A**	7.51	22.76	0.330	0.00	0.00	0.49	7.15	(0.00)	0.065
07:45-08:00	**B**	17.93	30.43	0.589	0.00	0.00	1.42	20.38	(0.00)	0.079
07:45-08:00	**C**	14.17	29.95	0.473	0.00	0.00	0.89	12.97	(0.00)	0.063
08:00-08:15	**A**	8.96	21.63	0.414	0.00	0.49	0.70	10.28	(0.00)	0.079
08:00-08:15	**B**	21.41	29.80	0.719	0.00	1.42	2.49	35.33	(0.00)	0.117
08:00-08:15	**C**	16.92	29.40	0.575	0.00	0.89	1.34	19.48	(0.00)	0.080
08:15-08:30	**A**	10.98	20.11	0.546	0.00	0.70	1.18	17.09	(0.00)	0.109
08:15-08:30	**B**	26.23	28.94	0.906	0.00	2.49	7.97	99.34	(0.00)	0.295
08:15-08:30	**C**	20.72	28.70	0.722	0.00	1.34	2.52	35.72	(0.00)	0.123
08:30-08:45	**A**	10.98	20.08	0.547	0.00	1.18	1.20	17.86	(0.00)	0.110
08:30-08:45	**B**	26.23	28.92	0.907	0.00	7.97	8.69	125.88	(0.00)	0.351
08:30-08:45	**C**	20.72	28.65	0.723	0.00	2.52	2.57	38.31	(0.00)	0.126
08:45-09:00	**A**	8.96	21.59	0.415	0.00	1.20	0.72	11.06	(0.00)	0.080
08:45-09:00	**B**	21.41	29.78	0.719	0.00	8.69	2.63	44.83	(0.00)	0.132
08:45-09:00	**C**	16.92	29.33	0.577	0.00	2.57	1.38	21.50	(0.00)	0.082
09:00-09:15	**A**	7.51	22.72	0.330	0.00	0.72	0.50	7.61	(0.00)	0.066
09:00-09:15	**B**	17.93	30.41	0.590	0.00	2.63	1.46	22.67	(0.00)	0.081
09:00-09:15	**C**	14.17	29.92	0.474	0.00	1.38	0.91	13.94	(0.00)	0.064

ARCADY 7

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File: \\Fmw-server\Data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J7 Colcot Cross RBT\Improvements\Import of J7 Colcot Cross RBT PM Peak ODTAB Improvements.arc7
Report generation date: 20/01/2011 09:28:25

« A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units PM Peak, PM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units PM Peak			
Arm A	1.65	0.15	0.63	A
Arm B	1.73	0.09	0.64	A
Arm C	2.82	0.13	0.74	A

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

2015 Base + Comm Dev + 350 units PM Peak - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J7 Colcot Cross RBT PM Peak
Location	Rhoose
Date	13/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA Addendum
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style

	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 350 units PM Peak, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 350 units PM Peak, PM	2015 Base + Comm Dev + 350 units PM Peak	PM			Yes			16:45	18:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00

B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.90	22.00	65.00	45.00	21.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.718	34.416
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		9.95	100.000	N/A
B	ONE HOUR		17.43	100.000	N/A
C	ONE HOUR		20.70	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
16:45-17:00	**A**	7.49	7.53	N/A	N/A
16:45-17:00	**B**	13.12	13.32	N/A	N/A
16:45-17:00	**C**	15.58	15.83	N/A	N/A
17:00-17:15	**A**	8.94	8.99	N/A	N/A

17:00-17:15	**B**	15.67	15.91	N/A	N/A
17:00-17:15	**C**	18.61	18.91	N/A	N/A
17:15-17:30	**A**	10.96	11.01	N/A	N/A
17:15-17:30	**B**	19.19	19.48	N/A	N/A
17:15-17:30	**C**	22.79	23.15	N/A	N/A
17:30-17:45	**A**	10.96	11.01	N/A	N/A
17:30-17:45	**B**	19.19	19.48	N/A	N/A
17:30-17:45	**C**	22.79	23.15	N/A	N/A
17:45-18:00	**A**	8.94	8.99	N/A	N/A
17:45-18:00	**B**	15.67	15.91	N/A	N/A
17:45-18:00	**C**	18.61	18.91	N/A	N/A
18:00-18:15	**A**	7.49	7.53	N/A	N/A
18:00-18:15	**B**	13.12	13.32	N/A	N/A
18:00-18:15	**C**	15.58	15.83	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	316.00	281.00
	B	256.00	0.00	790.00
	C	251.00	991.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.53	0.47
	B	0.24	0.00	0.76
	C	0.20	0.80	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.00	1.01
	B	1.00	1.00	1.02
	C	1.00	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00
	B	0.00	0.00	2.00
	C	0.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.63	0.15	1.65	A	9.13	821.72	89.86	0.11	1.00	89.86	0.11	0.597	28.639
B	0.64	0.09	1.73	A	15.99	1439.46	102.96	0.07	1.14	102.97	0.07	0.718	34.416
C	0.74	0.13	2.82	A	18.99	1709.52	154.38	0.09	1.72	154.40	0.09	0.679	34.415

Main Results

Main results: (16:45-17:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.49	112.36	7.45	6.34	12.38	0.00	21.00	14.43	0.357	0.00	0.55
B	13.12	196.83	13.07	16.33	3.51	0.00	31.40	29.05	0.418	0.00	0.71
C	15.58	233.76	15.52	13.38	3.20	0.00	31.74	29.12	0.491	0.00	0.96

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.94	134.17	8.93	7.58	14.82	0.00	19.52	14.43	0.458	0.55	0.84
B	15.67	235.04	15.65	19.55	4.20	0.00	30.90	29.05	0.507	0.71	1.02
C	18.61	279.13	18.58	16.02	3.83	0.00	31.31	29.12	0.594	0.96	1.45

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.96	164.33	10.90	9.27	18.11	0.00	17.53	14.43	0.625	0.84	1.62
B	19.19	287.86	19.14	23.89	5.13	0.00	30.24	29.05	0.635	1.02	1.71
C	22.79	341.87	22.70	19.59	4.69	0.00	30.74	29.12	0.741	1.45	2.78

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.96	164.33	10.95	9.30	18.18	0.00	17.49	14.43	0.626	1.62	1.65
B	19.19	287.86	19.19	23.98	5.16	0.00	30.22	29.05	0.635	1.71	1.73
C	22.79	341.87	22.79	19.65	4.70	0.00	30.74	29.12	0.742	2.78	2.82

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.94	134.17	9.00	7.62	14.92	0.00	19.47	14.43	0.460	1.65	0.86
B	15.67	235.04	15.71	19.68	4.24	0.00	30.88	29.05	0.507	1.73	1.04
C	18.61	279.13	18.70	16.10	3.85	0.00	31.30	29.12	0.594	2.82	1.48

Main results: (18:00-18:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.49	112.36	7.51	6.37	12.46	0.00	20.95	14.43	0.357	0.86	0.56
B	13.12	196.83	13.14	16.44	3.54	0.00	31.38	29.05	0.418	1.04	0.72
C	15.58	233.76	15.62	13.46	3.22	0.00	31.72	29.12	0.491	1.48	0.97

Queueing Delay Results

Queueing Delay results: (16:45-17:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	8.02	0.53	0.074	A	A
B	10.44	0.70	0.054	A	A
C	13.93	0.93	0.061	A	A

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	12.18	0.81	0.094	A	A
B	14.94	1.00	0.065	A	A
C	21.03	1.40	0.078	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	23.04	1.54	0.150	A	A
B	24.68	1.65	0.090	A	A
C	39.21	2.61	0.123	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	24.62	1.64	0.153	A	A
B	25.79	1.72	0.091	A	A
C	42.09	2.81	0.126	A	A

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.38	0.89	0.096	A	A
B	16.04	1.07	0.066	A	A
C	23.14	1.54	0.080	A	A

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	8.62	0.57	0.075	A	A
B	11.07	0.74	0.055	A	A
C	14.97	1.00	0.062	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.90	22.00	65.00	45.00	21.00		0.718	34.416
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
16:45-17:00	**A**	7.49	21.00	0.357	0.00	0.00	0.55	8.02	(0.00)	0.074
16:45-17:00	**B**	13.12	31.40	0.418	0.00	0.00	0.71	10.44	(0.00)	0.054
16:45-17:00	**C**	15.58	31.74	0.491	0.00	0.00	0.96	13.93	(0.00)	0.061
17:00-17:15	**A**	8.94	19.52	0.458	0.00	0.55	0.84	12.18	(0.00)	0.094
17:00-17:15	**B**	15.67	30.90	0.507	0.00	0.71	1.02	14.94	(0.00)	0.065
17:00-17:15	**C**	18.61	31.31	0.594	0.00	0.96	1.45	21.03	(0.00)	0.078
17:15-17:30	**A**	10.96	17.53	0.625	0.00	0.84	1.62	23.04	(0.00)	0.150
17:15-17:30	**B**	19.19	30.24	0.635	0.00	1.02	1.71	24.68	(0.00)	0.090
17:15-17:30	**C**	22.79	30.74	0.741	0.00	1.45	2.78	39.21	(0.00)	0.123
17:30-17:45	**A**	10.96	17.49	0.626	0.00	1.62	1.65	24.62	(0.00)	0.153
17:30-17:45	**B**	19.19	30.22	0.635	0.00	1.71	1.73	25.79	(0.00)	0.091
17:30-17:45	**C**	22.79	30.74	0.742	0.00	2.78	2.82	42.09	(0.00)	0.126
17:45-18:00	**A**	8.94	19.47	0.460	0.00	1.65	0.86	13.38	(0.00)	0.096
17:45-18:00	**B**	15.67	30.88	0.507	0.00	1.73	1.04	16.04	(0.00)	0.066
17:45-18:00	**C**	18.61	31.30	0.594	0.00	2.82	1.48	23.14	(0.00)	0.080
18:00-18:15	**A**	7.49	20.95	0.357	0.00	0.86	0.56	8.62	(0.00)	0.075
18:00-18:15	**B**	13.12	31.38	0.418	0.00	1.04	0.72	11.07	(0.00)	0.055
18:00-18:15	**C**	15.58	31.72	0.491	0.00	1.48	0.97	14.97	(0.00)	0.062

APPENDIX C

ARCADY OUTPUT:

BARRY DOCKS LINK IMPROVEMENTS

350 UNITS

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\fmw-server\Data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J6 Barry Docks Link RBT\improvements\Import of J6 Barry Docks Link RBT AM Peak ODTAB.arc7
Report generation date: 21/01/2011 08:54:15

« A1 - Barry Docks Link Roundabout - D3 - 2015 Base Flows + Comm + 350 units Dev AM, AM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Barry Docks Link Roundabout - 2015 Base Flows + Comm + 350 units Dev AM			
Arm A	2.45	0.15	0.71	A
Arm B	0.53	0.07	0.35	A
Arm C	2.23	0.10	0.69	A

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

2015 Base Flows + Comm + 350 units Dev AM - AM runs from 07:45:00 to 09:15:00

File summary

File Description

Title	J6 Barry Docks Link RBT
Location	Rhoose
Date	28/05/2010
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - Barry Docks Link Roundabout - D3 - 2015 Base Flows + Comm + 350 units Dev AM, AM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Barry Docks Link Roundabout		Yes	Yes	D3		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm + 350 units Dev AM, AM	2015 Base Flows + Comm + 350 units Dev AM	AM			Yes			07:45	09:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	A4231	
B	Port Road East	
C	Port Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)

