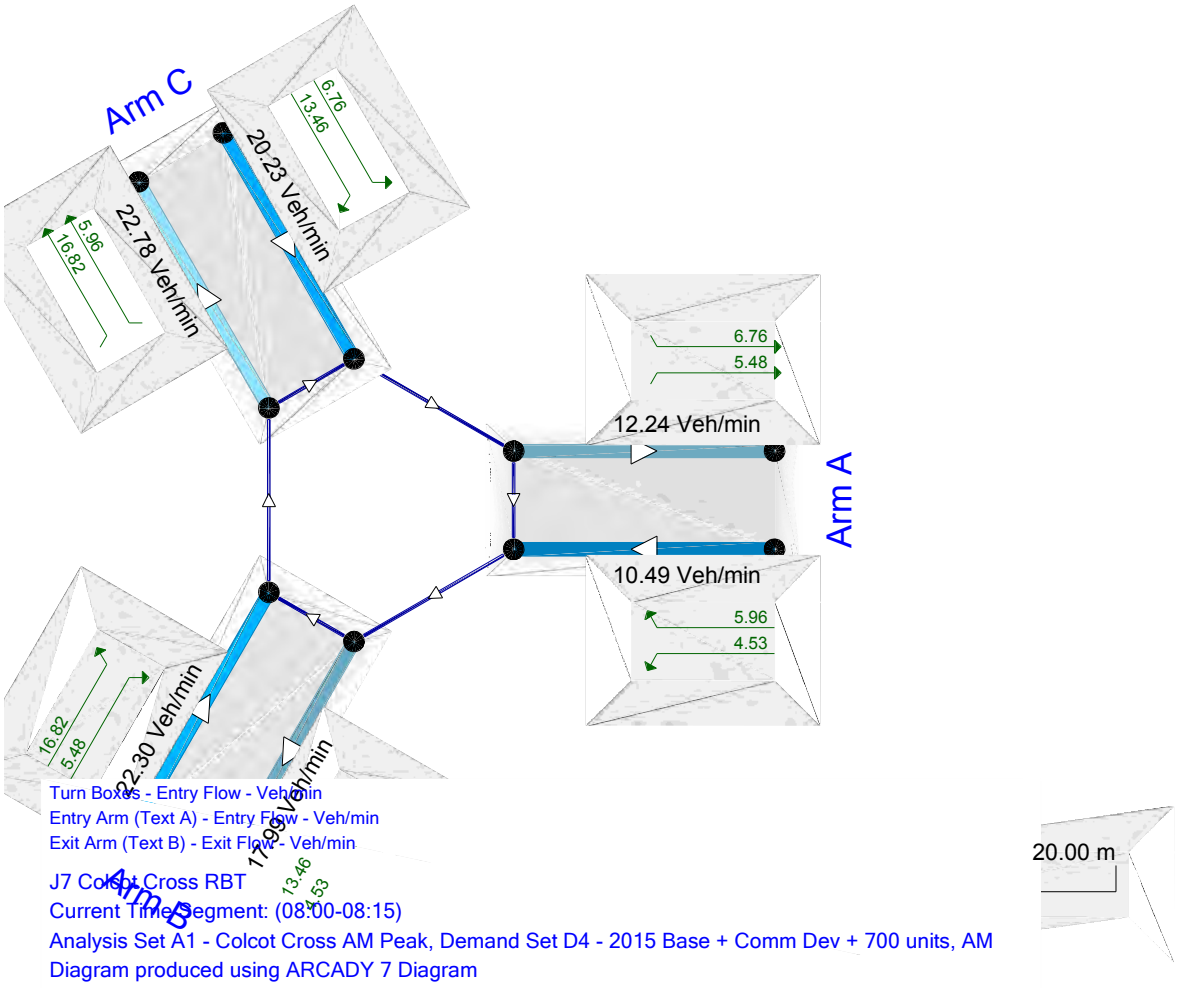

The junction diagram reflects the last run of ARCADY.

A1 - Colcot Cross AM Peak - D4 - 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
Colcot Cross AM 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 + Comm Dev + 700 units, AM	2015 Base + Comm Dev + 700 units	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		10.65	100.000	1.00
B	FLAT		26.83	100.000	1.00
C	FLAT		22.68	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	10.65	10.71	N/A	N/A
08:00-08:15	B	26.83	27.46	N/A	N/A
08:00-08:15	C	22.68	23.90	N/A	N/A
08:15-08:30	A	10.65	10.71	N/A	N/A
08:15-08:30	B	26.83	27.46	N/A	N/A
08:15-08:30	C	22.68	23.90	N/A	N/A
08:30-08:45	A	10.65	10.71	N/A	N/A
08:30-08:45	B	26.83	27.46	N/A	N/A
08:30-08:45	C	22.68	23.90	N/A	N/A
08:45-09:00	A	10.65	10.71	N/A	N/A
08:45-09:00	B	26.83	27.46	N/A	N/A
08:45-09:00	C	22.68	23.90	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	276.00	363.00
	B	358.00	0.00	1252.00
	C	409.00	851.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.43	0.57
	B	0.22	0.00	0.78
	C	0.32	0.68	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	0.57	0.12	1.31	A	10.65	639.00	76.64	0.12	1.28	76.69	0.12	0.597	28.639
B	1.18	9.56	246.46	F	26.83	1609.80	7529.44	4.68	125.49	8861.11	5.50	0.610	27.065
C	0.77	0.15	3.34	A	22.68	1360.80	193.09	0.14	3.22	193.28	0.14	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	10.65	159.75	10.56	12.29	15.17	0.00	18.84	15.77	0.565	0.00	1.28
B	26.83	402.45	22.49	19.74	6.00	0.00	22.84	21.06	1.175	0.00	65.08
C	22.68	340.20	22.47	23.49	5.00	0.00	29.44	29.64	0.770	0.00	3.22

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	10.65	159.75	10.65	12.43	15.31	0.00	18.75	15.77	0.568	1.28	1.30
B	26.83	402.45	22.79	19.91	6.05	0.00	22.81	21.06	1.176	65.08	125.66
C	22.68	340.20	22.67	23.77	5.07	0.00	29.39	29.64	0.772	3.22	3.30

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	10.65	159.75	10.65	12.43	15.32	0.00	18.75	15.77	0.568	1.30	1.31
B	26.83	402.45	22.80	19.92	6.05	0.00	22.81	21.06	1.176	125.66	186.08
C	22.68	340.20	22.68	23.78	5.07	0.00	29.39	29.64	0.772	3.30	3.33

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	10.65	159.75	10.65	12.43	15.32	0.00	18.75	15.77	0.568	1.31	1.31
B	26.83	402.45	22.80	19.92	6.05	0.00	22.81	21.06	1.176	186.08	246.46
C	22.68	340.20	22.68	23.78	5.07	0.00	29.39	29.64	0.772	3.33	3.34

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	18.14	1.21	0.120	A	A
B	516.30	34.42	1.565	F	F
C	44.21	2.95	0.139	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	19.37	1.29	0.123	A	A
B	1430.92	95.39	4.297	F	F
C	49.08	3.27	0.149	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	19.54	1.30	0.123	A	A
B	2338.10	155.87	6.923	F	F
C	49.76	3.32	0.149	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	19.60	1.31	0.123	A	A
B	3244.11	216.27	9.560	F	F
C	50.04	3.34	0.149	A	A

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\Import of J7 Colcot Cross RBT PM Peak.arc7
Report generation date: 10/06/2010 14:19:44

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Colcot Cross Roundabout - 2015 Base			
Arm A	0.99	0.10	0.50	A
Arm B	1.92	0.12	0.66	A
Arm C	1.44	0.08	0.59	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev			
Arm A	1.07	0.11	0.52	A
Arm B	2.96	0.17	0.75	B
Arm C	1.66	0.09	0.63	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev + 350 units			
Arm A	1.21	0.12	0.55	A
Arm B	3.85	0.21	0.80	B
Arm C	2.13	0.10	0.68	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev + 700 units			
Arm A	1.44	0.14	0.59	A
Arm B	5.31	0.27	0.85	C
Arm C	2.90	0.13	0.75	A

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

2015 Base - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev + 350 units - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev + 700 units - 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	27/05/2010
Version	
Status	
Identifier	
Client	
Jobnumber	FMW0408
Enumerator	NH
Description	
Results Upto Date	True

Analysis Options

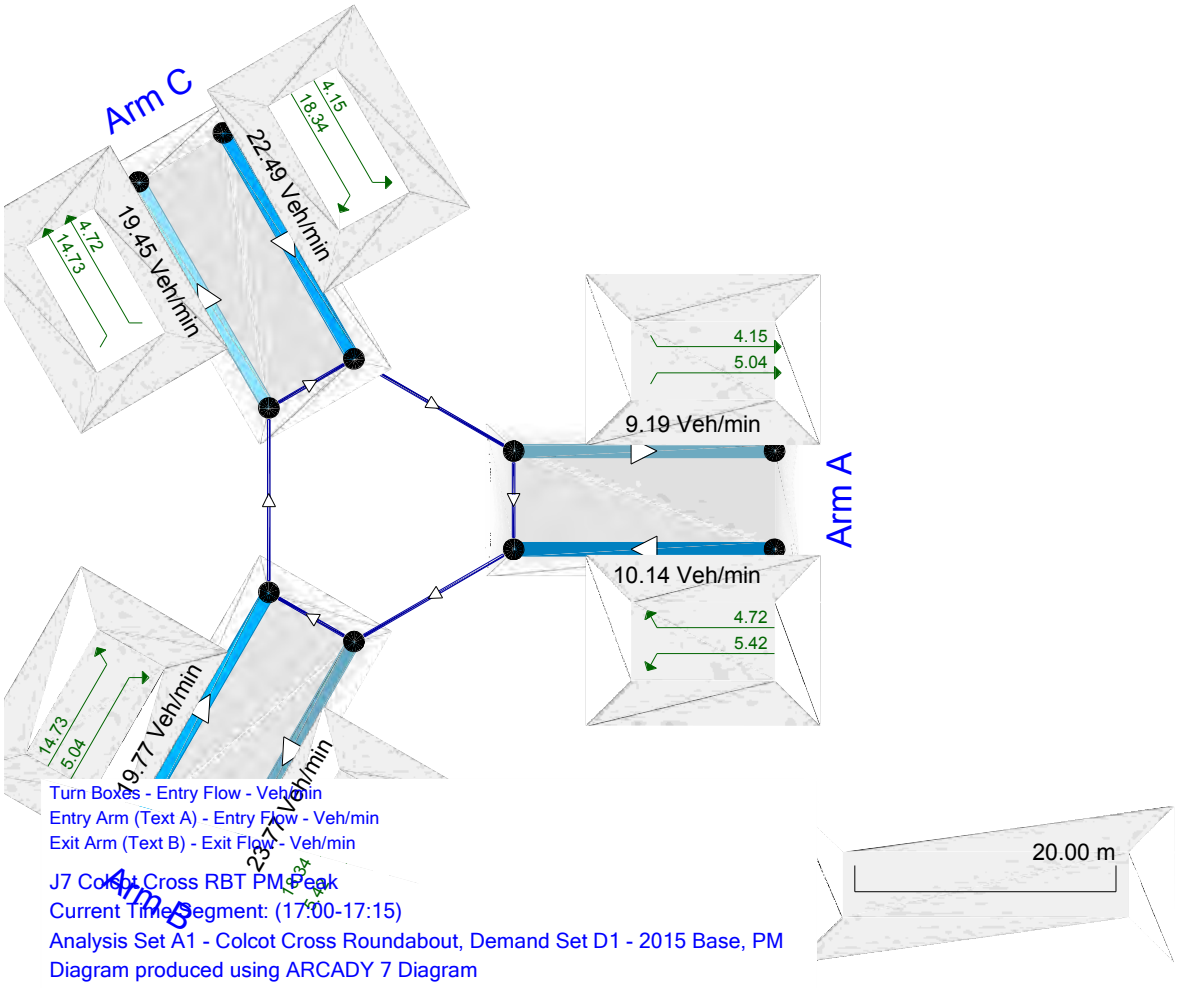
RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

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



The junction diagram reflects the last run of ARCADY.

A1 - Colcot Cross Roundabout - D1 - 2015 Base, 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
Colcot Cross Roundabout		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, PM	2015 Base	PM			Yes			17:00	18:00	60	15	Varies by Arm

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	DIRECT			100.000	1.00
B	DIRECT			100.000	1.00
C	DIRECT			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	15.70	15.93	N/A	N/A
17:00-17:15	C	18.35	18.63	N/A	N/A
17:15-17:30	A	9.95	10.00	N/A	N/A
17:15-17:30	B	15.70	15.93	N/A	N/A
17:15-17:30	C	18.35	18.63	N/A	N/A
17:30-17:45	A	9.95	10.00	N/A	N/A
17:30-17:45	B	15.70	15.93	N/A	N/A
17:30-17:45	C	18.35	18.63	N/A	N/A
17:45-18:00	A	9.95	10.00	N/A	N/A
17:45-18:00	B	15.70	15.93	N/A	N/A
17:45-18:00	C	18.35	18.63	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	686.00
	C	251.00	850.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.53	0.47
	B	0.27	0.00	0.73
	C	0.23	0.77	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	0.50	0.10	0.99	A	9.95	597.00	58.68	0.10	0.98	58.70	0.10	0.597	28.639
B	0.66	0.12	1.92	A	15.70	942.00	112.37	0.12	1.87	112.45	0.12	0.610	27.065
C	0.59	0.08	1.44	A	18.35	1101.00	85.19	0.08	1.42	85.22	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	14.09	0.00	19.97	14.57	0.498	0.00	0.98
B	15.70	235.50	15.57	19.33	4.65	0.00	23.85	22.52	0.658	0.00	1.88
C	18.35	275.25	18.25	15.99	4.23	0.00	31.06	29.80	0.591	0.00	1.43

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	14.17	0.00	19.92	14.57	0.499	0.98	0.99
B	15.70	235.50	15.70	19.43	4.68	0.00	23.83	22.52	0.659	1.88	1.91
C	18.35	275.25	18.35	16.12	4.27	0.00	31.04	29.80	0.591	1.43	1.44

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	9.95	149.25	9.95	8.45	14.17	0.00	19.92	14.57	0.499	0.99	0.99
B	15.70	235.50	15.70	19.43	4.68	0.00	23.83	22.52	0.659	1.91	1.91
C	18.35	275.25	18.35	16.12	4.27	0.00	31.04	29.80	0.591	1.44	1.44

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	14.17	0.00	19.92	14.57	0.499	0.99	0.99
B	15.70	235.50	15.70	19.43	4.68	0.00	23.83	22.52	0.659	1.91	1.92
C	18.35	275.25	18.35	16.12	4.27	0.00	31.04	29.80	0.591	1.44	1.44

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	14.09	0.94	0.099	A	A
B	26.51	1.77	0.119	A	A
C	20.52	1.37	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	14.80	0.99	0.100	A	A
B	28.45	1.90	0.123	A	A
C	21.48	1.43	0.079	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	14.88	0.99	0.100	A	A
B	28.66	1.91	0.123	A	A
C	21.57	1.44	0.079	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	14.91	0.99	0.100	A	A
B	28.75	1.92	0.123	A	A
C	21.61	1.44	0.079	A	A

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\Import of J7 Colcot Cross RBT PM Peak.arc7
Report generation date: 10/06/2010 14:20:09

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Colcot Cross Roundabout - 2015 Base			
Arm A	0.99	0.10	0.50	A
Arm B	1.92	0.12	0.66	A
Arm C	1.44	0.08	0.59	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev			
Arm A	1.07	0.11	0.52	A
Arm B	2.96	0.17	0.75	B
Arm C	1.66	0.09	0.63	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev + 350 units			
Arm A	1.21	0.12	0.55	A
Arm B	3.85	0.21	0.80	B
Arm C	2.13	0.10	0.68	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev + 700 units			
Arm A	1.44	0.14	0.59	A
Arm B	5.31	0.27	0.85	C
Arm C	2.90	0.13	0.75	A

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

2015 Base - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev + 350 units - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev + 700 units - 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	27/05/2010
Version	
Status	
Identifier	
Client	
Jobnumber	FMW0408
Enumerator	NH
Description	
Results Upto Date	True

Analysis Options

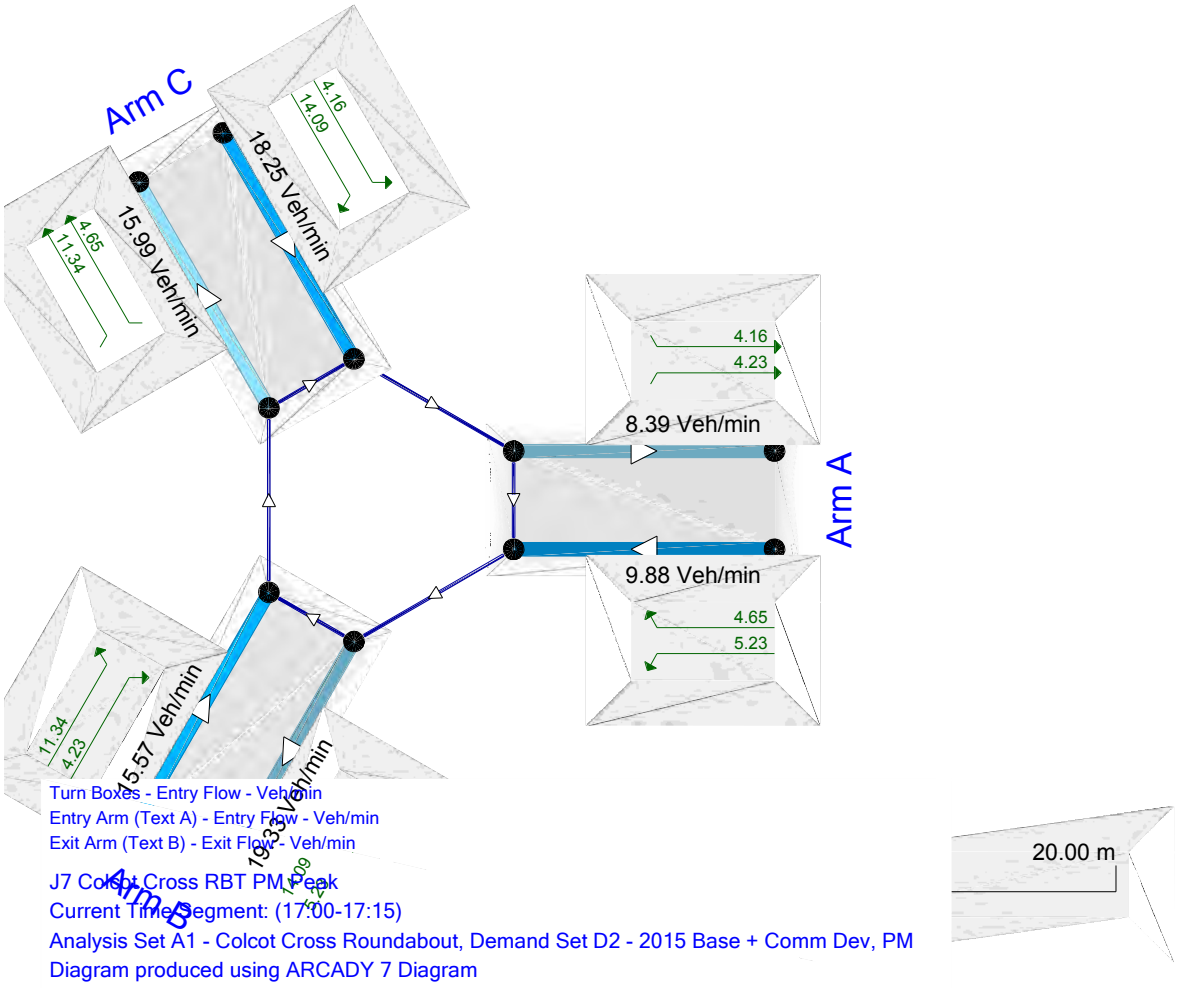
RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

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



The junction diagram reflects the last run of ARCADY.

A1 - Colcot Cross Roundabout - D2 - 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
Colcot Cross Roundabout		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	Varies by Arm

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	DIRECT			100.000	1.00
B	DIRECT			100.000	1.00
C	DIRECT			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	10.06	10.11	N/A	N/A
17:00-17:15	B	17.87	18.13	N/A	N/A
17:00-17:15	C	19.22	19.52	N/A	N/A
17:15-17:30	A	10.06	10.11	N/A	N/A
17:15-17:30	B	17.87	18.13	N/A	N/A
17:15-17:30	C	19.22	19.52	N/A	N/A
17:30-17:45	A	10.06	10.11	N/A	N/A
17:30-17:45	B	17.87	18.13	N/A	N/A
17:30-17:45	C	19.22	19.52	N/A	N/A
17:45-18:00	A	10.06	10.11	N/A	N/A
17:45-18:00	B	17.87	18.13	N/A	N/A
17:45-18:00	C	19.22	19.52	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	323.00	281.00
	B	282.00	0.00	790.00
	C	251.00	902.00	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	0.52	0.11	1.07	A	10.06	603.60	63.23	0.10	1.05	63.26	0.10	0.597	28.639
B	0.75	0.17	2.96	B	17.87	1072.20	171.31	0.16	2.86	171.50	0.16	0.610	27.065
C	0.63	0.09	1.66	A	19.22	1153.20	97.94	0.08	1.63	97.98	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	10.06	150.90	9.99	8.81	14.95	0.00	19.45	14.33	0.517	0.00	1.06
B	17.87	268.05	17.68	20.29	4.65	0.00	23.85	22.63	0.749	0.00	2.86
C	19.22	288.30	19.11	17.68	4.65	0.00	30.78	29.91	0.625	0.00	1.64

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	10.06	150.90	10.06	8.88	15.04	0.00	19.40	14.33	0.519	1.06	1.07
B	17.87	268.05	17.87	20.41	4.68	0.00	23.83	22.63	0.750	2.86	2.93
C	19.22	288.30	19.22	17.85	4.70	0.00	30.74	29.91	0.625	1.64	1.65

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	10.06	150.90	10.06	8.88	15.04	0.00	19.40	14.33	0.519	1.07	1.07
B	17.87	268.05	17.87	20.42	4.68	0.00	23.83	22.63	0.750	2.93	2.95
C	19.22	288.30	19.22	17.85	4.70	0.00	30.74	29.91	0.625	1.65	1.66

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	10.06	150.90	10.06	8.88	15.04	0.00	19.40	14.33	0.519	1.07	1.07
B	17.87	268.05	17.87	20.42	4.68	0.00	23.83	22.63	0.750	2.95	2.96
C	19.22	288.30	19.22	17.85	4.70	0.00	30.74	29.91	0.625	1.66	1.66

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	15.13	1.01	0.105	A	A
B	39.21	2.61	0.158	A	A
C	23.46	1.56	0.085	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	15.96	1.06	0.107	A	A
B	43.57	2.90	0.167	B	B
C	24.72	1.65	0.087	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	16.05	1.07	0.107	A	A
B	44.15	2.94	0.167	B	B
C	24.85	1.66	0.087	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	16.09	1.07	0.107	A	A
B	44.38	2.96	0.168	B	B
C	24.90	1.66	0.087	A	A

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\Import of J7 Colcot Cross RBT PM Peak.arc7
Report generation date: 10/06/2010 14:20:30

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Colcot Cross Roundabout - 2015 Base			
Arm A	0.99	0.10	0.50	A
Arm B	1.92	0.12	0.66	A
Arm C	1.44	0.08	0.59	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev			
Arm A	1.07	0.11	0.52	A
Arm B	2.96	0.17	0.75	B
Arm C	1.66	0.09	0.63	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev + 350 units			
Arm A	1.21	0.12	0.55	A
Arm B	3.85	0.21	0.80	B
Arm C	2.13	0.10	0.68	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev + 700 units			
Arm A	1.44	0.14	0.59	A
Arm B	5.31	0.27	0.85	C
Arm C	2.90	0.13	0.75	A

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

2015 Base - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev + 350 units - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev + 700 units - 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	27/05/2010
Version	
Status	
Identifier	
Client	
Jobnumber	FMW0408
Enumerator	NH
Description	
Results Upto Date	True

Analysis Options

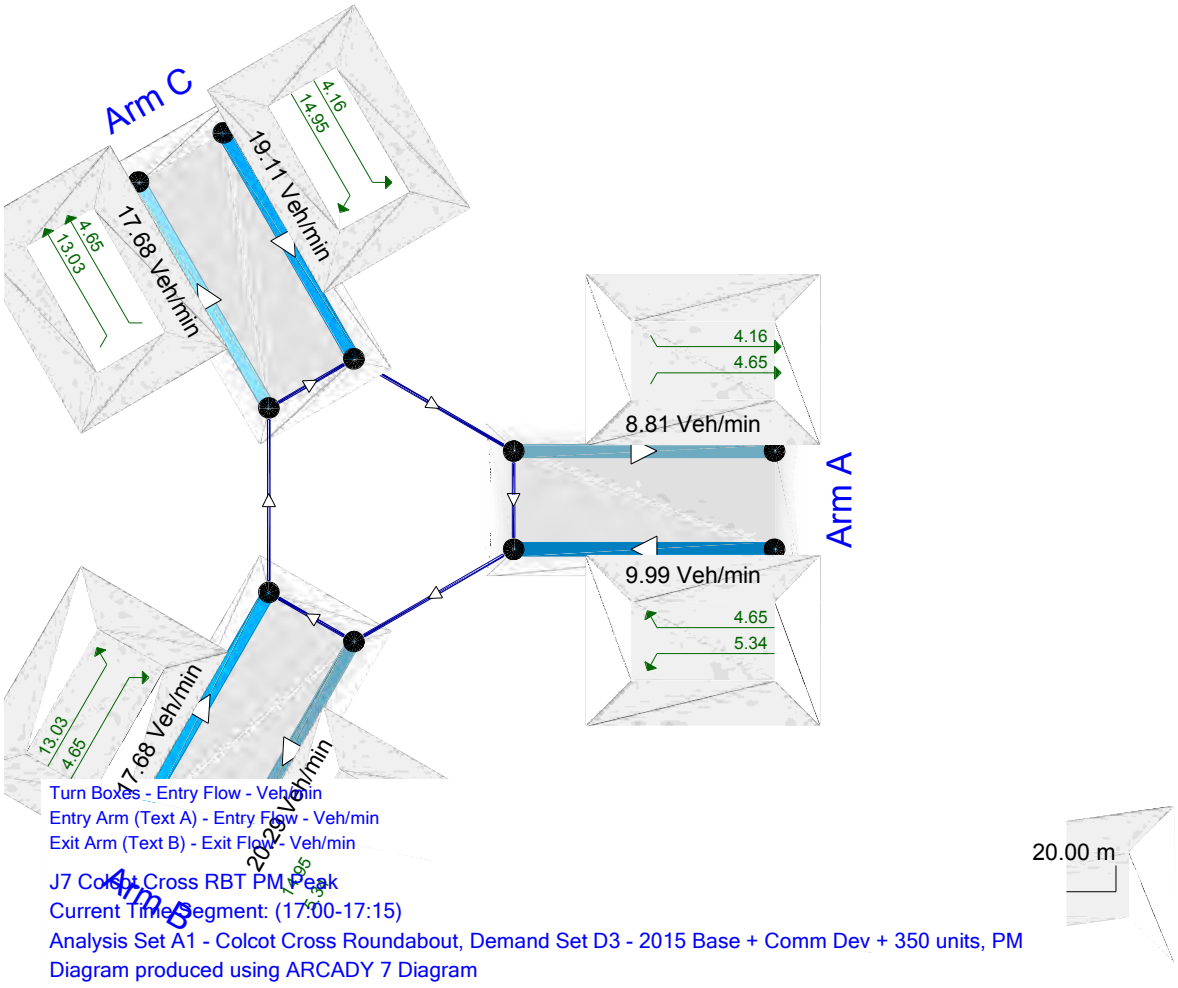
RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

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



The junction diagram reflects the last run of ARCADY.

A1 - Colcot Cross Roundabout - D3 - 2015 Base + Comm Dev + 350 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
Colcot Cross Roundabout		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	2015 Base + 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	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		10.07	100.000	1.00
B	FLAT		18.98	100.000	1.00
C	FLAT		20.95	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	10.07	10.12	N/A	N/A
17:00-17:15	B	18.98	19.27	N/A	N/A
17:00-17:15	C	20.95	21.29	N/A	N/A
17:15-17:30	A	10.07	10.12	N/A	N/A
17:15-17:30	B	18.98	19.27	N/A	N/A
17:15-17:30	C	20.95	21.29	N/A	N/A
17:30-17:45	A	10.07	10.12	N/A	N/A
17:30-17:45	B	18.98	19.27	N/A	N/A
17:30-17:45	C	20.95	21.29	N/A	N/A
17:45-18:00	A	10.07	10.12	N/A	N/A
17:45-18:00	B	18.98	19.27	N/A	N/A
17:45-18:00	C	20.95	21.29	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	323.00	281.00
	B	282.00	0.00	857.00
	C	251.00	1006.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.53	0.47
	B	0.25	0.00	0.75
	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	0.55	0.12	1.21	A	10.07	604.20	71.10	0.12	1.18	71.14	0.12	0.597	28.639
B	0.80	0.21	3.85	B	18.98	1138.80	220.06	0.19	3.67	220.37	0.19	0.610	27.065
C	0.68	0.10	2.13	A	20.95	1257.00	124.92	0.10	2.08	124.99	0.10	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	10.07	151.05	9.99	8.79	16.66	0.00	18.41	13.90	0.547	0.00	1.19
B	18.98	284.70	18.74	22.00	4.65	0.00	23.84	22.74	0.796	0.00	3.67
C	20.95	314.25	20.81	18.74	4.64	0.00	30.77	30.11	0.681	0.00	2.09

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	10.07	151.05	10.07	8.88	16.77	0.00	18.35	13.90	0.549	1.19	1.20
B	18.98	284.70	18.97	22.15	4.68	0.00	23.82	22.74	0.797	3.67	3.79
C	20.95	314.25	20.95	18.96	4.70	0.00	30.73	30.11	0.682	2.09	2.12

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	10.07	151.05	10.07	8.88	16.77	0.00	18.35	13.90	0.549	1.20	1.21
B	18.98	284.70	18.98	22.15	4.68	0.00	23.82	22.74	0.797	3.79	3.83
C	20.95	314.25	20.95	18.96	4.70	0.00	30.73	30.11	0.682	2.12	2.13

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	10.07	151.05	10.07	8.88	16.77	0.00	18.35	13.90	0.549	1.21	1.21
B	18.98	284.70	18.98	22.15	4.68	0.00	23.82	22.74	0.797	3.83	3.85
C	20.95	314.25	20.95	18.96	4.70	0.00	30.73	30.11	0.682	2.13	2.13

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	16.89	1.13	0.118	A	A
B	49.04	3.27	0.188	B	B
C	29.58	1.97	0.099	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	17.96	1.20	0.121	A	A
B	56.14	3.74	0.205	B	B
C	31.59	2.11	0.102	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	18.10	1.21	0.121	A	A
B	57.22	3.81	0.206	B	B
C	31.83	2.12	0.102	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	18.15	1.21	0.121	A	A
B	57.67	3.84	0.206	B	B
C	31.92	2.13	0.102	A	A

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\Import of J7 Colcot Cross RBT PM Peak.arc7
Report generation date: 10/06/2010 14:20:50

Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	Colcot Cross Roundabout - 2015 Base			
Arm A	0.99	0.10	0.50	A
Arm B	1.92	0.12	0.66	A
Arm C	1.44	0.08	0.59	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev			
Arm A	1.07	0.11	0.52	A
Arm B	2.96	0.17	0.75	B
Arm C	1.66	0.09	0.63	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev + 350 units			
Arm A	1.21	0.12	0.55	A
Arm B	3.85	0.21	0.80	B
Arm C	2.13	0.10	0.68	A
	Colcot Cross Roundabout - 2015 Base + Comm Dev + 700 units			
Arm A	1.44	0.14	0.59	A
Arm B	5.31	0.27	0.85	C
Arm C	2.90	0.13	0.75	A

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

2015 Base - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev + 350 units - PM runs from 17:00:00 to 18:00:00
2015 Base + Comm Dev + 700 units - 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	27/05/2010
Version	
Status	
Identifier	
Client	
Jobnumber	FMW0408
Enumerator	NH
Description	
Results Upto Date	True

Analysis Options

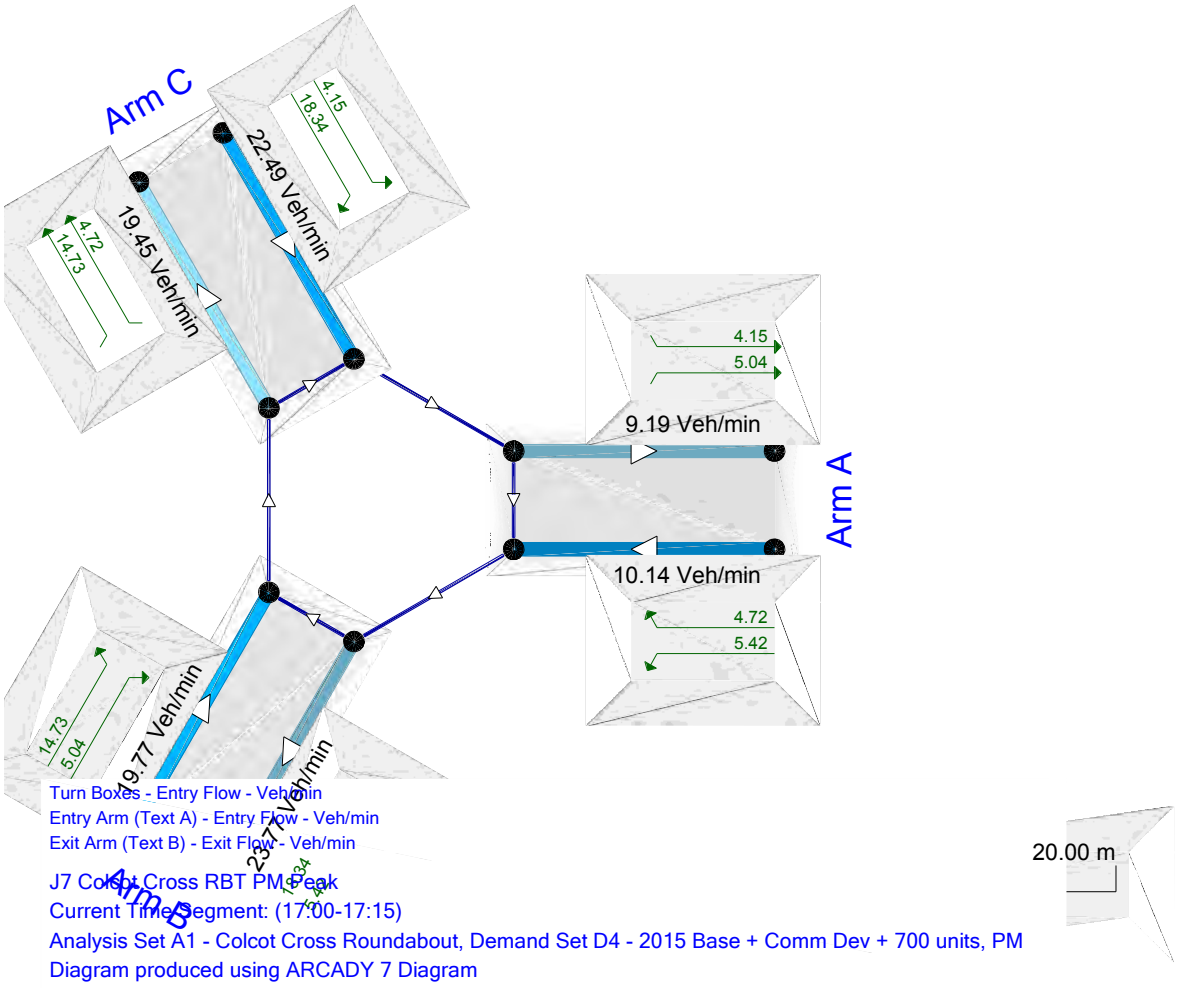
RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

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



The junction diagram reflects the last run of ARCADY.

A1 - Colcot Cross Roundabout - 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
Colcot Cross Roundabout		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			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		10.23	100.000	1.00
B	FLAT		20.10	100.000	1.00
C	FLAT		22.68	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	10.23	10.28	N/A	N/A
17:00-17:15	B	20.10	20.40	N/A	N/A
17:00-17:15	C	22.68	23.05	N/A	N/A
17:15-17:30	A	10.23	10.28	N/A	N/A
17:15-17:30	B	20.10	20.40	N/A	N/A
17:15-17:30	C	22.68	23.05	N/A	N/A
17:30-17:45	A	10.23	10.28	N/A	N/A
17:30-17:45	B	20.10	20.40	N/A	N/A
17:30-17:45	C	22.68	23.05	N/A	N/A
17:45-18:00	A	10.23	10.28	N/A	N/A
17:45-18:00	B	20.10	20.40	N/A	N/A
17:45-18:00	C	22.68	23.05	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	323.00	281.00
	B	282.00	0.00	824.00
	C	251.00	1110.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.53	0.47
	B	0.25	0.00	0.75
	C	0.18	0.82	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	0.14	1.44	A	10.23	613.80	83.98	0.14	1.40	84.04	0.14	0.597	28.639
B	0.85	0.27	5.31	C	20.10	1206.00	296.70	0.25	4.94	297.29	0.25	0.610	27.065
C	0.75	0.13	2.90	A	22.68	1360.80	168.38	0.12	2.81	168.51	0.12	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	10.23	153.45	10.14	9.19	18.34	0.00	17.39	13.69	0.588	0.00	1.40
B	20.10	301.50	19.77	23.77	4.72	0.00	23.81	22.80	0.844	0.00	4.90
C	22.68	340.20	22.49	19.45	5.04	0.00	30.49	29.98	0.744	0.00	2.81

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	10.23	153.45	10.23	9.30	18.49	0.00	17.30	13.69	0.591	1.40	1.43
B	20.10	301.50	20.08	23.96	4.76	0.00	23.78	22.80	0.845	4.90	5.16
C	22.68	340.20	22.68	19.72	5.12	0.00	30.44	29.98	0.745	2.81	2.87

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	10.23	153.45	10.23	9.31	18.50	0.00	17.30	13.69	0.591	1.43	1.43
B	20.10	301.50	20.09	23.97	4.76	0.00	23.78	22.80	0.845	5.16	5.26
C	22.68	340.20	22.68	19.73	5.12	0.00	30.44	29.98	0.745	2.87	2.89

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	10.23	153.45	10.23	9.31	18.50	0.00	17.30	13.69	0.591	1.43	1.44
B	20.10	301.50	20.10	23.97	4.76	0.00	23.78	22.80	0.845	5.26	5.31
C	22.68	340.20	22.68	19.73	5.12	0.00	30.44	29.98	0.745	2.89	2.90

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	19.72	1.31	0.136	A	A
B	63.25	4.22	0.232	B	B
C	39.06	2.60	0.122	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	21.25	1.42	0.141	A	A
B	75.91	5.06	0.267	C	B
C	42.71	2.85	0.129	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	21.47	1.43	0.141	A	A
B	78.26	5.22	0.269	C	B
C	43.20	2.88	0.129	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	21.55	1.44	0.141	A	A
B	79.28	5.29	0.270	C	B
C	43.40	2.89	0.129	A	A

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Run with file:-
"Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT AM Peak.vai"
(drive-on-the-left) at 13:29:10 on Thursday, 10 June 2010

FILE PROPERTIES

RUN TITLE: J9 Rhoose Point RBT AM Peak
LOCATION: Rhoose
DATE: 28/05/10
CLIENT:
ENUMERATOR: NH
JOB NUMBER: FMW0408
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Pentir Y De
ARM B - Porthkerry Road (W)
ARM C - Porthkerry Road (E)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	6.00	9.50	53.00	36.00	24.0	0.641	26.341
ARM B	3.00	6.00	27.50	21.00	36.00	35.0	0.617	25.984
ARM C	3.00	6.00	38.00	15.00	36.00	47.0	0.589	25.193

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(08.00)AND ENDS(09.00)

LENGTH OF TIME PERIOD -(60) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

DEMAND SET TITLE: 2015 Base Flows + Comm Dev + 350 units AM

DEMAND SET TITLE: 2015 Base Flows + Comm Dev + 350 units AM

T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
08.00 - 09.00	ARM A	0.000	0.165	0.835
		0.0	82.0	416.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.106	0.000	0.894
		44.0	0.0	370.0
		(0.0)	(0.0)	(2.0)
	ARM C	0.430	0.570	0.000
		136.0	180.0	0.0
		(5.0)	(4.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
ARM A	8.30	24.35	0.341	- - -	0.0	0.5	7.5	-	0.062
ARM B	6.90	21.34	0.323	- - -	0.0	0.5	6.9	-	0.069
ARM C	5.27	23.71	0.222	- - -	0.0	0.3	4.2	-	0.054

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
ARM A	8.30	24.34	0.341	- - -	0.5	0.5	7.7	-	0.062
ARM B	6.90	21.33	0.324	- - -	0.5	0.5	7.1	-	0.069
ARM C	5.27	23.71	0.222	- - -	0.3	0.3	4.3	-	0.054

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
ARM A	8.30	24.34	0.341	- - -	0.5	0.5	7.7	-	0.062
ARM B	6.90	21.33	0.324	- - -	0.5	0.5	7.2	-	0.069
ARM C	5.27	23.71	0.222	- - -	0.3	0.3	4.3	-	0.054

TRL TRL Viewer 3.2 AG Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT AM Peak.vao

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
ARM A	8.30	24.34	0.341	- - -	0.5	0.5	7.7	-	0.062
ARM B	6.90	21.33	0.324	- - -	0.5	0.5	7.2	-	0.069
ARM C	5.27	23.71	0.222	- - -	0.3	0.3	4.3	-	0.054

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.5	*
08.30	0.5	*
08.45	0.5	*
09.00	0.5	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.5
08.30	0.5
08.45	0.5
09.00	0.5

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.30	0.3
08.45	0.3
09.00	0.3

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	498.0	498.0	30.7	0.06	30.7	0.06
B	414.0	414.0	28.4	0.07	28.4	0.07
C	316.2	316.2	17.0	0.05	17.0	0.05
ALL	1228.2	1228.2	76.1	0.06	76.1	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

========== end of file ==========

Printed at 13:29:20 on 10/06/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT PM Peak.vai"
(drive-on-the-left) at 13:36:11 on Thursday, 10 June 2010

FILE PROPERTIES

RUN TITLE: J9 Rhoose Point RBT PM Peak
LOCATION: Rhoose
DATE: 28/05/10
CLIENT:
ENUMERATOR: NH
JOB NUMBER: FMW0408
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Pentir Y De
ARM B - Porthkerry Road (W)
ARM C - Porthkerry Road (E)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	6.00	9.50	53.00	36.00	24.0	0.641	26.341
ARM B	3.00	6.00	27.50	21.00	36.00	35.0	0.617	25.984
ARM C	3.00	6.00	38.00	15.00	36.00	47.0	0.589	25.193

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(17.00)AND ENDS(18.00)

LENGTH OF TIME PERIOD -(60) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

DEMAND SET TITLE: 2015 Base Flows + Comm Dev + 350 units PM

DEMAND SET TITLE: 2015 Base Flows + Comm Dev + 350 units PM

T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
17.00 - 18.00	ARM A	0.000	0.177	0.823
		0.0	40.0	186.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.220	0.000	0.780
		56.0	0.0	199.0
		(0.0)	(0.0)	(1.0)
	ARM C	0.416	0.584	0.000
		324.0	454.0	0.0
		(0.0)	(0.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
ARM A	3.77	21.50	0.175	- - -	0.0	0.2	3.1	-	0.056
ARM B	4.25	23.89	0.178	- - -	0.0	0.2	3.2	-	0.051
ARM C	13.00	24.65	0.527	- - -	0.0	1.1	15.9	-	0.085

