TECHNICAL NOTE – Operational Implications on the HA network

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Document Status: Draft

This document has been prepared to supplement the Transport Assessment and is submitted to PCC for their approval.

Purpose

The purpose of this Technical Note is to respond to comments that have been provided by the Highways Agency (HA) concerning the Weston Mill junction complex at the A38, which forms part of the strategic highway network. These comments have been provided in relation to the planning application which has been submitted in support of the proposed Energy from Waste Combined Heat and Power (EfW CHP) facility at North Yard, Devonport.

A number of documents are referred to within this Technical Note. Most notably, these include:

- Transport Assessment, May 2011, URS Scott Wilson
- Transport Assessment Appendix (Annex G), May 2011, URS Scott Wilson
- HA letter of 25th June 2011, ref 11/00750/FUL
- Design Manual for Roads and Bridges TD22/06 *Layout of Grade Separated Junctions*

Introduction

URS Scott Wilson prepared a Transport Assessment (TA) on behalf of MVV Umwelt GmbH in support of a planning application for an Energy from Waste Combined Heat and Power (EfW CHP) facility at North Yard, Devonport in May 2011.

The assessment was prepared on the basis of an agreed TA Scope in addition to a number of consultations and meetings which were held with officers of Plymouth City Council (PCC), throughout the preparation of the TA.

As such, the TA included junction modelling assessments of three existing junctions which were located within the agreed TA study area, for the agreed peak hours which reflect the opening time of the EfW CHP facility. It is noted that the local AM peak hour reflects the dockyard opening time; however the EfW CHP facility will not be accepting waste during this period. URS Scott Wilson have also liaised with the Highways Agency (HA) throughout the TA preparation process, and as such presented the relative impact of the proposed development at the Weston Mill junction complex within the TA.

Background

Since the submission of the TA which accompanied the planning application, comments have been received from the HA in a letter dated 25th June 2011, concerning the potential operational impact of the development at the following locations of the Weston Mill (A38 / A3064) junction complex:

1. The give way junction at the Westbound off-slip
2. The junction of the Eastbound off and on slips
3. The merge arrangements for traffic joining the A38 eastbound

The TA gave consideration to the operation of the above locations, in terms of the percentage impact that the development related traffic may have. In order to provide a comprehensive response to the HA, each of these elements are discussed in further detail below. This analysis includes the Do Something scenarios presented within the TA, and the sensitivity analysis (Do Something Maximum scenario) presented at ANNEX G of the TA.

Give Way junction at Westbound Off-Slip

This junction consists of a non-signalised priority junction, with a banned right turn into the westbound off-slip. In order to assess the operation of the junction in the 2014 future year Do Something scenarios, the industry standard software programme, PICADY (version 5) was used.

PICADY measures the operation of a junction in terms of the Ratio of Flow to Capacity (RFC). An RFC of below 0.85 indicates that the specific arm of the junction is operating within its ideal capacity, and an RFC between 0.85 and 1.0 indicates that the arm is operating within its theoretical capacity. An RFC of above 1.0 indicates that the arm is saturated and operating in excess of the design capacity threshold.

A summary of the results of the analysis for the 2014 Do Minimum and 2014 Do Something scenarios are presented in **TABLES 1.1** to **1.3** below. Full PICADY outputs are available at **APPENDIX A**.

TABLE 1.1 A38 Westbound off-slip 2014 Do Minimum

	AM (0800-0900)		PM (1600-1700)	
Approach	RFC	Queue	RFC	Queue
Westbound Off-slip	0.85	5	0.59	1

As presented above, the junction is predicted to operate on the threshold between its ideal and theoretical capacity in the AM peak, and within its ideal capacity in the PM peak. The associated queue lengths are approximately 5 vehicles in the AM and 1 in the PM.

TABLE 1.2 A38 Westbound off-slip 2014 Do Something

	AM (0800-0900)		PM (1600-1700)	
Approach	RFC	Queue	RFC	Queue
Westbound Off-slip	0.89	7	0.61	2

When considering the 2014 Do Something scenario, the junction is predicted to operate within its theoretical capacity in the AM peak hour, and within its ideal capacity in the PM peak hour. Comparison with the 2014 Do Minimum scenario indicates that there will be a slight increase in queue length; however it is anticipated that this can be accommodated within the slip road and as such will not interfere with the A38 westbound mainline flow.

TABLE 1.3 A38 Westbound off-slip 2014 Do Something 'Maximum Scenario'

	AM (0800-0900)		PM (1600-1700)	
Approach	RFC	Queue	RFC	Queue
Westbound Off-slip	0.97	12	0.67	2

In the 2014 Do Something 'Maximum Scenario', the junction is predicted to operate within its theoretical capacity in the AM peak hour, and within its ideal capacity in the PM peak hour. As may be anticipated, there is a predicted increase in queue length of approximately 5 vehicles in the AM peak hour; however it is anticipated that this can be accommodated within the slip road.

It should be noted that the increase in queue in the AM peak is in response to a change in RFC of 0.08, and thus it may be considered that the junction model may be over-estimating the impact of the development traffic at this approach.

Junction of the Eastbound off and on slips

This junction is located to the north of the main A38 carriageway, and consists of a 3-arm 'tear drop' roundabout, although there is actually only one give way line at the junction (on the eastbound off-slip arm). Due to the non standard nature of the junction geometry, TRL, the company which developed the junction capacity software, were consulted in order to gauge which modelling programme should be used.

The liaison confirmed that ARCADY (version 7) should be used, despite the fact that the junction is not a 'conventional' roundabout. Advice from TRL indicated that the model should therefore reflect that the traffic approaching the intersection on the A3064 should not give way, and as a result should be running in a 'free flow' manner. TRL therefore recommended that a manual capacity adjustment was made to the arm within the junction modelling programme.

As such, an 'Intercept Adjustment' was made to the A3064 approach, whereby the *New Observed Entry Flow* was manually changed to the maximum value of 9999.0 PCH/hr. This informs ARCADY that the approach has a higher capacity than would normally be calculated, due to the fact that the vehicles travelling on this approach do not have to give way to any other vehicles at the junction.

The detailed results of the analysis are presented at **APPENDIX A**, however a summary is provided in **TABLES 1.4** and **1.6** below.