A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.40	7.00	24.00	41.00	35.00	32.00	
B	4.60	6.50	32.00	55.00	35.00	28.00	
C	4.80	9.30	33.00	62.00	35.00	34.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.747	35.762
B		((calculated))	((calculated))	0.714	32.484
C		((calculated))	((calculated))	0.809	40.832

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		15.61	100.000	N/A
B	ONE HOUR		7.25	100.000	N/A
C	ONE HOUR		20.20	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
07:45-08:00	**A**	11.75	12.54	N/A	N/A
07:45-08:00	**B**	5.46	5.57	N/A	N/A
07:45-08:00	**C**	15.21	16.22	N/A	N/A

08:00-08:15	**A**	14.03	14.98	N/A	N/A
08:00-08:15	**B**	6.52	6.65	N/A	N/A
08:00-08:15	**C**	18.16	19.37	N/A	N/A
08:15-08:30	**A**	17.19	18.34	N/A	N/A
08:15-08:30	**B**	7.98	8.14	N/A	N/A
08:15-08:30	**C**	22.24	23.73	N/A	N/A
08:30-08:45	**A**	17.19	18.34	N/A	N/A
08:30-08:45	**B**	7.98	8.14	N/A	N/A
08:30-08:45	**C**	22.24	23.73	N/A	N/A
08:45-09:00	**A**	14.03	14.98	N/A	N/A
08:45-09:00	**B**	6.52	6.65	N/A	N/A
08:45-09:00	**C**	18.16	19.37	N/A	N/A
09:00-09:15	**A**	11.75	12.54	N/A	N/A
09:00-09:15	**B**	5.46	5.57	N/A	N/A
09:00-09:15	**C**	15.21	16.22	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	298.00	639.00
	B	435.00	0.00	0.00
	C	532.00	680.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.32	0.68
	B	1.00	0.00	0.00
	C	0.44	0.56	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.04	1.08
	B	1.02	1.00	1.03
	C	1.05	1.08	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	4.00	8.00
	B	2.00	0.00	3.00
	C	5.00	8.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.71	0.15	2.45	A	14.32	1289.16	129.43	0.10	1.44	129.44	0.10	0.747	35.762
B	0.35	0.07	0.53	A	6.65	598.75	34.54	0.06	0.38	34.54	0.06	0.714	32.484
C	0.69	0.10	2.23	A	18.54	1668.23	125.35	0.08	1.39	125.36	0.08	0.809	40.832

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	11.75	176.28	11.70	12.09	8.50	0.00	27.08	23.71	0.434	0.00	0.76
B	5.46	81.87	5.44	12.22	7.98	0.00	25.82	19.63	0.211	0.00	0.27
C	15.21	228.11	15.15	7.98	5.44	0.00	34.06	23.08	0.446	0.00	0.80

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	14.03	210.50	14.01	14.47	10.17	0.00	25.81	23.71	0.544	0.76	1.18
B	6.52	97.76	6.51	14.63	9.55	0.00	24.63	19.63	0.265	0.27	0.36
C	18.16	272.39	18.13	9.55	6.51	0.00	33.23	23.08	0.546	0.80	1.19

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	17.19	257.80	17.10	17.70	12.44	0.00	24.10	23.71	0.713	1.18	2.41
B	7.98	119.74	7.97	17.88	11.66	0.00	23.03	19.63	0.347	0.36	0.53
C	22.24	333.61	22.17	11.66	7.97	0.00	32.11	23.08	0.693	1.19	2.21

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	17.19	257.80	17.18	17.74	12.48	0.00	24.07	23.71	0.714	2.41	2.45
B	7.98	119.74	7.98	17.94	11.72	0.00	22.99	19.63	0.347	0.53	0.53
C	22.24	333.61	22.24	11.72	7.98	0.00	32.10	23.08	0.693	2.21	2.23

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	14.03	210.50	14.12	14.53	10.23	0.00	25.77	23.71	0.545	2.45	1.21
B	6.52	97.76	6.53	14.72	9.63	0.00	24.57	19.63	0.265	0.53	0.36
C	18.16	272.39	18.23	9.63	6.53	0.00	33.22	23.08	0.547	2.23	1.22

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	11.75	176.28	11.78	12.15	8.55	0.00	27.04	23.71	0.435	1.21	0.77
B	5.46	81.87	5.46	12.29	8.03	0.00	25.78	19.63	0.212	0.36	0.27
C	15.21	228.11	15.23	8.03	5.46	0.00	34.05	23.08	0.447	1.22	0.81

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	11.09	0.74	0.065	A	A
B	3.93	0.26	0.049	A	A
C	11.72	0.78	0.053	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.12	1.14	0.084	A	A
B	5.29	0.35	0.055	A	A
C	17.45	1.16	0.066	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	33.88	2.26	0.141	A	A
B	7.75	0.52	0.066	A	A
C	31.56	2.10	0.100	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	36.55	2.44	0.145	A	A
B	7.93	0.53	0.067	A	A
C	33.34	2.22	0.101	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	18.87	1.26	0.086	A	A
B	5.54	0.37	0.055	A	A
C	18.84	1.26	0.067	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	11.91	0.79	0.066	A	A
B	4.10	0.27	0.049	A	A
C	12.44	0.83	0.053	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.40	7.00	24.00	41.00	35.00	32.00		0.747	35.762
B	4.60	6.50	32.00	55.00	35.00	28.00		0.714	32.484
C	4.80	9.30	33.00	62.00	35.00	34.00		0.809	40.832

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
07:45-08:00	**A**	11.75	27.08	0.434	0.00	0.00	0.76	11.09	(0.00)	0.065
07:45-08:00	**B**	5.46	25.82	0.211	0.00	0.00	0.27	3.93	(0.00)	0.049
07:45-08:00	**C**	15.21	34.06	0.446	0.00	0.00	0.80	11.72	(0.00)	0.053
08:00-08:15	**A**	14.03	25.81	0.544	0.00	0.76	1.18	17.12	(0.00)	0.084
08:00-08:15	**B**	6.52	24.63	0.265	0.00	0.27	0.36	5.29	(0.00)	0.055
08:00-08:15	**C**	18.16	33.23	0.546	0.00	0.80	1.19	17.45	(0.00)	0.066
08:15-08:30	**A**	17.19	24.10	0.713	0.00	1.18	2.41	33.88	(0.00)	0.141
08:15-08:30	**B**	7.98	23.03	0.347	0.00	0.36	0.53	7.75	(0.00)	0.066
08:15-08:30	**C**	22.24	32.11	0.693	0.00	1.19	2.21	31.56	(0.00)	0.100
08:30-08:45	**A**	17.19	24.07	0.714	0.00	2.41	2.45	36.55	(0.00)	0.145
08:30-08:45	**B**	7.98	22.99	0.347	0.00	0.53	0.53	7.93	(0.00)	0.067
08:30-08:45	**C**	22.24	32.10	0.693	0.00	2.21	2.23	33.34	(0.00)	0.101
08:45-09:00	**A**	14.03	25.77	0.545	0.00	2.45	1.21	18.87	(0.00)	0.086
08:45-09:00	**B**	6.52	24.57	0.265	0.00	0.53	0.36	5.54	(0.00)	0.055
08:45-09:00	**C**	18.16	33.22	0.547	0.00	2.23	1.22	18.84	(0.00)	0.067
09:00-09:15	**A**	11.75	27.04	0.435	0.00	1.21	0.77	11.91	(0.00)	0.066
09:00-09:15	**B**	5.46	25.78	0.212	0.00	0.36	0.27	4.10	(0.00)	0.049
09:00-09:15	**C**	15.21	34.05	0.447	0.00	1.22	0.81	12.44	(0.00)	0.053

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\fmw-server\Data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J6 Barry Docks Link RBT\improvements\Import of J6 Barry Docks Link RBT PM Peak ODTAB.arc7
Report generation date: 21/01/2011 08:55:17

« A1 - Barry Docks Link Roundabout - PM Peak - D3 - 2015 Base Flows + Comm Dev + 350 units, PM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Barry Docks Link Roundabout - PM Peak - 2015 Base Flows + Comm Dev + 350 units			
Arm A	5.28	0.31	0.85	C
Arm B	0.32	0.06	0.24	A
Arm C	7.13	0.24	0.88	B

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

2015 Base Flows + Comm Dev + 350 units - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J6 Barry Docks Link RBT PM Peak
Location	Rhoose
Date	28/05/2010
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - Barry Docks Link Roundabout - PM Peak - D3 - 2015 Base Flows + Comm Dev + 350 units, PM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Barry Docks Link Roundabout - PM Peak		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm Dev + 350 units, PM	2015 Base Flows + Comm Dev + 350 units	PM			Yes			16:45	18:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	A4231	
B	Port Road East	
C	Port Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)

A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.40	7.00	24.00	41.00	35.00	32.00	
B	4.60	6.50	32.00	55.00	35.00	28.00	
C	4.80	9.30	33.00	62.00	35.00	34.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.747	35.762
B		((calculated))	((calculated))	0.714	32.484
C		((calculated))	((calculated))	0.809	40.832

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		16.25	100.000	N/A
B	ONE HOUR		5.15	100.000	N/A
C	ONE HOUR		28.22	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
16:45-17:00	**A**	12.23	12.64	N/A	N/A
16:45-17:00	**B**	3.88	3.95	N/A	N/A
16:45-17:00	**C**	21.25	21.84	N/A	N/A

17:00-17:15	**A**	14.61	15.09	N/A	N/A
17:00-17:15	**B**	4.63	4.72	N/A	N/A
17:00-17:15	**C**	25.37	26.08	N/A	N/A
17:15-17:30	**A**	17.89	18.48	N/A	N/A
17:15-17:30	**B**	5.67	5.78	N/A	N/A
17:15-17:30	**C**	31.07	31.95	N/A	N/A
17:30-17:45	**A**	17.89	18.48	N/A	N/A
17:30-17:45	**B**	5.67	5.78	N/A	N/A
17:30-17:45	**C**	31.07	31.95	N/A	N/A
17:45-18:00	**A**	14.61	15.09	N/A	N/A
17:45-18:00	**B**	4.63	4.72	N/A	N/A
17:45-18:00	**C**	25.37	26.08	N/A	N/A
18:00-18:15	**A**	12.23	12.64	N/A	N/A
18:00-18:15	**B**	3.88	3.95	N/A	N/A
18:00-18:15	**C**	21.25	21.84	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	333.00	642.00
	B	309.00	0.00	0.00
	C	690.00	1003.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.34	0.66
	B	1.00	0.00	0.00
	C	0.41	0.59	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.00	1.05
	B	1.02	1.00	1.01
	C	1.04	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	5.00
	B	2.00	0.00	1.00
	C	4.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.85	0.31	5.28	C	14.91	1342.02	219.38	0.16	2.44	219.40	0.16	0.747	35.762
B	0.24	0.06	0.32	A	4.73	425.32	21.73	0.05	0.24	21.73	0.05	0.714	32.484
C	0.88	0.24	7.13	B	25.90	2330.57	307.31	0.13	3.41	307.33	0.13	0.809	40.832

Main Results

Main results: (16:45-17:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	12.23	183.51	12.17	12.49	12.53	0.00	25.37	24.31	0.482	0.00	0.92
B	3.88	58.16	3.87	16.69	8.02	0.00	25.96	20.09	0.149	0.00	0.17
C	21.25	318.68	21.15	8.02	3.87	0.00	36.61	23.58	0.580	0.00	1.37

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	14.61	219.13	14.56	14.94	14.99	0.00	23.56	24.31	0.620	0.92	1.60
B	4.63	69.45	4.63	19.97	9.59	0.00	24.80	20.09	0.187	0.17	0.23
C	25.37	380.54	25.30	9.59	4.63	0.00	36.00	23.58	0.705	1.37	2.34