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
ARM A	3.77	21.48	0.176	- - -	0.2	0.2	3.2	-	0.056
ARM B	4.25	23.88	0.178	- - -	0.2	0.2	3.2	-	0.051
ARM C	13.00	24.64	0.528	- - -	1.1	1.1	16.6	-	0.086

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
ARM A	3.77	21.47	0.176	- - -	0.2	0.2	3.2	-	0.057
ARM B	4.25	23.88	0.178	- - -	0.2	0.2	3.2	-	0.051
ARM C	13.00	24.64	0.528	- - -	1.1	1.1	16.7	-	0.086

TRL TRL Viewer 3.2 AG Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT PM Peak.vao

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	3.77	21.47	0.176	- - -	0.2	0.2	3.2	-	0.057
ARM B	4.25	23.88	0.178	- - -	0.2	0.2	3.2	-	0.051
ARM C	13.00	24.64	0.528	- - -	1.1	1.1	16.7	-	0.086

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.2
17.30	0.2
17.45	0.2
18.00	0.2

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.2
17.30	0.2
17.45	0.2
18.00	0.2

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	1.1 *
17.30	1.1 *
17.45	1.1 *
18.00	1.1 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	226.2	226.2	12.7	0.06	12.7	0.06
B	255.0	255.0	12.9	0.05	12.9	0.05
C	780.0	780.0	65.9	0.08	65.9	0.08
ALL	1261.2	1261.2	91.4	0.07	91.5	0.07

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

========== end of file ==========

Printed at 13:36:19 on 10/06/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Run with file:-
"Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT AM Peak.vai"
(drive-on-the-left) at 13:33:47 on Thursday, 10 June 2010

FILE PROPERTIES

RUN TITLE: J9 Rhoose Point RBT AM Peak
LOCATION: Rhoose
DATE: 28/05/10
CLIENT:
ENUMERATOR: NH
JOB NUMBER: FMW0408
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Pentir Y De
ARM B - Porthkerry Road (W)
ARM C - Porthkerry Road (E)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	6.00	9.50	53.00	36.00	24.0	0.641	26.341
ARM B	3.00	6.00	27.50	21.00	36.00	35.0	0.617	25.984
ARM C	3.00	6.00	38.00	15.00	36.00	47.0	0.589	25.193

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(08.00)AND ENDS(09.00)

LENGTH OF TIME PERIOD -(60) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

DEMAND SET TITLE: 2015 Base Flows + Comm Dev + 700 units AM

DEMAND SET TITLE: 2015 Base Flows + Comm Dev + 700 units AM

T33

TIME	FROM/TO	TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
08.00 - 09.00	ARM A	0.000	0.160	0.840
		0.0	123.0	647.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.127	0.000	0.873
		54.0	0.0	370.0
		(0.0)	(0.0)	(2.0)
	ARM C	0.515	0.485	0.000
		191.0	180.0	0.0
		(5.0)	(4.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
ARM A	12.83	24.35	0.527	- - -	0.0	1.1	15.9	-	0.086
ARM B	7.06	19.04	0.371	- - -	0.0	0.6	8.5	-	0.083
ARM C	6.18	23.60	0.262	- - -	0.0	0.4	5.2	-	0.057

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
ARM A	12.83	24.34	0.527	- - -	1.1	1.1	16.6	-	0.087
ARM B	7.06	19.00	0.372	- - -	0.6	0.6	8.8	-	0.084
ARM C	6.18	23.60	0.262	- - -	0.4	0.4	5.3	-	0.057

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
ARM A	12.83	24.34	0.527	- - -	1.1	1.1	16.6	-	0.087
ARM B	7.06	19.00	0.372	- - -	0.6	0.6	8.8	-	0.084
ARM C	6.18	23.60	0.262	- - -	0.4	0.4	5.3	-	0.057

TRL TRL Viewer 3.2 AG Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT AM Peak.vao

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
ARM A	12.83	24.34	0.527	- - -	1.1	1.1	16.7	-	0.087
ARM B	7.06	19.00	0.372	- - -	0.6	0.6	8.8	-	0.084
ARM C	6.18	23.60	0.262	- - -	0.4	0.4	5.3	-	0.057

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.30	1.1	*
08.45	1.1	*
09.00	1.1	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.6	*
08.30	0.6	*
08.45	0.6	*
09.00	0.6	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.4
08.30	0.4
08.45	0.4
09.00	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	769.8	769.8	65.7	0.09	65.8	0.09
B	423.6	423.6	35.0	0.08	35.0	0.08
C	370.8	370.8	21.1	0.06	21.1	0.06
ALL	1564.2	1564.2	121.8	0.08	121.8	0.08

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
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END OF JOB

========== end of file ==========

Printed at 13:33:55 on 10/06/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

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Run with file:-
"Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT PM Peak.vai"
(drive-on-the-left) at 13:42:35 on Thursday, 10 June 2010

FILE PROPERTIES

RUN TITLE: J9 Rhoose Point RBT PM Peak
LOCATION: Rhoose
DATE: 28/05/10
CLIENT:
ENUMERATOR: NH
JOB NUMBER: FMW0408
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Pentir Y De
ARM B - Porthkerry Road (W)
ARM C - Porthkerry Road (E)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	6.00	9.50	53.00	36.00	24.0	0.641	26.341
ARM B	3.00	6.00	27.50	21.00	36.00	35.0	0.617	25.984
ARM C	3.00	6.00	38.00	15.00	36.00	47.0	0.589	25.193

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(17.00)AND ENDS(18.00)

LENGTH OF TIME PERIOD -(60) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

DEMAND SET TITLE: 2015 Base Flows + Comm Dev + 700 units PM

DEMAND SET TITLE: 2015 Base Flows + Comm Dev + 700 units PM

T33

TIME	FROM/TO	TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
17.00 - 18.00	ARM A	0.000	0.168	0.832
		0.0	58.0	287.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.299	0.000	0.701
		85.0	0.0	199.0
		(0.0)	(0.0)	(1.0)
	ARM C	0.515	0.485	0.000
		482.0	454.0	0.0
		(0.0)	(0.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
ARM A	5.75	21.52	0.267	- - -	0.0	0.4	5.3	-	0.063
ARM B	4.73	22.89	0.207	- - -	0.0	0.3	3.8	-	0.055
ARM C	15.60	24.36	0.640	- - -	0.0	1.7	24.7	-	0.111

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
ARM A	5.75	21.49	0.268	- - -	0.4	0.4	5.5	-	0.064
ARM B	4.73	22.87	0.207	- - -	0.3	0.3	3.9	-	0.055
ARM C	15.60	24.36	0.640	- - -	1.7	1.8	26.3	-	0.114

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
ARM A	5.75	21.49	0.268	- - -	0.4	0.4	5.5	-	0.064
ARM B	4.73	22.87	0.207	- - -	0.3	0.3	3.9	-	0.055
ARM C	15.60	24.36	0.640	- - -	1.8	1.8	26.5	-	0.114

TRL TRL Viewer 3.2 AG Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT PM Peak.vao

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	5.75	21.49	0.268	- - -	0.4	0.4	5.5	-	0.064
ARM B	4.73	22.87	0.207	- - -	0.3	0.3	3.9	-	0.055
ARM C	15.60	24.36	0.640	- - -	1.8	1.8	26.6	-	0.114

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.4
17.30	0.4
17.45	0.4
18.00	0.4

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.3
17.30	0.3
17.45	0.3
18.00	0.3

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	1.7 **
17.30	1.8 **
17.45	1.8 **
18.00	1.8 **

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	345.0	345.0	21.7	0.06	21.7	0.06
B	283.8	283.8	15.5	0.05	15.5	0.05
C	936.0	936.0	104.1	0.11	104.1	0.11
ALL	1564.8	1564.8	141.3	0.09	141.3	0.09

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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

========== end of file ==========

Printed at 13:42:42 on 10/06/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

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Run with file:-
"Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT AM Peak.vai"
(drive-on-the-left) at 10:32:04 on Friday, 28 May 2010

FILE PROPERTIES

RUN TITLE: J9 Rhoose Point RBT AM Peak
LOCATION: Rhoose
DATE: 28/05/10
CLIENT:
ENUMERATOR: NH
JOB NUMBER: FMW0408
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Pentir Y De
ARM B - Porthkerry Road (W)
ARM C - Porthkerry Road (E)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	6.00	9.50	53.00	36.00	24.0	0.641	26.341
ARM B	3.00	6.00	27.50	21.00	36.00	35.0	0.617	25.984
ARM C	3.00	6.00	38.00	15.00	36.00	47.0	0.589	25.193

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(08.00)AND ENDS(09.00)

LENGTH OF TIME PERIOD -(60) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

DEMAND SET TITLE: 2015 Base Flows + Comm Dev AM

DEMAND SET TITLE: 2015 Base Flows + Comm Dev AM

T33

TIME	FROM/TO	TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
08.00 - 09.00	ARM A	0.000	0.178	0.822
		0.0	40.0	185.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.084	0.000	0.916
		34.0	0.0	370.0
		(0.0)	(0.0)	(2.0)
	ARM C	0.338	0.662	0.000
		92.0	180.0	0.0
		(5.0)	(4.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
ARM A	3.75	24.42	0.154	- - -	0.0	0.2	2.7	-	0.048
ARM B	6.73	23.65	0.285	- - -	0.0	0.4	5.8	-	0.059
ARM C	4.37	23.83	0.183	- - -	0.0	0.2	3.3	-	0.051

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
ARM A	3.75	24.41	0.154	- - -	0.2	0.2	2.7	-	0.048
ARM B	6.73	23.65	0.285	- - -	0.4	0.4	5.9	-	0.059
ARM C	4.37	23.83	0.183	- - -	0.2	0.2	3.4	-	0.051

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
ARM A	3.75	24.41	0.154	- - -	0.2	0.2	2.7	-	0.048
ARM B	6.73	23.65	0.285	- - -	0.4	0.4	6.0	-	0.059
ARM C	4.37	23.83	0.183	- - -	0.2	0.2	3.4	-	0.051

TRL TRL Viewer 3.2 AG Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT AM Peak.vao

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
ARM A	3.75	24.41	0.154	- - -	0.2	0.2	2.7	-	0.048
ARM B	6.73	23.65	0.285	- - -	0.4	0.4	6.0	-	0.059
ARM C	4.37	23.83	0.183	- - -	0.2	0.2	3.4	-	0.051

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.30	0.2
08.45	0.2
09.00	0.2

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.4
08.30	0.4
08.45	0.4
09.00	0.4

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.30	0.2
08.45	0.2
09.00	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	225.0	225.0	10.8	0.05	10.8	0.05
B	403.8	403.8	23.7	0.06	23.7	0.06
C	262.2	262.2	13.4	0.05	13.4	0.05
ALL	891.0	891.0	47.8	0.05	47.9	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

========== end of file ==========

Printed at 10:32:21 on 28/05/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT PM Peak.vai"
(drive-on-the-left) at 10:57:38 on Friday, 28 May 2010

FILE PROPERTIES

RUN TITLE: J9 Rhoose Point RBT PM Peak
LOCATION: Rhoose
DATE: 28/05/10
CLIENT:
ENUMERATOR: NH
JOB NUMBER: FMW0408
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Pentir Y De
ARM B - Porthkerry Road (W)
ARM C - Porthkerry Road (E)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	6.00	9.50	53.00	36.00	24.0	0.641	26.341
ARM B	3.00	6.00	27.50	21.00	36.00	35.0	0.617	25.984
ARM C	3.00	6.00	38.00	15.00	36.00	47.0	0.589	25.193

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(17.00)AND ENDS(18.00)

LENGTH OF TIME PERIOD -(60) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

DEMAND SET TITLE: 2015 Base Flows + Comm Dev PM

DEMAND SET TITLE: 2015 Base Flows + Comm Dev PM

T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
17.00 - 18.00	ARM A	0.000	0.253	0.747
		0.0	22.0	65.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.123	0.000	0.877
		28.0	0.0	199.0
		(0.0)	(0.0)	(1.0)
	ARM C	0.269	0.731	0.000
		167.0	454.0	0.0
		(0.0)	(0.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
ARM A	1.78	21.51	0.083	- - -	0.0	0.1	1.3	-	0.051
ARM B	3.78	24.95	0.152	- - -	0.0	0.2	2.6	-	0.047
ARM C	10.35	24.92	0.415	- - -	0.0	0.7	10.3	-	0.068

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
ARM A	1.78	21.49	0.083	- - -	0.1	0.1	1.4	-	0.051
ARM B	3.78	24.94	0.152	- - -	0.2	0.2	2.7	-	0.047
ARM C	10.35	24.92	0.415	- - -	0.7	0.7	10.6	-	0.069

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
ARM A	1.78	21.49	0.083	- - -	0.1	0.1	1.4	-	0.051
ARM B	3.78	24.94	0.152	- - -	0.2	0.2	2.7	-	0.047
ARM C	10.35	24.92	0.415	- - -	0.7	0.7	10.6	-	0.069

TRL TRL Viewer 3.2 AG Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT PM Peak.vao

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	1.78	21.49	0.083	- - -	0.1	0.1	1.4	-	0.051
ARM B	3.78	24.94	0.152	- - -	0.2	0.2	2.7	-	0.047
ARM C	10.35	24.92	0.415	- - -	0.7	0.7	10.6	-	0.069

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.2
17.30	0.2
17.45	0.2
18.00	0.2

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.7 *
17.30	0.7 *
17.45	0.7 *
18.00	0.7 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	106.8	106.8	5.4	0.05	5.4	0.05
B	226.8	226.8	10.6	0.05	10.6	0.05
C	621.0	621.0	42.1	0.07	42.1	0.07
ALL	954.6	954.6	58.2	0.06	58.2	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

========== end of file ==========

Printed at 10:57:46 on 28/05/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT AM Peak.vai"
(drive-on-the-left) at 10:28:29 on Friday, 28 May 2010

FILE PROPERTIES

RUN TITLE: J9 Rhoose Point RBT AM Peak
LOCATION: Rhoose
DATE: 28/05/10
CLIENT:
ENUMERATOR: NH
JOB NUMBER: FMW0408
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Pentir Y De
ARM B - Porthkerry Road (W)
ARM C - Porthkerry Road (E)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	6.00	9.50	53.00	36.00	24.0	0.641	26.341
ARM B	3.00	6.00	27.50	21.00	36.00	35.0	0.617	25.984
ARM C	3.00	6.00	38.00	15.00	36.00	47.0	0.589	25.193

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(08.00)AND ENDS(09.00)

LENGTH OF TIME PERIOD -(60) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

DEMAND SET TITLE: 2015 Base Flows AM

DEMAND SET TITLE: 2015 Base Flows AM

T33

TIME	FROM/TO	TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
08.00 - 09.00	ARM A	0.000	0.186	0.814
		0.0	33.0	144.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.062	0.000	0.938
		24.0	0.0	363.0
		(0.0)	(0.0)	(2.0)
	ARM C	0.122	0.878	0.000
		24.0	173.0	0.0
		(5.0)	(4.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
ARM A	2.95	24.43	0.121	- - -	0.0	0.1	2.0	-	0.047
ARM B	6.45	24.06	0.268	- - -	0.0	0.4	5.3	-	0.057
ARM C	3.28	23.97	0.137	- - -	0.0	0.2	2.3	-	0.048

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
ARM A	2.95	24.42	0.121	- - -	0.1	0.1	2.1	-	0.047
ARM B	6.45	24.05	0.268	- - -	0.4	0.4	5.5	-	0.057
ARM C	3.28	23.97	0.137	- - -	0.2	0.2	2.4	-	0.048

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
ARM A	2.95	24.42	0.121	- - -	0.1	0.1	2.1	-	0.047
ARM B	6.45	24.05	0.268	- - -	0.4	0.4	5.5	-	0.057
ARM C	3.28	23.97	0.137	- - -	0.2	0.2	2.4	-	0.048

TRL TRL Viewer 3.2 AG Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT AM Peak.vao

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
ARM A	2.95	24.42	0.121	- - -	0.1	0.1	2.1	-	0.047
ARM B	6.45	24.05	0.268	- - -	0.4	0.4	5.5	-	0.057
ARM C	3.28	23.97	0.137	- - -	0.2	0.2	2.4	-	0.048

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.4
08.30	0.4
08.45	0.4
09.00	0.4

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.30	0.2
08.45	0.2
09.00	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	177.0	177.0	8.2	0.05	8.2	0.05
B	387.0	387.0	21.8	0.06	21.8	0.06
C	196.8	196.8	9.5	0.05	9.5	0.05
ALL	760.8	760.8	39.4	0.05	39.4	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

========== end of file ==========

Printed at 10:28:45 on 28/05/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT PM Peak.vai"
(drive-on-the-left) at 10:52:24 on Friday, 28 May 2010

FILE PROPERTIES

RUN TITLE: J9 Rhoose Point RBT PM Peak
LOCATION: Rhoose
DATE: 28/05/10
CLIENT:
ENUMERATOR: NH
JOB NUMBER: FMW0408
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Pentir Y De
ARM B - Porthkerry Road (W)
ARM C - Porthkerry Road (E)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	6.00	9.50	53.00	36.00	24.0	0.641	26.341
ARM B	3.00	6.00	27.50	21.00	36.00	35.0	0.617	25.984
ARM C	3.00	6.00	38.00	15.00	36.00	47.0	0.589	25.193

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(17.00)AND ENDS(18.00)

LENGTH OF TIME PERIOD -(60) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

DEMAND SET TITLE: 2015 Base Flows PM

DEMAND SET TITLE: 2015 Base Flows PM

T33

TIME	FROM/TO	TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
17.00 - 18.00	ARM A	0.000	0.265	0.735
		0.0	13.0	36.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.103	0.000	0.897
		22.0	0.0	192.0
		(0.0)	(0.0)	(1.0)
	ARM C	0.227	0.773	0.000
		131.0	446.0	0.0
		(0.0)	(0.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
ARM A	0.82	21.59	0.038	- - -	0.0	0.0	0.6	-	0.048
ARM B	3.57	25.39	0.141	- - -	0.0	0.2	2.4	-	0.046
ARM C	9.62	24.98	0.385	- - -	0.0	0.6	9.1	-	0.065

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
ARM A	0.82	21.57	0.038	- - -	0.0	0.0	0.6	-	0.048
ARM B	3.57	25.38	0.141	- - -	0.2	0.2	2.4	-	0.046
ARM C	9.62	24.98	0.385	- - -	0.6	0.6	9.4	-	0.065

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
ARM A	0.82	21.57	0.038	- - -	0.0	0.0	0.6	-	0.048
ARM B	3.57	25.38	0.141	- - -	0.2	0.2	2.5	-	0.046
ARM C	9.62	24.98	0.385	- - -	0.6	0.6	9.4	-	0.065

TRL TRL Viewer 3.2 AG Z:\FMW0408 Rhoose\Analysis\ARCADY\J9 Rhoose Point RBT\J9 Rhoose Point RBT PM Peak.vao

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	0.82	21.57	0.038	- - -	0.0	0.0	0.6	-	0.048
ARM B	3.57	25.38	0.141	- - -	0.2	0.2	2.5	-	0.046
ARM C	9.62	24.98	0.385	- - -	0.6	0.6	9.4	-	0.065

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.2
17.30	0.2
17.45	0.2
18.00	0.2

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.6 *
17.30	0.6 *
17.45	0.6 *
18.00	0.6 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	49.2	49.2	2.4	0.05	2.4	0.05
B	214.2	214.2	9.8	0.05	9.8	0.05
C	577.2	577.2	37.2	0.06	37.2	0.06
ALL	840.6	840.6	49.3	0.06	49.3	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

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LAND NORTH OF THE RAILWAY LINE, RHOOSE

TRANSPORT ASSESSMENT
ADDENDUM
FIRST ISSUE

JANUARY 2011

LAND NORTH OF THE RAILWAY LINE
RHOOSE

TRANSPORT ASSESSMENT
ADDENDUM
FIRST ISSUE

PREPARED FOR

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JANUARY 2011

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FIGURE 5.1	2015 BASE + COM DEV
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APPENDICES

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APPENDIX B	PICADY OUTPUT
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1 INTRODUCTION

Brief

1.1 FMW Consultancy have been appointed by Persimmon Homes (Wales) and Bellway to prepare an addendum to a Transport Assessment (TA) submitted in June 2010. The TA was submitted in support of a planning application (reference: 2010/00686/EAO) for a proposed residential development in Rhoose. For the purposes of this report, the site will be known as the Rhoose Site and the TA as the 'June 2010 TA'.

1.2 This addendum has been prepared to address the comments made by the Vale of Glamorgan (VoG) following the submission of the planning application. The addendum is based on Notes of Meeting held with VoG on 24 November 2010. The Notes are included in Appendix A.

1.3 The structure of this report relates to the comments made by VoG and is summarised below:

- Section 2: Describes the relevant transportation policy framework, including those not covered in the June 2010 TA;
- Section 3: Identifies the existing bus capacity;
- Section 4: Provides additional trip generation information for a proposed convenience store in Rhoose;
- Section 5: Reassesses the operational capacity of the highway network without the Defence Technical College trips; and
- Section: 6 Presents a summary of the report and identifies the main conclusions that can be drawn from the TA addendum.

2 TRANSPORTATION POLICY FRAMEWORK

2.1 There is an array of national, regional and local policy documentation, which outlines the planning policy framework for the development of the Land North of Railway Line site.

National and Regional Policies

2.2 The national and regional planning policies relevant to the transport aspects of this development are set out in the following documents:

- White Paper 'The Future of Transport' (DoT July 2004);
- Planning Policy Guidance Note 3: Housing;
- Manual for Streets (2007);
- Manual for Streets 2 – Wider Application of Principles (2010);
- Wales Spatial Plan (2004);
- Planning Policy Wales 3rd Edition (2010);
- Technical Advice Note 18: Transport (TAN 18 2007);
- National Transport Plan (2010);
- Wales Transport Strategy (2008)

2.3 The overarching aim of these documents is to encourage a more sustainable approach to transport that reduces the negative environmental impacts associated with private car use and instead prioritises pedestrians, cyclists and public transport users. More specifically, in relation to the development land north of railway line site, the objectives of these documents are to:

- Reduce growth in the reliance on the private motor car;
- Promote more sustainable transport choices for people;
- Promote accessibility to jobs, shopping and leisure facilities by public transport, walking and cycling; and
- Reduce the overall need to travel by promoting new development of sites that are well served by non-car modes and that have a high level of accessibility for local facilities.

Manual for Streets

2.4 Manual for Streets (MfS) supersedes Design Bulletin 32 and its companion guide, Places, Streets and Movement. MfS was produced by the DfT in 2007 and is applicable in Wales. Its objectives are to promote:

- Creative thinking in the delivery of streets to create high quality places;
- Design which places a high priority on the needs of pedestrians, cyclists and public transport users and not just motor vehicles, so that growth in these modes of transport are encouraged;
- Creation of streets that help build communities and meet the needs of all users;
- Creation of streets that are attractive with a distinct identity whilst forming part of a well connected network; and
- Creation of streets that are cost-effective in construction and maintenance and safe.

2.5 MfS discourages the building of streets that are:

- Primarily designed to meet the needs of motor traffic;
- Unsafe and unwelcoming to pedestrians and difficult to serve by public transport; and
- Bland, unattractive and poorly designed and constructed.

Manual for Streets 2

2.6 Manual for Streets 2 is a companion guide to MfS and does not supersede it. The guidance demonstrates through case studies how the principles of MfS can be applied to urban and rural situations. The guidance was published in September 2010 by the Chartered Institute of Highways and Transport.

Wales Spatial Plan

2.7 Spatial Planning is the process ultimately aimed at achieving sustainable development. The process is based on a development plan that enables Local Authorities and other organisations to better work together and achieve their objectives.

2.8 The Wales Spatial Plan was formally adopted in 2004 by the National Assembly as a requirement of the Planning and Compulsory Purchase Act 2004 (section 60).

2.9 The Spatial Plan covers the VoG and the overall aims of the plan are summarised as follows:

- Economic development and the long term goal of full employment at a rate of 80%;

- Regeneration programmes in various parts of Wales;
- Improving skill levels in the workforce;
- Improving regional and national strategic planning for transport;
- Reducing annual greenhouse gas emissions;
- Understanding and meeting affordable housing needs;
- Making the right decisions, and getting the most benefit from specific major investment decisions affecting public services;
- Helping to shape capital investment through the Strategic Capital Investment Framework.

Planning Policy Wales 3rd Edition (2010)

2.10 Land use policy is set out in Planning Policy Wales (PPW). PPW encourages Local Planning Authorities to promote residential environments which are sustainable, avoid large housing areas of monotonous character and make provisions for affordable housing. In summary the Planning Authorities are encouraged to promote:

- Mixed tenure communities;
- Development that is easily accessable by sustainable modes of transport;
- Attractive landscaping around dwellings, with use of open space with regards to biodiversity and nature conservation;
- Efficient use of land; and
- Energy efficient construction with the use of renewable energy where possible.

2.11 PPW is supplemented by a series of Technical Advice Notes (TANs), one of which is TAN 18 Transport 2007.

TAN 18: Transport

2.12 TAN 18 gives advice on how to integrate land use and transport planning including how transport impacts from developments should be assessed and mitigated if necessary. The document is split into various chapters as summarised below:

- Integration between Land Use Planning and Transport;
- Location of Development;
- Parking;
- Design of Development;
- Walking and Cycling;

- Public Transport;
- Planning for Transport Infrastructure; and
- Assessing Impacts and Managing Implementation.

National Transport Plan

2.13 The National Transport Plan sets out in detail how the Wales Transport Strategy will be delivered over the next five years. The Plan is the first in Wales for an integrated transport system. It builds on previous plans, adding and integrating public and community transport, walking and cycling.

2.14 The Plan sets out solutions to transport issues along the main movement corridors in Wales. These are as follows:

- East-west in north Wales;
- East-west in mid-Wales;
- East-west in south Wales; and
- North-south.

2.15 These corridors cover all modes of transport. The National Transport Plan also contains solutions that are relevant to Wales as a whole such as improving access to key sites, settlements and services.

Wales Transport Strategy

2.16 The Wales Transport Strategy aims to provide Wales with easy and sustainable transport links to all communities, jobs, services and facilities within Wales. The strategy also aims to provide transport links that will encourage economic growth and be environmentally friendly.

Regional Transport Plan

2.17 The Regional Transport Plan for the South East region of Wales was submitted for review in September 2009 to WAG and is a 5 year programme for Wales. The main objectives of the Plan are as follows:

- Developing the economy;
- Promoting social inclusion and economy; and
- Protecting the environment.

Local Policies

2.18 The local planning policies relevant to the transport aspects of this development are set out in the following documents:

- The Vale of Glamorgan Adopted Unitary Development Plan;
- Approved Development Brief: Land to the North of the Railway Line;
- South Wales Parking Guidelines;
- Model Design Guide for Wales – Residential Development;
- Planning Obligations Supplementary Planning Guidance; and
- Emerging Local Development Plan.

The Vale of Glamorgan Adopted Unitary Development Plan 1996 – 2011

2.19 The Vale of Glamorgan Adopted Unitary Development Plan (UDP) identifies plans, policies and measures to ensure the growth and environmental protection in the VoG.

2.20 Land north of the railway line, Rhoose has been identified for residential development under the UDP housing allocation as site 22.

2.21 The adopted UDP has a range of policies that will shape the VoG up until 2011, these includes:

- Environment;
- Housing;
- Transportation;
- Sport and recreation; and
- Waste management.

Approved Development Brief: Land to the North of the Railway Line

2.22 As required by the adopted UDP each allocated site requires a development brief as a framework to guide the future development of the site. The development brief outlines the following:

- The site and its existing surroundings;
- Planning and transport requirements;
- Strategic design and landscape guidance;
- Planning submission requirements.

South Wales Parking Guidelines

2.23 The South Wales Parking Guidelines set out the standards for the amount of parking at the proposed development based on land use, size and occupancy type.

Model Design Guide for Wales – Residential Development

2.24 The Model Design Guide for Wales – Residential Development was formally adopted by VoG in October 2005. The document's main aim is to improve standards on residential design regardless of the size of development.

Planning Obligations Supplementary Planning Guidance

2.25 Supplementary Planning Guidance (SPG) has been prepared and adopted by the VoG. SPG provides additional policy advice for the VoG UDP 1996 - 2011, on the following topics:

- Amenity Standards;
- Barry Development Guidelines;
- Barry Garden Suburb;
- Biodiversity and Development;
- Conversion of Rural Buildings;
- County Treasures;
- Design in the Landscape;
- Golf related development;
- Model Design Guide for Wales;
- Penarth Conservation Area;
- Planning Obligations;
- Public Art;
- Sustainable Development - A Developer's Guide; and
- Trees and Development.

Emerging Local Development Plan

2.26 The Vale of Glamorgan Council is currently preparing a new Local Development Plan (LDP), which will set out how land within the Vale is used between 2011 and 2026. The plan will replace the policies set out in the adopted UDP.

3 EXISTING BUS CAPACITY

3.1 To Follow – awaiting further details from EST Bus / Caerphilly CBC and Cardiff Bus.

4 RETAIL STORE TRIPS

Proposed Convenience Store Trips

4.1 Within the June 2010 TA, reference is made to a proposed mixed use committed development at Station Road. The development comprised flats and a convenience store. The TA identified convenience store trips to and from the store based on trips rates from the TRICS database and on its gross floor area. The trips generated were considered significant given its size. Therefore the trips were reduced by 80% to take into account the locality of the store and the assumption that the store would generally attract local people.

4.2 A TA prepared by FMW Consultancy in support of a mixed use redevelopment of Baltic Wharf, Totnes used the same 80% reduction on convenience trips. This was agreed with Devon County Council as the local highway authority. The planning application was re-submitted in August 2010 and was granted planning permission in November 2010. The application number for the site is 56/1939/10/O (South Hams District Council).

Proposed Rhoose Tesco Express Trips

4.3 Since submission of the planning application in June 2010, a Tesco Express store has opened within Rhoose in Fontygary Road. The store was not taken into account in the June 2010 TA because it was not identified by VoG during the scoping of the June 2010 TA.

4.4 The Tesco Express is anticipated to be beneficial in terms of vehicular movements in Rhoose. The nearest Tesco, at present, is located in Barry. It is anticipated that the Tesco Express in Rhoose will reduce trips made to the Tesco in Barry, thus, have a beneficial impact on the overall operational capacity of the highway network between Rhoose and Barry.

4.5 Taking the above into account and in order to provide a robust assessment, the reduction in trips as a result of the proposed Tesco Express has not been taken into account in the capacity assessments in this addendum. Therefore the assessment in this addendum can be considered “worst case”.

5 CAPACITY ASSESSMENTS

5.1 A flat profile has been used as the basis for the junction capacity assessments in this section as per the June 2010 TA. A flat flow profile is considered a realistic reflection of travel patterns at congested junctions. It is human nature to avoid long queues and delay and thus a flat flow profile is produced (i.e. peak spreading) within the peak hour.

Defence Technical College

5.2 In agreement with VoG, the Defence Technical College (DTC) was taken into account as a committed development in the June 2010 TA. The DTC was granted planning permission prior to the submission of the June 2010 TA. However, due to uncertainty regarding the future of the proposed DTC because of public spending cuts, the capacity assessments in this addendum will be based on those submitted in the June 2010 TA excluding the DTC trips.

Assessment Junctions and Scenario

5.3 The following junctions have been re-assessed in this addendum:

- Existing Waycock Cross Roundabout;
- Fonmon Road / B4265 Junction;
- Wales Airport Hotel Roundabout;
- Barry Docks Link Roundabout; and
- Colcot Cross Roundabout.

5.4 The junctions re-assessed directly correlates with the removal of the DTC trips. All other junctions assessed in the June 2010 TA will not be affected by the removal of the DTC trips, therefore they have not been re-assessed.

5.5 The following scenarios have been re-assessed in this addendum:

- 2015 Base + Committed Development;
- 2015 Base + Committed Development + 350 units; and
- 2015 Base + Committee Development + 700 units (as a sensitivity test).

5.6 The above flow scenarios are shown in Figures 5.1 to 5.3 respectively. To reiterate, the committed development trips do not include the DTC trips or the Tesco Express trips.

Modelling Software

5.7 The existing and proposed junctions were tested using the PICADY 5 and ARCADY 7 computer programs, which assess the operational capacity of priority junctions and roundabouts respectively. See Appendix B and C for the full PICADY and ARCADY results respectively.

Existing Waycock Cross Roundabout

Scenario	Road	RFC		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 Base + Com Dev	Port Road West (E)	0.56	0.64	0.10	0.11	1	2
	Pontypridd Road	0.47	0.53	0.07	0.09	1	1
	Port Road West (W)	0.93	0.61	0.63	0.11	12	2
	Waycock Road	0.65	0.54	0.25	0.15	2	1
2015 Base + Com Dev + 350 units	Port Road West (E)	0.58	0.72	0.11	0.14	1	3
	Pontypridd Road	0.49	0.59	0.08	0.11	1	1
	Port Road West (W)	1.13	0.70	7.28	0.15	173	2
	Waycock Road	0.70	0.60	0.31	0.18	2	2
Sensitivity Test: 2015 Base + Com Dev+ 700 units	Port Road West (E)	0.60	0.80	0.11	0.20	2	4
	Pontypridd Road	0.50	0.71	0.08	0.18	1	2
	Port Road West (W)	1.30	0.82	15.81	0.26	381	5
	Waycock Road	0.70	0.67	0.32	0.23	21	2

Table 5.1: Existing Waycock Cross Roundabout Capacity Summary

5.8 Table 5.1 demonstrates that the roundabout will operate over capacity for all scenarios in the AM Peak.

5.9 It should be noted that the existing junction geometry was assessed rather than the Capita Symonds offline proposed improvements due to the uncertainty of the DTC development.

Fonmon Road / B4265 Junction

Scenario	Road	RFC		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 Base + Com Dev	B4265 (E)	-	-	-	-	-	-
	Fonmon Road	0.39	0.21	0.18	0.14	1	0
	B4265 (W)	0.17	0.32	0.13	0.15	0	0
2015 Base + Com Dev + 350 units	B4265 (E)	-	-	-	-	-	-
	Fonmon Road	0.44	0.22	0.20	0.14	1	0
	B4265 (W)	0.18	0.41	0.13	0.18	0	1
Sensitivity Test: 2015 Base + Com Dev+ 700 units	B4265 (E)	-	-	-	-	-	-
	Fonmon Road	0.49	0.26	0.22	0.15	1	0
	B4265 (W)	0.22	0.39	0.13	0.17	0	1

Table 5.2: Fonmon Road / B4265 Junction Capacity Summary

5.10 Table 5.2 demonstrates that the junction will operate within capacity for all scenarios with acceptable levels of queuing and delay.

Wales Airport Hotel Roundabout

Scenario	Road	RFC		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 Base + Com Dev	Port Road	0.60	0.38	0.11	0.07	2	1
	A4226 (W)	0.41	0.33	0.08	0.06	1	0
	A4226 (E)	0.39	0.58	0.05	0.07	1	1
2015 Base + Com Dev + 350 units	Port Road	0.62	0.46	0.11	0.08	2	1
	A4226 (W)	0.42	0.34	0.08	0.06	1	1
	A4226 (E)	0.42	0.66	0.05	0.09	1	2
Sensitivity Test: 2015 Base + Com Dev+ 700 units	Port Road	0.77	0.53	0.18	0.09	3	1
	A4226 (W)	0.45	0.36	0.10	0.07	1	1
	A4226 (E)	0.45	0.74	0.06	0.12	1	3

Table 5.3: Wales Airport Hotel Roundabout Capacity Summary

5.11 Table 5.3 demonstrates that the roundabout will operate within capacity for all scenarios with acceptable levels of queuing and delay.

Barry Docks Link Roundabout

Scenario	Road	RFC		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 Base + Com Dev	A4231	0.59	0.69	0.09	0.14	1	2
	Port Road East	0.73	0.69	0.13	0.13	3	2
	Port Road	0.71	0.89	0.12	0.26	2	8
2015 Base + Com Dev + 350 units	A4231	0.64	0.73	0.11	0.18	2	3
	Port Road East	0.82	0.74	0.20	0.16	5	3
	Port Road	0.74	0.94	0.14	0.51	3	14
Sensitivity Test: 2015 Base + Com Dev+ 700 units	A4231	0.65	0.79	0.12	0.23	2	4
	Port Road East	0.91	0.78	0.41	0.19	10	4
	Port Road	0.76	0.99	0.16	1.17	3	33

Table 5.4: Barry Docks Link Roundabout Capacity Summary

5.12 Table 5.4 demonstrates that the roundabout will operate within capacity for all scenarios. However, the roundabout will be approaching capacity on Port Road particularly in the PM peak.

Colcot Cross Roundabout

Scenario	Road	RFC		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 Base + Com Dev	Colcot Road	0.47	0.51	0.09	0.10	1	1
	Port Road West	0.92	0.69	0.50	0.14	10	2
	Port Road East	0.63	0.61	0.09	0.08	2	2
2015 Base + Com Dev + 350 units	Colcot Road	0.48	0.54	0.09	0.12	1	1
	Port Road West	1.04	0.73	3.16	0.16	77	3
	Port Road East	0.64	0.67	0.10	0.10	2	2
Sensitivity Test: 2015 Base + Com Dev+ 700 units	Colcot Road	0.49	0.57	0.10	0.13	1	1
	Port Road West	1.14	0.79	7.79	0.20	200	4
	Port Road East	0.66	0.72	0.10	0.12	2	3

Table 5.5: Colcot Cross Roundabout Capacity Summary

5.13 Table 5.5 demonstrates that the roundabout will operate over capacity particularly in the AM Peak

Summary

5.14 If it is accepted, in this instance, that an RFC of greater than 85% is over operational capacity for a roundabout, then three of the assessed junctions exceed this threshold. These junctions are:

- Waycock Cross Roundabout;
- Barry Docks Link Roundabout; and
- Colcot Cross Roundabout.

5.15 However, all of these junctions would operate over 85% capacity in 2015 with the committed development trips with no improvements being made as part of these developments. The inclusion of the proposed 350 unit development trips would further exacerbate the future capacity issues. It should be noted that these capacity issues would only occur for short periods of time throughout the day and the junctions would otherwise operate satisfactory at all other times.

5.16 It is therefore proposed that no improvements will be provided as part of this development as it would only provide additional capacity at these roundabouts which would encourage more trips by private car.

5.17 It is suggested that a contribution be made towards public transport improvements in lieu of improvements to these junctions. It is considered that investment in public transport would be more beneficial than physical improvements to these roundabouts as it may encourage existing residents in Rhoose and Barry to use public transport instead of the private car, thus having a greater benefit for all transport users.

6 SENSITIVITY TEST

6.1 The June 2010 TA previously assessed the junctions using a flat profile. The assessments found in Section 5 of this addendum have also assessed the junctions using a flat profile.

6.2 A comparison has been made between the flat flow profile used in the modelling against the actual flow profile from the junction surveys. The results of which are attached as Appendix D.

6.3 The results identify that the flat flow profile used in the assessments, overall, do generally give a fair representation of the actual flow profile. Nevertheless, as a sensitivity test, the junctions have been assessed using the ODTAB profile, which creates a peak profile within the AM and PM peak periods and ensures a robust assessment.

6.4 A comparison has also been made between the ODTAB and actual flow profiles. The comparison shows that the ODTAB peak traffic flows are generally greater than the actual flow patterns. The ODTAB results can therefore be considered a “worst case”.

Existing Waycock Cross Roundabout

6.5 Table 5.1 overleaf demonstrates that the roundabout will operate over capacity for all scenarios in the AM Peak. Therefore it is considered that a flat profile would be a truer reflection of travel patterns for this junction.

6.6 It is human nature to adjust travel times to avoid longs queues and delays and thus a flat flow profile is produced (i.e. peak spreading) within the peak hour.

Scenario	Road	RFC (%)		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 Base + Com Dev	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 Base + Com Dev + 350 units	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 Base + Com Dev+ 700 units	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

Table 6.1: Existing Waycock Cross Roundabout Capacity Summary

ODTAB

Fonmon Road / B4265 Junction

Scenario	Road	RFC (%)		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 Base + Com Dev	B4265 (E)	-	-	-	-	-	-
	Fonmon Road	0.43	0.23	0.20	0.15	1	0
	B4265 (W)	0.20	0.39	0.14	0.19	0	1
2015 Base + Com Dev + 350 units	B4265 (E)	-	-	-	-	-	-
	Fonmon Road	0.49	0.29	0.22	0.17	1	0
	B4265 (W)	0.22	0.44	0.14	0.20	0	1
Sensitivity Test: 2015 Base + Com Dev+ 700 units	B4265 (E)	-	-	-	-	-	-
	Fonmon Road	0.55	0.32	0.25	0.18	1	0
	B4265 (W)	0.23	0.48	0.14	0.22	0	1

Table 5.2: Fonmon Road / B4265 Junction Capacity Summary

ODTAB

6.7 Table 5.2 demonstrates that the junction will operate within capacity for all scenarios with acceptable levels of queuing and delay.

Wales Airport Hotel Roundabout

Scenario	Road	RFC (%)		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 Base + Com Dev	Port Road	0.67	0.43	0.12	0.08	2	1
	A4226 (W)	0.47	0.37	0.09	0.06	1	1
	A4226 (E)	0.43	0.63	0.05	0.08	1	2
2015 Base + Com Dev + 350 units	Port Road	0.69	0.51	0.13	0.09	2	1
	A4226 (W)	0.48	0.39	0.10	0.07	1	1
	A4226 (E)	0.46	0.72	0.06	0.11	1	3
Sensitivity Test: 2015 Base + Com Dev+ 700 units	Port Road	0.76	0.59	0.17	0.11	3	1
	A4226 (W)	0.51	0.41	0.10.	0.08	1	1
	A4226 (E)	0.49	0.81	0.06	0.16	1	4

Table 5.3: Wales Airport Hotel Roundabout Capacity Summary

ODTAB

6.8 Table 5.3 demonstrates that the roundabout will operate within capacity for all scenarios with acceptable levels of queuing and delay.

Barry Docks Link Roundabout

Scenario	Road	RFC (%)		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 Base + Com Dev	A4231	0.66	0.80	0.09	0.13	2	4
	Port Road East	0.83	0.79	0.13	0.13	5	4
	Port Road	0.79	0.99	0.11	0.34	4	1
2015 Base + Com Dev + 350 units	A4231	0.73	0.82	0.10	0.15	3	4
	Port Road East	0.93	0.85	0.21	0.16	11	5
	Port Road	0.82	1.05	0.13	0.68	5	60
Sensitivity Test: 2015 Base + Com Dev+ 700 units	A4231	0.75	0.87	0.11	0.20	3	6
	Port Road East	1.04	0.89	0.58	0.19	11	7
	Port Road	0.85	1.10	0.15	1.30	5	

Table 5.4: Barry Docks Link Roundabout Capacity Summary

ODTAB

6.9 Table 5.4 demonstrates that the roundabout will operate over capacity in 2015 with development trips in the PM peak. Therefore it is likely that peak spreading will occur and thus result in a flat flow profile at this junction.

Colcot Cross Roundabout

Scenario	Road	RFC (%)		Average Delay (min/veh)		Max Queue Length (vehs)	
		AM	PM	AM	PM	AM	PM
2015 Base + Com Dev	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 Base + Com Dev + 350 units	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
Sensitivity Test: 2015 Base + Com Dev+ 700 units	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

Table 5.5: Colcot Cross Roundabout Capacity Summary

6.10 Table 5.5 demonstrates that the roundabout will operate over capacity particularly in the AM Peak. Therefore it is likely that peak spreading will occur at this junction resulting in a flat flow profile.