TABLE 1.4 A38 Eastbound 2014 Do Minimum

	AM (0800-0900)		PM (1600-1700)	
Approach	RFC	Queue	RFC	Queue
Eastbound off-slip	0.40	1	0.21	0

TABLE 1.5 A38 Eastbound 2014 Do Something

	AM (0800-0900)		PM (1600-1700)	
Approach	RFC	Queue	RFC	Queue
Eastbound off-slip	0.40	1	0.21	0

TABLE 1.6 A38 Eastbound 2014 Do Something 'Maximum Scenario'

	AM (0800-0900)		PM (1600-1700)	
Approach	RFC	Queue	RFC	Queue
Eastbound off-slip	0.41	1	0.22	0

As presented above, the junction is predicted to operate within capacity in both the AM and PM peak hours of the 2014 Do Minimum, 2014 Do Something and 2014 Do Something 'Maximum' scenarios.

A38 Eastbound Merge

The A38 eastbound merge currently consists of a 'Taper Merge' design with two upstream and two downstream lanes, as illustrated in Figure 1/1 of the Design Manual for Roads and Bridges (DMRB) note TD22/06 *Layout of Grade Separated Junctions*. The development proposals do not include any changes to this merge design.

DMRB TD22/06 provides an indication of the type of merge arrangement required for 'All Purpose' roads, based on the level of traffic (in vehicles per hour) travelling along the main carriageway, and that merging onto it. As such, these parameters have been used to determine the suitability of the existing merge arrangements to cater for the additional traffic associated with the future year scenarios. Particular reference has been made to Figure 2/3AP in DMRB TD22/06.

Traffic flow information presented within the TA and obtained from ATC data at the A38 to the east of the A38 Eastbound merge has therefore been used to inform the analysis. It should be noted that the ATC data is from the year 2010, and appropriate growth factors have therefore been calculated, in accordance with the methodology presented and agreed within the TA.

TABLES 1.7 and **1.8** present a summary of the results of the analysis, for the various future year Do Something scenarios.

TABLE 1.7 A38 Eastbound Merge – 2014 Do Something

Peak Hour	Upstream Mainline flow (vph)	Merge Flow (vph)	Downstream Mainline Flow (vph)	Recommended Merge layout
AM (0800-0900)	1895	454	2349	A or D
PM (1600-1700)	1424	902	2326	E

As presented above, the analysis of the merge layout recommends that configuration A or D in the AM peak, and layout E in the PM peak is appropriate. These calculations are also presented at **APPENDIX B** of this note. With reference to DMRB TD22/06, layouts A, D and E are as follows:

- Layout A – Taper merge, with no lane gain
- Layout D – 2 Lane Urban Merge, with no lane gain
- Layout E – (Taper Merge) Lane gain downstream to two lanes

Analysis of the results indicates that the existing merge layout (Type A – Taper Merge, with no lane gain), is suitable when considering the additional development related traffic at this location in the 2014 Do Something scenario.

TABLE 1.8 A38 Eastbound Merge – 2014 Do Something 'Maximum Scenario'

Peak Hour	Upstream Mainline flow (vph)	Merge Flow (vph)	Downstream Mainline Flow (vph)	Recommended Merge layout
AM (0800-0900)	1895	473	2368	A or D
PM (1600-1700)	1424	921	2345	E

As presented above, the results of the analysis for the 2014 Do Something 'Maximum Scenario' are consistent with 2014 Do Something Scenario.

It is therefore concluded that the existing eastbound merge arrangement is the appropriate configuration, and that no works are required to change the merge layout at this location.

Summary

URS Scott Wilson prepared a Transport Assessment (TA) on behalf of MVV Umwelt GmbH in support of a planning application for an Energy from Waste Combined Heat and Power (EfW CHP) facility at North Yard, Devonport in May 2011.

Since the submission of the TA which accompanied the planning application, comments have been received from the HA in a letter dated 25th June 2011, concerning the potential operational impact of the development at the Weston Mill (A38 / A3064) junction complex.

Further analysis has therefore been undertaken, concerning the operation of the constituents of the junction complex, for both the 2014 Do Something and 2014 Do Something 'Maximum' scenarios. The results of the analysis suggest that the junction complex has the capacity to cater for the additional traffic associated with the proposed development in both the AM and PM peak hours of these scenarios.

It should also be noted that both this document and the TA assume that all development related vehicle movements will be new to the network (including the HA network), whereas in reality, a number of these movements will already be taking place.

It is therefore considered that in light of the above, the proposed development would not therefore have a detrimental impact on the operation of the Strategic Road Network, and subject to the review of the information presented herein, that the HA should be in a position to recommend that planning consent be granted.

Appendix A

A38 westbound off-slip Do Min 01_002.vpo
TRL LIMITED

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

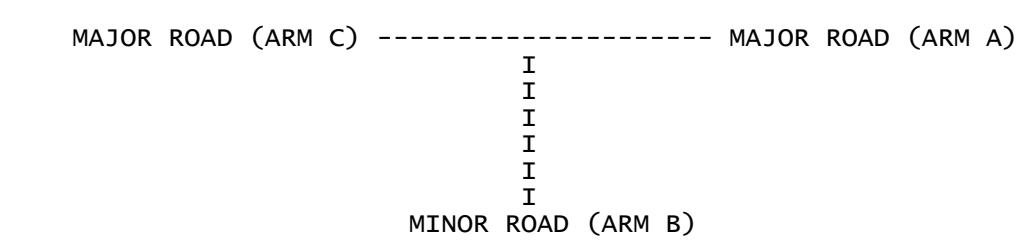
Run with file:-
"M:\Development Control\D123356 Plymouth - Energy From Waste\Design Deliverables\Junction Analysis\Picady\A38\
A38 westbound off-slip Do Min 01_002.vpi"
(drive-on-the-left) at 09:55:15 on Tuesday, 19 July 2011

.RUN INFORMATION
****

RUN TITLE : A8 westbound off-slip
LOCATION :
DATE : 18/07/11
CLIENT :
ENUMERATOR : 35090pw [UK1004395D]
JOB NUMBER :
STATUS :
DESCRIPTION :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS A3064 north
ARM B IS off-slip
ARM C IS A3064 south