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	17.89	268.37	17.67	18.21	18.23	0.00	21.16	24.31	0.845	1.60	4.89
B	5.67	85.05	5.66	24.27	11.64	0.00	23.30	20.09	0.243	0.23	0.32
C	31.07	466.06	30.78	11.64	5.66	0.00	35.17	23.58	0.884	2.34	6.76

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	17.89	268.37	17.87	18.32	18.39	0.00	21.05	24.31	0.850	4.89	5.28
B	5.67	85.05	5.67	24.49	11.76	0.00	23.20	20.09	0.244	0.32	0.32
C	31.07	466.06	31.05	11.76	5.67	0.00	35.16	23.58	0.884	6.76	7.13

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	14.61	219.13	14.85	15.10	15.21	0.00	23.39	24.31	0.625	5.28	1.70
B	4.63	69.45	4.64	20.29	9.78	0.00	24.66	20.09	0.188	0.32	0.23
C	25.37	380.54	25.68	9.78	4.64	0.00	35.99	23.58	0.705	7.13	2.44

Main results: (18:00-18:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	12.23	183.51	12.28	12.57	12.63	0.00	25.30	24.31	0.484	1.70	0.95
B	3.88	58.16	3.88	16.82	8.09	0.00	25.90	20.09	0.150	0.23	0.18
C	21.25	318.68	21.31	8.09	3.88	0.00	36.60	23.58	0.581	2.44	1.40

Queueing Delay Results

Queueing Delay results: (16:45-17:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.37	0.89	0.075	A	A
B	2.58	0.17	0.045	A	A
C	19.82	1.32	0.064	A	A

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	23.00	1.53	0.111	A	A
B	3.39	0.23	0.050	A	A
C	33.53	2.24	0.093	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	63.65	4.24	0.271	C	B
B	4.73	0.32	0.057	A	A
C	87.80	5.85	0.215	B	B

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	76.94	5.13	0.309	C	B
B	4.82	0.32	0.057	A	A
C	104.66	6.98	0.239	B	B

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	27.78	1.85	0.120	A	A
B	3.53	0.24	0.050	A	A
C	39.85	2.66	0.100	A	A

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	14.64	0.98	0.077	A	A
B	2.68	0.18	0.045	A	A
C	21.65	1.44	0.066	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.40	7.00	24.00	41.00	35.00	32.00		0.747	35.762
B	4.60	6.50	32.00	55.00	35.00	28.00		0.714	32.484
C	4.80	9.30	33.00	62.00	35.00	34.00		0.809	40.832

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
16:45-17:00	**A**	12.23	25.37	0.482	0.00	0.00	0.92	13.37	(0.00)	0.075
16:45-17:00	**B**	3.88	25.96	0.149	0.00	0.00	0.17	2.58	(0.00)	0.045
16:45-17:00	**C**	21.25	36.61	0.580	0.00	0.00	1.37	19.82	(0.00)	0.064
17:00-17:15	**A**	14.61	23.56	0.620	0.00	0.92	1.60	23.00	(0.00)	0.111
17:00-17:15	**B**	4.63	24.80	0.187	0.00	0.17	0.23	3.39	(0.00)	0.050
17:00-17:15	**C**	25.37	36.00	0.705	0.00	1.37	2.34	33.53	(0.00)	0.093
17:15-17:30	**A**	17.89	21.16	0.845	0.00	1.60	4.89	63.65	(0.00)	0.271
17:15-17:30	**B**	5.67	23.30	0.243	0.00	0.23	0.32	4.73	(0.00)	0.057
17:15-17:30	**C**	31.07	35.17	0.884	0.00	2.34	6.76	87.80	(0.00)	0.215
17:30-17:45	**A**	17.89	21.05	0.850	0.00	4.89	5.28	76.94	(0.00)	0.309
17:30-17:45	**B**	5.67	23.20	0.244	0.00	0.32	0.32	4.82	(0.00)	0.057
17:30-17:45	**C**	31.07	35.16	0.884	0.00	6.76	7.13	104.66	(0.00)	0.239
17:45-18:00	**A**	14.61	23.39	0.625	0.00	5.28	1.70	27.78	(0.00)	0.120
17:45-18:00	**B**	4.63	24.66	0.188	0.00	0.32	0.23	3.53	(0.00)	0.050
17:45-18:00	**C**	25.37	35.99	0.705	0.00	7.13	2.44	39.85	(0.00)	0.100
18:00-18:15	**A**	12.23	25.30	0.484	0.00	1.70	0.95	14.64	(0.00)	0.077
18:00-18:15	**B**	3.88	25.90	0.150	0.00	0.23	0.18	2.68	(0.00)	0.045
18:00-18:15	**C**	21.25	36.60	0.581	0.00	2.44	1.40	21.65	(0.00)	0.066

APPENDIX D

ARCADY OUTPUT:

WAYCOCK CROSS IMPROVEMENTS

700 UNITS

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\Technical Note 03\J1 Waycock Cross\Import of J1 Waycock Cross ODTAB improvements.arc7
Report generation date: 22/11/2011 13:34:21

« A1 - (Default Analysis Set) - D1 - 2015 Base Flows + Comm Dev + 700 units, AM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM				PM			
	Queue (Veh)	Delay (min)	RFC	LOS	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units							
Arm A	1.90	0.13	0.66	A	4.96	0.23	0.84	B
Arm B	1.33	0.10	0.57	A	3.04	0.21	0.76	B
Arm C	38.36	1.29	1.02	F	3.11	0.16	0.76	A
Arm D	3.56	0.44	0.80	D	1.56	0.16	0.61	A

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

2015 Base Flows + Comm Dev + 700 units - AM runs from 07:45:00 to 09:15:00
2015 Base Flows + Comm Dev + 700 units - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J1 Waycock Cross Junction
Location	Rhoose
Date	10/11/2011
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style

	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D1 - 2015 Base Flows + Comm Dev + 700 units, AM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm Dev + 700 units, AM	2015 Base Flows + Comm Dev + 700 units	AM			Yes			07:45	09:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C,D	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Port Road West (E)	
B	Pontypridd Road	
C	Port Road West (W)	
D	Waycock Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00
D	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	5.00	7.30	38.00	20.00	51.00	27.00	
B	5.60	7.20	4.50	23.00	51.00	27.00	
C	4.50	8.50	24.00	12.00	60.00	26.00	
D	3.60	7.00	15.00	20.00	54.00	28.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None
D	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.686	35.345
B		((calculated))	((calculated))	0.657	32.598
C		((calculated))	((calculated))	0.624	35.227
D		((calculated))	((calculated))	0.591	28.327

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		13.97	100.000	N/A
B	ONE HOUR		12.22	100.000	N/A
C	ONE HOUR		25.86	100.000	N/A
D	ONE HOUR		7.70	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
07:45-08:00	A	10.52	10.89	N/A	N/A
07:45-08:00	B	9.20	9.26	N/A	N/A
07:45-08:00	C	19.47	19.92	N/A	N/A
07:45-08:00	D	5.80	5.84	N/A	N/A
08:00-08:15	A	12.56	13.00	N/A	N/A
08:00-08:15	B	10.99	11.06	N/A	N/A
08:00-08:15	C	23.25	23.79	N/A	N/A
08:00-08:15	D	6.92	6.97	N/A	N/A
08:15-08:30	A	15.38	15.92	N/A	N/A
08:15-08:30	B	13.45	13.55	N/A	N/A
08:15-08:30	C	28.47	29.14	N/A	N/A
08:15-08:30	D	8.48	8.54	N/A	N/A
08:30-08:45	A	15.38	15.92	N/A	N/A
08:30-08:45	B	13.45	13.55	N/A	N/A
08:30-08:45	C	28.47	29.14	N/A	N/A
08:30-08:45	D	8.48	8.54	N/A	N/A
08:45-09:00	A	12.56	13.00	N/A	N/A
08:45-09:00	B	10.99	11.06	N/A	N/A
08:45-09:00	C	23.25	23.79	N/A	N/A
08:45-09:00	D	6.92	6.97	N/A	N/A
09:00-09:15	A	10.52	10.89	N/A	N/A
09:00-09:15	B	9.20	9.26	N/A	N/A
09:00-09:15	C	19.47	19.92	N/A	N/A
09:00-09:15	D	5.80	5.84	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	224.00	514.00	100.00
	B	292.00	0.00	259.00	182.00
	C	816.00	606.00	0.00	230.00
	D	133.00	206.00	123.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	0.27	0.61	0.12
	B	0.40	0.00	0.35	0.25
	C	0.49	0.37	0.00	0.14
	D	0.29	0.45	0.27	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To			
		A	B	C	D

From	A	1.00	1.10	1.00	1.07
	B	1.00	1.00	1.02	1.00
	C	1.04	1.01	1.00	1.00
	D	1.01	1.01	1.00	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	10.00	0.00	7.00
	B	0.00	0.00	2.00	0.00
	C	4.00	1.00	0.00	0.00
	D	1.00	1.00	0.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.66	0.13	1.90	A	12.82	1153.72	104.90	0.09	1.17	104.91	0.09	0.686	35.345
B	0.57	0.10	1.33	A	11.21	1009.19	78.53	0.08	0.87	78.53	0.08	0.657	32.598
C	1.02	1.29	38.36	F	23.73	2135.65	1011.15	0.47	11.23	1011.21	0.47	0.624	35.227
D	0.80	0.44	3.56	D	7.07	635.91	145.33	0.23	1.61	145.34	0.23	0.591	28.327

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.52	157.76	10.47	14.87	11.20	0.00	26.66	22.97	0.395	0.00	0.65
B	9.20	138.00	9.16	12.46	9.21	0.00	26.31	19.42	0.350	0.00	0.53
C	19.47	292.03	19.35	11.20	7.18	0.00	29.99	24.98	0.649	0.00	1.82
D	5.80	86.95	5.76	6.22	20.30	0.00	15.93	10.61	0.364	0.00	0.57

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	12.56	188.38	12.54	17.77	13.39	0.00	25.20	22.97	0.498	0.65	0.98
B	10.99	164.78	10.97	14.90	11.02	0.00	25.11	19.42	0.437	0.53	0.77
C	23.25	348.71	23.12	13.40	8.59	0.00	29.12	24.98	0.798	1.82	3.76
D	6.92	103.83	6.89	7.44	24.27	0.00	13.55	10.61	0.511	0.57	1.02

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.38	230.72	15.32	21.11	15.86	0.00	23.54	22.97	0.653	0.98	1.84
B	13.45	201.82	13.42	17.74	13.45	0.00	23.51	19.42	0.572	0.77	1.32
C	28.47	427.08	27.05	16.36	10.51	0.00	27.94	24.98	1.019	3.76	25.04
D	8.48	127.17	8.34	8.93	28.63	0.00	10.94	10.61	0.775	1.02	3.11

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.38	230.72	15.38	21.42	16.13	0.00	23.36	22.97	0.658	1.84	1.90
B	13.45	201.82	13.45	18.00	13.52	0.00	23.47	19.42	0.573	1.32	1.33
C	28.47	427.08	27.58	16.43	10.53	0.00	27.92	24.98	1.020	25.04	38.36
D	8.48	127.17	8.45	9.02	29.10	0.00	10.66	10.61	0.796	3.11	3.56

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	12.56	188.38	12.61	19.03	14.40	0.00	24.52	22.97	0.512	1.90	1.06
B	10.99	164.78	11.02	15.89	11.13	0.00	25.04	19.42	0.439	1.33	0.79
C	23.25	348.71	25.52	13.51	8.63	0.00	29.09	24.98	0.799	38.36	4.30
D	6.92	103.83	7.07	7.79	26.36	0.00	12.30	10.61	0.563	3.56	1.32