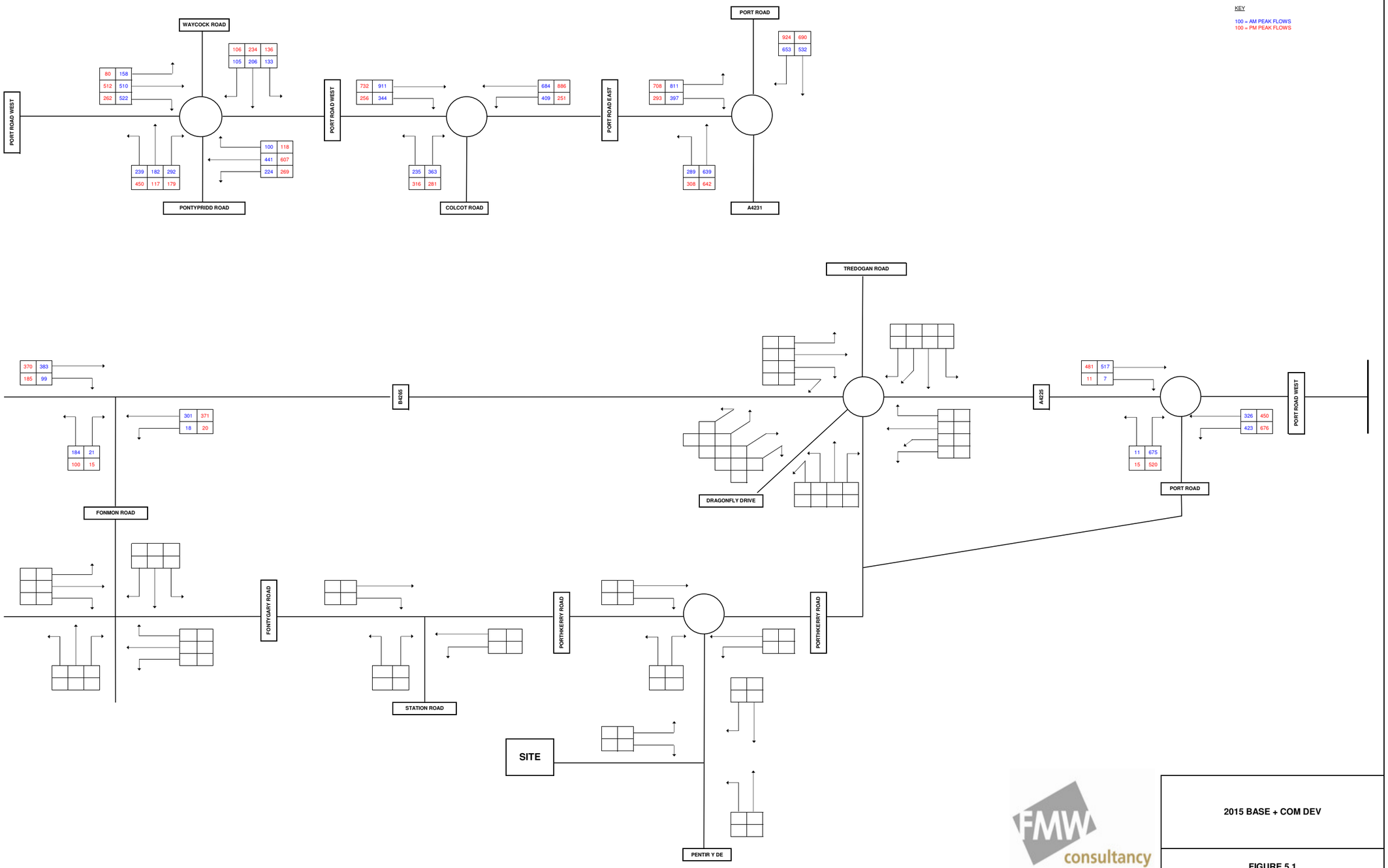
7 SUMMARY AND CONCLUSIONS

7.1 In summary, this report has demonstrated the following:

- A TA for a proposed residential development in Rhoose was submitted as part of a planning application in June 2010.
- The Vale of Glamorgan (VoG) has commented on the submitted TA.
- An addendum to the TA June 2010 is required to take into account VoG's comments.
- The Policy Section of this report includes additional policies not included in the June 2010 TA.
- Bus Capacity – to follow (awaiting feedback from EST Bus / Caerphilly CSC and Cardiff Bus.
- The development of the Defence Technical College is uncertain and therefore capacity assessments in this addendum do not include trips associated with the DTC development.
- Capacity assessments identified that three junctions would operate over 85% capacity. These junctions are:
  - Waycock Cross Roundabout;
  - Barry Docks Link Roundabout; and
  - Colcot Cross Roundabout.
- All of these junctions would exceed 85% capacity without the proposed development trips in 2015, but would be exacerbated by the inclusion of the trips associated with the proposed development of 350 residential units.
- It is proposed that rather than provide physical improvements to these three roundabouts, which would ultimately encourage greater private car use, a contribution will be made in lieu to improve public transport through Rhoose. It is considered this may reduce car use for both existing and future residents in the Rhoose and Barry areas.
- Sensitivity tests were carried out to determine the capacity of junctions using the ODTAB profile. In cases where the junction operated over capacity it is likely that peak spreading will occur thus resulting in a flat profile.

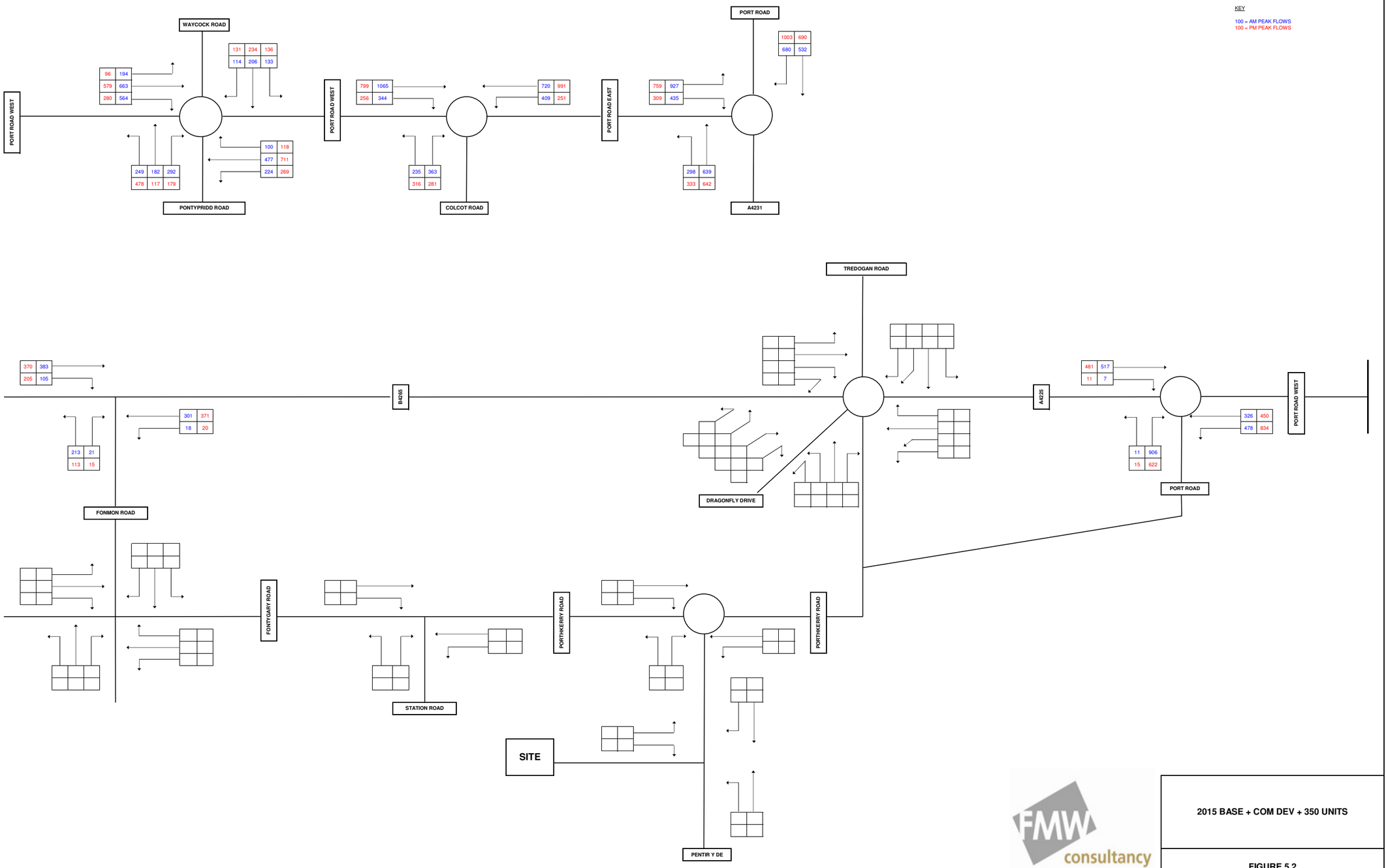
7.2 We conclude that this addendum to the Land to the North of the Railway Line TA satisfactorily addresses comments made by the VoG.

FIGURES



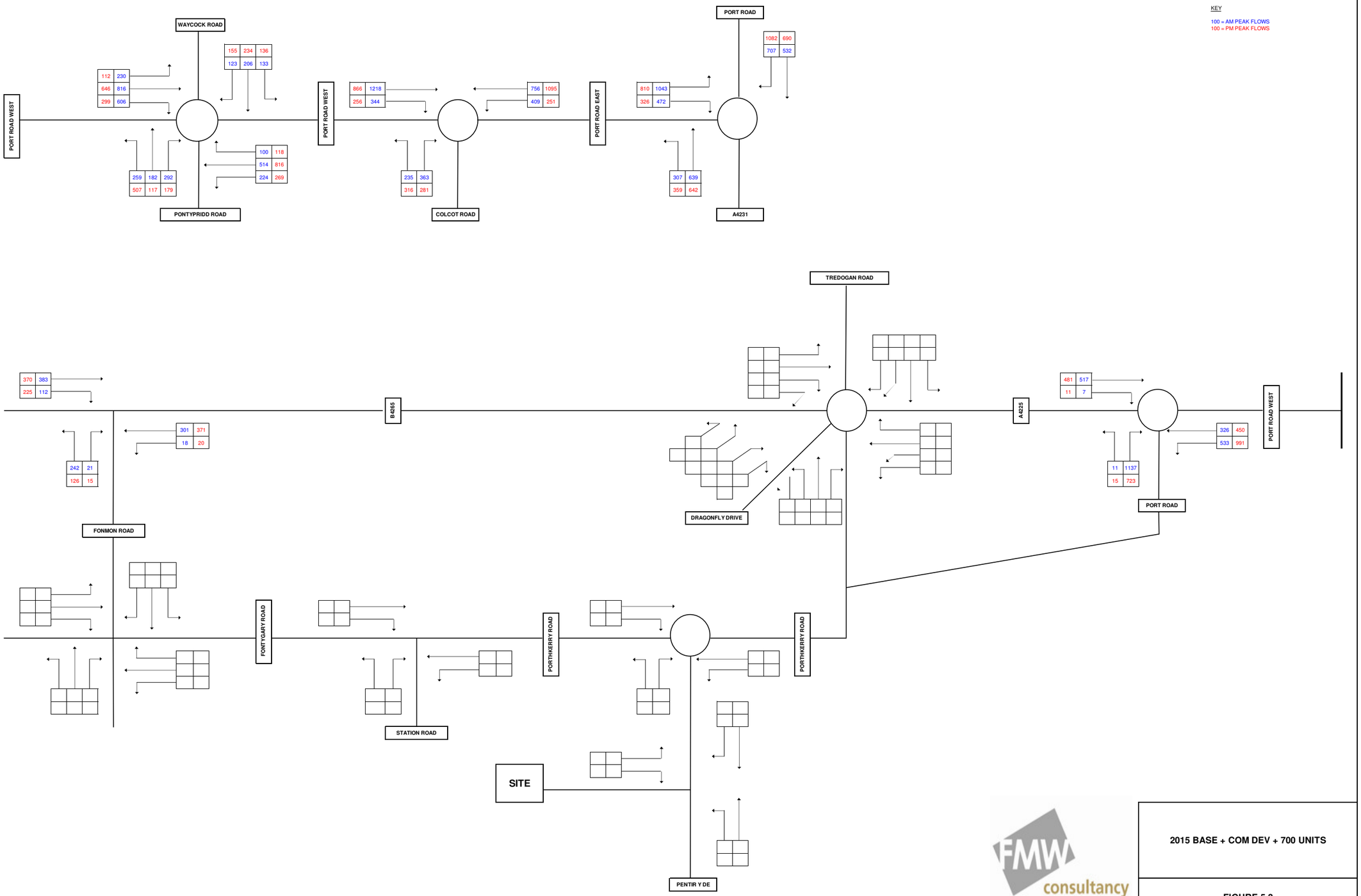
2015 BASE + COM DEV

FIGURE 5.1



2015 BASE + COM DEV + 350 UNITS

FIGURE 5.2



2015 BASE + COM DEV + 700 UNITS

FIGURE 5.3

APPENDIX

APPENDIX A

NOTES OF MEETING WITH THE VALE OF GLAMORGAN

24 NOVEMBER 2010

NOTE OF MEETING

To discuss:	Land North of Railway Line, Rhoose	
Those Present:	Brian Condon (BC)	- FMW Consultancy Ltd (FMW)
	Richard White (RW)	- FMW Consultancy Ltd (FMW)
	Michael Rees (MR)	- Boyer Planning (BP)
	Steve Butler (SB)	- Vale of Glamorgan (VoG)
	Emma Harvey (EH)	- Vale of Glamorgan (VoG)
	Tom Bevan (TB)	- Vale of Glamorgan (VoG)
	Steve Arthur (SA)	- Vale of Glamorgan (VoG)
	Lucy Turner (LT)	- Vale of Glamorgan (VoG)
	Andrew Eccleshare (AE)	- Vale of Glamorgan (VoG)

Held at: VoG Dock Offices, Barry

Held on: 9:30 on 24 November 2010

Item	Detail	Action
1.0	<u>Purpose of Meeting</u> BJC thanked all for agreeing to meet. Meeting was arranged to discuss the VoG comments on the TA submitted to support the planning application for Land North of the Railway Line, Rhoose. It was agreed that the comments prepared by VoG would be used as an agenda for the meeting. Thus these Notes will follow that same format.	
2.0	<u>General</u> VoG require bus capacity surveys to be undertaken to provide evidence of sufficient capacity on the bus network Port Road and Port Road East are operating close to capacity. VoG advised that they do not currently have a strategy to address this issue. VoG would also like to see frequency of services and an assessment of potential for enhancement of existing services.	FMW

3.0	<u>Section 3 – Transport Policy Framework</u> VoG noted that several Policy documents had not been referenced with the TA. FMW pointed out that several of those listed by the Vale had not even been published at the time of writing and application. VoG requested that the Policy Section of the TA be updated to include latest policy and, Approved Development Brief (ADB) emerging LDP as an Addendum to the TA for planning consideration.	FMW
4.0	<u>Section 4 – Masterplan</u> TB requested that any loop road serving the wider allocated site (including WAG) land should be a minimum of 6.5m to allow bus movement. VoG raised concerns of 350 units taken from one access point and no provision for emergency access. FMW explained that the TA was based on 350 units to allow the developers greater flexibility to provide more units at a later date without having to revisit the TA. TB acknowledged that the ADB was written before DB32 was superseded by Manual for Streets (MfS) and that MfS does not dictate the number of units taken from a single point of access. However, FMW explained that the developers may be willing to accept a planning condition that 300 units could be developed before an Emergency access is provided to ease these concerns.	
5.0	<u>Section 5 – Site Layout</u> VoG accept in principle the road layout, but not necessarily the links from the site which remains as one of the key considerations in the application. VoG requires that parking provision should be based on Approved South Wales Parking Guidelines. All residents parking should be within the curtilage of each property or parking blocks. No allocated parking spaces can be provided on the adopted highway. Although, that does not preclude any on-street parking for visitors etc where restrictions allow. FMW advised that the Flood Risk Assessment prepared by others should address Flooding / Drainage of the application site. VoG noted that the roundabout design is acceptable and that the pedestrian crossing of at the site access can be dealt with at detailed design stage.	

	FMW has prepared a Pedestrian Accessibility and Movement Audit which investigates the need for an upgraded pedestrian crossing of the railway line. The preferred option from both the developers and Network Rail's perspective is the closure of the crossing and diversion of the PROW to Pentir Y De as the safest option. It was also emphasized by VoG officers present at the meeting that the link across the railway line is considered very important and still believed to be required, despite the assessment made. The developers may accept a fallback position whereby they would safeguard land to land bridge on the northern side of the railway crossing and make a contribution to provide a footbridge. However, the developers cannot provide the footbridge itself as they do not control the land to the south of the railway. In this case a temporary diversion of the route would be required. VoG acknowledge that the land to the south is under different ownership and we would seek to ensure that any future application would safeguard land to accommodate such a crossing and would seek S106 monies from the three parties (including land to the west) to enable the Council to facilitate the implementation of a footbridge at a later date. Full details of contributions would have to be agreed at a later date.	VoG
6.0	<u>Section 6 – Trip Generation and Distribution</u> FMW noted that trip generation, including TRICS and methodology agreed with VoG at pre-application discussions. FMW to issue original Tech Notes to Stephen Arthur for information. FMW had issued vehicular trip rates from the TRICS that are demonstrate that the methodology used within the TA is robust.	FMW
7.0	<u>Section 7 - Junction Impact</u> Assessment junctions and committed junctions agreed in at pre-app discussion. VoG require evidence of 80% reduction in Convenience Store trips is appropriate – such as acceptance of methodology by another planning authority. FMW to issue. VoG noted that planning permission for the proposed convenience store adjacent to the railway station has expired. VoG consider a junction with an RFC of 85% or greater to be over it's practical capacity and thus would require some form of	FMW

	mitigation and do not accept an RFC of 100% to be the 'at capacity' level. Any junction shown to be operating between 85%-100% will require mitigation measures, by way of physical improvements to the junction operation, or evidence to substantiate that other sustainable travel methods/modes (proposed or existing) are a viable alternative to the car. FMW countered that this is a dated argument when it was the norm to predict and provide to accommodate traffic and not considered sustainable to improve the locations where congestions occurs at peak times only as it does not encourage travel by alternatives to the car – therefore 100% RFC should be considered at capacity. Whilst the future of the DTC development is uncertain, VoG requested that Waycock Cross be assessed using the existing geometry and excluding DTC committed trips. VoG emphasised that existing traffic flow profiles should be used (obtained from the count data) to model the existing conditions and for model validation. The same profiles should be used for future year and development scenarios. Where RFCs are shown to be greater than 85% then 'flat' profiles can be considered to represent an element of peak spreading. VoG would expect to see several scenarios presented, including one without DTC and their proposed improvements as well as one with DTC development. Whilst it may be argued that a line should be drawn in relation to new developments, the recently opened Tesco Express in Rhoose may well become one of the key destinations in Rhoose. In this regard this site should be taken into account and may actually reduce trip generation to other stores outside Rhoose, which may benefit the current proposals.	FMW FMW FMW FMW
8.0	<u>Section 8 – Sustainable Transport</u> VoG to issue comments on the FTP VoG advised that S106 contributions will be required for bus services improvements and Nation Cycle Route (NCR) 88.	SB
9.0	<u>Section 9 – Accessibility Assessment</u> VoG would emphasise that whilst the TA does not refer to pedestrian access to Torbay Terrace (being outside of the application site), this demonstrates the problem of the site not being submitted as a whole (contrary to the brief), causing problems as to how we can consider and control the links to other parts of the site.	

	FMW responded that access Torbay Terrace would be provided as part of the WAG development. The design of the application site will note preclude this from happening in the future.	
10.0	Section Summary and Conclusions VoG reiterated that some form of junction mitigation would be required where junctions operate over 85% RFC.	
11.0	Appendices K, L & M FMW explained that both ARCADY 6 & 7 have been used to meet the submission deadline. The programs are based on the same formulas so does not affect the results. SA agreed with this.	
12.0	General Bus Service Provision VoG advised that the website provides up to date bus service provision. Consideration should also be given to school transport provision.	
13.0	Way Forward It was agreed that the best way to address the issues raised would be for FMW to prepare a report with technical appendices as an addendum to the TA which can be considered by officers.	FMW
	The meeting finished at 11:00 BJC agreed to produce notes of the meeting and send these to VoG for approval. These would then provide an accurate record of the discussion.	BC

APPENDIX B

PICADY OUTPUT

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

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Run with file:-
"\\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\PICADY\J2 Fontygary Road - B4265\ODTAB\
J2 Fontygary Road - B4265 Rev A.vpi"
(drive-on-the-left) at 17:12:43 on Tuesday, 4 January 2011

RUN INFORMATION

RUN TITLE	: J2 Fontygary Road / B4265
LOCATION	: Rhoose
DATE	: 13/12/10
CLIENT	:
ENUMERATOR	: NH
JOB NUMBER	: FMW0408
STATUS	:
DESCRIPTION	: Rev A for TA Addendum

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

```
                    MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
                                         MINOR ROAD (ARM B)
```

ARM A IS B4265 (E)
ARM B IS Fonmon Road
ARM C IS B4265 (W)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)200.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 200.0 M.
- VISIBILITY TO RIGHT	(VB-A) 200.0 M.
- LANE 1 WIDTH	(WB-C) 2.40 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base Flows + Comm Dev AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	3.99	5.98	3.99
ARM B	15.00	45.00	75.00	2.56	3.84	2.56
ARM C	15.00	45.00	75.00	6.03	9.04	6.03

Demand set: 2015 Base Flows + Comm Dev AM

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 08.00		TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000 0.0 (0.0)	0.056 18.0 (10.0)	0.944 301.0 (10.0)
	ARM B	0.102 21.0 (10.0)	0.000 0.0 (0.0)	0.898 184.0 (10.0)
	ARM C	0.795 383.0 (10.0)	0.205 99.0 (10.0)	0.000 0.0 (0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	2.57	9.31	0.276		0.00	0.38	5.4		0.15
C-A	4.81								
C-B	1.24	9.44	0.132		0.00	0.15	2.2		0.12
A-B	0.23								
A-C	3.78								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	3.07	9.06	0.339		0.38	0.50	7.3		0.17
C-A	5.74								
C-B	1.48	9.25	0.160		0.15	0.19	2.8		0.13
A-B	0.27								
A-C	4.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	3.76	8.72	0.432		0.50	0.74	10.7		0.20
C-A	7.03								
C-B	1.82	8.98	0.202		0.19	0.25	3.7		0.14
A-B	0.33								
A-C	5.52								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	3.76	8.72	0.432		0.74	0.75	11.2		0.20
C-A	7.03								
C-B	1.82	8.98	0.202		0.25	0.25	3.8		0.14
A-B	0.33								
A-C	5.52								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	3.07	9.06	0.339		0.75	0.52	8.1		0.17
C-A	5.74								
C-B	1.48	9.25	0.160		0.25	0.19	3.0		0.13
A-B	0.27								
A-C	4.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	2.57	9.31	0.276		0.52	0.39	6.0		0.15
C-A	4.81								
C-B	1.24	9.44	0.132		0.19	0.15	2.3		0.12
A-B	0.23								
A-C	3.78								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.4	
08.15	0.5	*
08.30	0.7	*
08.45	0.8	*
09.00	0.5	*
09.15	0.4	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.2
08.30	0.3
08.45	0.3
09.00	0.2
09.15	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	282.2	188.1	48.7	0.17	48.7	0.17
C-A	527.2	351.4				
C-B	136.3	90.8	17.7	0.13	17.7	0.13
A-B	24.8	16.5				
A-C	414.3	276.2				
ALL	1384.7	923.1	66.4	0.05	66.4	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base Flows + Comm Dev PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	4.89	7.33	4.89
ARM B	15.00	45.00	75.00	1.31	1.97	1.31
ARM C	15.00	45.00	75.00	6.94	10.41	6.94

Demand set: 2015 Base Flows + Comm Dev PM

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 17.00		TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000 0.0 (0.0)	0.051 20.0 (10.0)	0.949 371.0 (10.0)
	ARM B	0.048 5.0 (10.0)	0.000 0.0 (0.0)	0.952 100.0 (10.0)
	ARM C	0.667 370.0 (10.0)	0.333 185.0 (10.0)	0.000 0.0 (0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	1.32	9.24	0.143		0.00	0.16	2.4		0.13
C-A	4.64								
C-B	2.32	9.21	0.252		0.00	0.33	4.8		0.14
A-B	0.25								
A-C	4.66								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	1.57	8.96	0.176		0.16	0.21	3.1		0.14
C-A	5.54								
C-B	2.77	8.97	0.309		0.33	0.44	6.4		0.16
A-B	0.30								
A-C	5.56								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	1.93	8.57	0.225		0.21	0.29	4.2		0.15
C-A	6.79								
C-B	3.39	8.64	0.393		0.44	0.63	9.1		0.19
A-B	0.37								
A-C	6.81								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	1.93	8.57	0.225		0.29	0.29	4.3		0.15
C-A	6.79								
C-B	3.39	8.64	0.393		0.63	0.64	9.6		0.19
A-B	0.37								
A-C	6.81								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	1.57	8.96	0.176		0.29	0.22	3.3		0.14
C-A	5.54								
C-B	2.77	8.97	0.309		0.64	0.45	7.1		0.16
A-B	0.30								
A-C	5.56								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	1.32	9.24	0.143		0.22	0.17	2.6		0.13
C-A	4.64								
C-B	2.32	9.21	0.252		0.45	0.34	5.3		0.15
A-B	0.25								
A-C	4.66								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.2
17.30	0.3
17.45	0.3
18.00	0.2
18.15	0.2

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.3	
17.15	0.4	
17.30	0.6	*
17.45	0.6	*
18.00	0.5	
18.15	0.3	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	144.5	96.3	19.9	0.14	19.9	0.14
C-A	509.3	339.5				
C-B	254.6	169.8	42.2	0.17	42.2	0.17
A-B	27.5	18.4				
A-C	510.7	340.4				
ALL	1446.6	964.4	62.1	0.04	62.1	0.04

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

========== end of file ==========

Printed at 17:12:56 on 04/01/2011]

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

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Run with file:-
"\\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\PICADY\J2 Fontygary Road - B4265\ODTAB\
J2 Fontygary Road - B4265 Rev A.vpi"
(drive-on-the-left) at 17:13:24 on Tuesday, 4 January 2011

RUN INFORMATION

RUN TITLE	: J2 Fontygary Road / B4265
LOCATION	: Rhoose
DATE	: 13/12/10
CLIENT	:
ENUMERATOR	: NH
JOB NUMBER	: FMW0408
STATUS	:
DESCRIPTION	: Rev A for TA Addendum

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

```
                    MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
                                         MINOR ROAD (ARM B)
```

ARM A IS B4265 (E)
ARM B IS Fonmon Road
ARM C IS B4265 (W)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)200.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 200.0 M.
- VISIBILITY TO RIGHT	(VB-A) 200.0 M.
- LANE 1 WIDTH	(WB-C) 2.40 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base + Comm Dev + 350 units AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	3.99	5.98	3.99
ARM B	15.00	45.00	75.00	2.92	4.39	2.92
ARM C	15.00	45.00	75.00	6.10	9.15	6.10

Demand set: 2015 Base + Comm Dev + 350 units AM

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 08.00		TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000 0.0 (0.0)	0.056 18.0 (10.0)	0.944 301.0 (10.0)
	ARM B	0.090 21.0 (10.0)	0.000 0.0 (0.0)	0.910 213.0 (10.0)
	ARM C	0.785 383.0 (10.0)	0.215 105.0 (10.0)	0.000 0.0 (0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	2.94	9.35	0.314		0.00	0.45	6.4		0.15
C-A	4.81								
C-B	1.32	9.44	0.140		0.00	0.16	2.3		0.12
A-B	0.23								
A-C	3.78								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	3.51	9.11	0.385		0.45	0.61	8.9		0.18
C-A	5.74								
C-B	1.57	9.25	0.170		0.16	0.20	3.0		0.13
A-B	0.27								
A-C	4.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	4.29	8.77	0.490		0.61	0.93	13.3		0.22
C-A	7.03								
C-B	1.93	8.98	0.215		0.20	0.27	3.9		0.14
A-B	0.33								
A-C	5.52								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	4.29	8.77	0.490		0.93	0.95	14.1		0.22
C-A	7.03								
C-B	1.93	8.98	0.215		0.27	0.27	4.1		0.14
A-B	0.33								
A-C	5.52								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	3.51	9.11	0.385		0.95	0.64	10.0		0.18
C-A	5.74								
C-B	1.57	9.25	0.170		0.27	0.21	3.2		0.13
A-B	0.27								
A-C	4.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	2.94	9.35	0.314		0.64	0.46	7.2		0.16
C-A	4.81								
C-B	1.32	9.44	0.140		0.21	0.16	2.5		0.12
A-B	0.23								
A-C	3.78								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	
08.15	0.6	*
08.30	0.9	*
08.45	0.9	*
09.00	0.6	*
09.15	0.5	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.2
08.30	0.3
08.45	0.3
09.00	0.2
09.15	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	322.1	214.7	60.0	0.19	60.0	0.19
C-A	527.2	351.4				
C-B	144.5	96.3	19.0	0.13	19.0	0.13
A-B	24.8	16.5				
A-C	414.3	276.2				
ALL	1432.9	955.2	79.0	0.06	79.0	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base + Comm Dev + 350 units PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	4.89	7.33	4.89
ARM B	15.00	45.00	75.00	1.60	2.40	1.60
ARM C	15.00	45.00	75.00	7.19	10.78	7.19

Demand set: 2015 Base + Comm Dev + 350 units PM

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 17.00		TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000 0.0 (0.0)	0.051 20.0 (10.0)	0.949 371.0 (10.0)
	ARM B	0.117 15.0 (10.0)	0.000 0.0 (0.0)	0.883 113.0 (10.0)
	ARM C	0.643 370.0 (10.0)	0.357 205.0 (10.0)	0.000 0.0 (0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	1.61	8.92	0.180		0.00	0.22	3.1		0.14
C-A	4.64								
C-B	2.57	9.21	0.279		0.00	0.38	5.5		0.15
A-B	0.25								
A-C	4.66								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	1.92	8.58	0.223		0.22	0.28	4.2		0.15
C-A	5.54								
C-B	3.07	8.97	0.342		0.38	0.51	7.4		0.17
A-B	0.30								
A-C	5.56								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	2.35	8.09	0.290		0.28	0.40	5.8		0.17
C-A	6.79								
C-B	3.76	8.64	0.435		0.51	0.75	10.8		0.20
A-B	0.37								
A-C	6.81								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	2.35	8.09	0.290		0.40	0.41	6.1		0.17
C-A	6.79								
C-B	3.76	8.64	0.435		0.75	0.76	11.4		0.20
A-B	0.37								
A-C	6.81								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	1.92	8.58	0.224		0.41	0.29	4.5		0.15
C-A	5.54								
C-B	3.07	8.97	0.342		0.76	0.53	8.2		0.17
A-B	0.30								
A-C	5.56								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	1.61	8.91	0.180		0.29	0.22	3.4		0.14
C-A	4.64								
C-B	2.57	9.21	0.279		0.53	0.39	6.1		0.15
A-B	0.25								
A-C	4.66								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.5	*
17.30	0.8	*
17.45	0.8	*
18.00	0.5	*
18.15	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	176.2	117.5	27.1	0.15	27.1	0.15
C-A	509.3	339.5				
C-B	282.2	188.1	49.4	0.18	49.4	0.18
A-B	27.5	18.4				
A-C	510.7	340.4				
ALL	1505.8	1003.9	76.5	0.05	76.5	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

========== end of file ==========

Printed at 17:13:31 on 04/01/2011]

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

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Run with file:-
"\\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\PICADY\J2 Fontygary Road - B4265\ODTAB\
J2 Fontygary Road - B4265 Rev A.vpi"
(drive-on-the-left) at 17:13:44 on Tuesday, 4 January 2011

RUN INFORMATION

RUN TITLE	: J2 Fontygary Road / B4265
LOCATION	: Rhoose
DATE	: 13/12/10
CLIENT	:
ENUMERATOR	: NH
JOB NUMBER	: FMW0408
STATUS	:
DESCRIPTION	: Rev A for TA Addendum

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

```
                    MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
                                         MINOR ROAD (ARM B)
```

ARM A IS B4265 (E)
ARM B IS Fonmon Road
ARM C IS B4265 (W)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)200.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 200.0 M.
- VISIBILITY TO RIGHT	(VB-A) 200.0 M.
- LANE 1 WIDTH	(WB-C) 2.40 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base + Comm Dev + 700 units AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	3.99	5.98	3.99
ARM B	15.00	45.00	75.00	3.29	4.93	3.29
ARM C	15.00	45.00	75.00	6.19	9.28	6.19

Demand set: 2015 Base + Comm Dev + 700 units AM

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 08.00	ARM A	0.000 0.0 (0.0)	0.056 18.0 (10.0)	0.944 301.0 (10.0)
	ARM B	0.080 21.0 (10.0)	0.000 0.0 (0.0)	0.920 242.0 (10.0)
	ARM C	0.774 383.0 (10.0)	0.226 112.0 (10.0)	0.000 0.0 (0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	3.30	9.38	0.352		0.00	0.53	7.6		0.16
C-A	4.81								
C-B	1.41	9.44	0.149		0.00	0.17	2.5		0.12
A-B	0.23								
A-C	3.78								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	3.94	9.14	0.431		0.53	0.74	10.7		0.19
C-A	5.74								
C-B	1.68	9.25	0.181		0.17	0.22	3.2		0.13
A-B	0.27								
A-C	4.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	4.83	8.81	0.548		0.74	1.17	16.6		0.25
C-A	7.03								
C-B	2.06	8.98	0.229		0.22	0.29	4.3		0.14
A-B	0.33								
A-C	5.52								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	4.83	8.81	0.548		1.17	1.19	17.8		0.25
C-A	7.03								
C-B	2.06	8.98	0.229		0.29	0.30	4.4		0.14
A-B	0.33								
A-C	5.52								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	3.94	9.14	0.431		1.19	0.77	12.2		0.19
C-A	5.74								
C-B	1.68	9.25	0.181		0.30	0.22	3.4		0.13
A-B	0.27								
A-C	4.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	3.30	9.38	0.352		0.77	0.55	8.6		0.17
C-A	4.81								
C-B	1.41	9.44	0.149		0.22	0.18	2.7		0.12
A-B	0.23								
A-C	3.78								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	*
08.15	0.7	*
08.30	1.2	*
08.45	1.2	*
09.00	0.8	*
09.15	0.6	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.2
08.30	0.3
08.45	0.3
09.00	0.2
09.15	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	362.0	241.3	73.4	0.20	73.4	0.20
C-A	527.2	351.4				
C-B	154.2	102.8	20.6	0.13	20.6	0.13
A-B	24.8	16.5				
A-C	414.3	276.2				
ALL	1482.4	988.3	94.0	0.06	94.0	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base + Comm Dev + 700 units PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	4.89	7.33	4.89
ARM B	15.00	45.00	75.00	1.76	2.64	1.76
ARM C	15.00	45.00	75.00	7.44	11.16	7.44

Demand set: 2015 Base + Comm Dev + 700 units PM

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 17.00		TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000 0.0 (0.0)	0.051 20.0 (10.0)	0.949 371.0 (10.0)
	ARM B	0.106 15.0 (10.0)	0.000 0.0 (0.0)	0.894 126.0 (10.0)
	ARM C	0.622 370.0 (10.0)	0.378 225.0 (10.0)	0.000 0.0 (0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	1.77	8.94	0.198		0.00	0.24	3.5		0.14
C-A	4.64								
C-B	2.82	9.21	0.306		0.00	0.44	6.2		0.16
A-B	0.25								
A-C	4.66								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	2.11	8.61	0.245		0.24	0.32	4.7		0.15
C-A	5.54								
C-B	3.37	8.97	0.376		0.44	0.59	8.6		0.18
A-B	0.30								
A-C	5.56								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	2.59	8.12	0.319		0.32	0.46	6.7		0.18
C-A	6.79								
C-B	4.13	8.64	0.478		0.59	0.89	12.7		0.22
A-B	0.37								
A-C	6.81								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	2.59	8.12	0.319		0.46	0.46	6.9		0.18
C-A	6.79								
C-B	4.13	8.64	0.478		0.89	0.90	13.5		0.22
A-B	0.37								
A-C	6.81								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	2.11	8.60	0.246		0.46	0.33	5.1		0.15
C-A	5.54								
C-B	3.37	8.97	0.376		0.90	0.61	9.6		0.18
A-B	0.30								
A-C	5.56								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	1.77	8.94	0.198		0.33	0.25	3.8		0.14
C-A	4.64								
C-B	2.82	9.21	0.306		0.61	0.45	7.0		0.16
A-B	0.25								
A-C	4.66								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.5
17.45	0.5
18.00	0.3
18.15	0.2

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.6	*
17.30	0.9	*
17.45	0.9	*
18.00	0.6	*
18.15	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	194.1	129.4	30.7	0.16	30.7	0.16
C-A	509.3	339.5				
C-B	309.7	206.5	57.5	0.19	57.5	0.19
A-B	27.5	18.4				
A-C	510.7	340.4				
ALL	1551.2	1034.2	88.2	0.06	88.3	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

========== end of file ==========

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

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Run with file:-
"\\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\PICADY\J2 Fontygary Road - B4265\Rev A\
J2 Fontygary Road - B4265 Rev A.vpi"
(drive-on-the-left) at 14:10:12 on Tuesday, 4 January 2011

RUN INFORMATION

RUN TITLE	: J2 Fontygary Road / B4265
LOCATION	: Rhoose
DATE	: 13/12/10
CLIENT	:
ENUMERATOR	: NH
JOB NUMBER	: FMW0408
STATUS	:
DESCRIPTION	: Rev A for TA Addendum

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

```
                    MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
                                         MINOR ROAD (ARM B)
```

ARM A IS B4265 (E)
ARM B IS Fonmon Road
ARM C IS B4265 (W)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)200.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 200.0 M.
- VISIBILITY TO RIGHT	(VB-A) 200.0 M.
- LANE 1 WIDTH	(WB-C) 2.40 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base Flows + Comm Dev AM

TIME PERIOD BEGINS 08.00 AND ENDS 09.00

LENGTH OF TIME PERIOD - 60 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.
DEMAND FLOW PROFILES ARE INPUT DIRECTLY

Demand set: 2015 Base Flows + Comm Dev AM

TIME	FROM/TO	ARM A	ARM B	ARM C
08.00 - 08.15		TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000 0.0 (0.0)	0.056 18.0 (41.0)	0.944 301.0 (8.0)
	ARM B	0.102 21.0 (55.0)	0.000 0.0 (0.0)	0.898 184.0 (4.0)
	ARM C	0.795 383.0 (3.0)	0.205 99.0 (5.0)	0.000 0.0 (0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	3.41	8.82	0.387		0.00	0.62	8.7		0.18
C-A	6.38								
C-B	1.65	9.55	0.173		0.00	0.21	3.0		0.13
A-B	0.30								
A-C	5.01								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	3.41	8.82	0.387		0.62	0.62	9.3		0.18
C-A	6.38								
C-B	1.65	9.55	0.173		0.21	0.21	3.1		0.13
A-B	0.30								
A-C	5.01								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	3.41	8.82	0.387		0.62	0.63	9.4		0.18
C-A	6.38								
C-B	1.65	9.55	0.173		0.21	0.21	3.1		0.13
A-B	0.30								
A-C	5.01								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	3.41	8.82	0.387		0.63	0.63	9.4		0.18
C-A	6.38								
C-B	1.65	9.55	0.173		0.21	0.21	3.1		0.13
A-B	0.30								
A-C	5.01								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.6	*
08.30	0.6	*
08.45	0.6	*
09.00	0.6	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.30	0.2
08.45	0.2
09.00	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-AC	204.6	204.6	36.9	0.18	36.9	0.18
C-A	382.8	382.8				
C-B	99.0	99.0	12.3	0.12	12.3	0.12
A-B	18.0	18.0				
A-C	300.6	300.6				
ALL	1005.0	1005.0	49.2	0.05	49.2	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base Flows + Comm Dev PM

TIME PERIOD BEGINS 17.00 AND ENDS 18.00

LENGTH OF TIME PERIOD - 60 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.
DEMAND FLOW PROFILES ARE INPUT DIRECTLY

Demand set: 2015 Base Flows + Comm Dev PM

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
17.00 - 17.15	ARM A	0.000	0.051	0.949
		0.0	20.0	371.0
		(0.0)	(16.0)	(1.0)
	ARM B	0.130	0.000	0.870
		15.0	0.0	100.0
		(14.0)	(0.0)	(0.0)
	ARM C	0.667	0.333	0.000
		370.0	185.0	0.0
		(1.0)	(3.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	1.91	9.10	0.210		0.00	0.26	3.8		0.14
C-A	6.17								
C-B	3.08	9.54	0.323		0.00	0.47	6.7		0.15
A-B	0.33								
A-C	6.18								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	1.91	9.09	0.210		0.26	0.26	4.0		0.14
C-A	6.17								
C-B	3.08	9.54	0.323		0.47	0.47	7.1		0.15
A-B	0.33								
A-C	6.18								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	1.91	9.09	0.210		0.26	0.26	4.0		0.14
C-A	6.17								
C-B	3.08	9.54	0.323		0.47	0.48	7.1		0.15
A-B	0.33								
A-C	6.18								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	1.91	9.09	0.210		0.26	0.27	4.0		0.14
C-A	6.17								
C-B	3.08	9.54	0.323		0.48	0.48	7.1		0.15
A-B	0.33								
A-C	6.18								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.3
17.30	0.3
17.45	0.3
18.00	0.3

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.5
17.30	0.5
17.45	0.5
18.00	0.5

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	114.6	114.6	15.7	0.14	15.7	0.14
C-A	370.0	370.0				
C-B	185.0	185.0	28.1	0.15	28.1	0.15
A-B	20.0	20.0				
A-C	370.6	370.6				
ALL	1060.2	1060.2	43.7	0.04	43.8	0.04

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

========== end of file ==========

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

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Run with file:-
"\\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\PICADY\J2 Fontygary Road - B4265\Rev A\
J2 Fontygary Road - B4265 Rev A.vpi"
(drive-on-the-left) at 13:55:01 on Monday, 13 December 2010

RUN INFORMATION

RUN TITLE	: J2 Fontygary Road / B4265
LOCATION	: Rhoose
DATE	: 13/12/10
CLIENT	:
ENUMERATOR	: NH
JOB NUMBER	: FMW0408
STATUS	:
DESCRIPTION	: Rev A for TA Addendum

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

```
                    MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
                                         MINOR ROAD (ARM B)
```

ARM A IS B4265 (E)
ARM B IS Fonmon Road
ARM C IS B4265 (W)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)200.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 200.0 M.
- VISIBILITY TO RIGHT	(VB-A) 200.0 M.
- LANE 1 WIDTH	(WB-C) 2.40 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base + Comm Dev + 350 units AM

TIME PERIOD BEGINS 08.00 AND ENDS 09.00

LENGTH OF TIME PERIOD - 60 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.
DEMAND FLOW PROFILES ARE INPUT DIRECTLY

Demand set: 2015 Base + Comm Dev + 350 units AM

TIME	FROM/TO	ARM A	ARM B	ARM C
08.00 - 08.15		TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000 0.0 (0.0)	0.056 18.0 (41.0)	0.944 301.0 (8.0)
	ARM B	0.090 21.0 (55.0)	0.000 0.0 (0.0)	0.910 213.0 (4.0)
	ARM C	0.785 383.0 (3.0)	0.215 105.0 (5.0)	0.000 0.0 (0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	3.90	8.93	0.437		0.00	0.76	10.7		0.20
C-A	6.38								
C-B	1.75	9.55	0.183		0.00	0.22	3.2		0.13
A-B	0.30								
A-C	5.02								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	3.90	8.93	0.437		0.76	0.77	11.4		0.20
C-A	6.38								
C-B	1.75	9.55	0.183		0.22	0.22	3.3		0.13
A-B	0.30								
A-C	5.02								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	3.90	8.93	0.437		0.77	0.77	11.5		0.20
C-A	6.38								
C-B	1.75	9.55	0.183		0.22	0.22	3.4		0.13
A-B	0.30								
A-C	5.02								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	3.90	8.93	0.437		0.77	0.77	11.6		0.20
C-A	6.38								
C-B	1.75	9.55	0.183		0.22	0.22	3.4		0.13
A-B	0.30								
A-C	5.02								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.8	*
08.30	0.8	*
08.45	0.8	*
09.00	0.8	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.30	0.2
08.45	0.2
09.00	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-AC	234.0	234.0	45.2	0.19	45.2	0.19
C-A	382.8	382.8				
C-B	105.0	105.0	13.3	0.13	13.3	0.13
A-B	18.0	18.0				
A-C	301.2	301.2				
ALL	1041.0	1041.0	58.4	0.06	58.5	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base + Comm Dev + 350 units PM