.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) 8.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)150.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 150.0 M.
- VISIBILITY TO RIGHT	(VB-A) 100.0 M.
- LANE 1 WIDTH	(WB-C) 5.00 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 Slope For Opposing	Slope For Opposing

I STREAM B-C	STREAM A-C	STREAM A-B	I
I 824.43	0.29	0.12	I

I 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	I
I 693.85	0.29	0.12	0.18	0.42	I

I Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	I
I 660.83	0.23	0.23	I

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

.TRAFFIC DEMAND DATA

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

.Demand set: 2014 Do Min 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

I ARM	I NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I TOP OF PEAK IS REACHED	I FLOW STOPS FALLING	I RATE OF FLOW (VEH/MIN) BEFORE PEAK	I AT TOP OF PEAK	I AFTER PEAK	I

ARM A	15.00	45.00	75.00	9.44	14.16	9.44		
ARM B	15.00	45.00	75.00	5.45	8.17	5.45		
ARM C	15.00	45.00	75.00	5.57	8.36	5.57		

.Demand set: 2014 Do Min 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	0.000	1.000
		0.0	0.0	755.0
		(0.0)	(0.0)	(2.0)
	ARM B	0.000	0.000	1.000
		0.0	0.0	436.0
		(0.0)	(0.0)	(2.0)
	ARM C	1.000	0.000	0.000
		446.0	0.0	0.0
		(4.0)	(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 DEMAND SET 2014 Do Min AM
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	5.47	10.71	0.511		0.00	1.02	14.3		0.19

I	C-A	5.60							
I	C-B	0.00	7.96	0.000	0.00	0.00	0.0		0.00
I	A-B	0.00							
I	A-C	9.47							

I 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)
I 08.00-08.15									
I B-AC	6.53	10.17	0.642		1.02	1.71	23.9		0.27
I C-A	6.68								
I C-B	0.00	7.56	0.000		0.00	0.00	0.0		0.00
I A-B	0.00								
I A-C	11.31								

I 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)
I 08.15-08.30									

B-AC	8.00	9.43	0.848	1.71	4.50	56.1		0.56
C-A	8.18							
C-B	0.00	7.01	0.000	0.00	0.00	0.0		0.00
A-B	0.00							
A-C	13.85							

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	8.00	9.43	0.848		4.50	4.93	71.3		0.66
C-A	8.18								
C-B	0.00	7.01	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	13.85								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY (VEH.MIN/	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING

			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN)
08.45-09.00									
	B-AC	6.53	10.17	0.642		4.93	1.88	32.3	0.31
	C-A	6.68							
	C-B	0.00	7.56	0.000		0.00	0.00	0.0	0.00
	A-B	0.00							
	A-C	11.31							

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	5.47	10.71	0.511		1.88	1.07	17.0		0.19
C-A	5.60								
C-B	0.00	7.96	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	9.47								

QUEUE FOR STREAM B-AC

TIME	NO. OF

SEGMENT ENDING	VEHICLES IN QUEUE	
08.00	1.0	*
08.15	1.7	**
08.30	4.5	*****
08.45	4.9	*****
09.00	1.9	**
09.15	1.1	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

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	600.1	400.1	214.9	0.36	215.0	0.36
C-A	613.9	409.3				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	0.0	0.0				
A-C	1039.2	692.8				
ALL	2253.2	1502.1	214.9	0.10	215.0	0.10

* 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
824.43	0.29	0.12

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
693.85	0.29	0.12	0.18	0.42

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
660.83	0.23	0.23

(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: 2014 Do Min 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	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	3.95	5.93	3.95
ARM B	15.00	45.00	75.00	4.81	7.22	4.81
ARM C	15.00	45.00	75.00	11.14	16.71	11.14

.Demand set: 2014 Do Min PM

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 17.00	ARM A	0.000	0.000	1.000
		0.0	0.0	316.0
		(0.0)	(0.0)	(2.0)
	ARM B	0.000	0.000	1.000
		0.0	0.0	385.0
		(0.0)	(0.0)	(1.0)
	ARM C	1.000	0.000	0.000
		891.0	0.0	0.0
		(1.0)	(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 DEMAND SET 2014 Do Min PM
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY (VEH.MIN/	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING

		(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN)
16.45-17.00								
B-AC	4.83	12.44	0.388	0.00	0.63	9.0		0.13
C-A	11.18							
C-B	0.00	9.15	0.000	0.00	0.00	0.0		0.00
A-B	0.00							
A-C	3.97							

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	5.77	12.21	0.472		0.63	0.88	12.7		0.15
C-A	13.35								
C-B	0.00	8.99	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	4.73								

TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY

	(VEH/MIN)	(VEH/MIN)	CAPACITY (RFC)	FLOW (PEDS/MIN)	QUEUE (VEHS)	QUEUE (VEHS)	(VEH.MIN/ TIME SEGMENT)	(VEH.MIN/ TIME SEGMENT)	PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	7.06	11.90	0.594		0.88	1.42	20.1		0.20
C-A	16.35								
C-B	0.00	8.76	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	5.80								

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	7.06	11.90	0.594		1.42	1.44	21.4		0.21
C-A	16.35								
C-B	0.00	8.76	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	5.80								

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	5.77	12.21	0.472		1.44	0.91	14.3		0.16
C-A	13.35								
C-B	0.00	8.99	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	4.73								

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	4.83	12.44	0.388		0.91	0.64	10.0		0.13
C-A	11.18								
C-B	0.00	9.15	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	3.97								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.6	*
17.15	0.9	*
17.30	1.4	*
17.45	1.4	*
18.00	0.9	*
18.15	0.6	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

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	529.9	353.3	87.5	0.17	87.5	0.17
C-A	1226.4	817.6				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	0.0	0.0				
A-C	435.0	290.0				
ALL	2191.3	1460.8	87.5	0.04	87.5	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*******