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.52	157.76	10.54	15.05	11.36	0.00	26.55	22.97	0.396	1.06	0.66
B	9.20	138.00	9.22	12.63	9.28	0.00	26.26	19.42	0.350	0.79	0.54
C	19.47	292.03	19.63	11.28	7.22	0.00	29.97	24.98	0.650	4.30	1.89
D	5.80	86.95	5.85	6.28	20.57	0.00	15.78	10.61	0.367	1.32	0.59

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	9.45	0.63	0.062	A	A
B	7.83	0.52	0.058	A	A
C	25.88	1.73	0.093	A	A
D	8.19	0.55	0.098	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	14.36	0.96	0.079	A	A
B	11.31	0.75	0.071	A	A
C	51.80	3.45	0.163	A	A
D	14.66	0.98	0.149	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	26.28	1.75	0.121	A	A
B	19.04	1.27	0.099	A	A
C	243.84	16.26	0.698	E	D
D	40.58	2.71	0.367	C	C

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	28.19	1.88	0.125	A	A
B	19.90	1.33	0.100	A	A
C	478.71	31.91	1.286	F	E

D	50.97	3.40	0.443	D	C

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	16.49	1.10	0.084	A	A
B	12.15	0.81	0.071	A	A
C	180.97	12.06	0.428	D	C
D	21.78	1.45	0.196	B	B

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	10.14	0.68	0.063	A	A
B	8.30	0.55	0.059	A	A
C	29.95	2.00	0.098	A	A
D	9.15	0.61	0.101	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	5.00	7.30	38.00	20.00	51.00	27.00		0.686	35.345
B	5.60	7.20	4.50	23.00	51.00	27.00		0.657	32.598
C	4.50	8.50	24.00	12.00	60.00	26.00		0.624	35.227
D	3.60	7.00	15.00	20.00	54.00	28.00		0.591	28.327

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
07:45-08:00	**A**	10.52	26.66	0.395	0.00	0.00	0.65	9.45	(0.00)	0.062
07:45-08:00	**B**	9.20	26.31	0.350	0.00	0.00	0.53	7.83	(0.00)	0.058
07:45-08:00	**C**	19.47	29.99	0.649	0.00	0.00	1.82	25.88	(0.00)	0.093
07:45-08:00	**D**	5.80	15.93	0.364	0.00	0.00	0.57	8.19	(0.00)	0.098
08:00-08:15	**A**	12.56	25.20	0.498	0.00	0.65	0.98	14.36	(0.00)	0.079
08:00-08:15	**B**	10.99	25.11	0.437	0.00	0.53	0.77	11.31	(0.00)	0.071
08:00-08:15	**C**	23.25	29.12	0.798	0.00	1.82	3.76	51.80	(0.00)	0.163
08:00-08:15	**D**	6.92	13.55	0.511	0.00	0.57	1.02	14.66	(0.00)	0.149
08:15-08:30	**A**	15.38	23.54	0.653	0.00	0.98	1.84	26.28	(0.00)	0.121
08:15-08:30	**B**	13.45	23.51	0.572	0.00	0.77	1.32	19.04	(0.00)	0.099
08:15-08:30	**C**	28.47	27.94	1.019	0.00	3.76	25.04	243.84	(0.00)	0.698
08:15-08:30	**D**	8.48	10.94	0.775	0.00	1.02	3.11	40.58	(0.00)	0.367
08:30-08:45	**A**	15.38	23.36	0.658	0.00	1.84	1.90	28.19	(0.00)	0.125
08:30-08:45	**B**	13.45	23.47	0.573	0.00	1.32	1.33	19.90	(0.00)	0.100
08:30-08:45	**C**	28.47	27.92	1.020	0.00	25.04	38.36	478.71	(0.00)	1.286
08:30-08:45	**D**	8.48	10.66	0.796	0.00	3.11	3.56	50.97	(0.00)	0.443
08:45-09:00	**A**	12.56	24.52	0.512	0.00	1.90	1.06	16.49	(0.00)	0.084
08:45-09:00	**B**	10.99	25.04	0.439	0.00	1.33	0.79	12.15	(0.00)	0.071
08:45-09:00	**C**	23.25	29.09	0.799	0.00	38.36	4.30	180.97	(0.00)	0.428

08:45-09:00	**D**	6.92	12.30	0.563	0.00	3.56	1.32	21.78	(0.00)	0.196
09:00-09:15	**A**	10.52	26.55	0.396	0.00	1.06	0.66	10.14	(0.00)	0.063
09:00-09:15	**B**	9.20	26.26	0.350	0.00	0.79	0.54	8.30	(0.00)	0.059
09:00-09:15	**C**	19.47	29.97	0.650	0.00	4.30	1.89	29.95	(0.00)	0.098
09:00-09:15	**D**	5.80	15.78	0.367	0.00	1.32	0.59	9.15	(0.00)	0.101

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\Technical Note 03\J1 Waycock Cross\Import of J1 Waycock Cross ODTAB improvements.arc7
Report generation date: 22/11/2011 13:35:00

« A1 - (Default Analysis Set) - D2 - 2015 Base Flows + Comm Dev + 700 units, PM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM				PM			
	Queue (Veh)	Delay (min)	RFC	LOS	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units							
Arm A	1.90	0.13	0.66	A	4.96	0.23	0.84	B
Arm B	1.33	0.10	0.57	A	3.04	0.21	0.76	B
Arm C	38.36	1.29	1.02	F	3.11	0.16	0.76	A
Arm D	3.56	0.44	0.80	D	1.56	0.16	0.61	A

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

2015 Base Flows + Comm Dev + 700 units - AM runs from 07:45:00 to 09:15:00
2015 Base Flows + Comm Dev + 700 units - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J1 Waycock Cross Junction
Location	Rhoose
Date	10/11/2011
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style

	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D2 - 2015 Base Flows + Comm Dev + 700 units, PM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm Dev + 700 units, PM	2015 Base Flows + Comm Dev + 700 units	PM			Yes			16:45	18:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C,D	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Port Road West (E)	
B	Pontypridd Road	
C	Port Road West (W)	
D	Waycock Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00
D	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	5.00	7.30	38.00	20.00	51.00	27.00	
B	5.60	7.20	4.50	23.00	51.00	27.00	
C	4.50	8.50	24.00	12.00	60.00	26.00	
D	3.60	7.00	15.00	20.00	54.00	28.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None
D	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.686	35.345
B		((calculated))	((calculated))	0.657	32.598
C		((calculated))	((calculated))	0.624	35.227
D		((calculated))	((calculated))	0.591	28.327

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		20.05	100.000	N/A
B	ONE HOUR		13.38	100.000	N/A
C	ONE HOUR		17.62	100.000	N/A
D	ONE HOUR		8.75	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
16:45-17:00	A	15.09	15.24	N/A	N/A
16:45-17:00	B	10.07	10.07	N/A	N/A
16:45-17:00	C	13.27	13.55	N/A	N/A
16:45-17:00	D	6.59	6.66	N/A	N/A
17:00-17:15	A	18.02	18.20	N/A	N/A
17:00-17:15	B	12.03	12.03	N/A	N/A
17:00-17:15	C	15.84	16.18	N/A	N/A
17:00-17:15	D	7.87	7.95	N/A	N/A
17:15-17:30	A	22.08	22.29	N/A	N/A
17:15-17:30	B	14.73	14.73	N/A	N/A
17:15-17:30	C	19.40	19.81	N/A	N/A
17:15-17:30	D	9.63	9.73	N/A	N/A
17:30-17:45	A	22.08	22.29	N/A	N/A
17:30-17:45	B	14.73	14.73	N/A	N/A
17:30-17:45	C	19.40	19.81	N/A	N/A
17:30-17:45	D	9.63	9.73	N/A	N/A
17:45-18:00	A	18.02	18.20	N/A	N/A
17:45-18:00	B	12.03	12.03	N/A	N/A
17:45-18:00	C	15.84	16.18	N/A	N/A
17:45-18:00	D	7.87	7.95	N/A	N/A
18:00-18:15	A	15.09	15.24	N/A	N/A
18:00-18:15	B	10.07	10.07	N/A	N/A
18:00-18:15	C	13.27	13.55	N/A	N/A
18:00-18:15	D	6.59	6.66	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	269.00	816.00	118.00
	B	179.00	0.00	117.00	507.00
	C	646.00	299.00	0.00	112.00
	D	136.00	234.00	155.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	0.22	0.68	0.10
	B	0.22	0.00	0.15	0.63
	C	0.61	0.28	0.00	0.11
	D	0.26	0.45	0.30	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To			
		A	B	C	D

From	A	1.00	1.04	1.00	1.01
	B	1.00	1.00	1.00	1.00
	C	1.03	1.01	1.00	1.00
	D	1.00	1.01	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		A	B	C	D
From	A	0.00	4.00	0.00	1.00
	B	0.00	0.00	0.00	0.00
	C	3.00	1.00	0.00	0.00
	D	0.00	1.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.84	0.23	4.96	B	18.40	1655.83	224.29	0.14	2.49	224.31	0.14	0.686	35.345
B	0.76	0.21	3.04	B	12.28	1104.99	144.52	0.13	1.61	144.54	0.13	0.657	32.598
C	0.76	0.16	3.11	A	16.17	1455.16	157.16	0.11	1.75	157.18	0.11	0.624	35.227
D	0.61	0.16	1.56	A	8.03	722.63	83.38	0.12	0.93	83.38	0.12	0.591	28.327

Main Results

Main results: (16:45-17:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.09	226.42	15.02	12.00	8.59	0.00	29.09	23.76	0.519	0.00	1.07
B	10.07	151.10	10.02	10.02	13.60	0.00	23.63	17.89	0.426	0.00	0.74
C	13.27	198.98	13.21	13.59	10.04	0.00	28.36	23.72	0.468	0.00	0.87
D	6.59	98.81	6.55	9.20	14.04	0.00	19.65	13.00	0.335	0.00	0.50

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	18.02	270.37	17.98	14.37	10.29	0.00	27.92	23.76	0.645	1.07	1.79
B	12.03	180.43	12.00	11.99	16.27	0.00	21.87	17.89	0.550	0.74	1.21
C	15.84	237.60	15.81	16.26	12.01	0.00	27.15	23.72	0.583	0.87	1.38
D	7.87	117.99	7.85	11.01	16.81	0.00	18.00	13.00	0.437	0.50	0.77

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	22.08	331.13	21.88	17.53	12.56	0.00	26.36	23.76	0.837	1.79	4.74
B	14.73	220.97	14.62	14.62	19.82	0.00	19.53	17.89	0.754	1.21	2.92
C	19.40	291.00	19.29	19.80	14.63	0.00	25.54	23.72	0.759	1.38	3.03
D	9.63	144.51	9.58	13.42	20.50	0.00	15.80	13.00	0.610	0.77	1.52

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	22.08	331.13	22.06	17.63	12.62	0.00	26.32	23.76	0.839	4.74	4.96
B	14.73	220.97	14.72	14.71	19.97	0.00	19.43	17.89	0.758	2.92	3.04
C	19.40	291.00	19.39	19.95	14.74	0.00	25.48	23.72	0.761	3.03	3.11
D	9.63	144.51	9.63	13.52	20.62	0.00	15.73	13.00	0.613	1.52	1.56

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	18.02	270.37	18.23	14.51	10.38	0.00	27.86	23.76	0.647	4.96	1.87
B	12.03	180.43	12.15	12.12	16.49	0.00	21.72	17.89	0.554	3.04	1.26
C	15.84	237.60	15.95	16.47	12.17	0.00	27.05	23.72	0.585	3.11	1.43
D	7.87	117.99	7.92	11.15	16.97	0.00	17.91	13.00	0.439	1.56	0.79