TIME PERIOD BEGINS 17.00 AND ENDS 18.00

LENGTH OF TIME PERIOD - 60 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.
DEMAND FLOW PROFILES ARE INPUT DIRECTLY

Demand set: 2015 Base + Comm Dev + 350 units PM

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
17.00 - 17.15	ARM A	0.000	0.043	0.957
		0.0	19.0	419.0
		(0.0)	(16.0)	(1.0)
	ARM B	0.113	0.000	0.887
		18.0	0.0	141.0
		(14.0)	(0.0)	(0.0)
	ARM C	0.591	0.409	0.000
		440.0	304.0	0.0
		(1.0)	(3.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	1.97	9.14	0.216		0.00	0.27	3.9		0.14
C-A	5.67								
C-B	3.91	9.54	0.410		0.00	0.68	9.7		0.17
A-B	0.28								
A-C	6.24								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	1.97	9.13	0.216		0.27	0.27	4.1		0.14
C-A	5.67								
C-B	3.91	9.54	0.410		0.68	0.69	10.3		0.18
A-B	0.28								
A-C	6.24								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	1.97	9.13	0.216		0.27	0.27	4.1		0.14
C-A	5.67								
C-B	3.91	9.54	0.410		0.69	0.69	10.4		0.18
A-B	0.28								
A-C	6.24								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	1.97	9.13	0.216		0.27	0.27	4.1		0.14
C-A	5.67								
C-B	3.91	9.54	0.410		0.69	0.69	10.4		0.18
A-B	0.28								
A-C	6.24								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.3	
17.30	0.3	
17.45	0.3	
18.00	0.3	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.7	*
17.30	0.7	*
17.45	0.7	*
18.00	0.7	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	118.2	118.2	16.2	0.14	16.2	0.14
C-A	339.9	339.9				
C-B	234.9	234.9	40.7	0.17	40.7	0.17
A-B	17.0	17.0				
A-C	374.2	374.2				
ALL	1084.2	1084.2	56.9	0.05	56.9	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

========== end of file ==========

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

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Run with file:-
"\\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\PICADY\J2 Fontygary Road - B4265\Rev A\
J2 Fontygary Road - B4265 Rev A.vpi"
(drive-on-the-left) at 14:03:12 on Monday, 13 December 2010

RUN INFORMATION

RUN TITLE	: J2 Fontygary Road / B4265
LOCATION	: Rhoose
DATE	: 13/12/10
CLIENT	:
ENUMERATOR	: NH
JOB NUMBER	: FMW0408
STATUS	:
DESCRIPTION	: Rev A for TA Addendum

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

```
                    MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
                                         MINOR ROAD (ARM B)
```

ARM A IS B4265 (E)
ARM B IS Fonmon Road
ARM C IS B4265 (W)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)200.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 200.0 M.
- VISIBILITY TO RIGHT	(VB-A) 200.0 M.
- LANE 1 WIDTH	(WB-C) 2.40 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base + Comm Dev + 700 units AM

TIME PERIOD BEGINS 08.00 AND ENDS 09.00

LENGTH OF TIME PERIOD - 60 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.
DEMAND FLOW PROFILES ARE INPUT DIRECTLY

Demand set: 2015 Base + Comm Dev + 700 units AM

TIME	FROM/TO	ARM A	ARM B	ARM C
08.00 - 08.15		TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000 0.0 (0.0)	0.056 18.0 (41.0)	0.944 301.0 (8.0)
	ARM B	0.080 21.0 (55.0)	0.000 0.0 (0.0)	0.920 242.0 (4.0)
	ARM C	0.774 383.0 (3.0)	0.226 112.0 (5.0)	0.000 0.0 (0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	4.38	8.97	0.488		0.00	0.93	12.9		0.21
C-A	7.16								
C-B	2.09	9.55	0.219		0.00	0.28	4.0		0.13
A-B	0.30								
A-C	5.01								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	4.38	8.97	0.488		0.93	0.94	14.0		0.22
C-A	7.16								
C-B	2.09	9.55	0.219		0.28	0.28	4.2		0.13
A-B	0.30								
A-C	5.01								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	4.38	8.97	0.488		0.94	0.95	14.2		0.22
C-A	7.16								
C-B	2.09	9.55	0.219		0.28	0.28	4.2		0.13
A-B	0.30								
A-C	5.01								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	4.38	8.97	0.488		0.95	0.95	14.2		0.22
C-A	7.16								
C-B	2.09	9.55	0.219		0.28	0.28	4.2		0.13
A-B	0.30								
A-C	5.01								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.9	*
08.30	0.9	*
08.45	0.9	*
09.00	0.9	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.30	0.3
08.45	0.3
09.00	0.3

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-AC	262.8	262.8	55.3	0.21	55.4	0.21
C-A	429.4	429.4				
C-B	125.6	125.6	16.6	0.13	16.6	0.13
A-B	18.0	18.0				
A-C	300.6	300.6				
ALL	1136.4	1136.4	71.9	0.06	72.0	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
704.80	0.26	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
610.96	0.27	0.10	0.17	0.38

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.25	0.25

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2015 Base + Comm Dev + 700 units PM

TIME PERIOD BEGINS 17.00 AND ENDS 18.00

LENGTH OF TIME PERIOD - 60 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.
DEMAND FLOW PROFILES ARE INPUT DIRECTLY

Demand set: 2015 Base + Comm Dev + 700 units PM

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
17.00 - 17.15	ARM A	0.000	0.051	0.949
		0.0	20.0	371.0
		(0.0)	(16.0)	(1.0)
	ARM B	0.106	0.000	0.894
		15.0	0.0	126.0
		(14.0)	(0.0)	(0.0)
	ARM C	0.622	0.378	0.000
		370.0	225.0	0.0
		(1.0)	(3.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	2.35	9.19	0.256		0.00	0.34	4.9		0.15
C-A	6.17								
C-B	3.75	9.54	0.393		0.00	0.64	9.0		0.17
A-B	0.33								
A-C	6.19								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	2.35	9.19	0.256		0.34	0.34	5.1		0.15
C-A	6.17								
C-B	3.75	9.54	0.393		0.64	0.64	9.6		0.17
A-B	0.33								
A-C	6.19								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	2.35	9.19	0.256		0.34	0.34	5.1		0.15
C-A	6.17								
C-B	3.75	9.54	0.393		0.64	0.64	9.7		0.17
A-B	0.33								
A-C	6.19								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	2.35	9.19	0.256		0.34	0.34	5.1		0.15
C-A	6.17								
C-B	3.75	9.54	0.393		0.64	0.65	9.7		0.17
A-B	0.33								
A-C	6.19								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.3
17.30	0.3
17.45	0.3
18.00	0.3

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.6	*
17.30	0.6	*
17.45	0.6	*
18.00	0.6	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	141.0	141.0	20.2	0.14	20.2	0.14
C-A	370.1	370.1				
C-B	225.1	225.1	37.9	0.17	38.0	0.17
A-B	20.0	20.0				
A-C	371.2	371.2				
ALL	1127.4	1127.4	58.2	0.05	58.2	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

========== end of file ==========

Printed at 14:03:20 on 13/12/2010]

APPENDIX C

ARCADY OUTPUT

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\ODTAB\Import of J1 Waycock Cross AM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:11:35

« A1 - (Default Analysis Set) - D3 - 2015 + Com 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
	(Default Analysis Set) - 2015 + Com Dev			
Arm A	1.72	0.12	0.64	A
Arm B	1.13	0.09	0.53	A
Arm C	46.70	1.97	1.05	F
Arm D	2.94	0.38	0.76	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 350 units AM			
Arm A	1.83	0.13	0.65	A
Arm B	1.22	0.09	0.55	A
Arm C	189.12	8.64	1.28	F
Arm D	3.28	0.41	0.78	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units AM			
Arm A	2.02	0.13	0.67	A
Arm B	1.33	0.10	0.57	A
Arm C	389.69	16.93	1.46	F
Arm D	3.50	0.43	0.79	D

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
2015 Base Flows + Comm Dev + 700 units AM - AM runs from 07:45:00 to 09:15:00
2015 + Com Dev - 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) - D3 - 2015 + Com 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
(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 + Com Dev, AM	2015 + 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,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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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		12.75	100.000	N/A
B	ONE HOUR		11.88	100.000	N/A
C	ONE HOUR		19.83	100.000	N/A
D	ONE HOUR		7.40	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	9.60	9.97	N/A	N/A
07:45-08:00	B	8.94	9.00	N/A	N/A
07:45-08:00	C	14.93	15.25	N/A	N/A
07:45-08:00	D	5.57	5.61	N/A	N/A
08:00-08:15	A	11.46	11.90	N/A	N/A
08:00-08:15	B	10.68	10.75	N/A	N/A
08:00-08:15	C	17.83	18.21	N/A	N/A
08:00-08:15	D	6.65	6.70	N/A	N/A
08:15-08:30	A	14.04	14.58	N/A	N/A
08:15-08:30	B	13.08	13.17	N/A	N/A
08:15-08:30	C	21.83	22.30	N/A	N/A
08:15-08:30	D	8.15	8.21	N/A	N/A
08:30-08:45	A	14.04	14.58	N/A	N/A
08:30-08:45	B	13.08	13.17	N/A	N/A
08:30-08:45	C	21.83	22.30	N/A	N/A
08:30-08:45	D	8.15	8.21	N/A	N/A
08:45-09:00	A	11.46	11.90	N/A	N/A
08:45-09:00	B	10.68	10.75	N/A	N/A
08:45-09:00	C	17.83	18.21	N/A	N/A
08:45-09:00	D	6.65	6.70	N/A	N/A
09:00-09:15	A	9.60	9.97	N/A	N/A
09:00-09:15	B	8.94	9.00	N/A	N/A
09:00-09:15	C	14.93	15.25	N/A	N/A
09:00-09:15	D	5.57	5.61	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	441.00	100.00
	B	292.00	0.00	239.00	182.00
	C	510.00	522.00	0.00	158.00
	D	133.00	206.00	105.00	0.00

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

		To			
		A	B	C	D
From	A	0.00	0.29	0.58	0.13
	B	0.41	0.00	0.34	0.26

	C	0.43	0.44	0.00	0.13
	D	0.30	0.46	0.24	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	0.64	0.12	1.72	A	11.70	1052.97	98.00	0.09	1.09	98.00	0.09	0.656	32.708
B	0.53	0.09	1.13	A	10.90	981.12	69.01	0.07	0.77	69.01	0.07	0.657	32.598
C	1.05	1.97	46.70	F	18.20	1637.67	1269.68	0.78	14.11	1269.77	0.78	0.540	26.951
D	0.76	0.38	2.94	C	6.79	611.13	137.76	0.23	1.53	137.78	0.23	0.524	23.241

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	9.60	143.98	9.56	11.65	10.37	0.00	24.89	21.87	0.386	0.00	0.62
B	8.94	134.16	8.91	11.86	8.07	0.00	27.06	20.53	0.331	0.00	0.49
C	14.93	223.94	14.80	9.80	7.17	0.00	22.54	17.55	0.662	0.00	1.91
D	5.57	83.57	5.53	5.49	16.49	0.00	14.32	10.57	0.389	0.00	0.63

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	11.46	171.93	11.44	13.93	12.39	0.00	23.60	21.87	0.486	0.62	0.93
B	10.68	160.20	10.67	14.18	9.66	0.00	26.01	20.53	0.411	0.49	0.69
C	17.83	267.40	17.68	11.74	8.59	0.00	21.79	17.55	0.818	1.91	4.15
D	6.65	99.79	6.62	6.57	19.70	0.00	12.62	10.57	0.527	0.63	1.09

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	14.04	210.57	13.99	16.42	14.51	0.00	22.25	21.87	0.631	0.93	1.67
B	13.08	196.20	13.05	16.70	11.79	0.00	24.60	20.53	0.532	0.69	1.12
C	21.83	327.50	20.23	14.34	10.51	0.00	20.76	17.55	1.052	4.15	28.21
D	8.15	122.21	8.04	7.85	22.89	0.00	10.93	10.57	0.746	1.09	2.70

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	14.04	210.57	14.04	16.62	14.73	0.00	22.10	21.87	0.635	1.67	1.72
B	13.08	196.20	13.08	16.92	11.85	0.00	24.57	20.53	0.532	1.12	1.13
C	21.83	327.50	20.60	14.40	10.53	0.00	20.75	17.55	1.052	28.21	46.70
D	8.15	122.21	8.13	7.91	23.22	0.00	10.75	10.57	0.758	2.70	2.94

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	11.46	171.93	11.51	15.22	13.75	0.00	22.73	21.87	0.504	1.72	1.03
B	10.68	160.20	10.71	15.53	9.73	0.00	25.96	20.53	0.411	1.13	0.70
C	17.83	267.40	20.57	11.82	8.62	0.00	21.77	17.55	0.819	46.70	5.50
D	6.65	99.79	6.75	6.97	22.23	0.00	11.27	10.57	0.590	2.94	1.49

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	9.60	143.98	9.62	11.85	10.59	0.00	24.74	21.87	0.388	1.03	0.64
B	8.94	134.16	8.96	12.08	8.14	0.00	27.01	20.53	0.331	0.70	0.50
C	14.93	223.94	15.16	9.88	7.21	0.00	22.52	17.55	0.663	5.50	2.02
D	5.57	83.57	5.63	5.56	16.82	0.00	14.14	10.57	0.394	1.49	0.66

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	9.10	0.61	0.065	A	A
B	7.20	0.48	0.055	A	A
C	26.85	1.79	0.127	A	A
D	9.05	0.60	0.113	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	13.64	0.91	0.082	A	A
B	10.16	0.68	0.065	A	A
C	55.80	3.72	0.235	B	B
D	15.57	1.04	0.166	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	23.94	1.60	0.120	A	A
B	16.30	1.09	0.086	A	A

C	262.73	17.52	0.998	F	E
D	35.98	2.40	0.335	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	25.52	1.70	0.124	A	A
B	16.91	1.13	0.087	A	A
C	563.81	37.59	1.974	F	F
D	42.81	2.85	0.377	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	15.98	1.07	0.089	A	A
B	10.82	0.72	0.066	A	A
C	327.41	21.83	1.119	F	E
D	24.03	1.60	0.226	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	9.81	0.65	0.066	A	A
B	7.60	0.51	0.055	A	A
C	33.10	2.21	0.140	A	A
D	10.32	0.69	0.118	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951
D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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	9.60	24.89	0.386	0.00	0.00	0.62	9.10	(0.00)	0.065
07:45-08:00	B	8.94	27.06	0.331	0.00	0.00	0.49	7.20	(0.00)	0.055
07:45-08:00	C	14.93	22.54	0.662	0.00	0.00	1.91	26.85	(0.00)	0.127
07:45-08:00	D	5.57	14.32	0.389	0.00	0.00	0.63	9.05	(0.00)	0.113
08:00-08:15	A	11.46	23.60	0.486	0.00	0.62	0.93	13.64	(0.00)	0.082
08:00-08:15	B	10.68	26.01	0.411	0.00	0.49	0.69	10.16	(0.00)	0.065
08:00-08:15	C	17.83	21.79	0.818	0.00	1.91	4.15	55.80	(0.00)	0.235
08:00-08:15	D	6.65	12.62	0.527	0.00	0.63	1.09	15.57	(0.00)	0.166
08:15-08:30	A	14.04	22.25	0.631	0.00	0.93	1.67	23.94	(0.00)	0.120
08:15-08:30	B	13.08	24.60	0.532	0.00	0.69	1.12	16.30	(0.00)	0.086
08:15-08:30	C	21.83	20.76	1.052	0.00	4.15	28.21	262.73	(0.00)	0.998

08:15-08:30	**D**	8.15	10.93	0.746	0.00	1.09	2.70	35.98	(0.00)	0.335
08:30-08:45	**A**	14.04	22.10	0.635	0.00	1.67	1.72	25.52	(0.00)	0.124
08:30-08:45	**B**	13.08	24.57	0.532	0.00	1.12	1.13	16.91	(0.00)	0.087
08:30-08:45	**C**	21.83	20.75	1.052	0.00	28.21	46.70	563.81	(0.00)	1.974
08:30-08:45	**D**	8.15	10.75	0.758	0.00	2.70	2.94	42.81	(0.00)	0.377
08:45-09:00	**A**	11.46	22.73	0.504	0.00	1.72	1.03	15.98	(0.00)	0.089
08:45-09:00	**B**	10.68	25.96	0.411	0.00	1.13	0.70	10.82	(0.00)	0.066
08:45-09:00	**C**	17.83	21.77	0.819	0.00	46.70	5.50	327.41	(0.00)	1.119
08:45-09:00	**D**	6.65	11.27	0.590	0.00	2.94	1.49	24.03	(0.00)	0.226
09:00-09:15	**A**	9.60	24.74	0.388	0.00	1.03	0.64	9.81	(0.00)	0.066
09:00-09:15	**B**	8.94	27.01	0.331	0.00	0.70	0.50	7.60	(0.00)	0.055
09:00-09:15	**C**	14.93	22.52	0.663	0.00	5.50	2.02	33.10	(0.00)	0.140
09:00-09:15	**D**	5.57	14.14	0.394	0.00	1.49	0.66	10.32	(0.00)	0.118

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\ODTAB\Import of J1 Waycock Cross PM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:17:33

« A1 - (Default Analysis Set) - D3 - 2015 Base Flow + Comm Dev, PM
» Roundabout Network
» Arms
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» Direct/Resultant Flows
» Turning Proportions
» Vehicle Mix
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» Overview: Standard Roundabout Geometry
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Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 Base Flow + Comm Dev			
Arm A	2.61	0.15	0.73	A
Arm B	1.53	0.11	0.61	A
Arm C	2.13	0.14	0.68	A
Arm D	1.68	0.19	0.63	B
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 350 units PM			
Arm A	4.38	0.22	0.82	B
Arm B	2.06	0.15	0.68	A
Arm C	3.52	0.21	0.78	B
Arm D	2.38	0.27	0.71	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units PM			
Arm A	8.90	0.43	0.91	D
Arm B	4.71	0.34	0.84	C
Arm C	10.29	0.57	0.93	D
Arm D	3.58	0.39	0.79	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 PM - PM runs from 16:45:00 to 18:15:00
2015 Base Flows + Comm Dev + 700 units PM - PM runs from 16:45:00 to 18:15:00
2015 Base Flow + Comm Dev - 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) - D3 - 2015 Base Flow + 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
(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 Flow + Comm Dev, PM	2015 Base Flow + 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,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)	I' - 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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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		16.57	100.000	N/A
B	ONE HOUR		12.43	100.000	N/A
C	ONE HOUR		13.90	100.000	N/A
D	ONE HOUR		8.00	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	12.47	12.62	N/A	N/A
16:45-17:00	B	9.36	9.36	N/A	N/A
16:45-17:00	C	10.46	10.68	N/A	N/A
16:45-17:00	D	6.02	6.08	N/A	N/A
17:00-17:15	A	14.90	15.08	N/A	N/A
17:00-17:15	B	11.17	11.17	N/A	N/A
17:00-17:15	C	12.50	12.76	N/A	N/A
17:00-17:15	D	7.19	7.26	N/A	N/A
17:15-17:30	A	18.24	18.46	N/A	N/A
17:15-17:30	B	13.69	13.69	N/A	N/A
17:15-17:30	C	15.30	15.63	N/A	N/A
17:15-17:30	D	8.81	8.89	N/A	N/A
17:30-17:45	A	18.24	18.46	N/A	N/A
17:30-17:45	B	13.69	13.69	N/A	N/A
17:30-17:45	C	15.30	15.63	N/A	N/A
17:30-17:45	D	8.81	8.89	N/A	N/A
17:45-18:00	A	14.90	15.08	N/A	N/A
17:45-18:00	B	11.17	11.17	N/A	N/A
17:45-18:00	C	12.50	12.76	N/A	N/A
17:45-18:00	D	7.19	7.26	N/A	N/A
18:00-18:15	A	12.47	12.62	N/A	N/A
18:00-18:15	B	9.36	9.36	N/A	N/A
18:00-18:15	C	10.46	10.68	N/A	N/A
18:00-18:15	D	6.02	6.08	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	607.00	118.00
	B	179.00	0.00	450.00	117.00
	C	512.00	262.00	0.00	80.00
	D	136.00	234.00	108.00	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	0.24	0.00	0.60	0.16
	C	0.60	0.31	0.00	0.09
	D	0.28	0.49	0.23	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	0.73	0.15	2.61	A	15.20	1368.45	138.87	0.10	1.54	138.88	0.10	0.656	32.708
B	0.61	0.11	1.53	A	11.41	1026.54	87.34	0.09	0.97	87.35	0.09	0.657	32.598
C	0.68	0.14	2.13	A	12.75	1147.94	120.93	0.11	1.34	120.94	0.11	0.540	26.951
D	0.63	0.19	1.68	B	7.34	660.69	90.70	0.14	1.01	90.71	0.14	0.524	23.241

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	12.47	187.12	12.42	10.18	7.48	0.00	27.41	23.19	0.455	0.00	0.83
B	9.36	140.37	9.32	9.49	10.41	0.00	25.73	19.87	0.364	0.00	0.57
C	10.46	156.97	10.41	14.56	5.17	0.00	23.65	20.75	0.442	0.00	0.79
D	6.02	90.34	5.99	3.91	11.67	0.00	16.85	10.55	0.358	0.00	0.55

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	14.90	223.44	14.87	12.19	8.96	0.00	26.44	23.19	0.563	0.83	1.27
B	11.17	167.61	11.16	11.36	12.46	0.00	24.38	19.87	0.458	0.57	0.84

C	12.50	187.44	12.47	17.43	6.19	0.00	23.11	20.75	0.541	0.79	1.16
D	7.19	107.88	7.17	4.68	13.98	0.00	15.63	10.55	0.460	0.55	0.84

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	18.24	273.66	18.16	14.90	10.94	0.00	25.14	23.19	0.726	1.27	2.56
B	13.69	205.29	13.64	13.88	15.22	0.00	22.56	19.87	0.607	0.84	1.51
C	15.30	229.56	15.24	21.29	7.57	0.00	22.38	20.75	0.684	1.16	2.10
D	8.81	132.12	8.75	5.72	17.09	0.00	13.98	10.55	0.630	0.84	1.65

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	18.24	273.66	18.24	14.96	10.99	0.00	25.10	23.19	0.727	2.56	2.61
B	13.69	205.29	13.68	13.94	15.29	0.00	22.51	19.87	0.608	1.51	1.53
C	15.30	229.56	15.30	21.38	7.60	0.00	22.37	20.75	0.684	2.10	2.13
D	8.81	132.12	8.81	5.75	17.15	0.00	13.95	10.55	0.632	1.65	1.68

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	14.90	223.44	14.98	12.28	9.04	0.00	26.39	23.19	0.564	2.61	1.31
B	11.17	167.61	11.22	11.45	12.57	0.00	24.31	19.87	0.460	1.53	0.86
C	12.50	187.44	12.56	17.55	6.23	0.00	23.09	20.75	0.541	2.13	1.20
D	7.19	107.88	7.25	4.71	14.07	0.00	15.58	10.55	0.462	1.68	0.87

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	12.47	187.12	12.51	10.26	7.54	0.00	27.37	23.19	0.456	1.31	0.84
B	9.36	140.37	9.38	9.56	10.49	0.00	25.68	19.87	0.364	0.86	0.58
C	10.46	156.97	10.49	14.66	5.21	0.00	23.63	20.75	0.443	1.20	0.80
D	6.02	90.34	6.04	3.94	11.76	0.00	16.80	10.55	0.358	0.87	0.56

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	12.06	0.80	0.066	A	A
B	8.31	0.55	0.061	A	A
C	11.42	0.76	0.075	A	A
D	7.99	0.53	0.092	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	18.51	1.23	0.086	A	A
B	12.27	0.82	0.076	A	A
C	16.89	1.13	0.094	A	A
D	12.19	0.81	0.118	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	35.95	2.40	0.141	A	A
B	21.74	1.45	0.112	A	A
C	29.79	1.99	0.139	A	A
D	23.16	1.54	0.189	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	38.86	2.59	0.145	A	A
B	22.90	1.53	0.113	A	A
C	31.84	2.12	0.141	A	A
D	25.04	1.67	0.194	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	20.50	1.37	0.088	A	A
B	13.28	0.89	0.077	A	A
C	18.64	1.24	0.095	A	A
D	13.62	0.91	0.121	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	12.99	0.87	0.067	A	A
B	8.84	0.59	0.061	A	A
C	12.35	0.82	0.076	A	A
D	8.71	0.58	0.093	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951
D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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	12.47	27.41	0.455	0.00	0.00	0.83	12.06	(0.00)	0.066
16:45-17:00	B	9.36	25.73	0.364	0.00	0.00	0.57	8.31	(0.00)	0.061
16:45-17:00	C	10.46	23.65	0.442	0.00	0.00	0.79	11.42	(0.00)	0.075
16:45-17:00	D	6.02	16.85	0.358	0.00	0.00	0.55	7.99	(0.00)	0.092
17:00-17:15	A	14.90	26.44	0.563	0.00	0.83	1.27	18.51	(0.00)	0.086
17:00-17:15	B	11.17	24.38	0.458	0.00	0.57	0.84	12.27	(0.00)	0.076

17:00-17:15	**C**	12.50	23.11	0.541	0.00	0.79	1.16	16.89	(0.00)	0.094
17:00-17:15	**D**	7.19	15.63	0.460	0.00	0.55	0.84	12.19	(0.00)	0.118
17:15-17:30	**A**	18.24	25.14	0.726	0.00	1.27	2.56	35.95	(0.00)	0.141
17:15-17:30	**B**	13.69	22.56	0.607	0.00	0.84	1.51	21.74	(0.00)	0.112
17:15-17:30	**C**	15.30	22.38	0.684	0.00	1.16	2.10	29.79	(0.00)	0.139
17:15-17:30	**D**	8.81	13.98	0.630	0.00	0.84	1.65	23.16	(0.00)	0.189
17:30-17:45	**A**	18.24	25.10	0.727	0.00	2.56	2.61	38.86	(0.00)	0.145
17:30-17:45	**B**	13.69	22.51	0.608	0.00	1.51	1.53	22.90	(0.00)	0.113
17:30-17:45	**C**	15.30	22.37	0.684	0.00	2.10	2.13	31.84	(0.00)	0.141
17:30-17:45	**D**	8.81	13.95	0.632	0.00	1.65	1.68	25.04	(0.00)	0.194
17:45-18:00	**A**	14.90	26.39	0.564	0.00	2.61	1.31	20.50	(0.00)	0.088
17:45-18:00	**B**	11.17	24.31	0.460	0.00	1.53	0.86	13.28	(0.00)	0.077
17:45-18:00	**C**	12.50	23.09	0.541	0.00	2.13	1.20	18.64	(0.00)	0.095
17:45-18:00	**D**	7.19	15.58	0.462	0.00	1.68	0.87	13.62	(0.00)	0.121
18:00-18:15	**A**	12.47	27.37	0.456	0.00	1.31	0.84	12.99	(0.00)	0.067
18:00-18:15	**B**	9.36	25.68	0.364	0.00	0.86	0.58	8.84	(0.00)	0.061
18:00-18:15	**C**	10.46	23.63	0.443	0.00	1.20	0.80	12.35	(0.00)	0.076
18:00-18:15	**D**	6.02	16.80	0.358	0.00	0.87	0.56	8.71	(0.00)	0.093

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\ODTAB\Import of J1 Waycock Cross AM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:12:49

« 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 + Com Dev			
Arm A	1.72	0.12	0.64	A
Arm B	1.13	0.09	0.53	A
Arm C	46.70	1.97	1.05	F
Arm D	2.94	0.38	0.76	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 350 units AM			
Arm A	1.83	0.13	0.65	A
Arm B	1.22	0.09	0.55	A
Arm C	189.12	8.64	1.28	F
Arm D	3.28	0.41	0.78	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units AM			
Arm A	2.02	0.13	0.67	A
Arm B	1.33	0.10	0.57	A
Arm C	389.69	16.93	1.46	F
Arm D	3.50	0.43	0.79	D

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
2015 Base Flows + Comm Dev + 700 units AM - AM runs from 07:45:00 to 09:15:00
2015 + Com Dev - 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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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	0.65	0.13	1.83	A	12.25	1102.52	107.08	0.10	1.19	107.09	0.10	0.656	32.708
B	0.55	0.09	1.22	A	11.06	995.15	73.48	0.07	0.82	73.48	0.07	0.657	32.598
C	1.28	8.64	189.12	F	22.04	1983.71	8508.16	4.29	94.54	8853.41	4.46	0.540	26.951
D	0.78	0.41	3.28	C	6.93	623.52	167.82	0.27	1.86	167.88	0.27	0.524	23.241

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	13.75	10.96	0.00	24.55	22.31	0.409	0.00	0.69
B	9.07	136.08	9.04	12.34	8.62	0.00	26.69	20.02	0.340	0.00	0.51
C	18.08	271.25	17.83	10.49	7.17	0.00	22.51	17.84	0.803	0.00	3.81
D	5.68	85.26	5.63	5.92	19.08	0.00	12.93	10.61	0.440	0.00	0.77

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	16.17	12.87	0.00	23.33	22.31	0.514	0.69	1.05
B	10.83	162.49	10.82	14.53	10.32	0.00	25.57	20.02	0.424	0.51	0.73

C	21.59	323.90	20.73	12.55	8.59	0.00	21.76	17.84	0.992	3.81	16.80
D	6.79	101.81	6.74	7.01	22.31	0.00	11.21	10.61	0.605	0.77	1.48

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	14.65	17.56	13.89	0.00	22.68	22.31	0.648	1.05	1.80
B	13.27	199.01	13.24	15.93	12.62	0.00	24.06	20.02	0.551	0.73	1.21
C	26.45	396.70	20.69	15.35	10.51	0.00	20.73	17.84	1.276	16.80	103.13
D	8.31	124.69	8.20	7.95	23.25	0.00	10.72	10.61	0.775	1.48	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	14.70	220.48	14.70	17.61	13.97	0.00	22.63	22.31	0.650	1.80	1.83
B	13.27	199.01	13.27	15.99	12.68	0.00	24.02	20.02	0.552	1.21	1.22
C	26.45	396.70	20.71	15.41	10.53	0.00	20.72	17.84	1.276	103.13	189.12
D	8.31	124.69	8.30	7.96	23.28	0.00	10.70	10.61	0.777	3.11	3.28

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	12.05	16.65	13.32	0.00	23.04	22.31	0.521	1.83	1.10
B	10.83	162.49	10.86	14.96	10.41	0.00	25.51	20.02	0.425	1.22	0.74
C	21.59	323.90	21.60	12.65	8.63	0.00	21.74	17.84	0.993	189.12	188.97
D	6.79	101.81	6.89	7.15	23.08	0.00	10.80	10.61	0.629	3.28	1.76

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	10.07	15.96	12.80	0.00	23.37	22.31	0.430	1.10	0.76
B	9.07	136.08	9.09	14.18	8.70	0.00	26.64	20.02	0.340	0.74	0.52
C	18.08	271.25	22.37	10.57	7.21	0.00	22.49	17.84	0.804	188.97	124.62
D	5.68	85.26	5.73	6.56	23.03	0.00	10.82	10.61	0.526	1.76	1.14

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	10.02	0.67	0.069	A	A
B	7.50	0.50	0.057	A	A
C	50.48	3.37	0.204	B	B
D	11.02	0.73	0.136	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	15.24	1.02	0.088	A	A
B	10.71	0.71	0.068	A	A
C	176.37	11.76	0.676	E	D
D	20.74	1.38	0.221	B	B

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	25.73	1.72	0.124	A	A
B	17.58	1.17	0.092	A	A
C	901.78	60.12	3.062	F	F
D	41.28	2.75	0.381	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	27.28	1.82	0.126	A	A
B	18.30	1.22	0.093	A	A
C	2191.94	146.13	7.048	F	F
D	48.19	3.21	0.411	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	17.10	1.14	0.091	A	A
B	11.45	0.76	0.068	A	A
C	2835.65	189.04	8.641	F	F
D	28.60	1.91	0.262	C	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	11.71	0.78	0.075	A	A
B	7.94	0.53	0.057	A	A
C	2351.93	156.80	7.019	F	F
D	17.99	1.20	0.198	B	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	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951
D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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	24.55	0.409	0.00	0.00	0.69	10.02	(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	22.51	0.803	0.00	0.00	3.81	50.48	(0.00)	0.204
07:45-08:00	D	5.68	12.93	0.440	0.00	0.00	0.77	11.02	(0.00)	0.136
08:00-08:15	A	12.00	23.33	0.514	0.00	0.69	1.05	15.24	(0.00)	0.088
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	21.76	0.992	0.00	3.81	16.80	176.37	(0.00)	0.676
08:00-08:15	**D**	6.79	11.21	0.605	0.00	0.77	1.48	20.74	(0.00)	0.221
08:15-08:30	**A**	14.70	22.68	0.648	0.00	1.05	1.80	25.73	(0.00)	0.124
08:15-08:30	**B**	13.27	24.06	0.551	0.00	0.73	1.21	17.58	(0.00)	0.092
08:15-08:30	**C**	26.45	20.73	1.276	0.00	16.80	103.13	901.78	(0.00)	3.062
08:15-08:30	**D**	8.31	10.72	0.775	0.00	1.48	3.11	41.28	(0.00)	0.381
08:30-08:45	**A**	14.70	22.63	0.650	0.00	1.80	1.83	27.28	(0.00)	0.126
08:30-08:45	**B**	13.27	24.02	0.552	0.00	1.21	1.22	18.30	(0.00)	0.093
08:30-08:45	**C**	26.45	20.72	1.276	0.00	103.13	189.12	2191.94	(0.00)	7.048
08:30-08:45	**D**	8.31	10.70	0.777	0.00	3.11	3.28	48.19	(0.00)	0.411
08:45-09:00	**A**	12.00	23.04	0.521	0.00	1.83	1.10	17.10	(0.00)	0.091
08:45-09:00	**B**	10.83	25.51	0.425	0.00	1.22	0.74	11.45	(0.00)	0.068
08:45-09:00	**C**	21.59	21.74	0.993	0.00	189.12	188.97	2835.65	(0.00)	8.641
08:45-09:00	**D**	6.79	10.80	0.629	0.00	3.28	1.76	28.60	(0.00)	0.262
09:00-09:15	**A**	10.05	23.37	0.430	0.00	1.10	0.76	11.71	(0.00)	0.075
09:00-09:15	**B**	9.07	26.64	0.340	0.00	0.74	0.52	7.94	(0.00)	0.057
09:00-09:15	**C**	18.08	22.49	0.804	0.00	188.97	124.62	2351.93	(0.00)	7.019
09:00-09:15	**D**	5.68	10.82	0.526	0.00	1.76	1.14	17.99	(0.00)	0.198

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\ODTAB\Import of J1 Waycock Cross PM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:18:13

« 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 Flow + Comm Dev			
Arm A	2.61	0.15	0.73	A
Arm B	1.53	0.11	0.61	A
Arm C	2.13	0.14	0.68	A
Arm D	1.68	0.19	0.63	B
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 350 units PM			
Arm A	4.38	0.22	0.82	B
Arm B	2.06	0.15	0.68	A
Arm C	3.52	0.21	0.78	B
Arm D	2.38	0.27	0.71	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units PM			
Arm A	8.90	0.43	0.91	D
Arm B	4.71	0.34	0.84	C
Arm C	10.29	0.57	0.93	D
Arm D	3.58	0.39	0.79	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 PM - PM runs from 16:45:00 to 18:15:00
2015 Base Flows + Comm Dev + 700 units PM - PM runs from 16:45:00 to 18:15:00
2015 Base Flow + Comm Dev - 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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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	4.38	B	16.81	1512.97	204.93	0.14	2.28	204.95	0.14	0.656	32.708
B	0.68	0.15	2.06	A	11.84	1065.35	109.07	0.10	1.21	109.08	0.10	0.657	32.598
C	0.78	0.21	3.52	B	14.61	1314.76	179.10	0.14	1.99	179.12	0.14	0.540	26.951
D	0.71	0.27	2.38	C	7.66	689.59	117.04	0.17	1.30	117.06	0.17	0.524	23.241

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	11.16	8.04	0.00	27.07	23.21	0.509	0.00	1.03
B	9.71	145.68	9.67	9.77	12.00	0.00	24.69	19.21	0.393	0.00	0.64
C	11.99	179.78	11.92	16.48	5.18	0.00	23.64	21.16	0.507	0.00	1.02
D	6.29	94.29	6.24	4.15	12.96	0.00	16.16	10.59	0.389	0.00	0.63

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	13.36	9.64	0.00	26.02	23.21	0.633	1.03	1.69
B	11.60	173.95	11.57	11.70	14.36	0.00	23.13	19.21	0.501	0.64	0.99

C	14.31	214.68	14.27	19.73	6.20	0.00	23.10	21.16	0.620	1.02	1.60
D	7.51	112.60	7.48	4.96	15.51	0.00	14.80	10.59	0.507	0.63	1.01

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	16.30	11.74	0.00	24.64	23.21	0.819	1.69	4.19
B	14.20	213.05	14.14	14.25	17.49	0.00	21.06	19.21	0.674	0.99	2.01
C	17.53	262.92	17.41	24.05	7.57	0.00	22.38	21.16	0.783	1.60	3.41
D	9.19	137.90	9.11	6.05	18.93	0.00	13.00	10.59	0.707	1.01	2.29

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	16.40	11.83	0.00	24.58	23.21	0.821	4.19	4.38
B	14.20	213.05	14.20	14.36	17.63	0.00	20.97	19.21	0.677	2.01	2.06
C	17.53	262.92	17.52	24.21	7.61	0.00	22.35	21.16	0.784	3.41	3.52
D	9.19	137.90	9.19	6.09	19.04	0.00	12.93	10.59	0.711	2.29	2.38

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	13.51	9.77	0.00	25.94	23.21	0.635	4.38	1.77
B	11.60	173.95	11.67	11.85	14.56	0.00	23.00	19.21	0.504	2.06	1.03
C	14.31	214.68	14.44	19.96	6.26	0.00	23.07	21.16	0.620	3.52	1.67
D	7.51	112.60	7.59	5.02	15.68	0.00	14.71	10.59	0.510	2.38	1.06

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	11.26	8.13	0.00	27.02	23.21	0.511	1.77	1.05
B	9.71	145.68	9.74	9.86	12.10	0.00	24.62	19.21	0.395	1.03	0.66
C	11.99	179.78	12.03	16.62	5.22	0.00	23.62	21.16	0.507	1.67	1.04
D	6.29	94.29	6.31	4.18	13.07	0.00	16.10	10.59	0.391	1.06	0.65

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	14.89	0.99	0.075	A	A
B	9.39	0.63	0.066	A	A
C	14.67	0.98	0.085	A	A
D	9.10	0.61	0.100	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	24.35	1.62	0.104	A	A
B	14.49	0.97	0.086	A	A
C	22.99	1.53	0.113	A	A
D	14.56	0.97	0.136	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	56.40	3.76	0.208	B	B
B	28.43	1.90	0.143	A	A
C	46.72	3.11	0.197	B	B
D	31.33	2.09	0.252	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	64.64	4.31	0.225	B	B
B	30.66	2.04	0.147	A	A
C	52.17	3.48	0.206	B	B
D	35.17	2.34	0.266	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	28.35	1.89	0.109	A	A
B	16.02	1.07	0.089	A	A
C	26.41	1.76	0.117	A	A
D	16.85	1.12	0.142	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	16.31	1.09	0.076	A	A
B	10.09	0.67	0.067	A	A
C	16.15	1.08	0.087	A	A
D	10.04	0.67	0.103	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951
D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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	27.07	0.509	0.00	0.00	1.03	14.89	(0.00)	0.075
16:45-17:00	B	9.71	24.69	0.393	0.00	0.00	0.64	9.39	(0.00)	0.066
16:45-17:00	C	11.99	23.64	0.507	0.00	0.00	1.02	14.67	(0.00)	0.085
16:45-17:00	D	6.29	16.16	0.389	0.00	0.00	0.63	9.10	(0.00)	0.100
17:00-17:15	A	16.47	26.02	0.633	0.00	1.03	1.69	24.35	(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	23.10	0.620	0.00	1.02	1.60	22.99	(0.00)	0.113
17:00-17:15	**D**	7.51	14.80	0.507	0.00	0.63	1.01	14.56	(0.00)	0.136
17:15-17:30	**A**	20.17	24.64	0.819	0.00	1.69	4.19	56.40	(0.00)	0.208
17:15-17:30	**B**	14.20	21.06	0.674	0.00	0.99	2.01	28.43	(0.00)	0.143
17:15-17:30	**C**	17.53	22.38	0.783	0.00	1.60	3.41	46.72	(0.00)	0.197
17:15-17:30	**D**	9.19	13.00	0.707	0.00	1.01	2.29	31.33	(0.00)	0.252
17:30-17:45	**A**	20.17	24.58	0.821	0.00	4.19	4.38	64.64	(0.00)	0.225
17:30-17:45	**B**	14.20	20.97	0.677	0.00	2.01	2.06	30.66	(0.00)	0.147
17:30-17:45	**C**	17.53	22.35	0.784	0.00	3.41	3.52	52.17	(0.00)	0.206
17:30-17:45	**D**	9.19	12.93	0.711	0.00	2.29	2.38	35.17	(0.00)	0.266
17:45-18:00	**A**	16.47	25.94	0.635	0.00	4.38	1.77	28.35	(0.00)	0.109
17:45-18:00	**B**	11.60	23.00	0.504	0.00	2.06	1.03	16.02	(0.00)	0.089
17:45-18:00	**C**	14.31	23.07	0.620	0.00	3.52	1.67	26.41	(0.00)	0.117
17:45-18:00	**D**	7.51	14.71	0.510	0.00	2.38	1.06	16.85	(0.00)	0.142
18:00-18:15	**A**	13.79	27.02	0.511	0.00	1.77	1.05	16.31	(0.00)	0.076
18:00-18:15	**B**	9.71	24.62	0.395	0.00	1.03	0.66	10.09	(0.00)	0.067
18:00-18:15	**C**	11.99	23.62	0.507	0.00	1.67	1.04	16.15	(0.00)	0.087
18:00-18:15	**D**	6.29	16.10	0.391	0.00	1.06	0.65	10.04	(0.00)	0.103

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\ODTAB\Import of J1 Waycock Cross AM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:13:18

« A1 - (Default Analysis Set) - D2 - 2015 Base Flows + Comm Dev + 700 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 + Com Dev			
Arm A	1.72	0.12	0.64	A
Arm B	1.13	0.09	0.53	A
Arm C	46.70	1.97	1.05	F
Arm D	2.94	0.38	0.76	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 350 units AM			
Arm A	1.83	0.13	0.65	A
Arm B	1.22	0.09	0.55	A
Arm C	189.12	8.64	1.28	F
Arm D	3.28	0.41	0.78	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units AM			
Arm A	2.02	0.13	0.67	A
Arm B	1.33	0.10	0.57	A
Arm C	389.69	16.93	1.46	F
Arm D	3.50	0.43	0.79	D