A38 westbound off-slip 01_002.vpo

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

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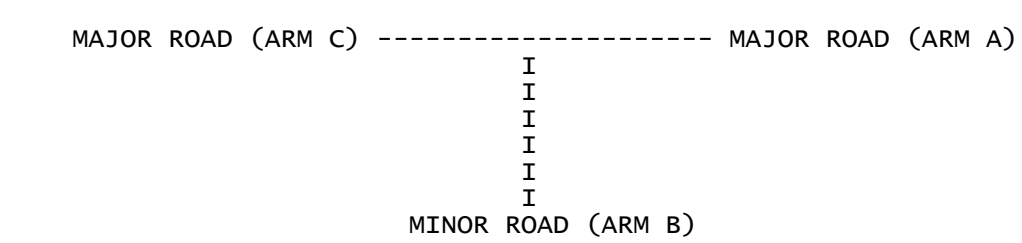
Run with file:-
"M:\Development Control\D123356 Plymouth - Energy From Waste\Design Deliverables\Junction Analysis\Picady\A38\
A38 westbound off-slip 01_002.vpi"
(drive-on-the-left) at 09:48:24 on Tuesday, 19 July 2011

.RUN INFORMATION
****

RUN TITLE	: A8 westbound off-slip
LOCATION	:
DATE	: 18/07/11
CLIENT	:
ENUMERATOR	: 35090pw [UK1004395D]
JOB NUMBER	:
STATUS	:
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS A3064 north
ARM B IS off-slip
ARM C IS A3064 south

.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)	8.00 M.
CENTRAL RESERVE WIDTH	(WCR)	0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	2.20 M.
- VISIBILITY	(VC-B)	150.00 M.
- BLOCKS TRAFFIC		NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	150.0 M.
- VISIBILITY TO RIGHT	(VB-A)	100.0 M.
- LANE 1 WIDTH	(WB-C)	5.00 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 Slope For Opposing	Slope For Opposing

I STREAM B-C	STREAM A-C	STREAM A-B	I
I 824.43	0.29	0.12	I

I 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	I
I 693.85	0.29	0.12	0.18	0.42	I

I Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	I
I 660.83	0.23	0.23	I

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

.TRAFFIC DEMAND DATA

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

.Demand set: 2014 Do Something 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

I ARM	I NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	I RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK	I
I	I	I	I	I	I	I	I

ARM A	15.00	45.00	75.00	9.46	14.19	9.46		
ARM B	15.00	45.00	75.00	5.60	8.40	5.60		
ARM C	15.00	45.00	75.00	5.66	8.49	5.66		

.Demand set: 2014 Do Something AM

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 08.00				
	ARM A	0.000	0.000	1.000
		0.0	0.0	757.0
		(0.0)	(0.0)	(1.9)
	ARM B	0.000	0.000	1.000
		0.0	0.0	448.0
		(0.0)	(0.0)	(4.3)
	ARM C	1.000	0.000	0.000
		453.0	0.0	0.0
		(5.0)	(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 DEMAND SET 2014 Do Something AM
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	5.62	10.47	0.537		0.00	1.13	15.7		0.20

I	C-A	5.68							
I	C-B	0.00	7.96	0.000		0.00	0.00	0.0	0.00
I	A-B	0.00							
I	A-C	9.50							

I	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)
I	08.00-08.15									
I	B-AC	6.71	9.94	0.675		1.13	1.96	27.1		0.30
I	C-A	6.79								
I	C-B	0.00	7.56	0.000		0.00	0.00	0.0		0.00
I	A-B	0.00								
I	A-C	11.34								

I	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)
I	08.15-08.30									

B-AC	8.22	9.22	0.892		1.96	5.78	69.0	0.69
C-A	8.31							
C-B	0.00	7.00	0.000		0.00	0.00	0.0	0.00
A-B	0.00							
A-C	13.89							

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	8.22	9.22	0.892		5.78	6.62	94.0		0.87
C-A	8.31								
C-B	0.00	7.00	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	13.89								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY (VEH.MIN/	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING

			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN)
08.45-09.00									
	B-AC	6.71	9.94	0.675		6.62	2.21	40.2	0.37
	C-A	6.79							
	C-B	0.00	7.56	0.000		0.00	0.00	0.0	0.00
	A-B	0.00							
	A-C	11.34							

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	5.62	10.47	0.537		2.21	1.19	19.1		0.21
C-A	5.68								
C-B	0.00	7.96	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	9.50								

QUEUE FOR STREAM B-AC

TIME	NO. OF

SEGMENT ENDING	VEHICLES IN QUEUE	
08.00	1.1	*
08.15	2.0	**
08.30	5.8	******
08.45	6.6	*******
09.00	2.2	**
09.15	1.2	*

.

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

.

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	616.6	411.1	265.1	0.43	265.1	0.43
C-A	623.5	415.7				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	0.0	0.0				
A-C	1042.0	694.6				
ALL	2282.1	1521.4	265.1	0.12	265.1	0.12

* 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
824.43	0.29	0.12

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
693.85	0.29	0.12	0.18	0.42

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
660.83	0.23	0.23

(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: 2014 Do Something 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	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	3.95	5.93	3.95
ARM B	15.00	45.00	75.00	4.89	7.33	4.89
ARM C	15.00	45.00	75.00	11.27	16.91	11.27

.Demand set: 2014 Do Something PM

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 17.00	ARM A	0.000	0.000	1.000
		0.0	0.0	316.0
		(0.0)	(0.0)	(2.2)
	ARM B	0.000	0.000	1.000
		0.0	0.0	391.0
		(0.0)	(0.0)	(2.7)
	ARM C	1.000	0.000	0.000
		902.0	0.0	0.0
		(1.9)	(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 DEMAND SET 2014 Do Something PM
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY (VEH.MIN/	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING

		(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN)
16.45-17.00								
B-AC	4.91	12.23	0.401		0.00	0.66	9.4	0.13
C-A	11.32							
C-B	0.00	9.15	0.000		0.00	0.00	0.0	0.00
A-B	0.00							
A-C	3.97							

TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY
	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/	(VEH.MIN/	PER ARRIVING
			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN)
17.00-17.15									
B-AC	5.86	12.01	0.488		0.66	0.93	13.5		0.16
C-A	13.51								
C-B	0.00	8.98	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	4.73								

TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY

	(VEH/MIN)	(VEH/MIN)	CAPACITY (RFC)	FLOW (PEDS/MIN)	QUEUE (VEHS)	QUEUE (VEHS)	(VEH.MIN/ TIME SEGMENT)	(VEH.MIN/ TIME SEGMENT)	PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	7.17	11.70	0.613		0.93	1.53	21.6		0.22
C-A	16.55								
C-B	0.00	8.75	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	5.80								

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	7.17	11.70	0.613		1.53	1.56	23.2		0.22
C-A	16.55								
C-B	0.00	8.75	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	5.80								

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	5.86	12.01	0.488		1.56	0.97	15.3		0.16
C-A	13.51								
C-B	0.00	8.98	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	4.73								

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	4.91	12.23	0.401		0.97	0.68	10.6		0.14
C-A	11.32								
C-B	0.00	9.15	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	3.97								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.7	*
17.15	0.9	*
17.30	1.5	**
17.45	1.6	**
18.00	1.0	*
18.15	0.7	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

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	538.2	358.8	93.6	0.17	93.6	0.17
C-A	1241.5	827.7				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	0.0	0.0				
A-C	435.0	290.0				
ALL	2214.7	1476.4	93.6	0.04	93.6	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*******

A38 westbound off-slip DS Max 01_002.vpo

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

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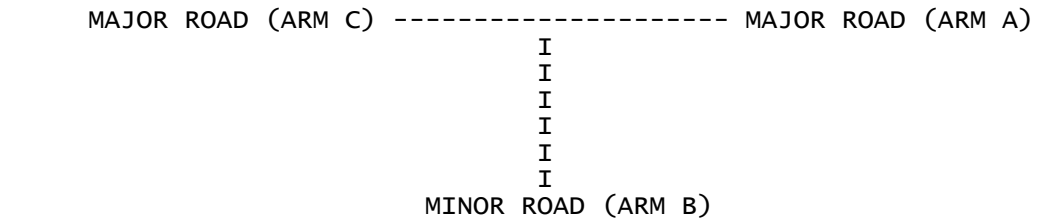
Run with file:-
"M:\Development Control\D123356 Plymouth - Energy From Waste\Design Deliverables\Junction Analysis\Picady\A38\
A38 westbound off-slip DS Max 01_002.vpi"
(drive-on-the-left) at 09:47:14 on Tuesday, 19 July 2011

.RUN INFORMATION
****

RUN TITLE : A8 westbound off-slip
LOCATION :
DATE : 18/07/11
CLIENT :
ENUMERATOR : 35090pw [UK1004395D]
JOB NUMBER :
STATUS :
DESCRIPTION :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS A3064 north
ARM B IS off-slip
ARM C IS A3064 south

.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) 8.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)150.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 150.0 M.
- VISIBILITY TO RIGHT	(VB-A) 100.0 M.
- LANE 1 WIDTH	(WB-C) 5.00 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 Slope For Opposing	Slope For Opposing

STREAM B-C	STREAM A-C	STREAM A-B
824.43	0.29	0.12

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
693.85	0.29	0.12	0.18	0.42

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
660.83	0.23	0.23

(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: 2014 Do Something Max 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	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK

ARM A	15.00	45.00	75.00	9.49	14.23	9.49	
ARM B	15.00	45.00	75.00	5.84	8.76	5.84	
ARM C	15.00	45.00	75.00	5.89	8.83	5.89	

.Demand set: 2014 Do Something Max 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)	0.000 0.0 (0.0)	1.000 759.0 (2.2)
	ARM B	0.000 0.0 (0.0)	0.000 0.0 (0.0)	1.000 467.0 (8.2)
	ARM C	1.000 471.0 (8.8)	0.000 0.0 (0.0)	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 DEMAND SET 2014 Do Something Max AM
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	5.86	10.08	0.582		0.00	1.34	18.5		0.23

I	C-A	5.91							
I	C-B	0.00	7.94	0.000		0.00	0.00	0.0	0.00
I	A-B	0.00							
I	A-C	9.52							

I	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)
I	08.00-08.15									
I	B-AC	7.00	9.57	0.731		1.34	2.51	33.9		0.37
I	C-A	7.06								
I	C-B	0.00	7.54	0.000		0.00	0.00	0.0		0.00
I	A-B	0.00								
I	A-C	11.37								

I	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)
I	08.15-08.30									

B-AC	8.57	8.86	0.967		2.51	9.24	100.4	1.00
C-A	8.64							
C-B	0.00	6.99	0.000		0.00	0.00	0.0	0.00
A-B	0.00							
A-C	13.93							

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	8.57	8.86	0.967		9.24	12.04	161.3		1.47
C-A	8.64								
C-B	0.00	6.99	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	13.93								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY (VEH.MIN/	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING

			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN)
08.45-09.00									
	B-AC	7.00	9.57	0.731		12.04	3.01	69.9	0.62
	C-A	7.06							
	C-B	0.00	7.54	0.000		0.00	0.00	0.0	0.00
	A-B	0.00							
	A-C	11.37							

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	5.86	10.08	0.582		3.01	1.44	23.4		0.25
C-A	5.91								
C-B	0.00	7.94	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	9.52								

QUEUE FOR STREAM B-AC

TIME	NO. OF

SEGMENT ENDING	VEHICLES IN QUEUE	
08.00	1.3	*
08.15	2.5	***
08.30	9.2	*********
08.45	12.0	************
09.00	3.0	***
09.15	1.4	*

.