Main results: (18:00-18:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	15.09	226.42	15.15	12.09	8.66	0.00	29.04	23.76	0.520	1.87	1.09
B	10.07	151.10	10.11	10.09	13.71	0.00	23.56	17.89	0.428	1.26	0.75
C	13.27	198.98	13.30	13.70	10.12	0.00	28.31	23.72	0.469	1.43	0.89
D	6.59	98.81	6.61	9.28	14.15	0.00	19.59	13.00	0.336	0.79	0.51

Queueing Delay Results

Queueing Delay results: (16:45-17:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	15.48	1.03	0.071	A	A
B	10.71	0.71	0.073	A	A
C	12.69	0.85	0.066	A	A
D	7.29	0.49	0.076	A	A

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	25.72	1.71	0.100	A	A
B	17.44	1.16	0.101	A	A
C	20.04	1.34	0.088	A	A
D	11.17	0.74	0.098	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	63.06	4.20	0.214	B	B
B	39.95	2.66	0.199	B	B
C	42.03	2.80	0.157	A	A
D	21.57	1.44	0.160	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	73.10	4.87	0.233	B	B
B	44.88	2.99	0.212	B	B
C	46.23	3.08	0.164	A	A

D	23.16	1.54	0.164	A	A

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	30.03	2.00	0.106	A	A
B	19.93	1.33	0.106	A	A
C	22.49	1.50	0.091	A	A
D	12.34	0.82	0.101	A	A

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	16.91	1.13	0.072	A	A
B	11.62	0.77	0.075	A	A
C	13.70	0.91	0.067	A	A
D	7.85	0.52	0.077	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	5.00	7.30	38.00	20.00	51.00	27.00		0.686	35.345
B	5.60	7.20	4.50	23.00	51.00	27.00		0.657	32.598
C	4.50	8.50	24.00	12.00	60.00	26.00		0.624	35.227
D	3.60	7.00	15.00	20.00	54.00	28.00		0.591	28.327

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
16:45-17:00	**A**	15.09	29.09	0.519	0.00	0.00	1.07	15.48	(0.00)	0.071
16:45-17:00	**B**	10.07	23.63	0.426	0.00	0.00	0.74	10.71	(0.00)	0.073
16:45-17:00	**C**	13.27	28.36	0.468	0.00	0.00	0.87	12.69	(0.00)	0.066
16:45-17:00	**D**	6.59	19.65	0.335	0.00	0.00	0.50	7.29	(0.00)	0.076
17:00-17:15	**A**	18.02	27.92	0.645	0.00	1.07	1.79	25.72	(0.00)	0.100
17:00-17:15	**B**	12.03	21.87	0.550	0.00	0.74	1.21	17.44	(0.00)	0.101
17:00-17:15	**C**	15.84	27.15	0.583	0.00	0.87	1.38	20.04	(0.00)	0.088
17:00-17:15	**D**	7.87	18.00	0.437	0.00	0.50	0.77	11.17	(0.00)	0.098
17:15-17:30	**A**	22.08	26.36	0.837	0.00	1.79	4.74	63.06	(0.00)	0.214
17:15-17:30	**B**	14.73	19.53	0.754	0.00	1.21	2.92	39.95	(0.00)	0.199
17:15-17:30	**C**	19.40	25.54	0.759	0.00	1.38	3.03	42.03	(0.00)	0.157
17:15-17:30	**D**	9.63	15.80	0.610	0.00	0.77	1.52	21.57	(0.00)	0.160
17:30-17:45	**A**	22.08	26.32	0.839	0.00	4.74	4.96	73.10	(0.00)	0.233
17:30-17:45	**B**	14.73	19.43	0.758	0.00	2.92	3.04	44.88	(0.00)	0.212
17:30-17:45	**C**	19.40	25.48	0.761	0.00	3.03	3.11	46.23	(0.00)	0.164
17:30-17:45	**D**	9.63	15.73	0.613	0.00	1.52	1.56	23.16	(0.00)	0.164
17:45-18:00	**A**	18.02	27.86	0.647	0.00	4.96	1.87	30.03	(0.00)	0.106
17:45-18:00	**B**	12.03	21.72	0.554	0.00	3.04	1.26	19.93	(0.00)	0.106
17:45-18:00	**C**	15.84	27.05	0.585	0.00	3.11	1.43	22.49	(0.00)	0.091

17:45-18:00	**D**	7.87	17.91	0.439	0.00	1.56	0.79	12.34	(0.00)	0.101
18:00-18:15	**A**	15.09	29.04	0.520	0.00	1.87	1.09	16.91	(0.00)	0.072
18:00-18:15	**B**	10.07	23.56	0.428	0.00	1.26	0.75	11.62	(0.00)	0.075
18:00-18:15	**C**	13.27	28.31	0.469	0.00	1.43	0.89	13.70	(0.00)	0.067
18:00-18:15	**D**	6.59	19.59	0.336	0.00	0.79	0.51	7.85	(0.00)	0.077

APPENDIX E

ARCADY OUTPUT:

COLCOT CROSS IMPROVEMENTS

700 UNITS

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\Technical Note 03\J2 Colcot Cross\Import of J7 Colcot Cross RBT ODTAB Improvements.arc7
Report generation date: 22/11/2011 13:36:05

« A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 700 units, AM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM				PM			
	Queue (Veh)	Delay (min)	RFC	LOS	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units							
Arm A	1.25	0.12	0.56	A	1.98	0.18	0.67	B
Arm B	25.57	0.90	0.99	F	2.12	0.10	0.68	A
Arm C	2.86	0.14	0.74	A	3.99	0.17	0.80	A

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

2015 Base + Comm Dev + 700 units - AM runs from 07:45:00 to 09:15:00
2015 Base + Comm Dev + 700 units - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J7 Colcot Cross RBT
Location	Rhoose
Date	10/11/2011
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D3 - 2015 Base + Comm Dev + 700 units, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 700 units, AM	2015 Base + Comm Dev + 700 units	AM			Yes			07:45	09:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00

C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.90	22.00	65.00	45.00	21.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.718	34.416
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		9.97	100.000	N/A
B	ONE HOUR		26.03	100.000	N/A
C	ONE HOUR		19.40	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
07:45-08:00	A	7.51	7.55	N/A	N/A
07:45-08:00	B	19.60	20.06	N/A	N/A
07:45-08:00	C	14.61	15.37	N/A	N/A
08:00-08:15	A	8.96	9.02	N/A	N/A
08:00-08:15	B	23.40	23.95	N/A	N/A

08:00-08:15	**C**	17.44	18.35	N/A	N/A
08:15-08:30	**A**	10.98	11.04	N/A	N/A
08:15-08:30	**B**	28.66	29.33	N/A	N/A
08:15-08:30	**C**	21.36	22.48	N/A	N/A
08:30-08:45	**A**	10.98	11.04	N/A	N/A
08:30-08:45	**B**	28.66	29.33	N/A	N/A
08:30-08:45	**C**	21.36	22.48	N/A	N/A
08:45-09:00	**A**	8.96	9.02	N/A	N/A
08:45-09:00	**B**	23.40	23.95	N/A	N/A
08:45-09:00	**C**	17.44	18.35	N/A	N/A
09:00-09:15	**A**	7.51	7.55	N/A	N/A
09:00-09:15	**B**	19.60	20.06	N/A	N/A
09:00-09:15	**C**	14.61	15.37	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	235.00	363.00
	B	344.00	0.00	1218.00
	C	409.00	756.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.39	0.61
	B	0.22	0.00	0.78
	C	0.35	0.65	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.00	1.01
	B	1.00	1.00	1.03
	C	1.02	1.07	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00
	B	0.00	0.00	3.00
	C	2.00	7.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.56	0.12	1.25	A	9.15	823.38	73.46	0.09	0.82	73.47	0.09	0.597	28.639
B	0.99	0.90	25.57	F	23.89	2149.71	741.20	0.34	8.24	741.26	0.34	0.718	34.416
C	0.74	0.14	2.86	A	17.80	1602.15	154.72	0.10	1.72	154.74	0.10	0.679	34.415

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.51	112.59	7.47	9.40	9.44	0.00	22.48	16.55	0.334	0.00	0.50
B	19.60	293.95	19.48	12.37	4.54	0.00	30.41	26.51	0.644	0.00	1.78
C	14.61	219.08	14.54	19.72	4.29	0.00	29.93	28.93	0.488	0.00	0.94

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.96	134.44	8.95	11.24	11.30	0.00	21.30	16.55	0.421	0.50	0.72
B	23.40	351.01	23.29	14.81	5.43	0.00	29.78	26.51	0.786	1.78	3.51
C	17.44	261.60	17.41	23.59	5.13	0.00	29.39	28.93	0.593	0.94	1.44

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.98	164.66	10.94	13.56	13.80	0.00	19.71	16.55	0.557	0.72	1.24
B	28.66	429.89	27.64	18.10	6.64	0.00	28.92	26.51	0.991	3.51	18.75
C	21.36	320.40	21.27	28.20	6.09	0.00	28.77	28.93	0.742	1.44	2.79

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.98	164.66	10.98	13.71	13.86	0.00	19.67	16.55	0.558	1.24	1.25
B	28.66	429.89	28.20	18.17	6.66	0.00	28.91	26.51	0.991	18.75	25.57
C	21.36	320.40	21.36	28.66	6.21	0.00	28.69	28.93	0.744	2.79	2.86

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.96	134.44	9.00	11.63	11.38	0.00	21.25	16.55	0.422	1.25	0.74
B	23.40	351.01	24.85	14.91	5.46	0.00	29.76	26.51	0.786	25.57	3.89
C	17.44	261.60	17.53	24.84	5.47	0.00	29.17	28.93	0.598	2.86	1.51

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.51	112.59	7.52	9.49	9.50	0.00	22.44	16.55	0.335	0.74	0.51
B	19.60	293.95	19.73	12.46	4.57	0.00	30.39	26.51	0.645	3.89	1.85
C	14.61	219.08	14.64	19.95	4.35	0.00	29.90	28.93	0.489	1.51	0.96

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	7.28	0.49	0.067	A	A
B	25.40	1.69	0.090	A	A
C	13.74	0.92	0.065	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	10.54	0.70	0.081	A	A
B	48.70	3.25	0.151	A	A
C	20.91	1.39	0.083	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.82	1.19	0.114	A	A
B	195.70	13.05	0.555	D	C
C	39.22	2.61	0.132	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	18.68	1.25	0.115	A	A
B	335.93	22.40	0.905	F	D
C	42.47	2.83	0.136	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	11.38	0.76	0.082	A	A
B	106.36	7.09	0.257	C	B
C	23.55	1.57	0.087	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	7.75	0.52	0.067	A	A
B	29.12	1.94	0.095	A	A
C	14.83	0.99	0.066	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.90	22.00	65.00	45.00	21.00		0.718	34.416
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
07:45-08:00	**A**	7.51	22.48	0.334	0.00	0.00	0.50	7.28	(0.00)	0.067
07:45-08:00	**B**	19.60	30.41	0.644	0.00	0.00	1.78	25.40	(0.00)	0.090
07:45-08:00	**C**	14.61	29.93	0.488	0.00	0.00	0.94	13.74	(0.00)	0.065
08:00-08:15	**A**	8.96	21.30	0.421	0.00	0.50	0.72	10.54	(0.00)	0.081
08:00-08:15	**B**	23.40	29.78	0.786	0.00	1.78	3.51	48.70	(0.00)	0.151
08:00-08:15	**C**	17.44	29.39	0.593	0.00	0.94	1.44	20.91	(0.00)	0.083
08:15-08:30	**A**	10.98	19.71	0.557	0.00	0.72	1.24	17.82	(0.00)	0.114
08:15-08:30	**B**	28.66	28.92	0.991	0.00	3.51	18.75	195.70	(0.00)	0.555
08:15-08:30	**C**	21.36	28.77	0.742	0.00	1.44	2.79	39.22	(0.00)	0.132
08:30-08:45	**A**	10.98	19.67	0.558	0.00	1.24	1.25	18.68	(0.00)	0.115
08:30-08:45	**B**	28.66	28.91	0.991	0.00	18.75	25.57	335.93	(0.00)	0.905
08:30-08:45	**C**	21.36	28.69	0.744	0.00	2.79	2.86	42.47	(0.00)	0.136
08:45-09:00	**A**	8.96	21.25	0.422	0.00	1.25	0.74	11.38	(0.00)	0.082
08:45-09:00	**B**	23.40	29.76	0.786	0.00	25.57	3.89	106.36	(0.00)	0.257
08:45-09:00	**C**	17.44	29.17	0.598	0.00	2.86	1.51	23.55	(0.00)	0.087
09:00-09:15	**A**	7.51	22.44	0.335	0.00	0.74	0.51	7.75	(0.00)	0.067
09:00-09:15	**B**	19.60	30.39	0.645	0.00	3.89	1.85	29.12	(0.00)	0.095
09:00-09:15	**C**	14.61	29.90	0.489	0.00	1.51	0.96	14.83	(0.00)	0.066