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
2015 Base Flows + Comm Dev + 700 units AM - AM runs from 07:45:00 to 09:15:00
2015 + Com Dev - 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) - D2 - 2015 Base Flows + Comm Dev + 700 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 + 700 units AM, AM	2015 Base Flows + Comm Dev + 700 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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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		27.53	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	20.73	21.21	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	24.75	25.33	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	30.31	31.02	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	30.31	31.02	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	24.75	25.33	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	20.73	21.21	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	0.67	0.13	2.02	A	12.82	1153.72	116.89	0.10	1.30	116.90	0.10	0.656	32.708
B	0.57	0.10	1.33	A	11.21	1009.19	78.53	0.08	0.87	78.54	0.08	0.657	32.598
C	1.46	16.93	389.69	F	25.26	2273.57	17761.55	7.81	197.35	20713.23	9.11	0.540	26.951
D	0.79	0.43	3.50	D	7.07	635.91	181.24	0.29	2.01	181.30	0.29	0.524	23.241

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	15.26	11.48	0.00	24.26	22.50	0.434	0.00	0.76
B	9.20	138.00	9.16	12.75	9.20	0.00	26.31	19.64	0.350	0.00	0.53
C	20.73	310.89	20.15	11.18	7.18	0.00	22.50	18.11	0.921	0.00	8.59
D	5.80	86.95	5.73	6.33	21.00	0.00	11.90	10.66	0.487	0.00	0.93

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	12.53	17.00	12.81	0.00	23.41	22.50	0.536	0.76	1.14
B	10.99	164.78	10.97	14.33	11.01	0.00	25.12	19.64	0.437	0.53	0.77

C	24.75	371.23	21.57	13.39	8.59	0.00	21.75	18.11	1.138	8.59	56.26
D	6.92	103.83	6.87	7.22	22.94	0.00	10.87	10.66	0.637	0.93	1.68

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	15.33	17.99	13.56	0.00	22.93	22.50	0.671	1.14	1.99
B	13.45	201.82	13.42	15.43	13.46	0.00	23.51	19.64	0.572	0.77	1.32
C	30.31	454.66	20.72	16.37	10.51	0.00	20.72	18.11	1.463	56.26	200.18
D	8.48	127.17	8.37	8.04	23.18	0.00	10.76	10.66	0.788	1.68	3.33

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	18.02	13.62	0.00	22.89	22.50	0.672	1.99	2.02
B	13.45	201.82	13.45	15.48	13.52	0.00	23.46	19.64	0.573	1.32	1.33
C	30.31	454.66	20.70	16.44	10.54	0.00	20.71	18.11	1.464	200.18	344.27
D	8.48	127.17	8.47	8.06	23.18	0.00	10.75	10.66	0.788	3.33	3.50

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	17.14	12.97	0.00	23.30	22.50	0.539	2.02	1.18
B	10.99	164.78	11.02	14.47	11.11	0.00	25.05	19.64	0.439	1.33	0.79
C	24.75	371.23	21.72	13.50	8.63	0.00	21.72	18.11	1.139	344.27	389.69
D	6.92	103.83	7.03	7.27	23.09	0.00	10.79	10.66	0.642	3.50	1.87

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	16.43	12.39	0.00	23.68	22.50	0.444	1.18	0.81
B	9.20	138.00	9.22	13.65	9.28	0.00	26.26	19.64	0.350	0.79	0.54
C	20.73	310.89	22.42	11.28	7.22	0.00	22.48	18.11	0.922	389.69	364.27
D	5.80	86.95	5.84	6.67	22.97	0.00	10.84	10.66	0.535	1.87	1.18

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	11.03	0.74	0.072	A	A
B	7.82	0.52	0.058	A	A
C	100.03	6.67	0.365	C	C
D	13.15	0.88	0.161	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	16.61	1.11	0.092	A	A
B	11.31	0.75	0.071	A	A
C	495.12	33.01	1.693	F	F
D	23.43	1.56	0.247	B	B

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	28.27	1.88	0.131	A	A
B	19.05	1.27	0.099	A	A
C	1923.53	128.24	6.309	F	F
D	44.05	2.94	0.401	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	30.11	2.01	0.133	A	A
B	19.91	1.33	0.100	A	A
C	4083.40	272.23	12.926	F	F
D	51.46	3.43	0.432	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	18.45	1.23	0.094	A	A
B	12.14	0.81	0.071	A	A
C	5504.72	366.98	16.930	F	F
D	30.42	2.03	0.273	C	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	12.42	0.83	0.076	A	A
B	8.30	0.55	0.059	A	A
C	5654.74	376.98	16.814	F	F
D	18.72	1.25	0.202	B	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	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951
D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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	24.26	0.434	0.00	0.00	0.76	11.03	(0.00)	0.072
07:45-08:00	B	9.20	26.31	0.350	0.00	0.00	0.53	7.82	(0.00)	0.058
07:45-08:00	C	20.73	22.50	0.921	0.00	0.00	8.59	100.03	(0.00)	0.365
07:45-08:00	D	5.80	11.90	0.487	0.00	0.00	0.93	13.15	(0.00)	0.161
08:00-08:15	A	12.56	23.41	0.536	0.00	0.76	1.14	16.61	(0.00)	0.092
08:00-08:15	B	10.99	25.12	0.437	0.00	0.53	0.77	11.31	(0.00)	0.071

08:00-08:15	**C**	24.75	21.75	1.138	0.00	8.59	56.26	495.12	(0.00)	1.693
08:00-08:15	**D**	6.92	10.87	0.637	0.00	0.93	1.68	23.43	(0.00)	0.247
08:15-08:30	**A**	15.38	22.93	0.671	0.00	1.14	1.99	28.27	(0.00)	0.131
08:15-08:30	**B**	13.45	23.51	0.572	0.00	0.77	1.32	19.05	(0.00)	0.099
08:15-08:30	**C**	30.31	20.72	1.463	0.00	56.26	200.18	1923.53	(0.00)	6.309
08:15-08:30	**D**	8.48	10.76	0.788	0.00	1.68	3.33	44.05	(0.00)	0.401
08:30-08:45	**A**	15.38	22.89	0.672	0.00	1.99	2.02	30.11	(0.00)	0.133
08:30-08:45	**B**	13.45	23.46	0.573	0.00	1.32	1.33	19.91	(0.00)	0.100
08:30-08:45	**C**	30.31	20.71	1.464	0.00	200.18	344.27	4083.40	(0.00)	12.926
08:30-08:45	**D**	8.48	10.75	0.788	0.00	3.33	3.50	51.46	(0.00)	0.432
08:45-09:00	**A**	12.56	23.30	0.539	0.00	2.02	1.18	18.45	(0.00)	0.094
08:45-09:00	**B**	10.99	25.05	0.439	0.00	1.33	0.79	12.14	(0.00)	0.071
08:45-09:00	**C**	24.75	21.72	1.139	0.00	344.27	389.69	5504.72	(0.00)	16.930
08:45-09:00	**D**	6.92	10.79	0.642	0.00	3.50	1.87	30.42	(0.00)	0.273
09:00-09:15	**A**	10.52	23.68	0.444	0.00	1.18	0.81	12.42	(0.00)	0.076
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**	20.73	22.48	0.922	0.00	389.69	364.27	5654.74	(0.00)	16.814
09:00-09:15	**D**	5.80	10.84	0.535	0.00	1.87	1.18	18.72	(0.00)	0.202

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\ODTAB\Import of J1 Waycock Cross PM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:18:43

« A1 - (Default Analysis Set) - D2 - 2015 Base Flows + Comm Dev + 700 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 Flow + Comm Dev			
Arm A	2.61	0.15	0.73	A
Arm B	1.53	0.11	0.61	A
Arm C	2.13	0.14	0.68	A
Arm D	1.68	0.19	0.63	B
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 350 units PM			
Arm A	4.38	0.22	0.82	B
Arm B	2.06	0.15	0.68	A
Arm C	3.52	0.21	0.78	B
Arm D	2.38	0.27	0.71	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units PM			
Arm A	8.90	0.43	0.91	D
Arm B	4.71	0.34	0.84	C
Arm C	10.29	0.57	0.93	D
Arm D	3.58	0.39	0.79	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 PM - PM runs from 16:45:00 to 18:15:00
2015 Base Flows + Comm Dev + 700 units PM - PM runs from 16:45:00 to 18:15:00
2015 Base Flow + Comm Dev - 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) - D2 - 2015 Base Flows + Comm Dev + 700 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 + 700 units PM, PM	2015 Base Flows + Comm Dev + 700 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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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	15.19	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	18.14	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	22.21	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	22.21	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	18.14	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	15.19	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	118.00	816.00	269.00
	B	179.00	0.00	507.00	117.00
	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	0.10	0.68	0.22
	B	0.22	0.00	0.63	0.15
	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	0.91	0.43	8.90	D	18.40	1655.84	337.47	0.20	3.75	337.50	0.20	0.656	32.708
B	0.84	0.34	4.71	C	12.28	1104.99	194.15	0.18	2.16	194.17	0.18	0.657	32.598
C	0.93	0.57	10.29	D	16.17	1455.16	378.62	0.26	4.21	378.66	0.26	0.540	26.951
D	0.79	0.39	3.58	C	8.03	722.63	156.71	0.22	1.74	156.73	0.22	0.524	23.241

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	15.01	11.98	8.57	0.00	26.85	23.12	0.562	0.00	1.27
B	10.07	151.10	10.02	8.11	15.47	0.00	22.39	16.61	0.450	0.00	0.81
C	13.27	198.98	13.17	18.44	7.05	0.00	22.65	20.39	0.586	0.00	1.39
D	6.59	98.81	6.54	6.21	14.01	0.00	15.59	11.40	0.423	0.00	0.72

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	17.96	14.34	10.26	0.00	25.73	23.12	0.701	1.27	2.28
B	12.03	180.43	11.99	9.71	18.51	0.00	20.38	16.61	0.590	0.81	1.41

C	15.84	237.60	15.77	22.06	8.43	0.00	21.91	20.39	0.723	1.39	2.52
D	7.87	117.99	7.83	7.43	16.77	0.00	14.13	11.40	0.557	0.72	1.23

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	21.70	17.30	12.41	0.00	24.32	23.12	0.908	2.28	7.85
B	14.73	220.97	14.54	11.73	22.38	0.00	17.83	16.61	0.826	1.41	4.28
C	19.40	291.00	18.98	26.71	10.21	0.00	20.96	20.39	0.925	2.52	8.83
D	9.63	144.51	9.50	8.98	20.21	0.00	12.31	11.40	0.783	1.23	3.27

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	22.01	17.56	12.58	0.00	24.20	23.12	0.912	7.85	8.90
B	14.73	220.97	14.70	11.90	22.68	0.00	17.63	16.61	0.836	4.28	4.71
C	19.40	291.00	19.30	27.05	10.34	0.00	20.90	20.39	0.928	8.83	10.29
D	9.63	144.51	9.61	9.11	20.54	0.00	12.13	11.40	0.794	3.27	3.58

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	18.45	14.79	10.56	0.00	25.53	23.12	0.706	8.90	2.47
B	12.03	180.43	12.24	10.00	19.01	0.00	20.05	16.61	0.600	4.71	1.53
C	15.84	237.60	16.34	22.61	8.64	0.00	21.80	20.39	0.727	10.29	2.77
D	7.87	117.99	8.01	7.64	17.34	0.00	13.83	11.40	0.569	3.58	1.35

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	15.17	12.13	8.69	0.00	26.77	23.12	0.564	2.47	1.31
B	10.07	151.10	10.12	8.22	15.64	0.00	22.28	16.61	0.452	1.53	0.83
C	13.27	198.98	13.35	18.64	7.12	0.00	22.61	20.39	0.587	2.77	1.44
D	6.59	98.81	6.63	6.28	14.19	0.00	15.49	11.40	0.425	1.35	0.75

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	18.25	1.22	0.084	A	A
B	11.74	0.78	0.080	A	A
C	19.83	1.32	0.105	A	A
D	10.39	0.69	0.110	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	32.29	2.15	0.128	A	A
B	20.29	1.35	0.119	A	A
C	35.30	2.35	0.161	A	A
D	17.54	1.17	0.158	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	96.31	6.42	0.343	C	C
B	55.89	3.73	0.289	C	B
C	104.88	6.99	0.433	D	C
D	42.99	2.87	0.341	C	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	127.09	8.47	0.429	D	C
B	68.26	4.55	0.336	C	C
C	145.11	9.67	0.567	D	C
D	52.00	3.47	0.390	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	43.13	2.88	0.149	A	A
B	25.05	1.67	0.131	A	A
C	50.81	3.39	0.199	B	B
D	22.11	1.47	0.176	B	B

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	20.42	1.36	0.087	A	A
B	12.91	0.86	0.083	A	A
C	22.69	1.51	0.109	A	A
D	11.68	0.78	0.113	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951
D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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	26.85	0.562	0.00	0.00	1.27	18.25	(0.00)	0.084
16:45-17:00	B	10.07	22.39	0.450	0.00	0.00	0.81	11.74	(0.00)	0.080
16:45-17:00	C	13.27	22.65	0.586	0.00	0.00	1.39	19.83	(0.00)	0.105
16:45-17:00	D	6.59	15.59	0.423	0.00	0.00	0.72	10.39	(0.00)	0.110
17:00-17:15	A	18.02	25.73	0.701	0.00	1.27	2.28	32.29	(0.00)	0.128
17:00-17:15	B	12.03	20.38	0.590	0.00	0.81	1.41	20.29	(0.00)	0.119

17:00-17:15	**C**	15.84	21.91	0.723	0.00	1.39	2.52	35.30	(0.00)	0.161
17:00-17:15	**D**	7.87	14.13	0.557	0.00	0.72	1.23	17.54	(0.00)	0.158
17:15-17:30	**A**	22.08	24.32	0.908	0.00	2.28	7.85	96.31	(0.00)	0.343
17:15-17:30	**B**	14.73	17.83	0.826	0.00	1.41	4.28	55.89	(0.00)	0.289
17:15-17:30	**C**	19.40	20.96	0.925	0.00	2.52	8.83	104.88	(0.00)	0.433
17:15-17:30	**D**	9.63	12.31	0.783	0.00	1.23	3.27	42.99	(0.00)	0.341
17:30-17:45	**A**	22.08	24.20	0.912	0.00	7.85	8.90	127.09	(0.00)	0.429
17:30-17:45	**B**	14.73	17.63	0.836	0.00	4.28	4.71	68.26	(0.00)	0.336
17:30-17:45	**C**	19.40	20.90	0.928	0.00	8.83	10.29	145.11	(0.00)	0.567
17:30-17:45	**D**	9.63	12.13	0.794	0.00	3.27	3.58	52.00	(0.00)	0.390
17:45-18:00	**A**	18.02	25.53	0.706	0.00	8.90	2.47	43.13	(0.00)	0.149
17:45-18:00	**B**	12.03	20.05	0.600	0.00	4.71	1.53	25.05	(0.00)	0.131
17:45-18:00	**C**	15.84	21.80	0.727	0.00	10.29	2.77	50.81	(0.00)	0.199
17:45-18:00	**D**	7.87	13.83	0.569	0.00	3.58	1.35	22.11	(0.00)	0.176
18:00-18:15	**A**	15.09	26.77	0.564	0.00	2.47	1.31	20.42	(0.00)	0.087
18:00-18:15	**B**	10.07	22.28	0.452	0.00	1.53	0.83	12.91	(0.00)	0.083
18:00-18:15	**C**	13.27	22.61	0.587	0.00	2.77	1.44	22.69	(0.00)	0.109
18:00-18:15	**D**	6.59	15.49	0.425	0.00	1.35	0.75	11.68	(0.00)	0.113

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\Rev B\Import of J1 Waycock Cross AM Peak Rev B.arc7
Report generation date: 04/01/2011 14:03:16

« A1 - (Default Analysis Set) - D3 - 2015 + Com Dev, AM
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Summary of roundabout performance

	AM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 + Com Dev			
Arm A	1.28	0.10	0.56	A
Arm B	0.88	0.07	0.47	A
Arm C	11.79	0.63	0.93	E
Arm D	1.83	0.25	0.65	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 350 units AM			
Arm A	1.40	0.11	0.58	A
Arm B	0.94	0.08	0.49	A
Arm C	173.44	7.28	1.13	F
Arm D	2.33	0.31	0.70	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units AM			
Arm A	1.52	0.11	0.60	A
Arm B	1.01	0.08	0.50	A
Arm C	381.38	15.81	1.30	F
Arm D	2.46	0.32	0.71	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 08:00:00 to 09:00:00
2015 Base Flows + Comm Dev + 700 units AM - AM runs from 08:00:00 to 09:00:00
2015 + Com Dev - AM runs from 08:00:00 to 09:00:00

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	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 + Com 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
(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 + Com Dev, AM	2015 + 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,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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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		12.75	100.000	1.00
B	FLAT		11.88	100.000	1.00
C	FLAT		19.80	100.000	1.00
D	FLAT		7.40	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	12.75	13.24	N/A	N/A
08:00-08:15	B	11.88	11.96	N/A	N/A
08:00-08:15	C	19.80	20.23	N/A	N/A
08:00-08:15	D	7.40	7.46	N/A	N/A
08:15-08:30	A	12.75	13.24	N/A	N/A
08:15-08:30	B	11.88	11.96	N/A	N/A
08:15-08:30	C	19.80	20.23	N/A	N/A
08:15-08:30	D	7.40	7.46	N/A	N/A
08:30-08:45	A	12.75	13.24	N/A	N/A
08:30-08:45	B	11.88	11.96	N/A	N/A
08:30-08:45	C	19.80	20.23	N/A	N/A
08:30-08:45	D	7.40	7.46	N/A	N/A
08:45-09:00	A	12.75	13.24	N/A	N/A
08:45-09:00	B	11.88	11.96	N/A	N/A
08:45-09:00	C	19.80	20.23	N/A	N/A
08:45-09:00	D	7.40	7.46	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	441.00	100.00
	B	292.00	0.00	239.00	182.00
	C	510.00	522.00	0.00	158.00
	D	133.00	206.00	105.00	0.00

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

		To			
		A	B	C	D
From	A	0.00	0.29	0.58	0.13
	B	0.41	0.00	0.34	0.26
	C	0.43	0.44	0.00	0.13
	D	0.30	0.46	0.24	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	0.56	0.10	1.28	A	12.75	765.00	74.97	0.10	1.25	75.01	0.10	0.656	32.708
B	0.47	0.07	0.88	A	11.88	712.80	52.38	0.07	0.87	52.40	0.07	0.657	32.598
C	0.93	0.63	11.79	E	19.80	1188.00	594.03	0.50	9.90	597.30	0.50	0.540	26.951
D	0.65	0.25	1.83	C	7.40	444.00	103.21	0.23	1.72	103.36	0.23	0.524	23.241

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	12.75	191.25	12.67	15.25	13.52	0.00	22.87	21.87	0.557	0.00	1.24
B	11.88	178.20	11.82	15.51	10.68	0.00	25.33	20.53	0.469	0.00	0.87
C	19.80	297.00	19.19	12.99	9.51	0.00	21.29	17.55	0.930	0.00	9.14
D	7.40	111.00	7.29	7.22	21.48	0.00	11.67	10.57	0.634	0.00	1.66

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	12.75	191.25	12.75	15.52	13.82	0.00	22.69	21.87	0.562	1.24	1.27
B	11.88	178.20	11.88	15.80	10.76	0.00	25.28	20.53	0.470	0.87	0.88
C	19.80	297.00	19.70	13.08	9.56	0.00	21.26	17.55	0.931	9.14	10.65
D	7.40	111.00	7.39	7.31	21.95	0.00	11.42	10.57	0.648	1.66	1.78

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	12.75	191.25	12.75	15.55	13.85	0.00	22.67	21.87	0.562	1.27	1.28
B	11.88	178.20	11.88	15.83	10.77	0.00	25.28	20.53	0.470	0.88	0.88
C	19.80	297.00	19.75	13.08	9.56	0.00	21.26	17.55	0.931	10.65	11.36
D	7.40	111.00	7.40	7.32	21.99	0.00	11.40	10.57	0.649	1.78	1.81

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	12.75	191.25	12.75	15.56	13.86	0.00	22.66	21.87	0.563	1.28	1.28
B	11.88	178.20	11.88	15.84	10.77	0.00	25.28	20.53	0.470	0.88	0.88
C	19.80	297.00	19.77	13.08	9.56	0.00	21.26	17.55	0.931	11.36	11.79
D	7.40	111.00	7.40	7.32	22.01	0.00	11.39	10.57	0.650	1.81	1.83

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	17.78	1.19	0.097	A	A
B	12.69	0.85	0.074	A	A
C	104.42	6.96	0.401	C	C
D	22.77	1.52	0.223	B	B

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	18.91	1.26	0.101	A	A
B	13.19	0.88	0.075	A	A
C	150.08	10.01	0.574	D	C
D	26.15	1.74	0.247	B	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	19.11	1.27	0.101	A	A
B	13.24	0.88	0.075	A	A
C	165.61	11.04	0.610	E	D
D	26.99	1.80	0.250	B	B

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	19.18	1.28	0.101	A	A
B	13.26	0.88	0.075	A	A
C	173.91	11.59	0.627	E	D
D	27.30	1.82	0.250	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	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951
D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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**	12.75	22.87	0.557	0.00	0.00	1.24	17.78	(0.00)	0.097
08:00-08:15	**B**	11.88	25.33	0.469	0.00	0.00	0.87	12.69	(0.00)	0.074
08:00-08:15	**C**	19.80	21.29	0.930	0.00	0.00	9.14	104.42	(0.00)	0.401
08:00-08:15	**D**	7.40	11.67	0.634	0.00	0.00	1.66	22.77	(0.00)	0.223
08:15-08:30	**A**	12.75	22.69	0.562	0.00	1.24	1.27	18.91	(0.00)	0.101
08:15-08:30	**B**	11.88	25.28	0.470	0.00	0.87	0.88	13.19	(0.00)	0.075
08:15-08:30	**C**	19.80	21.26	0.931	0.00	9.14	10.65	150.08	(0.00)	0.574
08:15-08:30	**D**	7.40	11.42	0.648	0.00	1.66	1.78	26.15	(0.00)	0.247
08:30-08:45	**A**	12.75	22.67	0.562	0.00	1.27	1.28	19.11	(0.00)	0.101
08:30-08:45	**B**	11.88	25.28	0.470	0.00	0.88	0.88	13.24	(0.00)	0.075
08:30-08:45	**C**	19.80	21.26	0.931	0.00	10.65	11.36	165.61	(0.00)	0.610
08:30-08:45	**D**	7.40	11.40	0.649	0.00	1.78	1.81	26.99	(0.00)	0.250
08:45-09:00	**A**	12.75	22.66	0.563	0.00	1.28	1.28	19.18	(0.00)	0.101
08:45-09:00	**B**	11.88	25.28	0.470	0.00	0.88	0.88	13.26	(0.00)	0.075
08:45-09:00	**C**	19.80	21.26	0.931	0.00	11.36	11.79	173.91	(0.00)	0.627
08:45-09:00	**D**	7.40	11.39	0.650	0.00	1.81	1.83	27.30	(0.00)	0.250

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\Rev B\Import of J1 Waycock Cross PM Peak Rev B.arc7
Report generation date: 04/01/2011 14:06:40

« A1 - (Default Analysis Set) - D3 - 2015 Base Flow + Comm Dev, 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 Flow + Comm Dev			
Arm A	1.79	0.11	0.64	A
Arm B	1.13	0.09	0.53	A
Arm C	1.57	0.11	0.61	A
Arm D	1.17	0.15	0.54	A
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 350 units PM			
Arm A	2.60	0.14	0.72	A
Arm B	1.40	0.11	0.59	A
Arm C	2.32	0.15	0.70	A
Arm D	1.52	0.18	0.60	B
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units PM			
Arm A	4.03	0.20	0.80	B
Arm B	2.37	0.18	0.71	B
Arm C	4.56	0.26	0.82	C
Arm D	1.99	0.23	0.67	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 - PM runs from 17:00:00 to 18:00:00
2015 Base Flows + Comm Dev + 700 units PM - PM runs from 17:00:00 to 18:00:00
2015 Base Flow + Comm Dev - PM runs from 17:00:00 to 18:00:00

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) - D3 - 2015 Base Flow + 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
(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 Flow + Comm Dev, PM	2015 Base Flow + 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,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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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		16.57	100.000	1.00
B	FLAT		12.43	100.000	1.00
C	FLAT		13.90	100.000	1.00
D	FLAT		8.00	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	16.57	16.77	N/A	N/A
17:00-17:15	B	12.43	12.43	N/A	N/A
17:00-17:15	C	13.90	14.19	N/A	N/A
17:00-17:15	D	8.00	8.08	N/A	N/A
17:15-17:30	A	16.57	16.77	N/A	N/A
17:15-17:30	B	12.43	12.43	N/A	N/A
17:15-17:30	C	13.90	14.19	N/A	N/A
17:15-17:30	D	8.00	8.08	N/A	N/A
17:30-17:45	A	16.57	16.77	N/A	N/A
17:30-17:45	B	12.43	12.43	N/A	N/A
17:30-17:45	C	13.90	14.19	N/A	N/A
17:30-17:45	D	8.00	8.08	N/A	N/A
17:45-18:00	A	16.57	16.77	N/A	N/A
17:45-18:00	B	12.43	12.43	N/A	N/A
17:45-18:00	C	13.90	14.19	N/A	N/A
17:45-18:00	D	8.00	8.08	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	607.00	118.00
	B	179.00	0.00	450.00	117.00
	C	512.00	262.00	0.00	80.00
	D	136.00	234.00	108.00	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	0.24	0.00	0.60	0.16
	C	0.60	0.31	0.00	0.09
	D	0.28	0.49	0.23	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	0.64	0.11	1.79	A	16.57	994.20	105.14	0.11	1.75	105.20	0.11	0.656	32.708
B	0.53	0.09	1.13	A	12.43	745.80	66.42	0.09	1.11	66.44	0.09	0.657	32.598
C	0.61	0.11	1.57	A	13.90	834.00	92.00	0.11	1.53	92.05	0.11	0.540	26.951
D	0.54	0.15	1.17	A	8.00	480.00	68.69	0.14	1.14	68.74	0.14	0.524	23.241

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	16.57	248.55	16.45	13.49	9.90	0.00	25.82	23.19	0.642	0.00	1.76
B	12.43	186.45	12.36	12.56	13.79	0.00	23.50	19.87	0.529	0.00	1.11
C	13.90	208.50	13.80	19.29	6.86	0.00	22.76	20.75	0.611	0.00	1.54
D	8.00	120.00	7.92	5.18	15.47	0.00	14.84	10.55	0.539	0.00	1.15

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	16.57	248.55	16.57	13.59	9.99	0.00	25.77	23.19	0.643	1.76	1.78
B	12.43	186.45	12.43	12.66	13.89	0.00	23.44	19.87	0.530	1.11	1.12
C	13.90	208.50	13.90	19.42	6.90	0.00	22.74	20.75	0.611	1.54	1.56
D	8.00	120.00	8.00	5.22	15.58	0.00	14.78	10.55	0.541	1.15	1.17

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	16.57	248.55	16.57	13.59	9.99	0.00	25.77	23.19	0.643	1.78	1.79

B	12.43	186.45	12.43	12.66	13.89	0.00	23.43	19.87	0.530	1.12	1.12
C	13.90	208.50	13.90	19.42	6.90	0.00	22.74	20.75	0.611	1.56	1.56
D	8.00	120.00	8.00	5.22	15.58	0.00	14.78	10.55	0.541	1.17	1.17

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	16.57	248.55	16.57	13.59	9.99	0.00	25.77	23.19	0.643	1.79	1.79
B	12.43	186.45	12.43	12.66	13.89	0.00	23.43	19.87	0.530	1.12	1.13
C	13.90	208.50	13.90	19.42	6.90	0.00	22.74	20.75	0.611	1.56	1.57
D	8.00	120.00	8.00	5.22	15.58	0.00	14.78	10.55	0.541	1.17	1.17

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	24.91	1.66	0.105	A	A
B	15.95	1.06	0.089	A	A
C	21.87	1.46	0.110	A	A
D	16.21	1.08	0.143	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	26.58	1.77	0.109	A	A
B	16.75	1.12	0.091	A	A
C	23.26	1.55	0.113	A	A
D	17.38	1.16	0.147	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	26.79	1.79	0.109	A	A
B	16.84	1.12	0.091	A	A
C	23.41	1.56	0.113	A	A
D	17.53	1.17	0.147	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	26.86	1.79	0.109	A	A
B	16.87	1.12	0.091	A	A
C	23.46	1.56	0.113	A	A
D	17.58	1.17	0.147	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951

D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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**	16.57	25.82	0.642	0.00	0.00	1.76	24.91	(0.00)	0.105
17:00-17:15	**B**	12.43	23.50	0.529	0.00	0.00	1.11	15.95	(0.00)	0.089
17:00-17:15	**C**	13.90	22.76	0.611	0.00	0.00	1.54	21.87	(0.00)	0.110
17:00-17:15	**D**	8.00	14.84	0.539	0.00	0.00	1.15	16.21	(0.00)	0.143
17:15-17:30	**A**	16.57	25.77	0.643	0.00	1.76	1.78	26.58	(0.00)	0.109
17:15-17:30	**B**	12.43	23.44	0.530	0.00	1.11	1.12	16.75	(0.00)	0.091
17:15-17:30	**C**	13.90	22.74	0.611	0.00	1.54	1.56	23.26	(0.00)	0.113
17:15-17:30	**D**	8.00	14.78	0.541	0.00	1.15	1.17	17.38	(0.00)	0.147
17:30-17:45	**A**	16.57	25.77	0.643	0.00	1.78	1.79	26.79	(0.00)	0.109
17:30-17:45	**B**	12.43	23.43	0.530	0.00	1.12	1.12	16.84	(0.00)	0.091
17:30-17:45	**C**	13.90	22.74	0.611	0.00	1.56	1.56	23.41	(0.00)	0.113
17:30-17:45	**D**	8.00	14.78	0.541	0.00	1.17	1.17	17.53	(0.00)	0.147
17:45-18:00	**A**	16.57	25.77	0.643	0.00	1.79	1.79	26.86	(0.00)	0.109
17:45-18:00	**B**	12.43	23.43	0.530	0.00	1.12	1.13	16.87	(0.00)	0.091
17:45-18:00	**C**	13.90	22.74	0.611	0.00	1.56	1.57	23.46	(0.00)	0.113
17:45-18:00	**D**	8.00	14.78	0.541	0.00	1.17	1.17	17.58	(0.00)	0.147

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\Rev B\Import of J1 Waycock Cross AM Peak Rev B.arc7
Report generation date: 14/12/2010 14:25:33

« 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	1.40	0.11	0.58	A
Arm B	0.94	0.08	0.49	A
Arm C	173.44	7.28	1.13	F
Arm D	2.33	0.31	0.70	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units AM			
Arm A	1.52	0.11	0.60	A
Arm B	1.01	0.08	0.50	A
Arm C	381.38	15.81	1.30	F
Arm D	2.46	0.32	0.71	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 08:00:00 to 09:00:00
2015 Base Flows + Comm Dev + 700 units AM - AM runs from 08:00:00 to 09:00:00

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	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 + 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			08:00	09:00	60	15	Varies by Arm

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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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	DIRECT			100.000	1.00
B	DIRECT			100.000	1.00

C	DIRECT			100.000	1.00
D	DIRECT			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	13.35	13.84	N/A	N/A
08:00-08:15	B	12.05	12.13	N/A	N/A
08:00-08:15	C	24.01	24.56	N/A	N/A
08:00-08:15	D	7.55	7.61	N/A	N/A
08:15-08:30	A	13.35	13.84	N/A	N/A
08:15-08:30	B	12.05	12.13	N/A	N/A
08:15-08:30	C	24.01	24.56	N/A	N/A
08:15-08:30	D	7.55	7.61	N/A	N/A
08:30-08:45	A	13.35	13.84	N/A	N/A
08:30-08:45	B	12.05	12.13	N/A	N/A
08:30-08:45	C	24.01	24.56	N/A	N/A
08:30-08:45	D	7.55	7.61	N/A	N/A
08:45-09:00	A	13.35	13.84	N/A	N/A
08:45-09:00	B	12.05	12.13	N/A	N/A
08:45-09:00	C	24.01	24.56	N/A	N/A
08:45-09:00	D	7.55	7.61	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	0.58	0.11	1.40	A	13.35	801.00	82.02	0.10	1.37	82.06	0.10	0.656	32.708
B	0.49	0.08	0.94	A	12.05	723.00	55.83	0.08	0.93	55.84	0.08	0.657	32.598
C	1.13	7.28	173.44	F	24.01	1440.60	5373.57	3.73	89.56	6081.91	4.22	0.540	26.951
D	0.70	0.31	2.33	C	7.55	453.00	130.64	0.29	2.18	130.89	0.29	0.524	23.241

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	13.35	200.25	13.26	16.89	13.39	0.00	23.00	22.31	0.580	0.00	1.36
B	12.05	180.75	11.99	15.23	11.42	0.00	24.85	20.02	0.485	0.00	0.93
C	24.01	360.15	20.83	13.89	9.51	0.00	21.26	17.84	1.129	0.00	47.75
D	7.55	113.25	7.41	7.48	22.86	0.00	10.92	10.61	0.691	0.00	2.11

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	13.35	200.25	13.35	17.13	13.62	0.00	22.85	22.31	0.584	1.36	1.39
B	12.05	180.75	12.05	15.46	11.51	0.00	24.79	20.02	0.486	0.93	0.94
C	24.01	360.15	21.20	14.00	9.57	0.00	21.24	17.84	1.131	47.75	89.88
D	7.55	113.25	7.54	7.55	23.21	0.00	10.74	10.61	0.703	2.11	2.27

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	13.35	200.25	13.35	17.14	13.64	0.00	22.84	22.31	0.584	1.39	1.40
B	12.05	180.75	12.05	15.47	11.52	0.00	24.79	20.02	0.486	0.94	0.94
C	24.01	360.15	21.22	14.00	9.57	0.00	21.23	17.84	1.131	89.88	131.71
D	7.55	113.25	7.55	7.56	23.23	0.00	10.73	10.61	0.704	2.27	2.31

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	13.35	200.25	13.35	17.14	13.64	0.00	22.84	22.31	0.585	1.40	1.40

B	12.05	180.75	12.05	15.47	11.52	0.00	24.79	20.02	0.486	0.94	0.94
C	24.01	360.15	21.23	14.00	9.57	0.00	21.23	17.84	1.131	131.71	173.44
D	7.55	113.25	7.55	7.56	23.24	0.00	10.72	10.61	0.704	2.31	2.33

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	19.43	1.30	0.102	A	A
B	13.50	0.90	0.077	A	A
C	389.86	25.99	1.290	F	E
D	28.20	1.88	0.275	C	B

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	20.70	1.38	0.105	A	A
B	14.06	0.94	0.078	A	A
C	1032.94	68.86	3.381	F	F
D	33.20	2.21	0.311	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	20.91	1.39	0.105	A	A
B	14.12	0.94	0.079	A	A
C	1662.07	110.80	5.326	F	F
D	34.40	2.29	0.314	C	B

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	20.98	1.40	0.105	A	A
B	14.15	0.94	0.079	A	A
C	2288.70	152.58	7.278	F	F
D	34.83	2.32	0.314	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	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951
D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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**	13.35	23.00	0.580	0.00	0.00	1.36	19.43	(0.00)	0.102
08:00-08:15	**B**	12.05	24.85	0.485	0.00	0.00	0.93	13.50	(0.00)	0.077
08:00-08:15	**C**	24.01	21.26	1.129	0.00	0.00	47.75	389.86	(0.00)	1.290
08:00-08:15	**D**	7.55	10.92	0.691	0.00	0.00	2.11	28.20	(0.00)	0.275
08:15-08:30	**A**	13.35	22.85	0.584	0.00	1.36	1.39	20.70	(0.00)	0.105
08:15-08:30	**B**	12.05	24.79	0.486	0.00	0.93	0.94	14.06	(0.00)	0.078
08:15-08:30	**C**	24.01	21.24	1.131	0.00	47.75	89.88	1032.94	(0.00)	3.381
08:15-08:30	**D**	7.55	10.74	0.703	0.00	2.11	2.27	33.20	(0.00)	0.311
08:30-08:45	**A**	13.35	22.84	0.584	0.00	1.39	1.40	20.91	(0.00)	0.105
08:30-08:45	**B**	12.05	24.79	0.486	0.00	0.94	0.94	14.12	(0.00)	0.079
08:30-08:45	**C**	24.01	21.23	1.131	0.00	89.88	131.71	1662.07	(0.00)	5.326
08:30-08:45	**D**	7.55	10.73	0.704	0.00	2.27	2.31	34.40	(0.00)	0.314
08:45-09:00	**A**	13.35	22.84	0.585	0.00	1.40	1.40	20.98	(0.00)	0.105
08:45-09:00	**B**	12.05	24.79	0.486	0.00	0.94	0.94	14.15	(0.00)	0.079
08:45-09:00	**C**	24.01	21.23	1.131	0.00	131.71	173.44	2288.70	(0.00)	7.278
08:45-09:00	**D**	7.55	10.72	0.704	0.00	2.31	2.33	34.83	(0.00)	0.314

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\Rev B\Import of J1 Waycock Cross PM Peak Rev B.arc7
Report generation date: 14/12/2010 14:29:45

« 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	2.60	0.14	0.72	A
Arm B	1.40	0.11	0.59	A
Arm C	2.32	0.15	0.70	A
Arm D	1.52	0.18	0.60	B
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units PM			
Arm A	4.03	0.20	0.80	B
Arm B	2.37	0.18	0.71	B
Arm C	4.56	0.26	0.82	C
Arm D	1.99	0.23	0.67	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 - PM runs from 17:00:00 to 18:00:00
2015 Base Flows + Comm Dev + 700 units PM - PM runs from 17:00:00 to 18:00:00

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			17:00	18:00	60	15	Varies by Arm

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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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	DIRECT			100.000	1.00
B	DIRECT			100.000	1.00

C	DIRECT			100.000	1.00
D	DIRECT			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	18.30	18.50	N/A	N/A
17:00-17:15	B	12.90	12.90	N/A	N/A
17:00-17:15	C	15.92	16.26	N/A	N/A
17:00-17:15	D	8.38	8.46	N/A	N/A
17:15-17:30	A	18.30	18.50	N/A	N/A
17:15-17:30	B	12.90	12.90	N/A	N/A
17:15-17:30	C	15.92	16.26	N/A	N/A
17:15-17:30	D	8.38	8.46	N/A	N/A
17:30-17:45	A	18.30	18.50	N/A	N/A
17:30-17:45	B	12.90	12.90	N/A	N/A
17:30-17:45	C	15.92	16.26	N/A	N/A
17:30-17:45	D	8.38	8.46	N/A	N/A
17:45-18:00	A	18.30	18.50	N/A	N/A
17:45-18:00	B	12.90	12.90	N/A	N/A
17:45-18:00	C	15.92	16.26	N/A	N/A
17:45-18:00	D	8.38	8.46	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	0.72	0.14	2.60	A	18.30	1098.00	150.76	0.14	2.51	150.90	0.14	0.656	32.708
B	0.59	0.11	1.40	A	12.90	774.00	82.44	0.11	1.37	82.49	0.11	0.657	32.598
C	0.70	0.15	2.32	A	15.92	955.20	135.02	0.14	2.25	135.13	0.14	0.540	26.951
D	0.60	0.18	1.52	B	8.38	502.80	88.10	0.18	1.47	88.18	0.18	0.524	23.241

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	18.30	274.50	18.13	14.77	10.66	0.00	25.35	23.21	0.722	0.00	2.51
B	12.90	193.50	12.81	12.93	15.86	0.00	22.14	19.21	0.583	0.00	1.37
C	15.92	238.80	15.77	21.81	6.86	0.00	22.75	21.16	0.700	0.00	2.26
D	8.38	125.70	8.28	5.48	17.15	0.00	13.94	10.59	0.601	0.00	1.46

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	18.30	274.50	18.30	14.91	10.77	0.00	25.28	23.21	0.724	2.51	2.57
B	12.90	193.50	12.90	13.06	16.01	0.00	22.04	19.21	0.585	1.37	1.40
C	15.92	238.80	15.92	21.99	6.91	0.00	22.73	21.16	0.701	2.26	2.30
D	8.38	125.70	8.38	5.53	17.30	0.00	13.86	10.59	0.605	1.46	1.50

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	18.30	274.50	18.30	14.91	10.77	0.00	25.28	23.21	0.724	2.57	2.59
B	12.90	193.50	12.90	13.06	16.01	0.00	22.04	19.21	0.585	1.40	1.40
C	15.92	238.80	15.92	22.00	6.91	0.00	22.73	21.16	0.701	2.30	2.31
D	8.38	125.70	8.38	5.53	17.30	0.00	13.86	10.59	0.605	1.50	1.51

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	18.30	274.50	18.30	14.91	10.77	0.00	25.28	23.21	0.724	2.59	2.60

B	12.90	193.50	12.90	13.06	16.01	0.00	22.04	19.21	0.585	1.40	1.40
C	15.92	238.80	15.92	22.00	6.91	0.00	22.73	21.16	0.701	2.31	2.32
D	8.38	125.70	8.38	5.53	17.30	0.00	13.86	10.59	0.605	1.51	1.52

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	34.85	2.32	0.136	A	A
B	19.57	1.30	0.106	A	A
C	31.39	2.09	0.140	A	A
D	20.40	1.36	0.174	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	38.25	2.55	0.143	A	A
B	20.82	1.39	0.109	A	A
C	34.26	2.28	0.147	A	A
D	22.33	1.49	0.182	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	38.74	2.58	0.143	A	A
B	21.00	1.40	0.109	A	A
C	34.61	2.31	0.147	A	A
D	22.63	1.51	0.183	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	38.93	2.60	0.143	A	A
B	21.05	1.40	0.109	A	A
C	34.75	2.32	0.147	A	A
D	22.73	1.52	0.183	B	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	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951
D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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**	18.30	25.35	0.722	0.00	0.00	2.51	34.85	(0.00)	0.136
17:00-17:15	**B**	12.90	22.14	0.583	0.00	0.00	1.37	19.57	(0.00)	0.106
17:00-17:15	**C**	15.92	22.75	0.700	0.00	0.00	2.26	31.39	(0.00)	0.140
17:00-17:15	**D**	8.38	13.94	0.601	0.00	0.00	1.46	20.40	(0.00)	0.174
17:15-17:30	**A**	18.30	25.28	0.724	0.00	2.51	2.57	38.25	(0.00)	0.143
17:15-17:30	**B**	12.90	22.04	0.585	0.00	1.37	1.40	20.82	(0.00)	0.109
17:15-17:30	**C**	15.92	22.73	0.701	0.00	2.26	2.30	34.26	(0.00)	0.147
17:15-17:30	**D**	8.38	13.86	0.605	0.00	1.46	1.50	22.33	(0.00)	0.182
17:30-17:45	**A**	18.30	25.28	0.724	0.00	2.57	2.59	38.74	(0.00)	0.143
17:30-17:45	**B**	12.90	22.04	0.585	0.00	1.40	1.40	21.00	(0.00)	0.109
17:30-17:45	**C**	15.92	22.73	0.701	0.00	2.30	2.31	34.61	(0.00)	0.147
17:30-17:45	**D**	8.38	13.86	0.605	0.00	1.50	1.51	22.63	(0.00)	0.183
17:45-18:00	**A**	18.30	25.28	0.724	0.00	2.59	2.60	38.93	(0.00)	0.143
17:45-18:00	**B**	12.90	22.04	0.585	0.00	1.40	1.40	21.05	(0.00)	0.109
17:45-18:00	**C**	15.92	22.73	0.701	0.00	2.31	2.32	34.75	(0.00)	0.147
17:45-18:00	**D**	8.38	13.86	0.605	0.00	1.51	1.52	22.73	(0.00)	0.183

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\Rev B\Import of J1 Waycock Cross AM Peak Rev B.arc7
Report generation date: 14/12/2010 14:26:54