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

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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	642.8	428.5	407.4	0.63	407.5	0.63
C-A	648.3	432.2				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	0.0	0.0				
A-C	1044.7	696.5				
ALL	2335.8	1557.2	407.4	0.17	407.5	0.17

* 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
824.43	0.29	0.12

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
693.85	0.29	0.12	0.18	0.42

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
660.83	0.23	0.23

(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: 2014 Do Something Max 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	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	3.99	5.98	3.99
ARM B	15.00	45.00	75.00	5.13	7.69	5.13
ARM C	15.00	45.00	75.00	11.51	17.27	11.51

.Demand set: 2014 Do Something Max PM

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 17.00	ARM A	0.000	0.000	1.000
		0.0	0.0	319.0
		(0.0)	(0.0)	(2.8)
	ARM B	0.000	0.000	1.000
		0.0	0.0	410.0
		(0.0)	(0.0)	(7.4)
	ARM C	1.000	0.000	0.000
		921.0	0.0	0.0
		(4.0)	(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 DEMAND SET 2014 Do Something Max PM
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY (VEH.MIN/	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING

		(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN)
16.45-17.00								
B-AC	5.14	11.68	0.441	0.00	0.77	11.0		0.15
C-A	11.56							
C-B	0.00	9.14	0.000	0.00	0.00	0.0		0.00
A-B	0.00							
A-C	4.00							

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	6.14	11.46	0.536		0.77	1.13	16.1		0.19
C-A	13.80								
C-B	0.00	8.97	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	4.78								

TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY

	(VEH/MIN)	(VEH/MIN)	CAPACITY (RFC)	FLOW (PEDS/MIN)	QUEUE (VEHS)	QUEUE (VEHS)	(VEH.MIN/ TIME SEGMENT)	(VEH.MIN/ TIME SEGMENT)	PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	7.52	11.16	0.674		1.13	1.97	27.3		0.27
C-A	16.90								
C-B	0.00	8.73	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	5.85								

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	7.52	11.16	0.674		1.97	2.01	29.9		0.27
C-A	16.90								
C-B	0.00	8.73	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	5.85								

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	6.14	11.46	0.536		2.01	1.19	18.8		0.19
C-A	13.80								
C-B	0.00	8.97	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	4.78								

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)
18.00-18.15									
B-AC	5.14	11.68	0.441		1.19	0.80	12.5		0.15
C-A	11.56								
C-B	0.00	9.14	0.000		0.00	0.00	0.0		0.00
A-B	0.00								
A-C	4.00								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.8	*
17.15	1.1	*
17.30	2.0	**
17.45	2.0	**
18.00	1.2	*
18.15	0.8	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

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	564.3	376.2	115.7	0.21	115.7	0.21
C-A	1267.7	845.1				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	0.0	0.0				
A-C	439.1	292.7				
ALL	2271.1	1514.1	115.7	0.05	115.7	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*******

ARCADY 7

Version: 7.0.1.130 [12 March 2010]
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File: M:\Development Control\D123356 Plymouth - Energy From Waste\Design Deliverables\Junction Analysis\Arcady\A38 off_onslip\A38 off_on slip 01_004.arc7
Report generation date: 20/07/2011 15:04:00

Summary of roundabout performance

	AM				PM			
	Queue (Veh)	Delay (min)	RFC	LOS	Queue (Veh)	Delay (min)	RFC	LOS
(Default Analysis Set) - 2014 Do Minimum								
Eastbound off-slip	0.65	0.05	0.40	A	0.26	0.04	0.21	A
A3064	0.05	0.01	0.05	A	0.11	0.01	0.10	A
(Default Analysis Set) - 2014 Do Something								
Eastbound off-slip	0.66	0.05	0.40	A	0.26	0.05	0.21	A
A3064	0.06	0.01	0.05	A	0.11	0.01	0.10	A
(Default Analysis Set) - 2014 Do Something MAX								
Eastbound off-slip	0.69	0.05	0.41	A	0.27	0.05	0.22	A
A3064	0.06	0.01	0.06	A	0.12	0.01	0.11	A

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

2014 Do Something - AM runs from 07:45:00 to 09:15:00
2014 Do Something - PM runs from 15:45:00 to 17:15:00
2014 Do Something MAX - AM runs from 07:45:00 to 09:15:00
2014 Do Something MAX - PM runs from 15:45:00 to 17:15:00
2014 Do Minimum - AM runs from 07:45:00 to 09:15:00
2014 Do Minimum - PM runs from 15:45:00 to 17:15:00

File summary

File Description

Title	(untitled)
Date	18/07/2011
Status	(new file)
Enumerator	SWUK\35090pw
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
Yes	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	perHour	min	-Min	perMin

A1 - (Default Analysis Set) - D1 - 2014 Do Something, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2014 Do Something, AM	2014 Do Something	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))	

Custom Capacity Adjustment

Use Adjustment	Reason	Slope Adjustment	Intercept Adjustment (PCU/hr)
Yes		0.000	0.000

Arms

Arms

ID	Name	Description

A	Eastbound off-slip	
B	Eastbound on-slip	
C	A3064	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Eastbound off-slip	0.00	99999.00		0.00
Eastbound on-slip	0.00	99999.00		0.00
A3064	0.00	99999.00		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
Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00	
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes
A3064	4.00	4.00	0.00	51.00	27.50	7.00	

Pedestrian Crossings

Arm	Crossing Type
Eastbound off-slip	None
Eastbound on-slip	None
A3064	None

Arm Slope/ Intercept and Capacity

Arm Intercept Adjustments

Arm	Use Adjustment	Reason	Direct Intercept Adjustment (PCU/hr)
Eastbound off-slip		N/A	N/A
Eastbound on-slip		N/A	N/A
A3064	Yes		8654.25

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)

Eastbound off-slip		((calculated))	((calculated))	0.859	2580.205
Eastbound on-slip		((calculated))	((calculated))	(Exit-only)	(Exit-only)
A3064		((calculated))	((calculated))	0.621	9999.000

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/hr)	Flow Scaling Factor (%)	PHF
Eastbound off-slip	ONE HOUR	Yes	757.00	100.000	N/A
Eastbound on-slip	(Exit-only)		(Exit-only)	(Exit-only)	(N/A)
A3064	ONE HOUR	Yes	454.00	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (Veh/hr)	Direct Demand Pedestrian Flow (Ped/hr)
07:45-08:00	**Eastbound off-slip**	569.91	581.31	N/A	N/A
07:45-08:00	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
07:45-08:00	**A3064**	341.80	358.88	N/A	N/A