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\Technical Note 03\J2 Colcot Cross\Import of J7 Colcot Cross RBT ODTAB Improvements.arc7
Report generation date: 22/11/2011 13:36:43

« A1 - (Default Analysis Set) - D4 - 2015 Base + Comm Dev + 700 units, PM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM				PM			
	Queue (Veh)	Delay (min)	RFC	LOS	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units							
Arm A	1.25	0.12	0.56	A	1.98	0.18	0.67	B
Arm B	25.57	0.90	0.99	F	2.12	0.10	0.68	A
Arm C	2.86	0.14	0.74	A	3.99	0.17	0.80	A

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

2015 Base + Comm Dev + 700 units - AM runs from 07:45:00 to 09:15:00
2015 Base + Comm Dev + 700 units - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J7 Colcot Cross RBT
Location	Rhoose
Date	10/11/2011
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - (Default Analysis Set) - D4 - 2015 Base + Comm Dev + 700 units, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base + Comm Dev + 700 units, PM	2015 Base + Comm Dev + 700 units	PM			Yes			16:45	18:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	Colcot Road	
B	Port Road West	
C	Port Road East	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)
A	0.00	1666.65		0.00
B	0.00	1666.65		0.00

C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.00	7.30	2.00	15.00	45.00	59.00	
B	3.85	7.90	22.00	65.00	45.00	21.00	
C	4.50	10.30	17.50	15.00	45.00	45.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.597	28.639
B		((calculated))	((calculated))	0.718	34.416
C		((calculated))	((calculated))	0.679	34.415

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		9.93	100.000	N/A
B	ONE HOUR		18.70	100.000	N/A
C	ONE HOUR		22.43	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
16:45-17:00	A	7.48	7.51	N/A	N/A
16:45-17:00	B	14.08	14.30	N/A	N/A
16:45-17:00	C	16.89	17.16	N/A	N/A
17:00-17:15	A	8.93	8.97	N/A	N/A
17:00-17:15	B	16.81	17.07	N/A	N/A

17:00-17:15	**C**	20.16	20.49	N/A	N/A
17:15-17:30	**A**	10.93	10.98	N/A	N/A
17:15-17:30	**B**	20.59	20.91	N/A	N/A
17:15-17:30	**C**	24.70	25.10	N/A	N/A
17:30-17:45	**A**	10.93	10.98	N/A	N/A
17:30-17:45	**B**	20.59	20.91	N/A	N/A
17:30-17:45	**C**	24.70	25.10	N/A	N/A
17:45-18:00	**A**	8.93	8.97	N/A	N/A
17:45-18:00	**B**	16.81	17.07	N/A	N/A
17:45-18:00	**C**	20.16	20.49	N/A	N/A
18:00-18:15	**A**	7.48	7.51	N/A	N/A
18:00-18:15	**B**	14.08	14.30	N/A	N/A
18:00-18:15	**C**	16.89	17.16	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	315.00	281.00
	B	256.00	0.00	866.00
	C	251.00	1095.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.53	0.47
	B	0.23	0.00	0.77
	C	0.19	0.81	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.00	1.01
	B	1.00	1.00	1.02
	C	1.00	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00
	B	0.00	0.00	2.00
	C	0.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.67	0.18	1.98	B	9.11	820.08	102.17	0.12	1.14	102.18	0.12	0.597	28.639
B	0.68	0.10	2.12	A	17.16	1544.35	121.89	0.08	1.35	121.90	0.08	0.718	34.416
C	0.80	0.17	3.99	A	20.58	1852.40	201.50	0.11	2.24	201.52	0.11	0.679	34.415

Main Results

Main results: (16:45-17:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.48	112.14	7.44	6.33	13.68	0.00	20.22	14.01	0.370	0.00	0.58
B	14.08	211.17	14.02	17.61	3.51	0.00	31.39	29.18	0.449	0.00	0.81
C	16.89	253.30	16.81	14.33	3.20	0.00	31.73	29.42	0.532	0.00	1.13

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.93	133.90	8.90	7.58	16.37	0.00	18.59	14.00	0.480	0.58	0.91
B	16.81	252.16	16.79	21.07	4.20	0.00	30.89	29.18	0.544	0.81	1.18
C	20.16	302.46	20.12	17.15	3.83	0.00	31.31	29.42	0.644	1.13	1.78

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.93	164.00	10.87	9.26	19.98	0.00	16.40	14.01	0.667	0.91	1.93
B	20.59	308.84	20.53	25.72	5.12	0.00	30.23	29.18	0.681	1.18	2.09
C	24.70	370.44	24.56	20.97	4.68	0.00	30.73	29.42	0.804	1.78	3.88

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	10.93	164.00	10.93	9.30	20.09	0.00	16.34	14.01	0.669	1.93	1.98
B	20.59	308.84	20.59	25.86	5.15	0.00	30.21	29.18	0.682	2.09	2.12
C	24.70	370.44	24.69	21.04	4.70	0.00	30.73	29.42	0.804	3.88	3.99

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	8.93	133.90	9.00	7.64	16.52	0.00	18.50	14.00	0.483	1.98	0.95
B	16.81	252.16	16.87	21.27	4.24	0.00	30.86	29.18	0.545	2.12	1.21
C	20.16	302.46	20.31	17.26	3.85	0.00	31.29	29.42	0.644	3.99	1.84

Main results: (18:00-18:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	7.48	112.14	7.50	6.38	13.78	0.00	20.16	14.01	0.371	0.95	0.59
B	14.08	211.17	14.10	17.74	3.54	0.00	31.37	29.18	0.449	1.21	0.82
C	16.89	253.30	16.93	14.42	3.22	0.00	31.71	29.42	0.532	1.84	1.15

Queueing Delay Results

Queueing Delay results: (16:45-17:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	8.46	0.56	0.078	A	A
B	11.80	0.79	0.057	A	A
C	16.35	1.09	0.067	A	A

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.25	0.88	0.103	A	A
B	17.27	1.15	0.071	A	A
C	25.73	1.72	0.089	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	27.05	1.80	0.178	B	B
B	29.93	2.00	0.102	A	A
C	53.43	3.56	0.158	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	29.45	1.96	0.185	B	B
B	31.60	2.11	0.104	A	A
C	59.19	3.95	0.165	A	A

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	14.80	0.99	0.106	A	A
B	18.72	1.25	0.072	A	A
C	29.06	1.94	0.092	A	A

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	9.15	0.61	0.079	A	A
B	12.57	0.84	0.058	A	A
C	17.75	1.18	0.068	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.00	7.30	2.00	15.00	45.00	59.00		0.597	28.639
B	3.85	7.90	22.00	65.00	45.00	21.00		0.718	34.416
C	4.50	10.30	17.50	15.00	45.00	45.00		0.679	34.415

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
16:45-17:00	**A**	7.48	20.22	0.370	0.00	0.00	0.58	8.46	(0.00)	0.078
16:45-17:00	**B**	14.08	31.39	0.449	0.00	0.00	0.81	11.80	(0.00)	0.057
16:45-17:00	**C**	16.89	31.73	0.532	0.00	0.00	1.13	16.35	(0.00)	0.067
17:00-17:15	**A**	8.93	18.59	0.480	0.00	0.58	0.91	13.25	(0.00)	0.103
17:00-17:15	**B**	16.81	30.89	0.544	0.00	0.81	1.18	17.27	(0.00)	0.071
17:00-17:15	**C**	20.16	31.31	0.644	0.00	1.13	1.78	25.73	(0.00)	0.089
17:15-17:30	**A**	10.93	16.40	0.667	0.00	0.91	1.93	27.05	(0.00)	0.178
17:15-17:30	**B**	20.59	30.23	0.681	0.00	1.18	2.09	29.93	(0.00)	0.102
17:15-17:30	**C**	24.70	30.73	0.804	0.00	1.78	3.88	53.43	(0.00)	0.158
17:30-17:45	**A**	10.93	16.34	0.669	0.00	1.93	1.98	29.45	(0.00)	0.185
17:30-17:45	**B**	20.59	30.21	0.682	0.00	2.09	2.12	31.60	(0.00)	0.104
17:30-17:45	**C**	24.70	30.73	0.804	0.00	3.88	3.99	59.19	(0.00)	0.165
17:45-18:00	**A**	8.93	18.50	0.483	0.00	1.98	0.95	14.80	(0.00)	0.106
17:45-18:00	**B**	16.81	30.86	0.545	0.00	2.12	1.21	18.72	(0.00)	0.072
17:45-18:00	**C**	20.16	31.29	0.644	0.00	3.99	1.84	29.06	(0.00)	0.092
18:00-18:15	**A**	7.48	20.16	0.371	0.00	0.95	0.59	9.15	(0.00)	0.079
18:00-18:15	**B**	14.08	31.37	0.449	0.00	1.21	0.82	12.57	(0.00)	0.058
18:00-18:15	**C**	16.89	31.71	0.532	0.00	1.84	1.15	17.75	(0.00)	0.068

APPENDIX F

ARCADY OUTPUT:

BARRY DOCKS LINK IMPROVEMENTS

700 UNITS

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\Technical Note 03\J3 Barry Docks Link\Import of J6 Barry Docks Link RBT ODTAB.arc7
Report generation date: 22/11/2011 13:38:40

« A1 - Barry Docks Link Roundabout - D3 - 2015 Base Flows + Comm + 700 units Dev, AM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
» Results
» Overview: Standard Roundabout Geometry
» Overview: Time Segment Results

Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Barry Docks Link Roundabout - 2015 Base Flows + Comm + 700 units Dev			
Arm A	2.68	0.16	0.73	A
Arm B	0.60	0.07	0.38	A
Arm C	2.54	0.11	0.72	A

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

2015 Base Flows + Comm + 700 units Dev - AM runs from 07:45:00 to 09:15:00
2015 Base Flows + Comm + 700 units Dev - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J6 Barry Docks Link RBT
Location	Rhoose
Date	10/11/2011
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - Barry Docks Link Roundabout - D3 - 2015 Base Flows + Comm + 700 units Dev, AM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Barry Docks Link Roundabout		Yes	Yes	D3		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm + 700 units Dev, AM	2015 Base Flows + Comm + 700 units Dev	AM			Yes			07:45	09:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	A4231	
B	Port Road East	
C	Port Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)