« A1 - (Default Analysis Set) - D2 - 2015 Base Flows + Comm Dev + 700 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	1.40	0.11	0.58	A
Arm B	0.94	0.08	0.49	A
Arm C	173.44	7.28	1.13	F
Arm D	2.33	0.31	0.70	C
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units AM			
Arm A	1.52	0.11	0.60	A
Arm B	1.01	0.08	0.50	A
Arm C	381.38	15.81	1.30	F
Arm D	2.46	0.32	0.71	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 08:00:00 to 09:00:00
2015 Base Flows + Comm Dev + 700 units AM - AM runs from 08:00:00 to 09:00:00

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	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 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 + 700 units AM, AM	2015 Base Flows + Comm Dev + 700 units AM	AM			Yes			08:00	09:00	60	15	Varies by Arm

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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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	DIRECT			100.000	1.00
B	DIRECT			100.000	1.00

C	DIRECT			100.000	1.00
D	DIRECT			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	13.97	14.46	N/A	N/A
08:00-08:15	B	12.22	12.31	N/A	N/A
08:00-08:15	C	27.53	28.17	N/A	N/A
08:00-08:15	D	7.70	7.76	N/A	N/A
08:15-08:30	A	13.97	14.46	N/A	N/A
08:15-08:30	B	12.22	12.31	N/A	N/A
08:15-08:30	C	27.53	28.17	N/A	N/A
08:15-08:30	D	7.70	7.76	N/A	N/A
08:30-08:45	A	13.97	14.46	N/A	N/A
08:30-08:45	B	12.22	12.31	N/A	N/A
08:30-08:45	C	27.53	28.17	N/A	N/A
08:30-08:45	D	7.70	7.76	N/A	N/A
08:45-09:00	A	13.97	14.46	N/A	N/A
08:45-09:00	B	12.22	12.31	N/A	N/A
08:45-09:00	C	27.53	28.17	N/A	N/A
08:45-09:00	D	7.70	7.76	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	0.60	0.11	1.52	A	13.97	838.20	89.09	0.11	1.48	89.14	0.11	0.656	32.708
B	0.50	0.08	1.01	A	12.22	733.20	59.70	0.08	1.00	59.72	0.08	0.657	32.598
C	1.30	15.81	381.38	F	27.53	1651.79	11524.61	6.98	192.08	14951.58	9.05	0.540	26.951
D	0.71	0.32	2.46	C	7.70	462.00	138.51	0.30	2.31	138.79	0.30	0.524	23.241

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	13.97	209.55	13.87	17.40	13.09	0.00	23.23	22.50	0.601	0.00	1.48
B	12.22	183.30	12.15	14.79	12.17	0.00	24.35	19.64	0.502	0.00	1.00
C	27.53	412.95	21.04	14.81	9.51	0.00	21.25	18.11	1.295	0.00	97.42
D	7.70	115.50	7.55	7.60	22.95	0.00	10.87	10.66	0.708	0.00	2.27

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	13.97	209.55	13.97	17.56	13.26	0.00	23.12	22.50	0.604	1.48	1.51
B	12.22	183.30	12.22	14.95	12.28	0.00	24.28	19.64	0.503	1.00	1.01
C	27.53	412.95	21.22	14.93	9.57	0.00	21.22	18.11	1.297	97.42	192.11
D	7.70	115.50	7.69	7.65	23.13	0.00	10.77	10.66	0.715	2.27	2.40

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	13.97	209.55	13.97	17.57	13.27	0.00	23.12	22.50	0.604	1.51	1.52
B	12.22	183.30	12.22	14.95	12.28	0.00	24.28	19.64	0.503	1.01	1.01
C	27.53	412.95	21.22	14.94	9.57	0.00	21.22	18.11	1.297	192.11	286.75
D	7.70	115.50	7.70	7.66	23.13	0.00	10.77	10.66	0.715	2.40	2.44

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	13.97	209.55	13.97	17.57	13.27	0.00	23.12	22.50	0.604	1.52	1.52

B	12.22	183.30	12.22	14.95	12.29	0.00	24.28	19.64	0.503	1.01	1.01
C	27.53	412.95	21.22	14.94	9.57	0.00	21.22	18.11	1.297	286.75	381.38
D	7.70	115.50	7.70	7.66	23.13	0.00	10.77	10.66	0.715	2.44	2.46

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	21.11	1.41	0.106	A	A
B	14.40	0.96	0.082	A	A
C	750.61	50.04	2.410	F	F
D	30.15	2.01	0.289	C	B

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	22.50	1.50	0.109	A	A
B	15.04	1.00	0.083	A	A
C	2171.56	144.77	6.918	F	F
D	35.30	2.35	0.323	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	22.70	1.51	0.109	A	A
B	15.12	1.01	0.083	A	A
C	3591.44	239.43	11.360	F	F
D	36.34	2.42	0.324	C	B

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	22.77	1.52	0.109	A	A
B	15.15	1.01	0.083	A	A
C	5011.01	334.07	15.811	F	F
D	36.73	2.45	0.325	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	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951
D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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**	13.97	23.23	0.601	0.00	0.00	1.48	21.11	(0.00)	0.106
08:00-08:15	**B**	12.22	24.35	0.502	0.00	0.00	1.00	14.40	(0.00)	0.082
08:00-08:15	**C**	27.53	21.25	1.295	0.00	0.00	97.42	750.61	(0.00)	2.410
08:00-08:15	**D**	7.70	10.87	0.708	0.00	0.00	2.27	30.15	(0.00)	0.289
08:15-08:30	**A**	13.97	23.12	0.604	0.00	1.48	1.51	22.50	(0.00)	0.109
08:15-08:30	**B**	12.22	24.28	0.503	0.00	1.00	1.01	15.04	(0.00)	0.083
08:15-08:30	**C**	27.53	21.22	1.297	0.00	97.42	192.11	2171.56	(0.00)	6.918
08:15-08:30	**D**	7.70	10.77	0.715	0.00	2.27	2.40	35.30	(0.00)	0.323
08:30-08:45	**A**	13.97	23.12	0.604	0.00	1.51	1.52	22.70	(0.00)	0.109
08:30-08:45	**B**	12.22	24.28	0.503	0.00	1.01	1.01	15.12	(0.00)	0.083
08:30-08:45	**C**	27.53	21.22	1.297	0.00	192.11	286.75	3591.44	(0.00)	11.360
08:30-08:45	**D**	7.70	10.77	0.715	0.00	2.40	2.44	36.34	(0.00)	0.324
08:45-09:00	**A**	13.97	23.12	0.604	0.00	1.52	1.52	22.77	(0.00)	0.109
08:45-09:00	**B**	12.22	24.28	0.503	0.00	1.01	1.01	15.15	(0.00)	0.083
08:45-09:00	**C**	27.53	21.22	1.297	0.00	286.75	381.38	5011.01	(0.00)	15.811
08:45-09:00	**D**	7.70	10.77	0.715	0.00	2.44	2.46	36.73	(0.00)	0.325

ARCADY 7

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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J1 Waycock Cross\Rev B\Import of J1 Waycock Cross PM Peak Rev B.arc7
Report generation date: 14/12/2010 14:30:21

« A1 - (Default Analysis Set) - D2 - 2015 Base Flows + Comm Dev + 700 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	2.60	0.14	0.72	A
Arm B	1.40	0.11	0.59	A
Arm C	2.32	0.15	0.70	A
Arm D	1.52	0.18	0.60	B
	(Default Analysis Set) - 2015 Base Flows + Comm Dev + 700 units PM			
Arm A	4.03	0.20	0.80	B
Arm B	2.37	0.18	0.71	B
Arm C	4.56	0.26	0.82	C
Arm D	1.99	0.23	0.67	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 - PM runs from 17:00:00 to 18:00:00
2015 Base Flows + Comm Dev + 700 units PM - PM runs from 17:00:00 to 18:00:00

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) - D2 - 2015 Base Flows + Comm Dev + 700 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 + 700 units PM, PM	2015 Base Flows + Comm Dev + 700 units PM	PM			Yes			17:00	18:00	60	15	Varies by Arm

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	6.50	10.00	13.50	60.00	26.00	
D	3.60	5.00	21.60	11.00	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))	0.540	26.951
D		((calculated))	((calculated))	0.524	23.241

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	DIRECT			100.000	1.00
B	DIRECT			100.000	1.00

C	DIRECT			100.000	1.00
D	DIRECT			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**	20.05	20.17	N/A	N/A
17:00-17:15	**B**	13.38	13.38	N/A	N/A
17:00-17:15	**C**	17.62	17.99	N/A	N/A
17:00-17:15	**D**	8.75	8.84	N/A	N/A
17:15-17:30	**A**	20.05	20.17	N/A	N/A
17:15-17:30	**B**	13.38	13.38	N/A	N/A
17:15-17:30	**C**	17.62	17.99	N/A	N/A
17:15-17:30	**D**	8.75	8.84	N/A	N/A
17:30-17:45	**A**	20.05	20.17	N/A	N/A
17:30-17:45	**B**	13.38	13.38	N/A	N/A
17:30-17:45	**C**	17.62	17.99	N/A	N/A
17:30-17:45	**D**	8.75	8.84	N/A	N/A
17:45-18:00	**A**	20.05	20.17	N/A	N/A
17:45-18:00	**B**	13.38	13.38	N/A	N/A
17:45-18:00	**C**	17.62	17.99	N/A	N/A
17:45-18:00	**D**	8.75	8.84	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	118.00	816.00	269.00
	B	179.00	0.00	507.00	117.00
	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	0.10	0.68	0.22
	B	0.22	0.00	0.63	0.15
	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	0.80	0.20	4.03	B	20.05	1203.00	228.59	0.19	3.81	228.92	0.19	0.656	32.708
B	0.71	0.18	2.37	B	13.38	802.80	136.18	0.17	2.27	136.32	0.17	0.657	32.598
C	0.82	0.26	4.56	C	17.62	1057.20	255.81	0.24	4.26	256.30	0.24	0.540	26.951
D	0.67	0.23	1.99	B	8.75	525.00	113.84	0.22	1.90	113.99	0.22	0.524	23.241

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	20.05	300.75	19.80	15.78	11.30	0.00	25.05	23.12	0.800	0.00	3.77
B	13.38	200.70	13.23	10.69	20.40	0.00	19.13	16.61	0.699	0.00	2.24
C	17.62	264.30	17.34	24.33	9.30	0.00	21.45	20.39	0.822	0.00	4.22
D	8.75	131.25	8.63	8.19	18.45	0.00	13.24	11.40	0.661	0.00	1.87

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	20.05	300.75	20.04	16.01	11.46	0.00	24.94	23.12	0.804	3.77	3.95
B	13.38	200.70	13.37	10.84	20.65	0.00	18.97	16.61	0.705	2.24	2.34
C	17.62	264.30	17.61	24.62	9.41	0.00	21.39	20.39	0.824	4.22	4.44
D	8.75	131.25	8.74	8.29	18.72	0.00	13.09	11.40	0.668	1.87	1.96

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	20.05	300.75	20.05	16.01	11.47	0.00	24.94	23.12	0.804	3.95	4.00
B	13.38	200.70	13.38	10.85	20.66	0.00	18.96	16.61	0.706	2.34	2.36
C	17.62	264.30	17.61	24.63	9.41	0.00	21.39	20.39	0.824	4.44	4.52
D	8.75	131.25	8.75	8.30	18.73	0.00	13.09	11.40	0.668	1.96	1.98

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	20.05	300.75	20.05	16.02	11.47	0.00	24.94	23.12	0.804	4.00	4.03

B	13.38	200.70	13.38	10.85	20.66	0.00	18.96	16.61	0.706	2.36	2.37
C	17.62	264.30	17.62	24.63	9.41	0.00	21.39	20.39	0.824	4.52	4.56
D	8.75	131.25	8.75	8.30	18.73	0.00	13.09	11.40	0.669	1.98	1.99

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	50.44	3.36	0.183	B	B
B	30.90	2.06	0.166	A	A
C	55.06	3.67	0.230	B	B
D	25.57	1.70	0.212	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	58.22	3.88	0.203	B	B
B	34.55	2.30	0.178	B	B
C	65.34	4.36	0.262	C	B
D	28.91	1.93	0.229	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	59.68	3.98	0.204	B	B
B	35.24	2.35	0.179	B	B
C	67.30	4.49	0.264	C	B
D	29.56	1.97	0.230	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	60.25	4.02	0.204	B	B
B	35.49	2.37	0.179	B	B
C	68.11	4.54	0.264	C	B
D	29.79	1.99	0.230	B	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	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	6.50	10.00	13.50	60.00	26.00		0.540	26.951
D	3.60	5.00	21.60	11.00	54.00	28.00		0.524	23.241

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**	20.05	25.05	0.800	0.00	0.00	3.77	50.44	(0.00)	0.183
17:00-17:15	**B**	13.38	19.13	0.699	0.00	0.00	2.24	30.90	(0.00)	0.166
17:00-17:15	**C**	17.62	21.45	0.822	0.00	0.00	4.22	55.06	(0.00)	0.230
17:00-17:15	**D**	8.75	13.24	0.661	0.00	0.00	1.87	25.57	(0.00)	0.212
17:15-17:30	**A**	20.05	24.94	0.804	0.00	3.77	3.95	58.22	(0.00)	0.203
17:15-17:30	**B**	13.38	18.97	0.705	0.00	2.24	2.34	34.55	(0.00)	0.178
17:15-17:30	**C**	17.62	21.39	0.824	0.00	4.22	4.44	65.34	(0.00)	0.262
17:15-17:30	**D**	8.75	13.09	0.668	0.00	1.87	1.96	28.91	(0.00)	0.229
17:30-17:45	**A**	20.05	24.94	0.804	0.00	3.95	4.00	59.68	(0.00)	0.204
17:30-17:45	**B**	13.38	18.96	0.706	0.00	2.34	2.36	35.24	(0.00)	0.179
17:30-17:45	**C**	17.62	21.39	0.824	0.00	4.44	4.52	67.30	(0.00)	0.264
17:30-17:45	**D**	8.75	13.09	0.668	0.00	1.96	1.98	29.56	(0.00)	0.230
17:45-18:00	**A**	20.05	24.94	0.804	0.00	4.00	4.03	60.25	(0.00)	0.204
17:45-18:00	**B**	13.38	18.96	0.706	0.00	2.36	2.37	35.49	(0.00)	0.179
17:45-18:00	**C**	17.62	21.39	0.824	0.00	4.52	4.56	68.11	(0.00)	0.264
17:45-18:00	**D**	8.75	13.09	0.669	0.00	1.98	1.99	29.79	(0.00)	0.230

ARCADY 7

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Report generation date: 04/01/2011 16:24:39

« A1 - (Default Analysis Set) - D3 - Base 2015 + Comm Dev, AM
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» 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	2.20	0.13	0.69	A
Arm B	0.93	0.10	0.48	A
Arm C	0.85	0.06	0.46	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	3.11	0.17	0.76	B
Arm B	1.04	0.11	0.51	A
Arm C	0.97	0.06	0.49	A
	(Default Analysis Set) - Base 2015 + Comm Dev			
Arm A	1.99	0.12	0.67	A
Arm B	0.89	0.09	0.47	A
Arm C	0.75	0.05	0.43	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
Base 2015 + Comm Dev - AM runs from 07:45:00 to 09:15:00

File summary

File Description

Title	J3 -Wales Airport RBT - AM 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) - D3 - Base 2015 + 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.
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
Base 2015 + Comm Dev, AM	Base 2015 + Comm 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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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		14.77	100.000	N/A
B	ONE HOUR		8.73	100.000	N/A
C	ONE HOUR		12.48	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	11.12	11.24	N/A	N/A
07:45-08:00	B	6.57	6.58	N/A	N/A
07:45-08:00	C	9.40	9.75	N/A	N/A
08:00-08:15	A	13.28	13.43	N/A	N/A
08:00-08:15	B	7.85	7.85	N/A	N/A
08:00-08:15	C	11.22	11.64	N/A	N/A
08:15-08:30	A	16.26	16.44	N/A	N/A
08:15-08:30	B	9.61	9.62	N/A	N/A
08:15-08:30	C	13.74	14.25	N/A	N/A
08:30-08:45	A	16.26	16.44	N/A	N/A
08:30-08:45	B	9.61	9.62	N/A	N/A
08:30-08:45	C	13.74	14.25	N/A	N/A
08:45-09:00	A	13.28	13.43	N/A	N/A
08:45-09:00	B	7.85	7.85	N/A	N/A
08:45-09:00	C	11.22	11.64	N/A	N/A
09:00-09:15	A	11.12	11.24	N/A	N/A
09:00-09:15	B	6.57	6.58	N/A	N/A
09:00-09:15	C	9.40	9.75	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	11.00	875.00
	B	7.00	0.00	517.00
	C	423.00	326.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.01	0.99
	B	0.01	0.00	0.99
	C	0.56	0.44	0.00

Vehicle Mix

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

		To		
		A	B	C
From	A	1.00	1.10	1.01
	B	1.05	1.00	1.00
	C	1.02	1.06	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	10.00	1.00
	B	5.00	0.00	0.00
	C	2.00	6.00	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	0.12	1.99	A	13.55	1219.79	114.46	0.09	1.27	114.47	0.09	0.638	28.667
B	0.47	0.09	0.89	A	8.01	720.97	53.98	0.07	0.60	53.99	0.07	0.680	31.352
C	0.43	0.05	0.75	A	11.45	1030.67	51.08	0.05	0.57	51.08	0.05	0.730	33.215

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	11.12	166.79	11.07	5.38	4.08	0.00	25.63	19.09	0.434	0.00	0.76
B	6.57	98.59	6.55	4.21	10.93	0.00	23.82	18.38	0.276	0.00	0.38
C	9.40	140.93	9.37	17.39	0.09	0.00	31.95	31.84	0.294	0.00	0.41

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	13.28	199.17	13.25	6.44	4.88	0.00	25.09	19.09	0.529	0.76	1.11
B	7.85	117.72	7.84	5.04	13.09	0.00	22.34	18.38	0.351	0.38	0.54
C	11.22	168.29	11.21	20.82	0.10	0.00	31.94	31.84	0.351	0.41	0.54

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	16.26	243.93	16.21	7.88	5.97	0.00	24.36	19.09	0.668	1.11	1.96
B	9.61	144.18	9.59	6.18	16.00	0.00	20.34	18.38	0.473	0.54	0.89
C	13.74	206.11	13.73	25.46	0.13	0.00	31.92	31.84	0.430	0.54	0.75

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	16.26	243.93	16.26	7.89	5.98	0.00	24.35	19.09	0.668	1.96	1.99
B	9.61	144.18	9.61	6.18	16.06	0.00	20.30	18.38	0.473	0.89	0.89
C	13.74	206.11	13.74	25.54	0.13	0.00	31.92	31.84	0.430	0.75	0.75

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	13.28	199.17	13.33	6.45	4.89	0.00	25.08	19.09	0.529	1.99	1.14
B	7.85	117.72	7.87	5.05	13.17	0.00	22.29	18.38	0.352	0.89	0.55
C	11.22	168.29	11.23	20.93	0.11	0.00	31.94	31.84	0.351	0.75	0.54

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	11.12	166.79	11.14	5.40	4.09	0.00	25.61	19.09	0.434	1.14	0.77
B	6.57	98.59	6.58	4.23	11.01	0.00	23.77	18.38	0.276	0.55	0.38
C	9.40	140.93	9.40	17.50	0.09	0.00	31.95	31.84	0.294	0.54	0.42

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	11.07	0.74	0.068	A	A
B	5.56	0.37	0.058	A	A
C	6.11	0.41	0.044	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	16.19	1.08	0.084	A	A
B	7.91	0.53	0.069	A	A
C	7.97	0.53	0.048	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	27.98	1.87	0.122	A	A
B	12.88	0.86	0.093	A	A
C	11.06	0.74	0.055	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	29.65	1.98	0.124	A	A
B	13.36	0.89	0.094	A	A
C	11.29	0.75	0.055	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	17.69	1.18	0.086	A	A
B	8.41	0.56	0.069	A	A
C	8.30	0.55	0.048	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	11.89	0.79	0.069	A	A
B	5.87	0.39	0.058	A	A
C	6.36	0.42	0.044	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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**	11.12	25.63	0.434	0.00	0.00	0.76	11.07	(0.00)	0.068
07:45-08:00	**B**	6.57	23.82	0.276	0.00	0.00	0.38	5.56	(0.00)	0.058
07:45-08:00	**C**	9.40	31.95	0.294	0.00	0.00	0.41	6.11	(0.00)	0.044
08:00-08:15	**A**	13.28	25.09	0.529	0.00	0.76	1.11	16.19	(0.00)	0.084
08:00-08:15	**B**	7.85	22.34	0.351	0.00	0.38	0.54	7.91	(0.00)	0.069
08:00-08:15	**C**	11.22	31.94	0.351	0.00	0.41	0.54	7.97	(0.00)	0.048
08:15-08:30	**A**	16.26	24.36	0.668	0.00	1.11	1.96	27.98	(0.00)	0.122
08:15-08:30	**B**	9.61	20.34	0.473	0.00	0.54	0.89	12.88	(0.00)	0.093
08:15-08:30	**C**	13.74	31.92	0.430	0.00	0.54	0.75	11.06	(0.00)	0.055
08:30-08:45	**A**	16.26	24.35	0.668	0.00	1.96	1.99	29.65	(0.00)	0.124
08:30-08:45	**B**	9.61	20.30	0.473	0.00	0.89	0.89	13.36	(0.00)	0.094
08:30-08:45	**C**	13.74	31.92	0.430	0.00	0.75	0.75	11.29	(0.00)	0.055
08:45-09:00	**A**	13.28	25.08	0.529	0.00	1.99	1.14	17.69	(0.00)	0.086
08:45-09:00	**B**	7.85	22.29	0.352	0.00	0.89	0.55	8.41	(0.00)	0.069
08:45-09:00	**C**	11.22	31.94	0.351	0.00	0.75	0.54	8.30	(0.00)	0.048
09:00-09:15	**A**	11.12	25.61	0.434	0.00	1.14	0.77	11.89	(0.00)	0.069
09:00-09:15	**B**	6.57	23.77	0.276	0.00	0.55	0.38	5.87	(0.00)	0.058
09:00-09:15	**C**	9.40	31.95	0.294	0.00	0.54	0.42	6.36	(0.00)	0.044

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\J3 Wales Airport Hotel RBT\ODTAB\Import of J3 Wales Airport RBT PM Peak ODTAB.arc7
Report generation date: 05/01/2011 09:35:15

« A1 - (Default Analysis Set) - D3 - 2015 + Comm Dev, PM
» Roundabout Network
» Arms
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» 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 + Comm Dev			
Arm A	0.75	0.08	0.43	A
Arm B	0.58	0.06	0.37	A
Arm C	1.72	0.08	0.63	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units PM Peak			
Arm A	1.04	0.09	0.51	A
Arm B	0.63	0.07	0.39	A
Arm C	2.57	0.11	0.72	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.44	0.11	0.59	A
Arm B	0.70	0.08	0.41	A
Arm C	4.27	0.16	0.81	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 + Comm Dev - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J3 -Wales Airport RBT - PM Peak
Location	Rhoose
Date	10/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA

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 + 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.
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 + Comm Dev, PM	2015 + 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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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		8.92	100.000	N/A
B	ONE HOUR		8.20	100.000	N/A
C	ONE HOUR		18.77	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	6.72	6.85	N/A	N/A
16:45-17:00	B	6.17	6.23	N/A	N/A
16:45-17:00	C	14.13	14.33	N/A	N/A
17:00-17:15	A	8.02	8.17	N/A	N/A
17:00-17:15	B	7.37	7.44	N/A	N/A
17:00-17:15	C	16.87	17.11	N/A	N/A
17:15-17:30	A	9.82	10.01	N/A	N/A
17:15-17:30	B	9.03	9.12	N/A	N/A
17:15-17:30	C	20.67	20.96	N/A	N/A
17:30-17:45	A	9.82	10.01	N/A	N/A
17:30-17:45	B	9.03	9.12	N/A	N/A
17:30-17:45	C	20.67	20.96	N/A	N/A
17:45-18:00	A	8.02	8.17	N/A	N/A
17:45-18:00	B	7.37	7.44	N/A	N/A
17:45-18:00	C	16.87	17.11	N/A	N/A
18:00-18:15	A	6.72	6.85	N/A	N/A
18:00-18:15	B	6.17	6.23	N/A	N/A
18:00-18:15	C	14.13	14.33	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	15.00	520.00
	B	11.00	0.00	481.00
	C	676.00	450.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.03	0.97
	B	0.02	0.00	0.98
	C	0.60	0.40	0.00

Vehicle Mix

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

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

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	2.00
	B	0.00	0.00	1.00
	C	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	0.43	0.08	0.75	A	8.19	736.66	48.71	0.07	0.54	48.71	0.07	0.638	28.667
B	0.37	0.06	0.58	A	7.52	677.20	38.39	0.06	0.43	38.40	0.06	0.680	31.352
C	0.63	0.08	1.72	A	17.22	1550.13	105.39	0.07	1.17	105.40	0.07	0.730	33.215

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	6.72	100.73	6.69	8.59	5.63	0.00	24.53	19.84	0.274	0.00	0.38
B	6.17	92.60	6.15	5.81	6.50	0.00	26.58	17.79	0.232	0.00	0.30
C	14.13	211.96	14.08	12.52	0.14	0.00	32.66	32.47	0.433	0.00	0.76

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	8.02	120.28	8.01	10.28	6.74	0.00	23.82	19.84	0.337	0.38	0.50
B	7.37	110.57	7.37	6.96	7.79	0.00	25.70	17.79	0.287	0.30	0.40
C	16.87	253.11	16.85	14.99	0.16	0.00	32.64	32.47	0.517	0.76	1.06

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	9.82	147.32	9.80	12.58	8.24	0.00	22.86	19.84	0.430	0.50	0.75
B	9.03	135.43	9.02	8.52	9.53	0.00	24.50	17.79	0.369	0.40	0.58
C	20.67	309.99	20.62	18.34	0.20	0.00	32.61	32.47	0.634	1.06	1.70

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	9.82	147.32	9.82	12.61	8.26	0.00	22.85	19.84	0.430	0.75	0.75
B	9.03	135.43	9.03	8.53	9.55	0.00	24.49	17.79	0.369	0.58	0.58
C	20.67	309.99	20.67	18.37	0.20	0.00	32.61	32.47	0.634	1.70	1.72

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	8.02	120.28	8.03	10.32	6.76	0.00	23.81	19.84	0.337	0.75	0.51
B	7.37	110.57	7.38	6.99	7.81	0.00	25.68	17.79	0.287	0.58	0.40
C	16.87	253.11	16.92	15.03	0.17	0.00	32.64	32.47	0.517	1.72	1.08

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	6.72	100.73	6.72	8.63	5.66	0.00	24.51	19.84	0.274	0.51	0.38
B	6.17	92.60	6.18	5.84	6.54	0.00	26.56	17.79	0.232	0.40	0.30
C	14.13	211.96	14.15	12.58	0.14	0.00	32.66	32.47	0.433	1.08	0.77

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	5.50	0.37	0.056	A	A
B	4.43	0.30	0.049	A	A
C	11.09	0.74	0.054	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	7.43	0.50	0.063	A	A
B	5.91	0.39	0.055	A	A
C	15.56	1.04	0.063	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	10.93	0.73	0.076	A	A
B	8.53	0.57	0.065	A	A
C	24.67	1.64	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	11.23	0.75	0.077	A	A
B	8.72	0.58	0.065	A	A
C	25.68	1.71	0.084	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	7.83	0.52	0.063	A	A
B	6.18	0.41	0.055	A	A
C	16.64	1.11	0.064	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	5.78	0.39	0.056	A	A
B	4.63	0.31	0.049	A	A
C	11.74	0.78	0.054	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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**	6.72	24.53	0.274	0.00	0.00	0.38	5.50	(0.00)	0.056
16:45-17:00	**B**	6.17	26.58	0.232	0.00	0.00	0.30	4.43	(0.00)	0.049
16:45-17:00	**C**	14.13	32.66	0.433	0.00	0.00	0.76	11.09	(0.00)	0.054
17:00-17:15	**A**	8.02	23.82	0.337	0.00	0.38	0.50	7.43	(0.00)	0.063
17:00-17:15	**B**	7.37	25.70	0.287	0.00	0.30	0.40	5.91	(0.00)	0.055
17:00-17:15	**C**	16.87	32.64	0.517	0.00	0.76	1.06	15.56	(0.00)	0.063
17:15-17:30	**A**	9.82	22.86	0.430	0.00	0.50	0.75	10.93	(0.00)	0.076
17:15-17:30	**B**	9.03	24.50	0.369	0.00	0.40	0.58	8.53	(0.00)	0.065
17:15-17:30	**C**	20.67	32.61	0.634	0.00	1.06	1.70	24.67	(0.00)	0.083
17:30-17:45	**A**	9.82	22.85	0.430	0.00	0.75	0.75	11.23	(0.00)	0.077
17:30-17:45	**B**	9.03	24.49	0.369	0.00	0.58	0.58	8.72	(0.00)	0.065
17:30-17:45	**C**	20.67	32.61	0.634	0.00	1.70	1.72	25.68	(0.00)	0.084
17:45-18:00	**A**	8.02	23.81	0.337	0.00	0.75	0.51	7.83	(0.00)	0.063
17:45-18:00	**B**	7.37	25.68	0.287	0.00	0.58	0.40	6.18	(0.00)	0.055
17:45-18:00	**C**	16.87	32.64	0.517	0.00	1.72	1.08	16.64	(0.00)	0.064
18:00-18:15	**A**	6.72	24.51	0.274	0.00	0.51	0.38	5.78	(0.00)	0.056
18:00-18:15	**B**	6.17	26.56	0.232	0.00	0.40	0.30	4.63	(0.00)	0.049
18:00-18:15	**C**	14.13	32.66	0.433	0.00	1.08	0.77	11.74	(0.00)	0.054

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\J3 Wales Airport Hotel RBT\ODTAB\Import of J3 Wales Airport RBT AM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:25:04

« A1 - (Default Analysis Set) - D1 - 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	2.20	0.13	0.69	A
Arm B	0.93	0.10	0.48	A
Arm C	0.85	0.06	0.46	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	3.11	0.17	0.76	B
Arm B	1.04	0.11	0.51	A
Arm C	0.97	0.06	0.49	A
	(Default Analysis Set) - Base 2015 + Comm Dev			
Arm A	1.99	0.12	0.67	A
Arm B	0.89	0.09	0.47	A
Arm C	0.75	0.05	0.43	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
Base 2015 + Comm Dev - AM runs from 07:45:00 to 09:15:00

File summary

File Description

Title	J3 -Wales Airport RBT - AM 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 + Comm Dev + 350 units AM Peak, 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
(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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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		15.28	100.000	N/A
B	ONE HOUR		8.73	100.000	N/A

C	ONE HOUR		13.40	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	11.50	11.63	N/A	N/A
07:45-08:00	B	6.57	6.58	N/A	N/A
07:45-08:00	C	10.09	10.45	N/A	N/A
08:00-08:15	A	13.74	13.89	N/A	N/A
08:00-08:15	B	7.85	7.85	N/A	N/A
08:00-08:15	C	12.05	12.48	N/A	N/A
08:15-08:30	A	16.82	17.01	N/A	N/A
08:15-08:30	B	9.61	9.62	N/A	N/A
08:15-08:30	C	14.75	15.29	N/A	N/A
08:30-08:45	A	16.82	17.01	N/A	N/A
08:30-08:45	B	9.61	9.62	N/A	N/A
08:30-08:45	C	14.75	15.29	N/A	N/A
08:45-09:00	A	13.74	13.89	N/A	N/A
08:45-09:00	B	7.85	7.85	N/A	N/A
08:45-09:00	C	12.05	12.48	N/A	N/A
09:00-09:15	A	11.50	11.63	N/A	N/A
09:00-09:15	B	6.57	6.58	N/A	N/A
09:00-09:15	C	10.09	10.45	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	11.00	906.00
	B	7.00	0.00	517.00
	C	478.00	326.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.01	0.99
	B	0.01	0.00	0.99
	C	0.59	0.41	0.00

Vehicle Mix

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

		To		
		A	B	C
From	A	1.00	1.10	1.01
	B	1.05	1.00	1.00
	C	1.02	1.06	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	10.00	1.00
	B	5.00	0.00	0.00
	C	2.00	6.00	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	0.13	2.20	A	14.02	1261.91	124.58	0.10	1.38	124.59	0.10	0.638	28.667
B	0.48	0.10	0.93	A	8.01	720.97	55.47	0.08	0.62	55.47	0.08	0.680	31.352
C	0.46	0.06	0.85	A	12.30	1106.65	57.26	0.05	0.64	57.27	0.05	0.730	33.215

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	11.50	172.55	11.45	6.07	4.08	0.00	25.63	19.71	0.449	0.00	0.81
B	6.57	98.59	6.55	4.22	11.31	0.00	23.56	17.96	0.279	0.00	0.38
C	10.09	151.32	10.06	17.77	0.09	0.00	31.99	31.88	0.315	0.00	0.46

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	13.74	206.05	13.71	7.26	4.88	0.00	25.09	19.71	0.548	0.81	1.19
B	7.85	117.72	7.84	5.05	13.55	0.00	22.03	17.96	0.356	0.38	0.55
C	12.05	180.69	12.04	21.28	0.10	0.00	31.98	31.88	0.377	0.46	0.60

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	16.82	252.35	16.76	8.89	5.98	0.00	24.36	19.71	0.691	1.19	2.17
B	9.61	144.18	9.59	6.18	16.56	0.00	19.96	17.96	0.482	0.55	0.92
C	14.75	221.30	14.74	26.02	0.13	0.00	31.96	31.88	0.462	0.60	0.85

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	16.82	252.35	16.82	8.90	5.98	0.00	24.35	19.71	0.691	2.17	2.20
B	9.61	144.18	9.61	6.18	16.62	0.00	19.92	17.96	0.483	0.92	0.93
C	14.75	221.30	14.75	26.10	0.13	0.00	31.96	31.88	0.462	0.85	0.85

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	13.74	206.05	13.80	7.28	4.89	0.00	25.08	19.71	0.548	2.20	1.23

B	7.85	117.72	7.87	5.06	13.64	0.00	21.97	17.96	0.357	0.93	0.56
C	12.05	180.69	12.06	21.40	0.11	0.00	31.98	31.88	0.377	0.85	0.61

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	11.50	172.55	11.53	6.09	4.09	0.00	25.62	19.71	0.449	1.23	0.82
B	6.57	98.59	6.58	4.23	11.39	0.00	23.51	17.96	0.280	0.56	0.39
C	10.09	151.32	10.10	17.89	0.09	0.00	31.99	31.88	0.315	0.61	0.46

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	11.74	0.78	0.070	A	A
B	5.64	0.38	0.059	A	A
C	6.75	0.45	0.046	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	17.38	1.16	0.088	A	A
B	8.08	0.54	0.070	A	A
C	8.88	0.59	0.050	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	30.83	2.06	0.130	A	A
B	13.33	0.89	0.096	A	A
C	12.52	0.83	0.058	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	32.87	2.19	0.133	A	A
B	13.85	0.92	0.097	A	A
C	12.80	0.85	0.058	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	19.10	1.27	0.089	A	A
B	8.61	0.57	0.071	A	A
C	9.28	0.62	0.050	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	12.65	0.84	0.071	A	A
B	5.96	0.40	0.059	A	A
C	7.04	0.47	0.046	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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	11.50	25.63	0.449	0.00	0.00	0.81	11.74	(0.00)	0.070
07:45-08:00	B	6.57	23.56	0.279	0.00	0.00	0.38	5.64	(0.00)	0.059
07:45-08:00	C	10.09	31.99	0.315	0.00	0.00	0.46	6.75	(0.00)	0.046
08:00-08:15	A	13.74	25.09	0.548	0.00	0.81	1.19	17.38	(0.00)	0.088
08:00-08:15	B	7.85	22.03	0.356	0.00	0.38	0.55	8.08	(0.00)	0.070
08:00-08:15	C	12.05	31.98	0.377	0.00	0.46	0.60	8.88	(0.00)	0.050
08:15-08:30	A	16.82	24.36	0.691	0.00	1.19	2.17	30.83	(0.00)	0.130
08:15-08:30	B	9.61	19.96	0.482	0.00	0.55	0.92	13.33	(0.00)	0.096
08:15-08:30	C	14.75	31.96	0.462	0.00	0.60	0.85	12.52	(0.00)	0.058
08:30-08:45	A	16.82	24.35	0.691	0.00	2.17	2.20	32.87	(0.00)	0.133
08:30-08:45	B	9.61	19.92	0.483	0.00	0.92	0.93	13.85	(0.00)	0.097
08:30-08:45	C	14.75	31.96	0.462	0.00	0.85	0.85	12.80	(0.00)	0.058
08:45-09:00	A	13.74	25.08	0.548	0.00	2.20	1.23	19.10	(0.00)	0.089
08:45-09:00	B	7.85	21.97	0.357	0.00	0.93	0.56	8.61	(0.00)	0.071
08:45-09:00	C	12.05	31.98	0.377	0.00	0.85	0.61	9.28	(0.00)	0.050
09:00-09:15	A	11.50	25.62	0.449	0.00	1.23	0.82	12.65	(0.00)	0.071
09:00-09:15	B	6.57	23.51	0.280	0.00	0.56	0.39	5.96	(0.00)	0.059
09:00-09:15	C	10.09	31.99	0.315	0.00	0.61	0.46	7.04	(0.00)	0.046

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\J3 Wales Airport Hotel RBT\ODTAB\Import of J3 Wales Airport RBT PM Peak ODTAB.arc7
Report generation date: 05/01/2011 09:34:15

« A1 - (Default Analysis Set) - D1 - 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 + Comm Dev			
Arm A	0.75	0.08	0.43	A
Arm B	0.58	0.06	0.37	A
Arm C	1.72	0.08	0.63	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units PM Peak			
Arm A	1.04	0.09	0.51	A
Arm B	0.63	0.07	0.39	A
Arm C	2.57	0.11	0.72	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.44	0.11	0.59	A
Arm B	0.70	0.08	0.41	A
Arm C	4.27	0.16	0.81	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 + Comm Dev - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J3 -Wales Airport RBT - PM Peak
Location	Rhoose
Date	10/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA

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 + Comm Dev + 350 units PM Peak, 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
(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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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		10.62	100.000	N/A
B	ONE HOUR		8.20	100.000	N/A

C	ONE HOUR		21.40	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)
16:45-17:00	A	8.00	8.15	N/A	N/A
16:45-17:00	B	6.17	6.23	N/A	N/A
16:45-17:00	C	16.11	16.33	N/A	N/A
17:00-17:15	A	9.55	9.73	N/A	N/A
17:00-17:15	B	7.37	7.44	N/A	N/A
17:00-17:15	C	19.24	19.50	N/A	N/A
17:15-17:30	A	11.69	11.92	N/A	N/A
17:15-17:30	B	9.03	9.12	N/A	N/A
17:15-17:30	C	23.56	23.88	N/A	N/A
17:30-17:45	A	11.69	11.92	N/A	N/A
17:30-17:45	B	9.03	9.12	N/A	N/A
17:30-17:45	C	23.56	23.88	N/A	N/A
17:45-18:00	A	9.55	9.73	N/A	N/A
17:45-18:00	B	7.37	7.44	N/A	N/A
17:45-18:00	C	19.24	19.50	N/A	N/A
18:00-18:15	A	8.00	8.15	N/A	N/A
18:00-18:15	B	6.17	6.23	N/A	N/A
18:00-18:15	C	16.11	16.33	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	15.00	622.00
	B	11.00	0.00	481.00
	C	834.00	450.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.02	0.98
	B	0.02	0.00	0.98
	C	0.65	0.35	0.00

Vehicle Mix

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

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

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	2.00
	B	0.00	0.00	1.00
	C	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	0.51	0.09	1.04	A	9.75	877.06	65.24	0.07	0.72	65.24	0.07	0.638	28.667
B	0.39	0.07	0.63	A	7.52	677.20	41.07	0.06	0.46	41.07	0.06	0.680	31.352
C	0.72	0.11	2.57	A	19.64	1767.34	146.69	0.08	1.63	146.71	0.08	0.730	33.215

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	8.00	119.93	7.96	10.56	5.62	0.00	24.53	20.85	0.326	0.00	0.48
B	6.17	92.60	6.15	5.81	7.78	0.00	25.70	17.05	0.240	0.00	0.31
C	16.11	241.67	16.05	13.79	0.14	0.00	32.67	32.50	0.493	0.00	0.97

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	9.55	143.21	9.53	12.64	6.73	0.00	23.82	20.85	0.401	0.48	0.66
B	7.37	110.57	7.36	6.96	9.31	0.00	24.65	17.05	0.299	0.31	0.42
C	19.24	288.57	19.21	16.51	0.16	0.00	32.65	32.50	0.589	0.97	1.42

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	11.69	175.39	11.67	15.46	8.23	0.00	22.87	20.85	0.511	0.66	1.03
B	9.03	135.43	9.01	8.51	11.39	0.00	23.22	17.05	0.389	0.42	0.63
C	23.56	353.43	23.49	20.21	0.20	0.00	32.63	32.50	0.722	1.42	2.53

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	11.69	175.39	11.69	15.50	8.26	0.00	22.85	20.85	0.512	1.03	1.04
B	9.03	135.43	9.03	8.53	11.42	0.00	23.20	17.05	0.389	0.63	0.63
C	23.56	353.43	23.56	20.24	0.20	0.00	32.63	32.50	0.722	2.53	2.57

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	9.55	143.21	9.57	12.71	6.77	0.00	23.80	20.85	0.401	1.04	0.68

B	7.37	110.57	7.39	6.99	9.35	0.00	24.62	17.05	0.299	0.63	0.43
C	19.24	288.57	19.31	16.57	0.17	0.00	32.65	32.50	0.589	2.57	1.45

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	8.00	119.93	8.01	10.62	5.66	0.00	24.51	20.85	0.326	0.68	0.49
B	6.17	92.60	6.18	5.85	7.82	0.00	25.67	17.05	0.240	0.43	0.32
C	16.11	241.67	16.14	13.86	0.14	0.00	32.67	32.50	0.493	1.45	0.98

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	7.04	0.47	0.060	A	A
B	4.63	0.31	0.051	A	A
C	14.06	0.94	0.060	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	9.75	0.65	0.070	A	A
B	6.26	0.42	0.058	A	A
C	20.65	1.38	0.074	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	15.05	1.00	0.089	A	A
B	9.27	0.62	0.070	A	A
C	36.06	2.40	0.109	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	15.58	1.04	0.090	A	A
B	9.50	0.63	0.071	A	A
C	38.30	2.55	0.110	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	10.38	0.69	0.070	A	A
B	6.57	0.44	0.058	A	A
C	22.56	1.50	0.075	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	7.44	0.50	0.061	A	A
B	4.84	0.32	0.051	A	A
C	15.06	1.00	0.061	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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	8.00	24.53	0.326	0.00	0.00	0.48	7.04	(0.00)	0.060
16:45-17:00	B	6.17	25.70	0.240	0.00	0.00	0.31	4.63	(0.00)	0.051
16:45-17:00	C	16.11	32.67	0.493	0.00	0.00	0.97	14.06	(0.00)	0.060
17:00-17:15	A	9.55	23.82	0.401	0.00	0.48	0.66	9.75	(0.00)	0.070
17:00-17:15	B	7.37	24.65	0.299	0.00	0.31	0.42	6.26	(0.00)	0.058
17:00-17:15	C	19.24	32.65	0.589	0.00	0.97	1.42	20.65	(0.00)	0.074
17:15-17:30	A	11.69	22.87	0.511	0.00	0.66	1.03	15.05	(0.00)	0.089
17:15-17:30	B	9.03	23.22	0.389	0.00	0.42	0.63	9.27	(0.00)	0.070
17:15-17:30	C	23.56	32.63	0.722	0.00	1.42	2.53	36.06	(0.00)	0.109
17:30-17:45	A	11.69	22.85	0.512	0.00	1.03	1.04	15.58	(0.00)	0.090
17:30-17:45	B	9.03	23.20	0.389	0.00	0.63	0.63	9.50	(0.00)	0.071
17:30-17:45	C	23.56	32.63	0.722	0.00	2.53	2.57	38.30	(0.00)	0.110
17:45-18:00	A	9.55	23.80	0.401	0.00	1.04	0.68	10.38	(0.00)	0.070
17:45-18:00	B	7.37	24.62	0.299	0.00	0.63	0.43	6.57	(0.00)	0.058
17:45-18:00	C	19.24	32.65	0.589	0.00	2.57	1.45	22.56	(0.00)	0.075
18:00-18:15	A	8.00	24.51	0.326	0.00	0.68	0.49	7.44	(0.00)	0.061
18:00-18:15	B	6.17	25.67	0.240	0.00	0.43	0.32	4.84	(0.00)	0.051
18:00-18:15	C	16.11	32.67	0.493	0.00	1.45	0.98	15.06	(0.00)	0.061