08:00-08:15	**Eastbound off-slip**	680.53	694.14	N/A	N/A
08:00-08:15	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:00-08:15	**A3064**	408.14	428.54	N/A	N/A
08:15-08:30	**Eastbound off-slip**	833.47	850.14	N/A	N/A
08:15-08:30	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:15-08:30	**A3064**	499.86	524.86	N/A	N/A
08:30-08:45	**Eastbound off-slip**	833.47	850.14	N/A	N/A
08:30-08:45	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:30-08:45	**A3064**	499.86	524.86	N/A	N/A
08:45-09:00	**Eastbound off-slip**	680.53	694.14	N/A	N/A
08:45-09:00	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:45-09:00	**A3064**	408.14	428.54	N/A	N/A
09:00-09:15	**Eastbound off-slip**	569.91	581.31	N/A	N/A
09:00-09:15	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
09:00-09:15	**A3064**	341.80	358.88	N/A	N/A

Turning Proportions

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

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	757.00
	B	0.00	0.00	0.00
	C	0.00	454.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00
	B	0.33	0.33	0.33

	C	0.00	1.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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	1.00
	C	1.00	1.05	1.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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	0.00
	C	0.00	5.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	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/hr)
Eastbound off-slip	0.40	0.05	0.66	A	694.64	1041.95	43.71	0.04	0.49	43.71	0.04	0.859	2580.205
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)

A3064	0.05	0.01	0.06	A	416.60	624.90	4.12	0.01	0.05	4.12	0.01	0.621	9999.000

Main Results

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	569.91	142.48	568.54	0.00	341.65	0.00	2227.63	0.00	0.256	0.00	0.34
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	341.65	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	341.80	85.45	341.65	568.54	0.00	0.00	9522.86	9226.32	0.036	0.00	0.04

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	680.53	170.13	680.08	0.00	408.11	0.00	2168.89	0.00	0.314	0.34	0.46
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	408.11	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	408.14	102.03	408.11	680.08	0.00	0.00	9522.86	9226.32	0.043	0.04	0.04

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	833.47	208.37	832.65	0.00	499.82	0.00	2087.82	0.00	0.399	0.46	0.66
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	499.82	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	499.86	124.97	499.82	832.65	0.00	0.00	9522.86	9226.32	0.052	0.04	0.06

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	833.47	208.37	833.47	0.00	499.86	0.00	2087.78	0.00	0.399	0.66	0.66
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	499.86	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	499.86	124.97	499.86	833.47	0.00	0.00	9522.86	9226.32	0.052	0.06	0.06

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	680.53	170.13	681.34	0.00	408.18	0.00	2168.82	0.00	0.314	0.66	0.46
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	408.18	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	408.14	102.03	408.18	681.34	0.00	0.00	9522.86	9226.32	0.043	0.06	0.04

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	569.91	142.48	570.37	0.00	341.83	0.00	2227.47	0.00	0.256	0.46	0.34
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	341.83	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	341.80	85.45	341.83	570.37	0.00	0.00	9522.86	9226.32	0.036	0.04	0.04

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
Eastbound off-slip	5.06	0.34	0.036	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.56	0.04	0.007	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
Eastbound off-slip	6.75	0.45	0.040	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.67	0.04	0.007	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

Eastbound off-slip	9.75	0.65	0.048	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.83	0.06	0.007	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
Eastbound off-slip	9.93	0.66	0.048	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.83	0.06	0.007	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
Eastbound off-slip	6.99	0.47	0.040	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.67	0.04	0.007	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
Eastbound off-slip	5.23	0.35	0.036	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.56	0.04	0.007	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/hr)
Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00		0.859	2580.205
Eastbound on-	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes	(Exit-	(Exit-only)

slip								only)	
A3064	4.00	4.00	0.00	51.00	27.50	7.00		0.621	9999.000

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Pedestrian Demand (Ped/hr)	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	**Eastbound off-slip**	569.91	2227.63	0.256	0.00	0.00	0.34	5.06	(0.00)	0.036
07:45-08:00	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
07:45-08:00	**A3064**	341.80	9522.86	0.036	0.00	0.00	0.04	0.56	(0.00)	0.007
08:00-08:15	**Eastbound off-slip**	680.53	2168.89	0.314	0.00	0.34	0.46	6.75	(0.00)	0.040
08:00-08:15	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:00-08:15	**A3064**	408.14	9522.86	0.043	0.00	0.04	0.04	0.67	(0.00)	0.007
08:15-08:30	**Eastbound off-slip**	833.47	2087.82	0.399	0.00	0.46	0.66	9.75	(0.00)	0.048
08:15-08:30	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:15-08:30	**A3064**	499.86	9522.86	0.052	0.00	0.04	0.06	0.83	(0.00)	0.007
08:30-08:45	**Eastbound off-slip**	833.47	2087.78	0.399	0.00	0.66	0.66	9.93	(0.00)	0.048
08:30-08:45	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:30-08:45	**A3064**	499.86	9522.86	0.052	0.00	0.06	0.06	0.83	(0.00)	0.007
08:45-09:00	**Eastbound off-slip**	680.53	2168.82	0.314	0.00	0.66	0.46	6.99	(0.00)	0.040
08:45-09:00	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:45-09:00	**A3064**	408.14	9522.86	0.043	0.00	0.06	0.04	0.67	(0.00)	0.007
09:00-09:15	**Eastbound off-slip**	569.91	2227.47	0.256	0.00	0.46	0.34	5.23	(0.00)	0.036

09:00-09:15	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
09:00-09:15	**A3064**	341.80	9522.86	0.036	0.00	0.04	0.04	0.56	(0.00)	0.007

A1 - (Default Analysis Set) - D2 - 2014 Do Something, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2014 Do Something, PM	2014 Do Something	PM			Yes			15:45	17:15	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))	

Custom Capacity Adjustment

Use Adjustment	Reason	Slope Adjustment	Intercept Adjustment (PCU/hr)
Yes		0.000	0.000

Arms

Arms

ID	Name	Description
A	Eastbound off-slip	
B	Eastbound on-slip	
C	A3064	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Eastbound off-slip	0.00	99999.00		0.00
Eastbound on-slip	0.00	99999.00		0.00
A3064	0.00	99999.00		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
Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00	
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes
A3064	4.00	4.00	0.00	51.00	27.50	7.00	

Pedestrian Crossings

Arm	Crossing Type
Eastbound off-slip	None
Eastbound on-slip	None
A3064	None

Arm Slope/ Intercept and Capacity

Arm Intercept Adjustments

Arm	Use Adjustment	Reason	Direct Intercept Adjustment (PCU/hr)
Eastbound off-slip		N/A	N/A
Eastbound on-slip		N/A	N/A
A3064	Yes		8654.25