A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.40	7.00	24.00	41.00	35.00	32.00	
B	4.60	6.50	32.00	55.00	35.00	28.00	
C	4.80	9.30	33.00	62.00	35.00	34.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.747	35.762
B		((calculated))	((calculated))	0.714	32.484
C		((calculated))	((calculated))	0.809	40.832

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		15.77	100.000	N/A
B	ONE HOUR		7.87	100.000	N/A
C	ONE HOUR		20.65	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
07:45-08:00	**A**	11.87	12.67	N/A	N/A
07:45-08:00	**B**	5.92	6.04	N/A	N/A
07:45-08:00	**C**	15.55	16.59	N/A	N/A

08:00-08:15	**A**	14.18	15.13	N/A	N/A
08:00-08:15	**B**	7.07	7.22	N/A	N/A
08:00-08:15	**C**	18.56	19.81	N/A	N/A
08:15-08:30	**A**	17.36	18.53	N/A	N/A
08:15-08:30	**B**	8.67	8.84	N/A	N/A
08:15-08:30	**C**	22.74	24.26	N/A	N/A
08:30-08:45	**A**	17.36	18.53	N/A	N/A
08:30-08:45	**B**	8.67	8.84	N/A	N/A
08:30-08:45	**C**	22.74	24.26	N/A	N/A
08:45-09:00	**A**	14.18	15.13	N/A	N/A
08:45-09:00	**B**	7.07	7.22	N/A	N/A
08:45-09:00	**C**	18.56	19.81	N/A	N/A
09:00-09:15	**A**	11.87	12.67	N/A	N/A
09:00-09:15	**B**	5.92	6.04	N/A	N/A
09:00-09:15	**C**	15.55	16.59	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	307.00	639.00
	B	472.00	0.00	0.00
	C	532.00	707.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.32	0.68
	B	1.00	0.00	0.00
	C	0.43	0.57	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.04	1.08
	B	1.02	1.00	1.03
	C	1.05	1.08	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	4.00	8.00
	B	2.00	0.00	3.00
	C	5.00	8.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.73	0.16	2.68	A	14.47	1302.37	138.30	0.11	1.54	138.31	0.11	0.747	35.762
B	0.38	0.07	0.60	A	7.22	649.95	38.87	0.06	0.43	38.87	0.06	0.714	32.484
C	0.72	0.11	2.54	A	18.95	1705.39	138.53	0.08	1.54	138.54	0.08	0.809	40.832

Main Results

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	11.87	178.09	11.82	12.56	8.84	0.00	26.83	23.61	0.443	0.00	0.79
B	5.92	88.87	5.91	12.67	7.98	0.00	25.81	19.80	0.230	0.00	0.30
C	15.55	233.20	15.49	7.98	5.91	0.00	33.70	22.95	0.461	0.00	0.85

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	14.18	212.65	14.15	15.03	10.58	0.00	25.51	23.61	0.556	0.79	1.23
B	7.07	106.12	7.07	15.17	9.56	0.00	24.63	19.80	0.287	0.30	0.40
C	18.56	278.46	18.53	9.56	7.07	0.00	32.80	22.95	0.566	0.85	1.29

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	17.36	260.45	17.27	18.38	12.93	0.00	23.74	23.61	0.732	1.23	2.63
B	8.67	129.98	8.65	18.53	11.67	0.00	23.03	19.80	0.376	0.40	0.60
C	22.74	341.04	22.65	11.67	8.65	0.00	31.57	22.95	0.720	1.29	2.51

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	17.36	260.45	17.36	18.43	12.97	0.00	23.70	23.61	0.733	2.63	2.68
B	8.67	129.98	8.66	18.61	11.73	0.00	22.99	19.80	0.377	0.60	0.60
C	22.74	341.04	22.73	11.73	8.66	0.00	31.56	22.95	0.720	2.51	2.54

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	14.18	212.65	14.27	15.09	10.64	0.00	25.47	23.61	0.557	2.68	1.27
B	7.07	106.12	7.09	15.27	9.64	0.00	24.56	19.80	0.288	0.60	0.41
C	18.56	278.46	18.65	9.64	7.09	0.00	32.78	22.95	0.566	2.54	1.32

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

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	11.87	178.09	11.90	12.62	8.89	0.00	26.79	23.61	0.443	1.27	0.80
B	5.92	88.87	5.93	12.75	8.04	0.00	25.77	19.80	0.230	0.41	0.30
C	15.55	233.20	15.58	8.04	5.93	0.00	33.67	22.95	0.462	1.32	0.86

Queueing Delay Results

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	11.47	0.76	0.066	A	A
B	4.37	0.29	0.050	A	A
C	12.43	0.83	0.055	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	17.93	1.20	0.088	A	A
B	5.92	0.39	0.057	A	A
C	18.83	1.26	0.070	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	36.71	2.45	0.153	A	A
B	8.79	0.59	0.069	A	A
C	35.60	2.37	0.111	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	39.94	2.66	0.157	A	A
B	9.02	0.60	0.070	A	A
C	37.94	2.53	0.113	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	19.91	1.33	0.090	A	A
B	6.21	0.41	0.057	A	A
C	20.48	1.37	0.071	A	A

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

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	12.34	0.82	0.067	A	A
B	4.56	0.30	0.050	A	A
C	13.24	0.88	0.055	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.40	7.00	24.00	41.00	35.00	32.00		0.747	35.762
B	4.60	6.50	32.00	55.00	35.00	28.00		0.714	32.484
C	4.80	9.30	33.00	62.00	35.00	34.00		0.809	40.832

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
07:45-08:00	**A**	11.87	26.83	0.443	0.00	0.00	0.79	11.47	(0.00)	0.066
07:45-08:00	**B**	5.92	25.81	0.230	0.00	0.00	0.30	4.37	(0.00)	0.050
07:45-08:00	**C**	15.55	33.70	0.461	0.00	0.00	0.85	12.43	(0.00)	0.055
08:00-08:15	**A**	14.18	25.51	0.556	0.00	0.79	1.23	17.93	(0.00)	0.088
08:00-08:15	**B**	7.07	24.63	0.287	0.00	0.30	0.40	5.92	(0.00)	0.057
08:00-08:15	**C**	18.56	32.80	0.566	0.00	0.85	1.29	18.83	(0.00)	0.070
08:15-08:30	**A**	17.36	23.74	0.732	0.00	1.23	2.63	36.71	(0.00)	0.153
08:15-08:30	**B**	8.67	23.03	0.376	0.00	0.40	0.60	8.79	(0.00)	0.069
08:15-08:30	**C**	22.74	31.57	0.720	0.00	1.29	2.51	35.60	(0.00)	0.111
08:30-08:45	**A**	17.36	23.70	0.733	0.00	2.63	2.68	39.94	(0.00)	0.157
08:30-08:45	**B**	8.67	22.99	0.377	0.00	0.60	0.60	9.02	(0.00)	0.070
08:30-08:45	**C**	22.74	31.56	0.720	0.00	2.51	2.54	37.94	(0.00)	0.113
08:45-09:00	**A**	14.18	25.47	0.557	0.00	2.68	1.27	19.91	(0.00)	0.090
08:45-09:00	**B**	7.07	24.56	0.288	0.00	0.60	0.41	6.21	(0.00)	0.057
08:45-09:00	**C**	18.56	32.78	0.566	0.00	2.54	1.32	20.48	(0.00)	0.071
09:00-09:15	**A**	11.87	26.79	0.443	0.00	1.27	0.80	12.34	(0.00)	0.067
09:00-09:15	**B**	5.92	25.77	0.230	0.00	0.41	0.30	4.56	(0.00)	0.050
09:00-09:15	**C**	15.55	33.67	0.462	0.00	1.32	0.86	13.24	(0.00)	0.055

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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Report generation date: 22/11/2011 13:39:10

« A1 - Barry Docks Link Roundabout - D4 - 2015 Base Flows + Comm + 700 units Dev, PM
» Roundabout Network
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Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Barry Docks Link Roundabout - 2015 Base Flows + Comm + 700 units Dev			
Arm A	2.68	0.16	0.73	A
Arm B	0.60	0.07	0.38	A
Arm C	2.54	0.11	0.72	A

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

2015 Base Flows + Comm + 700 units Dev - AM runs from 07:45:00 to 09:15:00
2015 Base Flows + Comm + 700 units Dev - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J6 Barry Docks Link RBT
Location	Rhoose
Date	10/11/2011
Jobnumber	FMW0408
Enumerator	NH
Results Upto Date	True

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	Veh	Veh	perMin	min	-Min	perMin

A1 - Barry Docks Link Roundabout - D4 - 2015 Base Flows + Comm + 700 units Dev, PM

Data Errors and Warnings

Severity	Area	Description
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Barry Docks Link Roundabout		Yes	Yes	D3		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2015 Base Flows + Comm + 700 units Dev, PM	2015 Base Flows + Comm + 700 units Dev	PM			Yes			16:45	18:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	A,B,C	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
A	A4231	
B	Port Road East	
C	Port Road	

Capacity Options

Arm	Minimum Capacity (PCU/min)	Maximum Capacity (PCU/min)	Assume Flat Start Profile	Initial Queue (PCU)

A	0.00	1666.65		0.00
B	0.00	1666.65		0.00
C	0.00	1666.65		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A	6.40	7.00	24.00	41.00	35.00	32.00	
B	4.60	6.50	32.00	55.00	35.00	28.00	
C	4.80	9.30	33.00	62.00	35.00	34.00	

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/min)	Final Slope	Final Intercept (PCU/min)
A		((calculated))	((calculated))	0.747	35.762
B		((calculated))	((calculated))	0.714	32.484
C		((calculated))	((calculated))	0.809	40.832

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/min)	Flow Scaling Factor (%)	PHF
A	ONE HOUR		15.02	100.000	N/A
B	ONE HOUR		5.43	100.000	N/A
C	ONE HOUR		29.53	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/min)	DirectDemandEntryFlowInPCU (PCU/min)	Direct Demand Exit Flow (Veh/min)	Direct Demand Pedestrian Flow (Ped/min)
16:45-17:00	**A**	11.31	11.67	N/A	N/A
16:45-17:00	**B**	4.09	4.17	N/A	N/A
16:45-17:00	**C**	22.23	22.85	N/A	N/A

17:00-17:15	**A**	13.50	13.94	N/A	N/A
17:00-17:15	**B**	4.88	4.98	N/A	N/A
17:00-17:15	**C**	26.55	27.28	N/A	N/A
17:15-17:30	**A**	16.54	17.07	N/A	N/A
17:15-17:30	**B**	5.98	6.10	N/A	N/A
17:15-17:30	**C**	32.51	33.42	N/A	N/A
17:30-17:45	**A**	16.54	17.07	N/A	N/A
17:30-17:45	**B**	5.98	6.10	N/A	N/A
17:30-17:45	**C**	32.51	33.42	N/A	N/A
17:45-18:00	**A**	13.50	13.94	N/A	N/A
17:45-18:00	**B**	4.88	4.98	N/A	N/A
17:45-18:00	**C**	26.55	27.28	N/A	N/A
18:00-18:15	**A**	11.31	11.67	N/A	N/A
18:00-18:15	**B**	4.09	4.17	N/A	N/A
18:00-18:15	**C**	22.23	22.85	N/A	N/A

Turning Proportions

Turning Counts or Proportions (Veh/min) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	359.00	642.00
	B	326.00	0.00	0.00
	C	690.00	1082.00	0.00

Turning Proportions (Veh) - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.36	0.64
	B	1.00	0.00	0.00
	C	0.39	0.61	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.00	1.00	1.05
	B	1.02	1.00	1.01
	C	1.04	1.02	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	5.00
	B	2.00	0.00	1.00
	C	4.00	2.00	0.00