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\J3 Wales Airport Hotel RBT\ODTAB\Import of J3 Wales Airport RBT AM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:25:29

« A1 - (Default Analysis Set) - D2 - 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	2.20	0.13	0.69	A
Arm B	0.93	0.10	0.48	A
Arm C	0.85	0.06	0.46	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	3.11	0.17	0.76	B
Arm B	1.04	0.11	0.51	A
Arm C	0.97	0.06	0.49	A
	(Default Analysis Set) - Base 2015 + Comm Dev			
Arm A	1.99	0.12	0.67	A
Arm B	0.89	0.09	0.47	A
Arm C	0.75	0.05	0.43	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
Base 2015 + Comm Dev - AM runs from 07:45:00 to 09:15:00

File summary

File Description

Title	J3 -Wales Airport RBT - AM Peak
Location	Rhoose
Date	10/12/2010
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) - D2 - 2015 Base + Comm Dev + 700 units AM Peak, 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
(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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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		16.83	100.000	N/A
B	ONE HOUR		8.73	100.000	N/A

C	ONE HOUR		14.32	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	12.67	12.81	N/A	N/A
07:45-08:00	B	6.57	6.58	N/A	N/A
07:45-08:00	C	10.78	11.16	N/A	N/A
08:00-08:15	A	15.13	15.30	N/A	N/A
08:00-08:15	B	7.85	7.85	N/A	N/A
08:00-08:15	C	12.87	13.33	N/A	N/A
08:15-08:30	A	18.53	18.73	N/A	N/A
08:15-08:30	B	9.61	9.62	N/A	N/A
08:15-08:30	C	15.77	16.32	N/A	N/A
08:30-08:45	A	18.53	18.73	N/A	N/A
08:30-08:45	B	9.61	9.62	N/A	N/A
08:30-08:45	C	15.77	16.32	N/A	N/A
08:45-09:00	A	15.13	15.30	N/A	N/A
08:45-09:00	B	7.85	7.85	N/A	N/A
08:45-09:00	C	12.87	13.33	N/A	N/A
09:00-09:15	A	12.67	12.81	N/A	N/A
09:00-09:15	B	6.57	6.58	N/A	N/A
09:00-09:15	C	10.78	11.16	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	11.00	999.00
	B	7.00	0.00	517.00
	C	533.00	326.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.01	0.99
	B	0.01	0.00	0.99
	C	0.62	0.38	0.00

Vehicle Mix

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

		To		
		A	B	C
From	A	1.00	1.10	1.01
	B	1.05	1.00	1.00
	C	1.02	1.06	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	10.00	1.00
	B	5.00	0.00	0.00
	C	2.00	6.00	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	0.76	0.17	3.11	B	15.44	1389.92	163.63	0.12	1.82	163.65	0.12	0.638	28.667
B	0.51	0.11	1.04	A	8.01	720.97	60.56	0.08	0.67	60.56	0.08	0.680	31.352
C	0.49	0.06	0.97	A	13.14	1182.63	64.05	0.05	0.71	64.05	0.05	0.730	33.215

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	12.67	190.06	12.61	6.76	4.08	0.00	25.63	20.26	0.494	0.00	0.97
B	6.57	98.59	6.55	4.22	12.47	0.00	22.77	17.57	0.289	0.00	0.40
C	10.78	161.71	10.75	18.93	0.09	0.00	32.02	31.91	0.337	0.00	0.51

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	15.13	226.95	15.09	8.09	4.88	0.00	25.09	20.26	0.603	0.97	1.49
B	7.85	117.72	7.84	5.05	14.93	0.00	21.08	17.57	0.372	0.40	0.59
C	12.87	193.10	12.86	22.66	0.10	0.00	32.01	31.91	0.402	0.51	0.67

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	18.53	277.95	18.43	9.90	5.98	0.00	24.36	20.26	0.761	1.49	3.04
B	9.61	144.18	9.58	6.18	18.23	0.00	18.81	17.57	0.511	0.59	1.03
C	15.77	236.50	15.75	27.68	0.13	0.00	31.99	31.91	0.493	0.67	0.96

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	18.53	277.95	18.53	9.91	5.98	0.00	24.35	20.26	0.761	3.04	3.11
B	9.61	144.18	9.61	6.19	18.32	0.00	18.75	17.57	0.513	1.03	1.04
C	15.77	236.50	15.77	27.81	0.13	0.00	31.99	31.91	0.493	0.96	0.97

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	15.13	226.95	15.23	8.11	4.89	0.00	25.08	20.26	0.603	3.11	1.55

B	7.85	117.72	7.88	5.06	15.07	0.00	20.98	17.57	0.374	1.04	0.60
C	12.87	193.10	12.89	22.84	0.11	0.00	32.01	31.91	0.402	0.97	0.68

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	12.67	190.06	12.71	6.78	4.10	0.00	25.62	20.26	0.495	1.55	0.99
B	6.57	98.59	6.59	4.23	12.57	0.00	22.70	17.57	0.290	0.60	0.41
C	10.78	161.71	10.79	19.07	0.09	0.00	32.02	31.91	0.337	0.68	0.51

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	14.02	0.93	0.076	A	A
B	5.91	0.39	0.062	A	A
C	7.43	0.50	0.047	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	21.60	1.44	0.100	A	A
B	8.64	0.58	0.075	A	A
C	9.87	0.66	0.052	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	42.21	2.81	0.166	A	A
B	14.89	0.99	0.108	A	A
C	14.14	0.94	0.061	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	46.24	3.08	0.171	B	B
B	15.57	1.04	0.109	A	A
C	14.50	0.97	0.062	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	24.29	1.62	0.103	A	A
B	9.28	0.62	0.076	A	A
C	10.34	0.69	0.052	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	15.28	1.02	0.078	A	A
B	6.27	0.42	0.062	A	A
C	7.77	0.52	0.047	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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	12.67	25.63	0.494	0.00	0.00	0.97	14.02	(0.00)	0.076
07:45-08:00	B	6.57	22.77	0.289	0.00	0.00	0.40	5.91	(0.00)	0.062
07:45-08:00	C	10.78	32.02	0.337	0.00	0.00	0.51	7.43	(0.00)	0.047
08:00-08:15	A	15.13	25.09	0.603	0.00	0.97	1.49	21.60	(0.00)	0.100
08:00-08:15	B	7.85	21.08	0.372	0.00	0.40	0.59	8.64	(0.00)	0.075
08:00-08:15	C	12.87	32.01	0.402	0.00	0.51	0.67	9.87	(0.00)	0.052
08:15-08:30	A	18.53	24.36	0.761	0.00	1.49	3.04	42.21	(0.00)	0.166
08:15-08:30	B	9.61	18.81	0.511	0.00	0.59	1.03	14.89	(0.00)	0.108
08:15-08:30	C	15.77	31.99	0.493	0.00	0.67	0.96	14.14	(0.00)	0.061
08:30-08:45	A	18.53	24.35	0.761	0.00	3.04	3.11	46.24	(0.00)	0.171
08:30-08:45	B	9.61	18.75	0.513	0.00	1.03	1.04	15.57	(0.00)	0.109
08:30-08:45	C	15.77	31.99	0.493	0.00	0.96	0.97	14.50	(0.00)	0.062
08:45-09:00	A	15.13	25.08	0.603	0.00	3.11	1.55	24.29	(0.00)	0.103
08:45-09:00	B	7.85	20.98	0.374	0.00	1.04	0.60	9.28	(0.00)	0.076
08:45-09:00	C	12.87	32.01	0.402	0.00	0.97	0.68	10.34	(0.00)	0.052
09:00-09:15	A	12.67	25.62	0.495	0.00	1.55	0.99	15.28	(0.00)	0.078
09:00-09:15	B	6.57	22.70	0.290	0.00	0.60	0.41	6.27	(0.00)	0.062
09:00-09:15	C	10.78	32.02	0.337	0.00	0.68	0.51	7.77	(0.00)	0.047

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\J3 Wales Airport Hotel RBT\ODTAB\Import of J3 Wales Airport RBT PM Peak ODTAB.arc7
Report generation date: 05/01/2011 09:34:56

« A1 - (Default Analysis Set) - D2 - 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 + Comm Dev			
Arm A	0.75	0.08	0.43	A
Arm B	0.58	0.06	0.37	A
Arm C	1.72	0.08	0.63	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units PM Peak			
Arm A	1.04	0.09	0.51	A
Arm B	0.63	0.07	0.39	A
Arm C	2.57	0.11	0.72	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.44	0.11	0.59	A
Arm B	0.70	0.08	0.41	A
Arm C	4.27	0.16	0.81	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 + Comm Dev - PM runs from 16:45:00 to 18:15:00

File summary

File Description

Title	J3 -Wales Airport RBT - PM Peak
Location	Rhoose
Date	10/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA

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) - D2 - 2015 Base + Comm Dev + 700 units PM Peak, 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
(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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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		12.30	100.000	N/A
B	ONE HOUR		8.20	100.000	N/A

C	ONE HOUR		24.15	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	9.26	9.44	N/A	N/A
16:45-17:00	B	6.17	6.23	N/A	N/A
16:45-17:00	C	18.18	18.42	N/A	N/A
17:00-17:15	A	11.06	11.27	N/A	N/A
17:00-17:15	B	7.37	7.44	N/A	N/A
17:00-17:15	C	21.71	21.99	N/A	N/A
17:15-17:30	A	13.54	13.81	N/A	N/A
17:15-17:30	B	9.03	9.12	N/A	N/A
17:15-17:30	C	26.59	26.94	N/A	N/A
17:30-17:45	A	13.54	13.81	N/A	N/A
17:30-17:45	B	9.03	9.12	N/A	N/A
17:30-17:45	C	26.59	26.94	N/A	N/A
17:45-18:00	A	11.06	11.27	N/A	N/A
17:45-18:00	B	7.37	7.44	N/A	N/A
17:45-18:00	C	21.71	21.99	N/A	N/A
18:00-18:15	A	9.26	9.44	N/A	N/A
18:00-18:15	B	6.17	6.23	N/A	N/A
18:00-18:15	C	18.18	18.42	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	15.00	723.00
	B	11.00	0.00	481.00
	C	999.00	450.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.02	0.98
	B	0.02	0.00	0.98
	C	0.69	0.31	0.00

Vehicle Mix

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

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

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	2.00
	B	0.00	0.00	1.00
	C	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	0.59	0.11	1.44	A	11.29	1015.81	86.39	0.09	0.96	86.39	0.09	0.638	28.667
B	0.41	0.08	0.70	A	7.52	677.20	44.13	0.07	0.49	44.13	0.07	0.680	31.352
C	0.81	0.16	4.27	A	22.16	1994.43	218.09	0.11	2.42	218.11	0.11	0.730	33.215

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	9.26	138.90	9.22	12.62	5.62	0.00	24.53	21.67	0.378	0.00	0.60
B	6.17	92.60	6.15	5.81	9.03	0.00	24.84	16.45	0.249	0.00	0.33
C	18.18	272.72	18.10	15.05	0.14	0.00	32.69	32.52	0.556	0.00	1.24

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	11.06	165.86	11.04	15.10	6.73	0.00	23.82	21.67	0.464	0.60	0.86
B	7.37	110.57	7.36	6.95	10.82	0.00	23.61	16.45	0.312	0.33	0.45
C	21.71	325.65	21.66	18.01	0.16	0.00	32.67	32.52	0.665	1.24	1.95

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	13.54	203.14	13.50	18.43	8.21	0.00	22.88	21.67	0.592	0.86	1.43
B	9.03	135.43	9.01	8.49	13.23	0.00	21.95	16.45	0.411	0.45	0.69
C	26.59	398.84	26.44	22.04	0.20	0.00	32.64	32.52	0.815	1.95	4.16

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	13.54	203.14	13.54	18.53	8.26	0.00	22.85	21.67	0.593	1.43	1.44
B	9.03	135.43	9.03	8.53	13.27	0.00	21.93	16.45	0.412	0.69	0.70
C	26.59	398.84	26.58	22.09	0.20	0.00	32.64	32.52	0.815	4.16	4.27

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	11.06	165.86	11.10	15.24	6.79	0.00	23.78	21.67	0.465	1.44	0.88

B	7.37	110.57	7.39	7.01	10.87	0.00	23.58	16.45	0.313	0.70	0.46
C	21.71	325.65	21.86	18.09	0.17	0.00	32.67	32.52	0.665	4.27	2.02

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	9.26	138.90	9.28	12.71	5.66	0.00	24.50	21.67	0.378	0.88	0.61
B	6.17	92.60	6.18	5.85	9.09	0.00	24.80	16.45	0.249	0.46	0.33
C	18.18	272.72	18.23	15.13	0.14	0.00	32.69	32.52	0.556	2.02	1.27

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	8.79	0.59	0.065	A	A
B	4.84	0.32	0.053	A	A
C	17.96	1.20	0.068	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	12.56	0.84	0.078	A	A
B	6.65	0.44	0.061	A	A
C	28.09	1.87	0.090	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	20.56	1.37	0.106	A	A
B	10.14	0.68	0.077	A	A
C	57.16	3.81	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	21.54	1.44	0.107	A	A
B	10.42	0.69	0.077	A	A
C	63.44	4.23	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	13.56	0.90	0.079	A	A
B	7.01	0.47	0.062	A	A
C	31.86	2.12	0.094	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	9.38	0.63	0.066	A	A
B	5.07	0.34	0.054	A	A
C	19.58	1.31	0.069	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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	9.26	24.53	0.378	0.00	0.00	0.60	8.79	(0.00)	0.065
16:45-17:00	B	6.17	24.84	0.249	0.00	0.00	0.33	4.84	(0.00)	0.053
16:45-17:00	C	18.18	32.69	0.556	0.00	0.00	1.24	17.96	(0.00)	0.068
17:00-17:15	A	11.06	23.82	0.464	0.00	0.60	0.86	12.56	(0.00)	0.078
17:00-17:15	B	7.37	23.61	0.312	0.00	0.33	0.45	6.65	(0.00)	0.061
17:00-17:15	C	21.71	32.67	0.665	0.00	1.24	1.95	28.09	(0.00)	0.090
17:15-17:30	A	13.54	22.88	0.592	0.00	0.86	1.43	20.56	(0.00)	0.106
17:15-17:30	B	9.03	21.95	0.411	0.00	0.45	0.69	10.14	(0.00)	0.077
17:15-17:30	C	26.59	32.64	0.815	0.00	1.95	4.16	57.16	(0.00)	0.158
17:30-17:45	A	13.54	22.85	0.593	0.00	1.43	1.44	21.54	(0.00)	0.107
17:30-17:45	B	9.03	21.93	0.412	0.00	0.69	0.70	10.42	(0.00)	0.077
17:30-17:45	C	26.59	32.64	0.815	0.00	4.16	4.27	63.44	(0.00)	0.165
17:45-18:00	A	11.06	23.78	0.465	0.00	1.44	0.88	13.56	(0.00)	0.079
17:45-18:00	B	7.37	23.58	0.313	0.00	0.70	0.46	7.01	(0.00)	0.062
17:45-18:00	C	21.71	32.67	0.665	0.00	4.27	2.02	31.86	(0.00)	0.094
18:00-18:15	A	9.26	24.50	0.378	0.00	0.88	0.61	9.38	(0.00)	0.066
18:00-18:15	B	6.17	24.80	0.249	0.00	0.46	0.33	5.07	(0.00)	0.054
18:00-18:15	C	18.18	32.69	0.556	0.00	2.02	1.27	19.58	(0.00)	0.069

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\J3 Wales Airport Hotel RBT\Rev A\Import of J3 Wales Airport RBT AM Peak Rev A.arc7
Report generation date: 04/01/2011 14:16:53

« A1 - (Default Analysis Set) - D3 - Base 2015 + 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
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units AM Peak			
Arm A	1.61	0.11	0.62	A
Arm B	0.71	0.08	0.42	A
Arm C	0.72	0.05	0.42	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	3.35	0.18	0.77	B
Arm B	0.80	0.10	0.45	A
Arm C	0.81	0.06	0.45	A
	(Default Analysis Set) - Base 2015 + Comm Dev			
Arm A	1.48	0.10	0.60	A
Arm B	0.69	0.08	0.41	A
Arm C	0.64	0.05	0.39	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
Base 2015 + Comm Dev - AM runs from 08:00:00 to 09:00:00

File summary

File Description

Title	J3 -Wales Airport RBT - AM Peak
Location	Rhoose
Date	10/12/2010
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 - Base 2015 + 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.
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
Base 2015 + Comm Dev, AM	Base 2015 + 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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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		14.77	100.000	1.00
B	FLAT		8.73	100.000	1.00
C	FLAT		12.48	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	14.77	14.93	N/A	N/A
08:00-08:15	B	8.73	8.74	N/A	N/A
08:00-08:15	C	12.48	12.95	N/A	N/A
08:15-08:30	A	14.77	14.93	N/A	N/A
08:15-08:30	B	8.73	8.74	N/A	N/A
08:15-08:30	C	12.48	12.95	N/A	N/A
08:30-08:45	A	14.77	14.93	N/A	N/A
08:30-08:45	B	8.73	8.74	N/A	N/A
08:30-08:45	C	12.48	12.95	N/A	N/A
08:45-09:00	A	14.77	14.93	N/A	N/A
08:45-09:00	B	8.73	8.74	N/A	N/A
08:45-09:00	C	12.48	12.95	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	11.00	875.00
	B	7.00	0.00	517.00
	C	423.00	326.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.01	0.99
	B	0.01	0.00	0.99
	C	0.56	0.44	0.00

Vehicle Mix

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

		To		
		A	B	C
From	A	1.00	1.10	1.01
	B	1.05	1.00	1.00
	C	1.02	1.06	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	10.00	1.00
	B	5.00	0.00	0.00
	C	2.00	6.00	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	0.60	0.10	1.48	A	14.77	886.20	87.10	0.10	1.45	87.14	0.10	0.638	28.667
B	0.41	0.08	0.69	A	8.73	523.80	40.99	0.08	0.68	41.00	0.08	0.680	31.352
C	0.39	0.05	0.64	A	12.48	748.80	38.15	0.05	0.64	38.16	0.05	0.730	33.215

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	14.77	221.55	14.67	7.14	5.41	0.00	24.73	19.09	0.597	0.00	1.46
B	8.73	130.95	8.68	5.60	14.49	0.00	21.38	18.38	0.408	0.00	0.68
C	12.48	187.20	12.44	23.06	0.12	0.00	31.93	31.84	0.391	0.00	0.64

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	14.77	221.55	14.77	7.16	5.43	0.00	24.72	19.09	0.597	1.46	1.47
B	8.73	130.95	8.73	5.62	14.59	0.00	21.31	18.38	0.410	0.68	0.69
C	12.48	187.20	12.48	23.20	0.12	0.00	31.93	31.84	0.391	0.64	0.64

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	14.77	221.55	14.77	7.16	5.43	0.00	24.72	19.09	0.597	1.47	1.48
B	8.73	130.95	8.73	5.62	14.59	0.00	21.31	18.38	0.410	0.69	0.69
C	12.48	187.20	12.48	23.20	0.12	0.00	31.93	31.84	0.391	0.64	0.64

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	14.77	221.55	14.77	7.16	5.43	0.00	24.72	19.09	0.597	1.48	1.48
B	8.73	130.95	8.73	5.62	14.59	0.00	21.31	18.38	0.410	0.69	0.69
C	12.48	187.20	12.48	23.20	0.12	0.00	31.93	31.84	0.391	0.64	0.64

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	20.83	1.39	0.098	A	A
B	9.93	0.66	0.078	A	A
C	9.35	0.62	0.051	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	22.00	1.47	0.100	A	A

B	10.32	0.69	0.079	A	A
C	9.59	0.64	0.051	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	22.11	1.47	0.100	A	A
B	10.36	0.69	0.079	A	A
C	9.60	0.64	0.051	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	22.16	1.48	0.100	A	A
B	10.38	0.69	0.079	A	A
C	9.61	0.64	0.051	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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**	14.77	24.73	0.597	0.00	0.00	1.46	20.83	(0.00)	0.098
08:00-08:15	**B**	8.73	21.38	0.408	0.00	0.00	0.68	9.93	(0.00)	0.078
08:00-08:15	**C**	12.48	31.93	0.391	0.00	0.00	0.64	9.35	(0.00)	0.051
08:15-08:30	**A**	14.77	24.72	0.597	0.00	1.46	1.47	22.00	(0.00)	0.100
08:15-08:30	**B**	8.73	21.31	0.410	0.00	0.68	0.69	10.32	(0.00)	0.079
08:15-08:30	**C**	12.48	31.93	0.391	0.00	0.64	0.64	9.59	(0.00)	0.051
08:30-08:45	**A**	14.77	24.72	0.597	0.00	1.47	1.48	22.11	(0.00)	0.100
08:30-08:45	**B**	8.73	21.31	0.410	0.00	0.69	0.69	10.36	(0.00)	0.079
08:30-08:45	**C**	12.48	31.93	0.391	0.00	0.64	0.64	9.60	(0.00)	0.051
08:45-09:00	**A**	14.77	24.72	0.597	0.00	1.48	1.48	22.16	(0.00)	0.100
08:45-09:00	**B**	8.73	21.31	0.410	0.00	0.69	0.69	10.38	(0.00)	0.079
08:45-09:00	**C**	12.48	31.93	0.391	0.00	0.64	0.64	9.61	(0.00)	0.051

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\J3 Wales Airport Hotel RBT\Rev A\Import of J3 Wales Airport RBT PM Peak Rev A.arc7
Report generation date: 04/01/2011 14:19:17

« A1 - (Default Analysis Set) - D3 - 2015 + 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
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Summary of roundabout performance

	PM			
	Queue (Veh)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2015 + Comm Dev			
Arm A	0.62	0.07	0.38	A
Arm B	0.48	0.06	0.33	A
Arm C	1.35	0.07	0.58	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 350 units PM Peak			
Arm A	0.83	0.08	0.46	A
Arm B	0.52	0.06	0.34	A
Arm C	1.90	0.09	0.66	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.11	0.09	0.53	A
Arm B	0.56	0.07	0.36	A
Arm C	2.76	0.12	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 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 + Comm Dev - PM runs from 17:00:00 to 18:00:00

File summary

File Description

Title	J3 -Wales Airport RBT - PM Peak
Location	Rhoose
Date	10/12/2010
Jobnumber	FMW0408
Enumerator	NH
Description	Rev A for TA

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 + 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.
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 + Comm Dev, PM	2015 + 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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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		8.92	100.000	1.00
B	FLAT		8.20	100.000	1.00
C	FLAT		18.77	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	8.92	9.09	N/A	N/A
17:00-17:15	B	8.20	8.28	N/A	N/A
17:00-17:15	C	18.77	19.03	N/A	N/A
17:15-17:30	A	8.92	9.09	N/A	N/A
17:15-17:30	B	8.20	8.28	N/A	N/A
17:15-17:30	C	18.77	19.03	N/A	N/A
17:30-17:45	A	8.92	9.09	N/A	N/A
17:30-17:45	B	8.20	8.28	N/A	N/A
17:30-17:45	C	18.77	19.03	N/A	N/A
17:45-18:00	A	8.92	9.09	N/A	N/A
17:45-18:00	B	8.20	8.28	N/A	N/A
17:45-18:00	C	18.77	19.03	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	15.00	520.00
	B	11.00	0.00	481.00
	C	676.00	450.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.03	0.97
	B	0.02	0.00	0.98
	C	0.60	0.40	0.00

Vehicle Mix

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

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

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	2.00
	B	0.00	0.00	1.00
	C	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	0.38	0.07	0.62	A	8.92	535.20	36.68	0.07	0.61	36.69	0.07	0.638	28.667
B	0.33	0.06	0.48	A	8.20	492.00	28.84	0.06	0.48	28.84	0.06	0.680	31.352
C	0.58	0.07	1.35	A	18.77	1126.20	80.00	0.07	1.33	80.03	0.07	0.730	33.215

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	8.92	133.80	8.88	11.40	7.47	0.00	23.36	19.84	0.382	0.00	0.61
B	8.20	123.00	8.17	7.71	8.63	0.00	25.12	17.79	0.326	0.00	0.48
C	18.77	281.55	18.68	16.62	0.18	0.00	32.63	32.47	0.575	0.00	1.34

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	8.92	133.80	8.92	11.45	7.50	0.00	23.33	19.84	0.382	0.61	0.62
B	8.20	123.00	8.20	7.75	8.67	0.00	25.09	17.79	0.327	0.48	0.48
C	18.77	281.55	18.77	16.69	0.18	0.00	32.62	32.47	0.575	1.34	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	8.92	133.80	8.92	11.45	7.50	0.00	23.33	19.84	0.382	0.62	0.62
B	8.20	123.00	8.20	7.75	8.67	0.00	25.09	17.79	0.327	0.48	0.48
C	18.77	281.55	18.77	16.69	0.18	0.00	32.62	32.47	0.575	1.35	1.35

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	8.92	133.80	8.92	11.45	7.50	0.00	23.33	19.84	0.382	0.62	0.62
B	8.20	123.00	8.20	7.75	8.67	0.00	25.09	17.79	0.327	0.48	0.48
C	18.77	281.55	18.77	16.69	0.18	0.00	32.62	32.47	0.575	1.35	1.35

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	8.94	0.60	0.069	A	A
B	7.06	0.47	0.059	A	A
C	19.35	1.29	0.071	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	9.23	0.62	0.069	A	A

B	7.25	0.48	0.059	A	A
C	20.16	1.34	0.072	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	9.25	0.62	0.069	A	A
B	7.26	0.48	0.059	A	A
C	20.23	1.35	0.072	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	9.26	0.62	0.069	A	A
B	7.27	0.48	0.059	A	A
C	20.26	1.35	0.072	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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**	8.92	23.36	0.382	0.00	0.00	0.61	8.94	(0.00)	0.069
17:00-17:15	**B**	8.20	25.12	0.326	0.00	0.00	0.48	7.06	(0.00)	0.059
17:00-17:15	**C**	18.77	32.63	0.575	0.00	0.00	1.34	19.35	(0.00)	0.071
17:15-17:30	**A**	8.92	23.33	0.382	0.00	0.61	0.62	9.23	(0.00)	0.069
17:15-17:30	**B**	8.20	25.09	0.327	0.00	0.48	0.48	7.25	(0.00)	0.059
17:15-17:30	**C**	18.77	32.62	0.575	0.00	1.34	1.35	20.16	(0.00)	0.072
17:30-17:45	**A**	8.92	23.33	0.382	0.00	0.62	0.62	9.25	(0.00)	0.069
17:30-17:45	**B**	8.20	25.09	0.327	0.00	0.48	0.48	7.26	(0.00)	0.059
17:30-17:45	**C**	18.77	32.62	0.575	0.00	1.35	1.35	20.23	(0.00)	0.072
17:45-18:00	**A**	8.92	23.33	0.382	0.00	0.62	0.62	9.26	(0.00)	0.069
17:45-18:00	**B**	8.20	25.09	0.327	0.00	0.48	0.48	7.27	(0.00)	0.059
17:45-18:00	**C**	18.77	32.62	0.575	0.00	1.35	1.35	20.26	(0.00)	0.072

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\J3 Wales Airport Hotel RBT\Rev A\Import of J3 Wales Airport RBT AM Peak Rev A.arc7
Report generation date: 13/12/2010 10:40:52

« A1 - (Default Analysis Set) - D1 - 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	1.61	0.11	0.62	A
Arm B	0.71	0.08	0.42	A
Arm C	0.72	0.05	0.42	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	5.82	0.31	0.86	C
Arm B	0.80	0.10	0.45	A
Arm C	2.98	0.13	0.75	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	J3 -Wales Airport RBT - AM Peak
Location	Rhoose
Site Number	
Date	10/12/2010
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) - D1 - 2015 Base + Comm Dev + 350 units AM Peak, 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
(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	Varies by Arm

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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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	DIRECT			100.000	1.00
B	DIRECT			100.000	1.00

C	DIRECT			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	15.28	15.45	N/A	N/A
08:00-08:15	B	8.73	8.74	N/A	N/A
08:00-08:15	C	13.40	13.89	N/A	N/A
08:15-08:30	A	15.28	15.45	N/A	N/A
08:15-08:30	B	8.73	8.74	N/A	N/A
08:15-08:30	C	13.40	13.89	N/A	N/A
08:30-08:45	A	15.28	15.45	N/A	N/A
08:30-08:45	B	8.73	8.74	N/A	N/A
08:30-08:45	C	13.40	13.89	N/A	N/A
08:45-09:00	A	15.28	15.45	N/A	N/A
08:45-09:00	B	8.73	8.74	N/A	N/A
08:45-09:00	C	13.40	13.89	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	11.00	906.00
	B	7.00	0.00	517.00
	C	478.00	326.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.01	0.99
	B	0.01	0.00	0.99
	C	0.59	0.41	0.00

Vehicle Mix

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

		To		
		A	B	C
From	A	1.00	1.10	1.01
	B	1.05	1.00	1.00
	C	1.02	1.06	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	10.00	1.00
	B	5.00	0.00	0.00

	C	2.00	6.00	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	0.62	0.11	1.61	A	15.28	916.80	94.79	0.10	1.58	94.84	0.10	0.638	28.667
B	0.42	0.08	0.71	A	8.73	523.80	42.14	0.08	0.70	42.15	0.08	0.680	31.352
C	0.42	0.05	0.72	A	13.40	804.00	42.88	0.05	0.71	42.89	0.05	0.730	33.215

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	15.28	229.20	15.17	8.05	5.41	0.00	24.73	19.71	0.618	0.00	1.59
B	8.73	130.95	8.68	5.60	14.99	0.00	21.03	17.96	0.415	0.00	0.70
C	13.40	201.00	13.35	23.56	0.12	0.00	31.97	31.88	0.419	0.00	0.72

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	15.28	229.20	15.28	8.08	5.43	0.00	24.72	19.71	0.618	1.59	1.60
B	8.73	130.95	8.73	5.62	15.10	0.00	20.96	17.96	0.416	0.70	0.71
C	13.40	201.00	13.40	23.71	0.12	0.00	31.97	31.88	0.419	0.72	0.72

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	15.28	229.20	15.28	8.08	5.43	0.00	24.72	19.71	0.618	1.60	1.61
B	8.73	130.95	8.73	5.62	15.10	0.00	20.96	17.96	0.416	0.71	0.71
C	13.40	201.00	13.40	23.71	0.12	0.00	31.97	31.88	0.419	0.72	0.72

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	15.28	229.20	15.28	8.08	5.43	0.00	24.72	19.71	0.618	1.61	1.61
B	8.73	130.95	8.73	5.62	15.10	0.00	20.96	17.96	0.416	0.71	0.71
C	13.40	201.00	13.40	23.71	0.12	0.00	31.97	31.88	0.419	0.72	0.72

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	22.59	1.51	0.103	A	A
B	10.20	0.68	0.081	A	A
C	10.50	0.70	0.054	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	23.96	1.60	0.106	A	A
B	10.61	0.71	0.082	A	A
C	10.78	0.72	0.054	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	24.09	1.61	0.106	A	A
B	10.66	0.71	0.082	A	A
C	10.80	0.72	0.054	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	24.15	1.61	0.106	A	A
B	10.67	0.71	0.082	A	A
C	10.81	0.72	0.054	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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	15.28	24.73	0.618	0.00	0.00	1.59	22.59	(0.00)	0.103
08:00-08:15	B	8.73	21.03	0.415	0.00	0.00	0.70	10.20	(0.00)	0.081
08:00-08:15	C	13.40	31.97	0.419	0.00	0.00	0.72	10.50	(0.00)	0.054
08:15-08:30	A	15.28	24.72	0.618	0.00	1.59	1.60	23.96	(0.00)	0.106
08:15-08:30	B	8.73	20.96	0.416	0.00	0.70	0.71	10.61	(0.00)	0.082
08:15-08:30	C	13.40	31.97	0.419	0.00	0.72	0.72	10.78	(0.00)	0.054
08:30-08:45	A	15.28	24.72	0.618	0.00	1.60	1.61	24.09	(0.00)	0.106
08:30-08:45	B	8.73	20.96	0.416	0.00	0.71	0.71	10.66	(0.00)	0.082
08:30-08:45	C	13.40	31.97	0.419	0.00	0.72	0.72	10.80	(0.00)	0.054
08:45-09:00	A	15.28	24.72	0.618	0.00	1.61	1.61	24.15	(0.00)	0.106
08:45-09:00	B	8.73	20.96	0.416	0.00	0.71	0.71	10.67	(0.00)	0.082
08:45-09:00	C	13.40	31.97	0.419	0.00	0.72	0.72	10.81	(0.00)	0.054

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\J3 Wales Airport Hotel RBT\Rev A\Import of J3 Wales Airport RBT PM Peak Rev A.arc7
Report generation date: 13/12/2010 10:49:24

« A1 - (Default Analysis Set) - D1 - 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	0.83	0.08	0.46	A
Arm B	0.52	0.06	0.34	A
Arm C	1.90	0.09	0.66	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.11	0.09	0.53	A
Arm B	0.56	0.07	0.36	A
Arm C	2.76	0.12	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 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	J3 -Wales Airport RBT - PM Peak
Location	Rhoose
Site Number	
Date	10/12/2010
Version	
Status	
Identifier	
Client	
Jobnumber	FMW0408
Enumerator	NH

Description	Rev A for TA
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 + Comm Dev + 350 units PM Peak, 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
(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	Varies by Arm

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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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	DIRECT			100.000	1.00
B	DIRECT			100.000	1.00

C	DIRECT			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	10.62	10.83	N/A	N/A
17:00-17:15	B	8.20	8.28	N/A	N/A
17:00-17:15	C	21.40	21.69	N/A	N/A
17:15-17:30	A	10.62	10.83	N/A	N/A
17:15-17:30	B	8.20	8.28	N/A	N/A
17:15-17:30	C	21.40	21.69	N/A	N/A
17:30-17:45	A	10.62	10.83	N/A	N/A
17:30-17:45	B	8.20	8.28	N/A	N/A
17:30-17:45	C	21.40	21.69	N/A	N/A
17:45-18:00	A	10.62	10.83	N/A	N/A
17:45-18:00	B	8.20	8.28	N/A	N/A
17:45-18:00	C	21.40	21.69	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	15.00	622.00
	B	11.00	0.00	481.00
	C	834.00	450.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.02	0.98
	B	0.02	0.00	0.98
	C	0.65	0.35	0.00

Vehicle Mix

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

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

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

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

	C	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	0.46	0.08	0.83	A	10.62	637.20	49.38	0.08	0.82	49.39	0.08	0.638	28.667
B	0.34	0.06	0.52	A	8.20	492.00	30.95	0.06	0.52	30.96	0.06	0.680	31.352
C	0.66	0.09	1.90	A	21.40	1284.01	111.71	0.09	1.86	111.76	0.09	0.730	33.215

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	10.62	159.30	10.56	14.00	7.46	0.00	23.36	20.85	0.455	0.00	0.83
B	8.20	123.00	8.17	7.71	10.32	0.00	23.96	17.05	0.342	0.00	0.52
C	21.40	321.00	21.28	18.30	0.18	0.00	32.64	32.50	0.656	0.00	1.87

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	10.62	159.30	10.62	14.08	7.50	0.00	23.33	20.85	0.455	0.83	0.83
B	8.20	123.00	8.20	7.75	10.37	0.00	23.92	17.05	0.343	0.52	0.52
C	21.40	321.00	21.40	18.39	0.18	0.00	32.64	32.50	0.656	1.87	1.89

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	10.62	159.30	10.62	14.08	7.50	0.00	23.33	20.85	0.455	0.83	0.83
B	8.20	123.00	8.20	7.75	10.37	0.00	23.92	17.05	0.343	0.52	0.52
C	21.40	321.00	21.40	18.39	0.18	0.00	32.64	32.50	0.656	1.89	1.89

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	10.62	159.30	10.62	14.08	7.50	0.00	23.33	20.85	0.455	0.83	0.83
B	8.20	123.00	8.20	7.75	10.37	0.00	23.92	17.05	0.343	0.52	0.52
C	21.40	321.00	21.40	18.39	0.18	0.00	32.64	32.50	0.656	1.89	1.90

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	11.97	0.80	0.078	A	A
B	7.56	0.50	0.063	A	A
C	26.71	1.78	0.087	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	12.44	0.83	0.079	A	A
B	7.78	0.52	0.064	A	A
C	28.22	1.88	0.089	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	12.48	0.83	0.079	A	A
B	7.80	0.52	0.064	A	A
C	28.36	1.89	0.089	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	12.49	0.83	0.079	A	A
B	7.81	0.52	0.064	A	A
C	28.42	1.89	0.089	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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	10.62	23.36	0.455	0.00	0.00	0.83	11.97	(0.00)	0.078
17:00-17:15	B	8.20	23.96	0.342	0.00	0.00	0.52	7.56	(0.00)	0.063
17:00-17:15	C	21.40	32.64	0.656	0.00	0.00	1.87	26.71	(0.00)	0.087
17:15-17:30	A	10.62	23.33	0.455	0.00	0.83	0.83	12.44	(0.00)	0.079
17:15-17:30	B	8.20	23.92	0.343	0.00	0.52	0.52	7.78	(0.00)	0.064
17:15-17:30	C	21.40	32.64	0.656	0.00	1.87	1.89	28.22	(0.00)	0.089
17:30-17:45	A	10.62	23.33	0.455	0.00	0.83	0.83	12.48	(0.00)	0.079
17:30-17:45	B	8.20	23.92	0.343	0.00	0.52	0.52	7.80	(0.00)	0.064
17:30-17:45	C	21.40	32.64	0.656	0.00	1.89	1.89	28.36	(0.00)	0.089
17:45-18:00	A	10.62	23.33	0.455	0.00	0.83	0.83	12.49	(0.00)	0.079
17:45-18:00	B	8.20	23.92	0.343	0.00	0.52	0.52	7.81	(0.00)	0.064
17:45-18:00	C	21.40	32.64	0.656	0.00	1.89	1.90	28.42	(0.00)	0.089

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\J3 Wales Airport Hotel RBT\Rev A\Import of J3 Wales Airport RBT AM Peak Rev A.arc7
Report generation date: 13/12/2010 10:45:02

« A1 - (Default Analysis Set) - D2 - 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	1.61	0.11	0.62	A
Arm B	0.71	0.08	0.42	A
Arm C	0.72	0.05	0.42	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units AM Peak			
Arm A	3.35	0.18	0.77	B
Arm B	0.80	0.10	0.45	A
Arm C	0.81	0.06	0.45	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	J3 -Wales Airport RBT - AM Peak
Location	Rhoose
Site Number	
Date	10/12/2010
Version	
Status	
Identifier	
Client	
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) - D2 - 2015 Base + Comm Dev + 700 units AM Peak, 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
(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	Varies by Arm

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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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	DIRECT			100.000	1.00
B	DIRECT			100.000	1.00

C	DIRECT			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	19.10	19.31	N/A	N/A
08:00-08:15	B	8.20	8.21	N/A	N/A
08:00-08:15	C	14.31	14.81	N/A	N/A
08:15-08:30	A	19.10	19.31	N/A	N/A
08:15-08:30	B	8.20	8.21	N/A	N/A
08:15-08:30	C	14.31	14.81	N/A	N/A
08:30-08:45	A	19.10	19.31	N/A	N/A
08:30-08:45	B	8.20	8.21	N/A	N/A
08:30-08:45	C	14.31	14.81	N/A	N/A
08:45-09:00	A	19.10	19.31	N/A	N/A
08:45-09:00	B	8.20	8.21	N/A	N/A
08:45-09:00	C	14.31	14.81	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	11.00	999.00
	B	7.00	0.00	517.00
	C	533.00	326.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.01	0.99
	B	0.01	0.00	0.99
	C	0.62	0.38	0.00

Vehicle Mix

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

		To		
		A	B	C
From	A	1.00	1.10	1.01
	B	1.05	1.00	1.00
	C	1.02	1.06	1.00

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	B	C
From	A	0.00	10.00	1.00
	B	5.00	0.00	0.00

	C	2.00	6.00	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	0.77	0.18	3.35	B	19.10	1146.00	193.04	0.17	3.22	193.27	0.17	0.638	28.667
B	0.45	0.10	0.80	A	8.20	492.00	47.39	0.10	0.79	47.40	0.10	0.680	31.352
C	0.45	0.06	0.81	A	14.31	858.60	48.01	0.06	0.80	48.02	0.06	0.730	33.215

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	19.10	286.50	18.88	8.95	5.41	0.00	24.74	20.26	0.772	0.00	3.23
B	8.20	123.00	8.15	5.62	18.68	0.00	18.50	17.57	0.443	0.00	0.79
C	14.31	214.65	14.26	26.72	0.11	0.00	32.01	31.91	0.447	0.00	0.80

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	19.10	286.50	19.09	8.99	5.43	0.00	24.72	20.26	0.773	3.23	3.31
B	8.20	123.00	8.20	5.64	18.89	0.00	18.36	17.57	0.447	0.79	0.80
C	14.31	214.65	14.31	26.98	0.11	0.00	32.01	31.91	0.447	0.80	0.81

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	19.10	286.50	19.10	8.99	5.43	0.00	24.72	20.26	0.773	3.31	3.34
B	8.20	123.00	8.20	5.64	18.89	0.00	18.36	17.57	0.447	0.80	0.80
C	14.31	214.65	14.31	26.98	0.11	0.00	32.01	31.91	0.447	0.81	0.81

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	19.10	286.50	19.10	8.99	5.43	0.00	24.72	20.26	0.773	3.34	3.35
B	8.20	123.00	8.20	5.64	18.89	0.00	18.36	17.57	0.447	0.80	0.80
C	14.31	214.65	14.31	26.98	0.11	0.00	32.01	31.91	0.447	0.81	0.81

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	43.81	2.92	0.165	A	A
B	11.35	0.76	0.096	A	A
C	11.74	0.78	0.056	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	49.16	3.28	0.177	B	B
B	11.94	0.80	0.098	A	A
C	12.07	0.80	0.056	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	49.89	3.33	0.177	B	B
B	12.03	0.80	0.098	A	A
C	12.10	0.81	0.056	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	50.19	3.35	0.178	B	B
B	12.06	0.80	0.098	A	A
C	12.11	0.81	0.056	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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	19.10	24.74	0.772	0.00	0.00	3.23	43.81	(0.00)	0.165
08:00-08:15	B	8.20	18.50	0.443	0.00	0.00	0.79	11.35	(0.00)	0.096
08:00-08:15	C	14.31	32.01	0.447	0.00	0.00	0.80	11.74	(0.00)	0.056
08:15-08:30	A	19.10	24.72	0.773	0.00	3.23	3.31	49.16	(0.00)	0.177
08:15-08:30	B	8.20	18.36	0.447	0.00	0.79	0.80	11.94	(0.00)	0.098
08:15-08:30	C	14.31	32.01	0.447	0.00	0.80	0.81	12.07	(0.00)	0.056
08:30-08:45	A	19.10	24.72	0.773	0.00	3.31	3.34	49.89	(0.00)	0.177
08:30-08:45	B	8.20	18.36	0.447	0.00	0.80	0.80	12.03	(0.00)	0.098
08:30-08:45	C	14.31	32.01	0.447	0.00	0.81	0.81	12.10	(0.00)	0.056
08:45-09:00	A	19.10	24.72	0.773	0.00	3.34	3.35	50.19	(0.00)	0.178
08:45-09:00	B	8.20	18.36	0.447	0.00	0.80	0.80	12.06	(0.00)	0.098
08:45-09:00	C	14.31	32.01	0.447	0.00	0.81	0.81	12.11	(0.00)	0.056