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/min)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Queueing Total Delay (Veh-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/min)
A	0.83	0.28	4.46	C	13.78	1240.43	190.89	0.15	2.12	190.91	0.15	0.747	35.762
B	0.25	0.06	0.33	A	4.98	448.44	22.36	0.05	0.25	22.36	0.05	0.714	32.484
C	0.93	0.38	11.51	C	27.10	2438.75	428.53	0.18	4.76	428.56	0.18	0.809	40.832

Main Results

Main results: (16:45-17:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	11.31	169.62	11.25	12.69	13.51	0.00	24.67	24.15	0.458	0.00	0.84
B	4.09	61.32	4.08	17.55	7.22	0.00	26.54	20.47	0.154	0.00	0.18
C	22.23	333.48	22.13	7.22	4.08	0.00	36.45	23.29	0.610	0.00	1.54

Main results: (17:00-17:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	13.50	202.54	13.46	15.18	16.16	0.00	22.71	24.15	0.594	0.84	1.44
B	4.88	73.22	4.88	20.99	8.63	0.00	25.50	20.47	0.191	0.18	0.24
C	26.55	398.20	26.46	8.63	4.88	0.00	35.81	23.29	0.741	1.54	2.79

Main results: (17:15-17:30)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.54	248.06	16.36	18.44	19.55	0.00	20.21	24.15	0.818	1.44	4.13
B	5.98	89.68	5.97	25.41	10.49	0.00	24.14	20.47	0.248	0.24	0.33
C	32.51	487.70	32.01	10.49	5.97	0.00	34.93	23.29	0.931	2.79	10.32

Main results: (17:30-17:45)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	16.54	248.06	16.51	18.61	19.80	0.00	20.02	24.15	0.826	4.13	4.46
B	5.98	89.68	5.98	25.73	10.59	0.00	24.07	20.47	0.248	0.33	0.33
C	32.51	487.70	32.43	10.59	5.98	0.00	34.93	23.29	0.931	10.32	11.51

Main results: (17:45-18:00)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	13.50	202.54	13.70	15.45	16.56	0.00	22.42	24.15	0.602	4.46	1.54
B	4.88	73.22	4.89	21.47	8.78	0.00	25.39	20.47	0.192	0.33	0.24
C	26.55	398.20	27.12	8.78	4.89	0.00	35.80	23.29	0.741	11.51	2.95

Main results: (18:00-18:15)

Arm	Demand (Veh/min)	Arrivals (Veh)	Entry Flow (Veh/min)	Exit Flow (Veh/min)	Circulating Flow (Veh/min)	Pedestrian Demand (Ped/min)	Capacity (Veh/min)	Saturation Capacity (Veh/min)	RFC	Start Queue (Veh)	End Queue (Veh)
A	11.31	169.62	11.35	12.78	13.63	0.00	24.58	24.15	0.460	1.54	0.86
B	4.09	61.32	4.09	17.70	7.28	0.00	26.50	20.47	0.154	0.24	0.18
C	22.23	333.48	22.32	7.28	4.09	0.00	36.44	23.29	0.610	2.95	1.58

Queueing Delay Results

Queueing Delay results: (16:45-17:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	12.17	0.81	0.074	A	A
B	2.68	0.18	0.044	A	A
C	22.28	1.49	0.069	A	A

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	20.75	1.38	0.108	A	A
B	3.49	0.23	0.048	A	A
C	39.64	2.64	0.106	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	54.64	3.64	0.249	B	B
B	4.84	0.32	0.055	A	A
C	124.80	8.32	0.302	C	B

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	65.08	4.34	0.282	C	B
B	4.93	0.33	0.055	A	A
C	165.13	11.01	0.376	C	C

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	24.96	1.66	0.117	A	A
B	3.64	0.24	0.049	A	A
C	52.05	3.47	0.122	A	A

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
A	13.29	0.89	0.076	A	A
B	2.78	0.19	0.045	A	A
C	24.62	1.64	0.071	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/min)
A	6.40	7.00	24.00	41.00	35.00	32.00		0.747	35.762
B	4.60	6.50	32.00	55.00	35.00	28.00		0.714	32.484
C	4.80	9.30	33.00	62.00	35.00	34.00		0.809	40.832

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/min)	Capacity (Veh/min)	RFC	Pedestrian Demand (Ped/min)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
16:45-17:00	**A**	11.31	24.67	0.458	0.00	0.00	0.84	12.17	(0.00)	0.074
16:45-17:00	**B**	4.09	26.54	0.154	0.00	0.00	0.18	2.68	(0.00)	0.044
16:45-17:00	**C**	22.23	36.45	0.610	0.00	0.00	1.54	22.28	(0.00)	0.069
17:00-17:15	**A**	13.50	22.71	0.594	0.00	0.84	1.44	20.75	(0.00)	0.108
17:00-17:15	**B**	4.88	25.50	0.191	0.00	0.18	0.24	3.49	(0.00)	0.048
17:00-17:15	**C**	26.55	35.81	0.741	0.00	1.54	2.79	39.64	(0.00)	0.106
17:15-17:30	**A**	16.54	20.21	0.818	0.00	1.44	4.13	54.64	(0.00)	0.249
17:15-17:30	**B**	5.98	24.14	0.248	0.00	0.24	0.33	4.84	(0.00)	0.055
17:15-17:30	**C**	32.51	34.93	0.931	0.00	2.79	10.32	124.80	(0.00)	0.302
17:30-17:45	**A**	16.54	20.02	0.826	0.00	4.13	4.46	65.08	(0.00)	0.282
17:30-17:45	**B**	5.98	24.07	0.248	0.00	0.33	0.33	4.93	(0.00)	0.055
17:30-17:45	**C**	32.51	34.93	0.931	0.00	10.32	11.51	165.13	(0.00)	0.376
17:45-18:00	**A**	13.50	22.42	0.602	0.00	4.46	1.54	24.96	(0.00)	0.117
17:45-18:00	**B**	4.88	25.39	0.192	0.00	0.33	0.24	3.64	(0.00)	0.049
17:45-18:00	**C**	26.55	35.80	0.741	0.00	11.51	2.95	52.05	(0.00)	0.122
18:00-18:15	**A**	11.31	24.58	0.460	0.00	1.54	0.86	13.29	(0.00)	0.076
18:00-18:15	**B**	4.09	26.50	0.154	0.00	0.24	0.18	2.78	(0.00)	0.045
18:00-18:15	**C**	22.23	36.44	0.610	0.00	2.95	1.58	24.62	(0.00)	0.071

D. Masterplan

LAND TO THE NORTH OF THE RAILWAY LINE (WEST), RHOOSE

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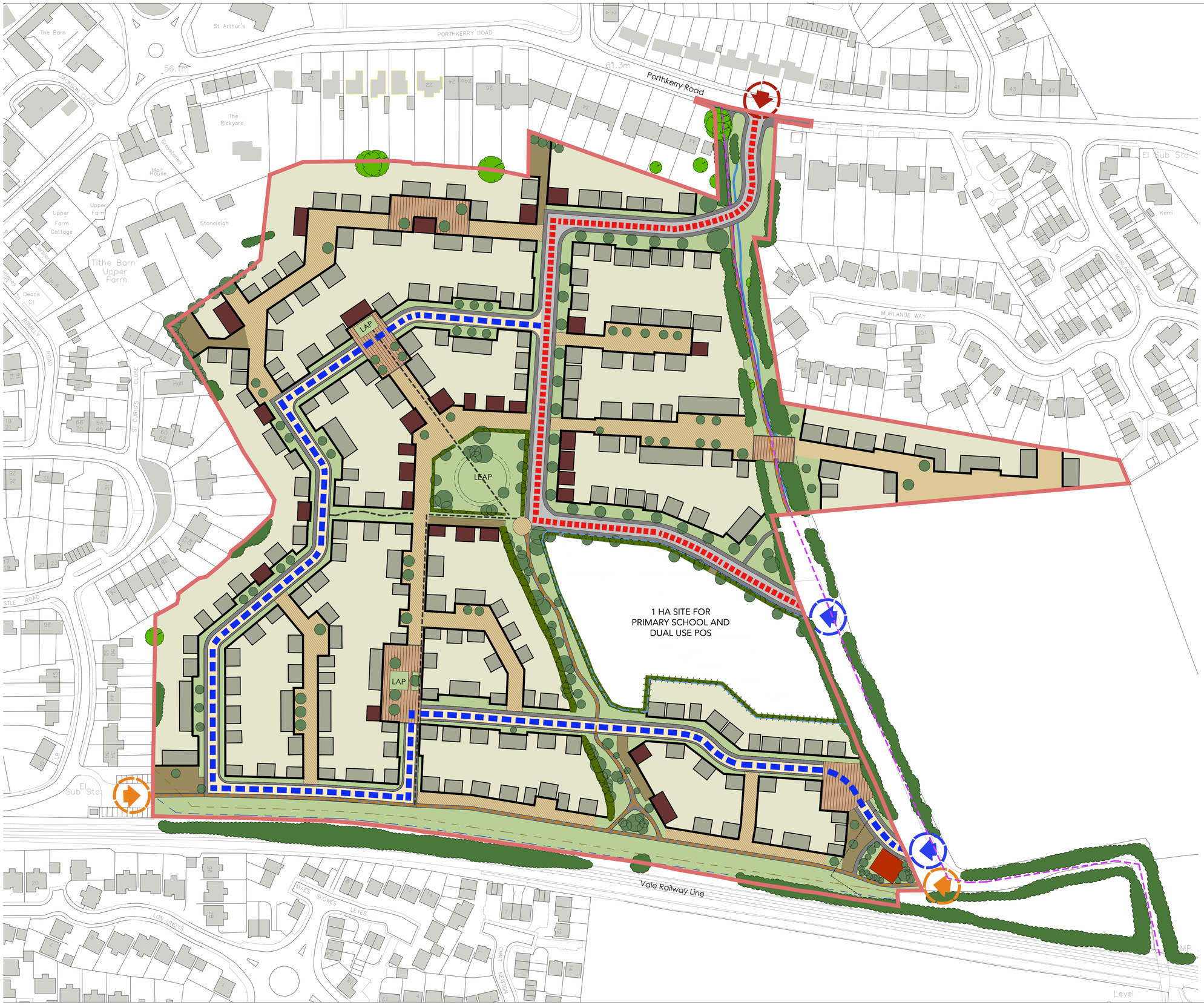

N

Taylor Wimpey

REVISION/S:

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KEY

- Site Boundary
- Site Access
- Future Link to Land East
- Cycle/Footway Access
- Primary Street
- Secondary Street
- Feature Square
- Mews/Shared Surface
- Private Driveways
- Cycle/Footway Routes
- Pedestrian Links
- Existing Public Right of Way
- Development Blocks
- Illustrative Residential Buildings
- Focal Buildings
- Existing Buildings
- School Site
- Pumping Station
- Pumping Station 15m no build zone
- Existing Foul Pipe
- Existing Gas Main
- Green Space
- Existing Trees
- Existing Hedgerows
- Proposed Hedgerows
- Proposed Trees
- LAP — Local Area of Play (LAP)min 100m
- LEAP — Local Equipped Area of Play (LEAP) min 400m
- Existing water courses/ditches

MASTERPLAN

SCALE: 1:1000 @ A 1
0 5 10 15 20 25[m]

DATE: APRIL 2014
DRAWN: JJR

DRAWING TITLE: MASTERPLAN
DRAWING NO: 0508-1003

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E. Technical Note – Calculation of School Trip Attraction and Traffic Assignment