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\J3 Wales Airport Hotel RBT\Rev A\Import of J3 Wales Airport RBT PM Peak Rev A.arc7
Report generation date: 13/12/2010 10:49:42

« A1 - (Default Analysis Set) - D2 - 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	0.83	0.08	0.46	A
Arm B	0.52	0.06	0.34	A
Arm C	1.90	0.09	0.66	A
	(Default Analysis Set) - 2015 Base + Comm Dev + 700 units PM Peak			
Arm A	1.11	0.09	0.53	A
Arm B	0.56	0.07	0.36	A
Arm C	2.76	0.12	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 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	J3 -Wales Airport RBT - PM Peak
Location	Rhoose
Site Number	
Date	10/12/2010
Version	
Status	
Identifier	
Client	
Jobnumber	FMW0408
Enumerator	NH

Description	Rev A for TA
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 + Comm Dev + 700 units PM Peak, 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
(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	Varies by Arm

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	Port Road	
B	A4226 (W)	
C	A4226 (E)	

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	4.20	7.00	16.00	30.00	36.00	50.00	
B	3.75	7.00	40.40	26.00	36.00	39.00	
C	3.40	7.00	38.00	60.00	36.00	20.00	

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))	0.638	28.667
B		((calculated))	((calculated))	0.680	31.352
C		((calculated))	((calculated))	0.730	33.215

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	DIRECT			100.000	1.00
B	DIRECT			100.000	1.00

C	DIRECT			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	12.30	12.54	N/A	N/A
17:00-17:15	B	8.20	8.28	N/A	N/A
17:00-17:15	C	24.02	24.33	N/A	N/A
17:15-17:30	A	12.30	12.54	N/A	N/A
17:15-17:30	B	8.20	8.28	N/A	N/A
17:15-17:30	C	24.02	24.33	N/A	N/A
17:30-17:45	A	12.30	12.54	N/A	N/A
17:30-17:45	B	8.20	8.28	N/A	N/A
17:30-17:45	C	24.02	24.33	N/A	N/A
17:45-18:00	A	12.30	12.54	N/A	N/A
17:45-18:00	B	8.20	8.28	N/A	N/A
17:45-18:00	C	24.02	24.33	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	15.00	723.00
	B	11.00	0.00	481.00
	C	999.00	450.00	0.00

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

		To		
		A	B	C
From	A	0.00	0.02	0.98
	B	0.02	0.00	0.98
	C	0.69	0.31	0.00

Vehicle Mix

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

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

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

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

	C	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	0.53	0.09	1.11	A	12.30	738.00	65.49	0.09	1.09	65.52	0.09	0.638	28.667
B	0.36	0.07	0.56	A	8.20	492.00	33.36	0.07	0.56	33.37	0.07	0.680	31.352
C	0.74	0.12	2.76	A	24.02	1441.19	161.36	0.11	2.69	161.48	0.11	0.730	33.215

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	12.30	184.50	12.23	16.62	7.40	0.00	23.39	21.67	0.526	0.00	1.10
B	8.20	123.00	8.16	7.65	11.98	0.00	22.82	16.45	0.359	0.00	0.56
C	24.02	360.30	23.84	19.96	0.18	0.00	32.65	32.52	0.736	0.00	2.70

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	12.30	184.50	12.30	16.74	7.46	0.00	23.36	21.67	0.527	1.10	1.10
B	8.20	123.00	8.20	7.71	12.05	0.00	22.77	16.45	0.360	0.56	0.56
C	24.02	360.30	24.02	20.07	0.18	0.00	32.65	32.52	0.736	2.70	2.74

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	12.30	184.50	12.30	16.74	7.46	0.00	23.36	21.67	0.527	1.10	1.11
B	8.20	123.00	8.20	7.71	12.05	0.00	22.77	16.45	0.360	0.56	0.56
C	24.02	360.30	24.02	20.07	0.18	0.00	32.65	32.52	0.736	2.74	2.76

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	12.30	184.50	12.30	16.74	7.46	0.00	23.36	21.67	0.527	1.11	1.11
B	8.20	123.00	8.20	7.71	12.05	0.00	22.77	16.45	0.360	0.56	0.56
C	24.02	360.30	24.02	20.07	0.18	0.00	32.65	32.52	0.736	2.76	2.76

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	15.76	1.05	0.089	A	A
B	8.13	0.54	0.068	A	A
C	37.81	2.52	0.111	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	16.52	1.10	0.090	A	A
B	8.39	0.56	0.069	A	A
C	40.92	2.73	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	16.59	1.11	0.090	A	A
B	8.42	0.56	0.069	A	A
C	41.25	2.75	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	16.62	1.11	0.090	A	A
B	8.43	0.56	0.069	A	A
C	41.39	2.76	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	4.20	7.00	16.00	30.00	36.00	50.00		0.638	28.667
B	3.75	7.00	40.40	26.00	36.00	39.00		0.680	31.352
C	3.40	7.00	38.00	60.00	36.00	20.00		0.730	33.215

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	12.30	23.39	0.526	0.00	0.00	1.10	15.76	(0.00)	0.089
17:00-17:15	B	8.20	22.82	0.359	0.00	0.00	0.56	8.13	(0.00)	0.068
17:00-17:15	C	24.02	32.65	0.736	0.00	0.00	2.70	37.81	(0.00)	0.111
17:15-17:30	A	12.30	23.36	0.527	0.00	1.10	1.10	16.52	(0.00)	0.090
17:15-17:30	B	8.20	22.77	0.360	0.00	0.56	0.56	8.39	(0.00)	0.069
17:15-17:30	C	24.02	32.65	0.736	0.00	2.70	2.74	40.92	(0.00)	0.116
17:30-17:45	A	12.30	23.36	0.527	0.00	1.10	1.11	16.59	(0.00)	0.090
17:30-17:45	B	8.20	22.77	0.360	0.00	0.56	0.56	8.42	(0.00)	0.069
17:30-17:45	C	24.02	32.65	0.736	0.00	2.74	2.76	41.25	(0.00)	0.116
17:45-18:00	A	12.30	23.36	0.527	0.00	1.11	1.11	16.62	(0.00)	0.090
17:45-18:00	B	8.20	22.77	0.360	0.00	0.56	0.56	8.43	(0.00)	0.069
17:45-18:00	C	24.02	32.65	0.736	0.00	2.76	2.76	41.39	(0.00)	0.116

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\ODTAB\Import of J6 Barry Docks Link RBT AM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:47:34

« 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	2.60	0.15	0.73	A
Arm B	11.36	0.48	0.93	D
Arm C	4.51	0.21	0.82	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 + 350 units Dev AM - AM runs from 07:45:00 to 09:15:00
2015 Base Flows + Comm + 700 units Dev AM - AM runs from 07:45:00 to 09:15:00
2015 Base Flows + Comm Dev - 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	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			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	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	ONE HOUR		15.47	100.000	N/A
B	ONE HOUR		20.13	100.000	N/A
C	ONE HOUR		19.75	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)
07:45-08:00	**A**	11.65	12.43	N/A	N/A
07:45-08:00	**B**	15.15	15.56	N/A	N/A
07:45-08:00	**C**	14.87	15.81	N/A	N/A

08:00-08:15	**A**	13.91	14.85	N/A	N/A
08:00-08:15	**B**	18.10	18.58	N/A	N/A
08:00-08:15	**C**	17.75	18.88	N/A	N/A
08:15-08:30	**A**	17.03	18.18	N/A	N/A
08:15-08:30	**B**	22.16	22.76	N/A	N/A
08:15-08:30	**C**	21.75	23.13	N/A	N/A
08:30-08:45	**A**	17.03	18.18	N/A	N/A
08:30-08:45	**B**	22.16	22.76	N/A	N/A
08:30-08:45	**C**	21.75	23.13	N/A	N/A
08:45-09:00	**A**	13.91	14.85	N/A	N/A
08:45-09:00	**B**	18.10	18.58	N/A	N/A
08:45-09:00	**C**	17.75	18.88	N/A	N/A
09:00-09:15	**A**	11.65	12.43	N/A	N/A
09:00-09:15	**B**	15.15	15.56	N/A	N/A
09:00-09:15	**C**	14.87	15.81	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	0.66	0.12	1.94	A	14.20	1277.60	109.60	0.09	1.22	109.61	0.09	0.741	35.242
B	0.83	0.22	4.62	B	18.47	1662.45	211.77	0.13	2.35	211.79	0.13	0.772	37.260
C	0.79	0.17	3.66	B	18.12	1631.06	184.58	0.11	2.05	184.59	0.11	0.735	34.737

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	11.65	174.70	11.60	13.11	6.64	0.00	28.03	23.81	0.416	0.00	0.71
B	15.15	227.32	15.09	10.26	7.99	0.00	29.81	22.98	0.508	0.00	1.02
C	14.87	223.03	14.80	18.12	4.96	0.00	29.17	27.34	0.510	0.00	1.03

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	13.91	208.61	13.88	15.69	7.95	0.00	27.05	23.81	0.514	0.71	1.05
B	18.10	271.45	18.05	12.28	9.56	0.00	28.53	22.98	0.634	1.02	1.71
C	17.75	266.32	17.71	21.68	5.93	0.00	28.48	27.34	0.623	1.03	1.63

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	17.03	255.49	16.98	19.14	9.70	0.00	25.74	23.81	0.662	1.05	1.92
B	22.16	332.45	21.98	14.99	11.69	0.00	26.80	22.98	0.827	1.71	4.44
C	21.75	326.18	21.62	26.45	7.22	0.00	27.57	27.34	0.789	1.63	3.55

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	17.03	255.49	17.03	19.26	9.76	0.00	25.70	23.81	0.663	1.92	1.94
B	22.16	332.45	22.15	15.06	11.73	0.00	26.77	22.98	0.828	4.44	4.62
C	21.75	326.18	21.74	26.60	7.28	0.00	27.53	27.34	0.790	3.55	3.66

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	13.91	208.61	13.97	15.87	8.03	0.00	26.99	23.81	0.515	1.94	1.07
B	18.10	271.45	18.29	12.38	9.62	0.00	28.48	22.98	0.635	4.62	1.77
C	17.75	266.32	17.89	21.89	6.01	0.00	28.43	27.34	0.625	3.66	1.69

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	11.65	174.70	11.67	13.21	6.69	0.00	27.99	23.81	0.416	1.07	0.72
B	15.15	227.32	15.20	10.33	8.04	0.00	29.77	22.98	0.509	1.77	1.05
C	14.87	223.03	14.91	18.24	5.00	0.00	29.14	27.34	0.510	1.69	1.05

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	10.31	0.69	0.061	A	A
B	14.88	0.99	0.068	A	A
C	14.94	1.00	0.069	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	15.30	1.02	0.076	A	A
B	24.59	1.64	0.095	A	A
C	23.55	1.57	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	27.36	1.82	0.113	A	A
B	59.58	3.97	0.200	B	B
C	48.94	3.26	0.165	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	28.98	1.93	0.115	A	A
B	68.22	4.55	0.215	B	B
C	54.24	3.62	0.172	B	B

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	16.65	1.11	0.077	A	A
B	28.34	1.89	0.100	A	A
C	26.67	1.78	0.096	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	11.00	0.73	0.061	A	A
B	16.17	1.08	0.069	A	A
C	16.24	1.08	0.070	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	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)
07:45-08:00	**A**	11.65	28.03	0.416	0.00	0.00	0.71	10.31	(0.00)	0.061
07:45-08:00	**B**	15.15	29.81	0.508	0.00	0.00	1.02	14.88	(0.00)	0.068
07:45-08:00	**C**	14.87	29.17	0.510	0.00	0.00	1.03	14.94	(0.00)	0.069
08:00-08:15	**A**	13.91	27.05	0.514	0.00	0.71	1.05	15.30	(0.00)	0.076
08:00-08:15	**B**	18.10	28.53	0.634	0.00	1.02	1.71	24.59	(0.00)	0.095
08:00-08:15	**C**	17.75	28.48	0.623	0.00	1.03	1.63	23.55	(0.00)	0.093
08:15-08:30	**A**	17.03	25.74	0.662	0.00	1.05	1.92	27.36	(0.00)	0.113
08:15-08:30	**B**	22.16	26.80	0.827	0.00	1.71	4.44	59.58	(0.00)	0.200
08:15-08:30	**C**	21.75	27.57	0.789	0.00	1.63	3.55	48.94	(0.00)	0.165
08:30-08:45	**A**	17.03	25.70	0.663	0.00	1.92	1.94	28.98	(0.00)	0.115
08:30-08:45	**B**	22.16	26.77	0.828	0.00	4.44	4.62	68.22	(0.00)	0.215
08:30-08:45	**C**	21.75	27.53	0.790	0.00	3.55	3.66	54.24	(0.00)	0.172
08:45-09:00	**A**	13.91	26.99	0.515	0.00	1.94	1.07	16.65	(0.00)	0.077
08:45-09:00	**B**	18.10	28.48	0.635	0.00	4.62	1.77	28.34	(0.00)	0.100
08:45-09:00	**C**	17.75	28.43	0.625	0.00	3.66	1.69	26.67	(0.00)	0.096
09:00-09:15	**A**	11.65	27.99	0.416	0.00	1.07	0.72	11.00	(0.00)	0.061
09:00-09:15	**B**	15.15	29.77	0.509	0.00	1.77	1.05	16.17	(0.00)	0.069
09:00-09:15	**C**	14.87	29.14	0.510	0.00	1.69	1.05	16.24	(0.00)	0.070

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\ODTAB\Import of J6 Barry Docks Link RBT PM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:29:50

« A1 - Barry Docks Link Roundabout - PM Peak - D5 - 2015 Base Flows + Comm Dev, 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	4.38	0.25	0.82	C
Arm B	5.21	0.28	0.85	C
Arm C	59.78	1.75	1.05	F
	Barry Docks Link Roundabout - PM Peak - 2015 Base Flows + Comm Dev + 700 units			
Arm A	6.34	0.36	0.87	C
Arm B	7.36	0.37	0.89	C
Arm C	102.85	2.81	1.10	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 16:45:00 to 18:15:00
2015 Base Flows + Comm Dev + 700 units - PM runs from 16:45:00 to 18:15:00
2015 Base Flows + Comm Dev - 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	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 - 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						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	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	ONE HOUR		15.83	100.000	N/A
B	ONE HOUR		16.68	100.000	N/A
C	ONE HOUR		26.90	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	11.92	12.32	N/A	N/A
16:45-17:00	B	12.56	12.72	N/A	N/A
16:45-17:00	C	20.25	20.83	N/A	N/A
17:00-17:15	A	14.23	14.71	N/A	N/A
17:00-17:15	B	14.99	15.19	N/A	N/A
17:00-17:15	C	24.18	24.87	N/A	N/A
17:15-17:30	A	17.43	18.02	N/A	N/A
17:15-17:30	B	18.37	18.60	N/A	N/A
17:15-17:30	C	29.62	30.46	N/A	N/A
17:30-17:45	A	17.43	18.02	N/A	N/A
17:30-17:45	B	18.37	18.60	N/A	N/A
17:30-17:45	C	29.62	30.46	N/A	N/A
17:45-18:00	A	14.23	14.71	N/A	N/A
17:45-18:00	B	14.99	15.19	N/A	N/A
17:45-18:00	C	24.18	24.87	N/A	N/A
18:00-18:15	A	11.92	12.32	N/A	N/A
18:00-18:15	B	12.56	12.72	N/A	N/A
18:00-18:15	C	20.25	20.83	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	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	0.80	0.22	3.74	B	14.53	1307.33	174.35	0.13	1.94	174.37	0.13	0.741	35.242
B	0.79	0.20	3.56	B	15.31	1377.52	173.14	0.13	1.92	173.15	0.13	0.714	32.484
C	0.99	0.89	26.13	F	24.68	2221.55	758.44	0.34	8.43	758.50	0.34	0.735	34.737

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	11.92	178.76	11.86	12.26	11.52	0.00	25.66	21.84	0.464	0.00	0.86
B	12.56	188.36	12.50	15.37	8.02	0.00	26.14	21.15	0.480	0.00	0.92
C	20.25	303.78	20.13	16.85	3.66	0.00	31.11	29.26	0.651	0.00	1.83

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	14.23	213.46	14.19	14.67	13.78	0.00	24.02	21.84	0.593	0.86	1.43
B	14.99	224.92	14.96	18.38	9.59	0.00	24.97	21.15	0.600	0.92	1.48
C	24.18	362.74	24.06	20.17	4.38	0.00	30.58	29.26	0.791	1.83	3.61

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	17.43	261.44	17.29	17.56	16.37	0.00	22.12	21.84	0.788	1.43	3.49
B	18.36	275.47	18.23	21.97	11.69	0.00	23.42	21.15	0.784	1.48	3.43
C	29.62	444.26	28.59	24.58	5.34	0.00	29.88	29.26	0.991	3.61	19.08

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	17.43	261.44	17.41	17.83	16.69	0.00	21.89	21.84	0.796	3.49	3.74
B	18.36	275.47	18.36	22.33	11.77	0.00	23.36	21.15	0.786	3.43	3.56
C	29.62	444.26	29.15	24.75	5.37	0.00	29.85	29.26	0.992	19.08	26.13

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	14.23	213.46	14.37	15.40	14.69	0.00	23.35	21.84	0.609	3.74	1.59
B	14.99	224.92	15.13	19.35	9.71	0.00	24.88	21.15	0.603	3.56	1.54
C	24.18	362.74	25.66	20.41	4.43	0.00	30.54	29.26	0.792	26.13	4.03

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	11.92	178.76	11.96	12.41	11.68	0.00	25.55	21.84	0.466	1.59	0.88
B	12.56	188.36	12.60	15.55	8.09	0.00	26.09	21.15	0.481	1.54	0.94
C	20.25	303.78	20.39	17.00	3.69	0.00	31.08	29.26	0.652	4.03	1.90

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	12.48	0.83	0.072	A	A
B	13.29	0.89	0.073	A	A
C	26.14	1.74	0.090	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	20.65	1.38	0.101	A	A
B	21.35	1.42	0.099	A	A
C	50.09	3.34	0.151	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	47.50	3.17	0.201	B	B
B	46.95	3.13	0.188	B	B
C	199.30	13.29	0.547	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	54.79	3.65	0.222	B	B
B	52.65	3.51	0.199	B	B
C	342.67	22.84	0.894	F	D

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	25.30	1.69	0.113	A	A
B	24.42	1.63	0.104	A	A
C	110.23	7.35	0.260	C	B

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	13.63	0.91	0.074	A	A
B	14.47	0.96	0.074	A	A
C	30.02	2.00	0.095	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	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**	11.92	25.66	0.464	0.00	0.00	0.86	12.48	(0.00)	0.072
16:45-17:00	**B**	12.56	26.14	0.480	0.00	0.00	0.92	13.29	(0.00)	0.073
16:45-17:00	**C**	20.25	31.11	0.651	0.00	0.00	1.83	26.14	(0.00)	0.090
17:00-17:15	**A**	14.23	24.02	0.593	0.00	0.86	1.43	20.65	(0.00)	0.101
17:00-17:15	**B**	14.99	24.97	0.600	0.00	0.92	1.48	21.35	(0.00)	0.099
17:00-17:15	**C**	24.18	30.58	0.791	0.00	1.83	3.61	50.09	(0.00)	0.151
17:15-17:30	**A**	17.43	22.12	0.788	0.00	1.43	3.49	47.50	(0.00)	0.201
17:15-17:30	**B**	18.36	23.42	0.784	0.00	1.48	3.43	46.95	(0.00)	0.188
17:15-17:30	**C**	29.62	29.88	0.991	0.00	3.61	19.08	199.30	(0.00)	0.547
17:30-17:45	**A**	17.43	21.89	0.796	0.00	3.49	3.74	54.79	(0.00)	0.222
17:30-17:45	**B**	18.36	23.36	0.786	0.00	3.43	3.56	52.65	(0.00)	0.199
17:30-17:45	**C**	29.62	29.85	0.992	0.00	19.08	26.13	342.67	(0.00)	0.894
17:45-18:00	**A**	14.23	23.35	0.609	0.00	3.74	1.59	25.30	(0.00)	0.113
17:45-18:00	**B**	14.99	24.88	0.603	0.00	3.56	1.54	24.42	(0.00)	0.104
17:45-18:00	**C**	24.18	30.54	0.792	0.00	26.13	4.03	110.23	(0.00)	0.260
18:00-18:15	**A**	11.92	25.55	0.466	0.00	1.59	0.88	13.63	(0.00)	0.074
18:00-18:15	**B**	12.56	26.09	0.481	0.00	1.54	0.94	14.47	(0.00)	0.074
18:00-18:15	**C**	20.25	31.08	0.652	0.00	4.03	1.90	30.02	(0.00)	0.095

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\ODTAB\Import of J6 Barry Docks Link RBT AM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:48:05

« 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	2.60	0.15	0.73	A
Arm B	11.36	0.48	0.93	D
Arm C	4.51	0.21	0.82	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 + 350 units Dev AM - AM runs from 07:45:00 to 09:15:00
2015 Base Flows + Comm + 700 units Dev AM - AM runs from 07:45:00 to 09:15:00
2015 Base Flows + Comm Dev - 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	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			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	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	ONE HOUR		15.61	100.000	N/A
B	ONE HOUR		22.70	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	17.09	17.55	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**	20.41	20.95	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**	24.99	25.66	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**	24.99	25.66	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**	20.41	20.95	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**	17.09	17.55	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	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	0.73	0.15	2.60	A	14.32	1289.16	135.25	0.10	1.50	135.26	0.10	0.741	35.242
B	0.93	0.48	11.36	D	20.83	1874.69	400.46	0.21	4.45	400.49	0.21	0.772	37.260
C	0.82	0.21	4.51	B	18.54	1668.23	214.91	0.13	2.39	214.94	0.13	0.735	34.737

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	12.07	8.49	0.00	26.65	21.62	0.441	0.00	0.78
B	17.09	256.35	17.00	12.21	7.98	0.00	29.81	24.32	0.573	0.00	1.33
C	15.21	228.11	15.13	19.55	5.43	0.00	28.74	27.10	0.529	0.00	1.11

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	14.00	14.44	10.16	0.00	25.40	21.62	0.553	0.78	1.22
B	20.41	306.10	20.33	14.62	9.55	0.00	28.53	24.32	0.715	1.33	2.44
C	18.16	272.39	18.11	23.39	6.49	0.00	28.00	27.10	0.649	1.11	1.81

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	17.51	12.38	0.00	23.73	21.62	0.724	1.22	2.54
B	24.99	374.90	24.50	17.82	11.66	0.00	26.82	24.32	0.932	2.44	9.87
C	22.24	333.61	22.07	28.33	7.82	0.00	27.06	27.10	0.822	1.81	4.31

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	17.71	12.47	0.00	23.67	21.62	0.726	2.54	2.60
B	24.99	374.90	24.89	17.94	11.72	0.00	26.77	24.32	0.933	9.87	11.36
C	22.24	333.61	22.23	28.66	7.95	0.00	26.97	27.10	0.825	4.31	4.51

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	14.75	10.29	0.00	25.31	21.62	0.555	2.60	1.26
B	20.41	306.10	20.99	14.78	9.63	0.00	28.47	24.32	0.717	11.36	2.61
C	18.16	272.39	18.33	23.92	6.70	0.00	27.85	27.10	0.652	4.51	1.91

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	12.18	8.56	0.00	26.60	21.62	0.442	1.26	0.80
B	17.09	256.35	17.17	12.31	8.04	0.00	29.76	24.32	0.574	2.61	1.36
C	15.21	228.11	15.26	19.72	5.48	0.00	28.71	27.10	0.530	1.91	1.14

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	11.39	0.76	0.067	A	A
B	19.13	1.28	0.078	A	A
C	16.09	1.07	0.073	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	17.71	1.18	0.088	A	A
B	34.64	2.31	0.121	A	A
C	26.08	1.74	0.101	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	35.53	2.37	0.149	A	A
B	116.88	7.79	0.371	C	C
C	58.16	3.88	0.194	B	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	38.63	2.58	0.154	A	A
B	160.89	10.73	0.485	D	C
C	66.47	4.43	0.209	B	B

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	19.71	1.31	0.090	A	A
B	47.67	3.18	0.144	A	A
C	30.50	2.03	0.107	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	12.28	0.82	0.068	A	A
B	21.25	1.42	0.080	A	A
C	17.63	1.18	0.075	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)
07:45-08:00	**A**	11.75	26.65	0.441	0.00	0.00	0.78	11.39	(0.00)	0.067
07:45-08:00	**B**	17.09	29.81	0.573	0.00	0.00	1.33	19.13	(0.00)	0.078
07:45-08:00	**C**	15.21	28.74	0.529	0.00	0.00	1.11	16.09	(0.00)	0.073
08:00-08:15	**A**	14.03	25.40	0.553	0.00	0.78	1.22	17.71	(0.00)	0.088
08:00-08:15	**B**	20.41	28.53	0.715	0.00	1.33	2.44	34.64	(0.00)	0.121
08:00-08:15	**C**	18.16	28.00	0.649	0.00	1.11	1.81	26.08	(0.00)	0.101
08:15-08:30	**A**	17.19	23.73	0.724	0.00	1.22	2.54	35.53	(0.00)	0.149
08:15-08:30	**B**	24.99	26.82	0.932	0.00	2.44	9.87	116.88	(0.00)	0.371
08:15-08:30	**C**	22.24	27.06	0.822	0.00	1.81	4.31	58.16	(0.00)	0.194
08:30-08:45	**A**	17.19	23.67	0.726	0.00	2.54	2.60	38.63	(0.00)	0.154
08:30-08:45	**B**	24.99	26.77	0.933	0.00	9.87	11.36	160.89	(0.00)	0.485
08:30-08:45	**C**	22.24	26.97	0.825	0.00	4.31	4.51	66.47	(0.00)	0.209
08:45-09:00	**A**	14.03	25.31	0.555	0.00	2.60	1.26	19.71	(0.00)	0.090
08:45-09:00	**B**	20.41	28.47	0.717	0.00	11.36	2.61	47.67	(0.00)	0.144
08:45-09:00	**C**	18.16	27.85	0.652	0.00	4.51	1.91	30.50	(0.00)	0.107
09:00-09:15	**A**	11.75	26.60	0.442	0.00	1.26	0.80	12.28	(0.00)	0.068
09:00-09:15	**B**	17.09	29.76	0.574	0.00	2.61	1.36	21.25	(0.00)	0.080
09:00-09:15	**C**	15.21	28.71	0.530	0.00	1.91	1.14	17.63	(0.00)	0.075

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File: \\Fmw-server\data\FMW Project Files\FMW0408 Rhoose\Analysis\ARCADY\J6 Barry Docks Link RBT\ODTAB\Import of J6 Barry Docks Link RBT PM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:30:32

« A1 - Barry Docks Link Roundabout - PM Peak - D3 - 2015 Base Flows + Comm Dev + 350 units, PM
» Roundabout Network
» Arms
» Traffic Flows
» Entry Flows
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» Vehicle Mix
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» Overview: Standard Roundabout Geometry
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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	4.38	0.25	0.82	C
Arm B	5.21	0.28	0.85	C
Arm C	59.78	1.75	1.05	F
	Barry Docks Link Roundabout - PM Peak - 2015 Base Flows + Comm Dev + 700 units			
Arm A	6.34	0.36	0.87	C
Arm B	7.36	0.37	0.89	C
Arm C	102.85	2.81	1.10	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 16:45:00 to 18:15:00
2015 Base Flows + Comm Dev + 700 units - PM runs from 16:45:00 to 18:15:00
2015 Base Flows + Comm Dev - 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	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 - 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			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	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	ONE HOUR		16.25	100.000	N/A
B	ONE HOUR		17.80	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	12.65	N/A	N/A
16:45-17:00	B	13.40	13.57	N/A	N/A
16:45-17:00	C	21.25	21.85	N/A	N/A
17:00-17:15	A	14.61	15.10	N/A	N/A
17:00-17:15	B	16.00	16.21	N/A	N/A
17:00-17:15	C	25.37	26.09	N/A	N/A
17:15-17:30	A	17.89	18.50	N/A	N/A
17:15-17:30	B	19.60	19.85	N/A	N/A
17:15-17:30	C	31.07	31.96	N/A	N/A
17:30-17:45	A	17.89	18.50	N/A	N/A
17:30-17:45	B	19.60	19.85	N/A	N/A
17:30-17:45	C	31.07	31.96	N/A	N/A
17:45-18:00	A	14.61	15.10	N/A	N/A
17:45-18:00	B	16.00	16.21	N/A	N/A
17:45-18:00	C	25.37	26.09	N/A	N/A
18:00-18:15	A	12.23	12.65	N/A	N/A
18:00-18:15	B	13.40	13.57	N/A	N/A
18:00-18:15	C	21.25	21.85	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	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	0.82	0.25	4.38	C	14.91	1342.01	202.85	0.15	2.25	202.87	0.15	0.741	35.242
B	0.85	0.28	5.21	C	16.33	1470.02	229.08	0.16	2.55	229.11	0.16	0.714	32.484
C	1.05	1.75	59.78	F	25.90	2330.57	1589.48	0.68	17.66	1589.56	0.68	0.735	34.737

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	12.92	12.08	0.00	25.26	21.84	0.484	0.00	0.93
B	13.40	201.01	13.33	16.03	8.23	0.00	25.98	21.15	0.516	0.00	1.05
C	21.25	318.68	21.10	17.65	3.90	0.00	30.93	29.26	0.687	0.00	2.15

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	15.44	14.43	0.00	23.54	21.84	0.621	0.93	1.60
B	16.00	240.03	15.95	19.15	9.84	0.00	24.79	21.15	0.646	1.05	1.78
C	25.37	380.54	25.20	21.13	4.67	0.00	30.37	29.26	0.835	2.15	4.73

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	17.89	268.37	17.73	18.09	16.62	0.00	21.94	21.84	0.816	1.60	4.09
B	19.60	293.97	19.39	22.36	11.98	0.00	23.21	21.15	0.845	1.78	4.91
C	31.07	466.06	29.03	25.69	5.68	0.00	29.63	29.26	1.048	4.73	35.37

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	16.86	0.00	21.76	21.84	0.822	4.09	4.38
B	19.60	293.97	19.58	22.65	12.08	0.00	23.13	21.15	0.847	4.91	5.21
C	31.07	466.06	29.44	25.92	5.73	0.00	29.59	29.26	1.050	35.37	59.78

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	14.76	17.12	16.57	0.00	21.98	21.84	0.665	4.38	2.03
B	16.00	240.03	16.22	21.35	9.98	0.00	24.69	21.15	0.648	5.21	1.88
C	25.37	380.54	28.94	21.45	4.75	0.00	30.31	29.26	0.837	59.78	6.21

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	12.23	183.51	12.31	13.13	12.31	0.00	25.09	21.84	0.488	2.03	0.96
B	13.40	201.01	13.45	16.30	8.32	0.00	25.92	21.15	0.517	1.88	1.08
C	21.25	318.68	21.51	17.83	3.94	0.00	30.90	29.26	0.688	6.21	2.25

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	13.48	0.90	0.076	A	A
B	15.23	1.02	0.079	A	A
C	30.37	2.02	0.100	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	23.04	1.54	0.111	A	A
B	25.58	1.71	0.113	A	A
C	63.87	4.26	0.187	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	54.66	3.64	0.229	B	B
B	64.47	4.30	0.249	B	B
C	325.24	21.68	0.853	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	64.05	4.27	0.254	C	B
B	76.42	5.09	0.278	C	B
C	715.87	47.72	1.745	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	32.68	2.18	0.142	A	A
B	30.60	2.04	0.121	A	A
C	417.54	27.84	1.015	F	E

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	14.94	1.00	0.079	A	A
B	16.79	1.12	0.081	A	A
C	36.59	2.44	0.109	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	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**	12.23	25.26	0.484	0.00	0.00	0.93	13.48	(0.00)	0.076
16:45-17:00	**B**	13.40	25.98	0.516	0.00	0.00	1.05	15.23	(0.00)	0.079
16:45-17:00	**C**	21.25	30.93	0.687	0.00	0.00	2.15	30.37	(0.00)	0.100
17:00-17:15	**A**	14.61	23.54	0.621	0.00	0.93	1.60	23.04	(0.00)	0.111
17:00-17:15	**B**	16.00	24.79	0.646	0.00	1.05	1.78	25.58	(0.00)	0.113
17:00-17:15	**C**	25.37	30.37	0.835	0.00	2.15	4.73	63.87	(0.00)	0.187
17:15-17:30	**A**	17.89	21.94	0.816	0.00	1.60	4.09	54.66	(0.00)	0.229
17:15-17:30	**B**	19.60	23.21	0.845	0.00	1.78	4.91	64.47	(0.00)	0.249
17:15-17:30	**C**	31.07	29.63	1.048	0.00	4.73	35.37	325.24	(0.00)	0.853
17:30-17:45	**A**	17.89	21.76	0.822	0.00	4.09	4.38	64.05	(0.00)	0.254
17:30-17:45	**B**	19.60	23.13	0.847	0.00	4.91	5.21	76.42	(0.00)	0.278
17:30-17:45	**C**	31.07	29.59	1.050	0.00	35.37	59.78	715.87	(0.00)	1.745
17:45-18:00	**A**	14.61	21.98	0.665	0.00	4.38	2.03	32.68	(0.00)	0.142
17:45-18:00	**B**	16.00	24.69	0.648	0.00	5.21	1.88	30.60	(0.00)	0.121
17:45-18:00	**C**	25.37	30.31	0.837	0.00	59.78	6.21	417.54	(0.00)	1.015
18:00-18:15	**A**	12.23	25.09	0.488	0.00	2.03	0.96	14.94	(0.00)	0.079
18:00-18:15	**B**	13.40	25.92	0.517	0.00	1.88	1.08	16.79	(0.00)	0.081
18:00-18:15	**C**	21.25	30.90	0.688	0.00	6.21	2.25	36.59	(0.00)	0.109

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Report generation date: 04/01/2011 16:48:47

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» 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	2.60	0.15	0.73	A
Arm B	11.36	0.48	0.93	D
Arm C	4.51	0.21	0.82	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 + 350 units Dev AM - AM runs from 07:45:00 to 09:15:00
2015 Base Flows + Comm + 700 units Dev AM - AM runs from 07:45:00 to 09:15:00
2015 Base Flows + Comm Dev - 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	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			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	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	ONE HOUR		15.77	100.000	N/A
B	ONE HOUR		25.25	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	19.01	19.52	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**	22.70	23.31	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**	27.80	28.55	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**	27.80	28.55	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**	22.70	23.31	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**	19.01	19.52	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	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	0.75	0.17	2.85	B	14.47	1302.37	144.81	0.11	1.61	144.83	0.11	0.741	35.242
B	1.04	1.58	47.72	F	23.17	2085.29	1205.45	0.58	13.39	1205.50	0.58	0.772	37.260
C	0.85	0.25	5.37	B	18.95	1705.39	247.60	0.15	2.75	247.62	0.15	0.735	34.737

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	12.53	8.83	0.00	26.41	21.40	0.450	0.00	0.81
B	19.01	285.14	18.89	12.66	7.98	0.00	29.80	24.55	0.638	0.00	1.73
C	15.55	233.20	15.47	20.99	5.89	0.00	28.42	27.18	0.547	0.00	1.19

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	14.98	10.56	0.00	25.11	21.40	0.565	0.81	1.28
B	22.70	340.49	22.57	15.15	9.56	0.00	28.53	24.55	0.796	1.73	3.70
C	18.56	278.46	18.51	25.09	7.03	0.00	27.61	27.18	0.672	1.19	2.01

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	17.26	17.81	12.86	0.00	23.38	21.40	0.743	1.28	2.77
B	27.80	417.01	26.11	18.46	11.66	0.00	26.82	24.55	1.037	3.70	29.12
C	22.74	341.04	22.53	29.63	8.13	0.00	26.84	27.18	0.847	2.01	5.06

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	18.03	12.96	0.00	23.31	21.40	0.745	2.77	2.85
B	27.80	417.01	26.56	18.59	11.72	0.00	26.77	24.55	1.039	29.12	47.72
C	22.74	341.04	22.72	30.01	8.28	0.00	26.74	27.18	0.850	5.06	5.37

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	14.18	212.65	14.28	16.03	10.71	0.00	24.99	21.40	0.567	2.85	1.33
B	22.70	340.49	25.59	15.34	9.64	0.00	28.46	24.55	0.798	47.72	4.33
C	18.56	278.46	18.77	27.26	7.97	0.00	26.95	27.18	0.689	5.37	2.27

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	11.91	12.68	8.91	0.00	26.34	21.40	0.451	1.33	0.83
B	19.01	285.14	19.18	12.77	8.04	0.00	29.76	24.55	0.639	4.33	1.80
C	15.55	233.20	15.62	21.25	5.98	0.00	28.35	27.18	0.548	2.27	1.23

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	11.78	0.79	0.068	A	A
B	24.71	1.65	0.091	A	A
C	17.25	1.15	0.077	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	18.56	1.24	0.091	A	A
B	50.93	3.40	0.164	A	A
C	28.76	1.92	0.109	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	38.54	2.57	0.161	A	A
B	272.81	18.19	0.800	E	D
C	67.09	4.47	0.223	B	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	42.33	2.82	0.168	B	B
B	578.97	38.60	1.585	F	F
C	78.76	5.25	0.246	B	B

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	20.85	1.39	0.094	A	A
B	249.45	16.63	0.603	E	D
C	36.66	2.44	0.125	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	12.74	0.85	0.069	A	A
B	28.58	1.91	0.096	A	A
C	19.08	1.27	0.079	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)
07:45-08:00	**A**	11.87	26.41	0.450	0.00	0.00	0.81	11.78	(0.00)	0.068
07:45-08:00	**B**	19.01	29.80	0.638	0.00	0.00	1.73	24.71	(0.00)	0.091
07:45-08:00	**C**	15.55	28.42	0.547	0.00	0.00	1.19	17.25	(0.00)	0.077
08:00-08:15	**A**	14.18	25.11	0.565	0.00	0.81	1.28	18.56	(0.00)	0.091
08:00-08:15	**B**	22.70	28.53	0.796	0.00	1.73	3.70	50.93	(0.00)	0.164
08:00-08:15	**C**	18.56	27.61	0.672	0.00	1.19	2.01	28.76	(0.00)	0.109
08:15-08:30	**A**	17.36	23.38	0.743	0.00	1.28	2.77	38.54	(0.00)	0.161
08:15-08:30	**B**	27.80	26.82	1.037	0.00	3.70	29.12	272.81	(0.00)	0.800
08:15-08:30	**C**	22.74	26.84	0.847	0.00	2.01	5.06	67.09	(0.00)	0.223
08:30-08:45	**A**	17.36	23.31	0.745	0.00	2.77	2.85	42.33	(0.00)	0.168
08:30-08:45	**B**	27.80	26.77	1.039	0.00	29.12	47.72	578.97	(0.00)	1.585
08:30-08:45	**C**	22.74	26.74	0.850	0.00	5.06	5.37	78.76	(0.00)	0.246
08:45-09:00	**A**	14.18	24.99	0.567	0.00	2.85	1.33	20.85	(0.00)	0.094
08:45-09:00	**B**	22.70	28.46	0.798	0.00	47.72	4.33	249.45	(0.00)	0.603
08:45-09:00	**C**	18.56	26.95	0.689	0.00	5.37	2.27	36.66	(0.00)	0.125
09:00-09:15	**A**	11.87	26.34	0.451	0.00	1.33	0.83	12.74	(0.00)	0.069
09:00-09:15	**B**	19.01	29.76	0.639	0.00	4.33	1.80	28.58	(0.00)	0.096
09:00-09:15	**C**	15.55	28.35	0.548	0.00	2.27	1.23	19.08	(0.00)	0.079

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\ODTAB\Import of J6 Barry Docks Link RBT PM Peak ODTAB.arc7
Report generation date: 04/01/2011 16:30:52

« 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	4.38	0.25	0.82	C
Arm B	5.21	0.28	0.85	C
Arm C	59.78	1.75	1.05	F
	Barry Docks Link Roundabout - PM Peak - 2015 Base Flows + Comm Dev + 700 units			
Arm A	6.34	0.36	0.87	C
Arm B	7.36	0.37	0.89	C
Arm C	102.85	2.81	1.10	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 16:45:00 to 18:15:00
2015 Base Flows + Comm Dev + 700 units - PM runs from 16:45:00 to 18:15:00
2015 Base Flows + Comm Dev - 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	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 - 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			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	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	ONE HOUR		16.68	100.000	N/A
B	ONE HOUR		18.93	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	12.56	12.96	N/A	N/A
16:45-17:00	B	14.25	14.43	N/A	N/A
16:45-17:00	C	22.23	22.85	N/A	N/A
17:00-17:15	A	14.99	15.48	N/A	N/A
17:00-17:15	B	17.02	17.24	N/A	N/A
17:00-17:15	C	26.55	27.28	N/A	N/A
17:15-17:30	A	18.37	18.95	N/A	N/A
17:15-17:30	B	20.84	21.11	N/A	N/A
17:15-17:30	C	32.51	33.42	N/A	N/A
17:30-17:45	A	18.37	18.95	N/A	N/A
17:30-17:45	B	20.84	21.11	N/A	N/A
17:30-17:45	C	32.51	33.42	N/A	N/A
17:45-18:00	A	14.99	15.48	N/A	N/A
17:45-18:00	B	17.02	17.24	N/A	N/A
17:45-18:00	C	26.55	27.28	N/A	N/A
18:00-18:15	A	12.56	12.96	N/A	N/A
18:00-18:15	B	14.25	14.43	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	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	0.87	0.36	6.34	C	15.31	1377.52	273.56	0.20	3.04	273.60	0.20	0.741	35.242
B	0.89	0.37	7.36	C	17.37	1563.34	293.38	0.19	3.26	293.41	0.19	0.714	32.484
C	1.10	2.81	102.85	F	27.10	2438.75	3165.56	1.30	35.17	3165.68	1.30	0.735	34.737

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	12.56	188.36	12.49	12.66	13.47	0.00	24.28	21.10	0.517	0.00	1.06
B	14.25	213.77	14.17	17.95	8.01	0.00	26.15	22.06	0.545	0.00	1.18
C	22.23	333.48	22.06	18.11	4.07	0.00	30.83	29.18	0.721	0.00	2.52

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	14.99	224.92	14.93	15.10	16.05	0.00	22.39	21.10	0.670	1.06	1.98
B	17.02	255.27	16.96	21.41	9.58	0.00	24.98	22.06	0.681	1.18	2.08
C	26.55	398.20	26.29	21.67	4.87	0.00	30.25	29.18	0.878	2.52	6.36

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	18.36	275.47	18.11	17.26	17.82	0.00	21.09	21.10	0.871	1.98	5.80
B	20.84	312.63	20.54	24.32	11.62	0.00	23.48	22.06	0.888	2.08	6.66
C	32.51	487.70	29.19	26.26	5.89	0.00	29.50	29.18	1.102	6.36	56.17

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	18.36	275.47	18.33	17.42	17.95	0.00	21.00	21.10	0.875	5.80	6.34
B	20.84	312.63	20.80	24.53	11.76	0.00	23.37	22.06	0.892	6.66	7.36
C	32.51	487.70	29.40	26.58	5.97	0.00	29.44	29.18	1.104	56.17	102.85

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	14.99	224.92	15.24	16.61	18.24	0.00	20.79	21.10	0.721	6.34	2.69
B	17.02	255.27	17.36	23.71	9.77	0.00	24.84	22.06	0.685	7.36	2.23
C	26.55	398.20	29.87	22.15	4.98	0.00	30.16	29.18	0.880	102.85	52.97

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)