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Eastbound off-slip		((calculated))	((calculated))	0.859	2580.205
Eastbound on-slip		((calculated))	((calculated))	(Exit-only)	(Exit-only)
A3064		((calculated))	((calculated))	0.621	9999.000

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/hr)	Flow Scaling Factor (%)	PHF
Eastbound off-slip	ONE HOUR	Yes	316.00	100.000	N/A
Eastbound on-slip	(Exit-only)		(Exit-only)	(Exit-only)	(N/A)
A3064	ONE HOUR	Yes	902.00	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (Veh/hr)	Direct Demand Pedestrian Flow (Ped/hr)
15:45-16:00	Eastbound off-slip	237.90	242.66	N/A	N/A
15:45-16:00	Eastbound on-slip	(Exit-only)	0.00	N/A	N/A
15:45-16:00	A3064	679.07	692.65	N/A	N/A
16:00-16:15	Eastbound off-slip	284.08	289.76	N/A	N/A
16:00-16:15	Eastbound on-slip	(Exit-only)	0.00	N/A	N/A
16:00-16:15	A3064	810.88	827.10	N/A	N/A
16:15-16:30	Eastbound off-slip	347.92	354.88	N/A	N/A
16:15-16:30	Eastbound on-slip	(Exit-only)	0.00	N/A	N/A
16:15-16:30	A3064	993.12	1012.98	N/A	N/A
16:30-16:45	Eastbound off-slip	347.92	354.88	N/A	N/A
16:30-16:45	Eastbound on-slip	(Exit-only)	0.00	N/A	N/A
16:30-16:45	A3064	993.12	1012.98	N/A	N/A
16:45-17:00	Eastbound off-slip	284.08	289.76	N/A	N/A
16:45-17:00	Eastbound on-slip	(Exit-only)	0.00	N/A	N/A
16:45-17:00	A3064	810.88	827.10	N/A	N/A
17:00-17:15	Eastbound off-slip	237.90	242.66	N/A	N/A
17:00-17:15	Eastbound on-slip	(Exit-only)	0.00	N/A	N/A
17:00-17:15	A3064	679.07	692.65	N/A	N/A

Turning Proportions

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

		To		
From		A	B	C
	A	0.00	0.00	316.00
	B	0.00	0.00	0.00

	C	0.00	902.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00
	B	0.33	0.33	0.33
	C	0.00	1.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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	1.00
	C	1.00	1.02	1.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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	0.00
	C	0.00	2.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	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/hr)
Eastbound off-slip	0.21	0.05	0.26	A	289.97	434.95	17.45	0.04	0.19	17.45	0.04	0.859	2580.205
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.10	0.01	0.11	A	827.69	1241.54	8.31	0.01	0.09	8.31	0.01	0.621	9999.000

Main Results

Main results: (15:45-16:00)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	237.90	59.48	237.35	0.00	678.78	0.00	1946.78	0.00	0.122	0.00	0.14
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	678.78	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	679.07	169.77	678.78	237.35	0.00	0.00	9802.94	9497.68	0.069	0.00	0.07

Main results: (16:00-16:15)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	284.08	71.02	283.90	0.00	810.82	0.00	1833.41	0.00	0.155	0.14	0.18
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	810.82	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	810.88	202.72	810.82	283.90	0.00	0.00	9802.94	9497.68	0.083	0.07	0.09

Main results: (16:15-16:30)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	347.92	86.98	347.61	0.00	993.03	0.00	1676.95	0.00	0.207	0.18	0.26

Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	993.03	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	993.12	248.28	993.03	347.61	0.00	0.00	9802.94	9497.68	0.101	0.09	0.11

Main results: (16:30-16:45)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	347.92	86.98	347.92	0.00	993.12	0.00	1676.87	0.00	0.207	0.26	0.26
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	993.12	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	993.12	248.28	993.12	347.92	0.00	0.00	9802.94	9497.68	0.101	0.11	0.11

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	284.08	71.02	284.39	0.00	810.97	0.00	1833.27	0.00	0.155	0.26	0.18
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	810.97	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	810.88	202.72	810.97	284.39	0.00	0.00	9802.94	9497.68	0.083	0.11	0.09

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	237.90	59.48	238.08	0.00	679.14	0.00	1946.47	0.00	0.122	0.18	0.14
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	679.14	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	679.07	169.77	679.14	238.08	0.00	0.00	9802.94	9497.68	0.069	0.09	0.07

Queueing Delay Results

Queueing Delay results: (15:45-16:00)

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
Eastbound off-slip	2.06	0.14	0.035	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)

A3064	1.11	0.07	0.007	A	A

Queueing Delay results: (16:00-16:15)

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
Eastbound off-slip	2.71	0.18	0.039	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.35	0.09	0.007	A	A

Queueing Delay results: (16:15-16:30)

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
Eastbound off-slip	3.86	0.26	0.045	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.69	0.11	0.007	A	A

Queueing Delay results: (16:30-16:45)

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
Eastbound off-slip	3.92	0.26	0.045	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.69	0.11	0.007	A	A

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
Eastbound off-slip	2.79	0.19	0.039	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.36	0.09	0.007	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
Eastbound off-slip	2.12	0.14	0.035	A	A

Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.12	0.07	0.007	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/hr)
Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00		0.859	2580.205
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes	(Exit-only)	(Exit-only)
A3064	4.00	4.00	0.00	51.00	27.50	7.00		0.621	9999.000

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Pedestrian Demand (Ped/hr)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
15:45-16:00	**Eastbound off-slip**	237.90	1946.78	0.122	0.00	0.00	0.14	2.06	(0.00)	0.035
15:45-16:00	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
15:45-16:00	**A3064**	679.07	9802.94	0.069	0.00	0.00	0.07	1.11	(0.00)	0.007
16:00-16:15	**Eastbound off-slip**	284.08	1833.41	0.155	0.00	0.14	0.18	2.71	(0.00)	0.039
16:00-16:15	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
16:00-16:15	**A3064**	810.88	9802.94	0.083	0.00	0.07	0.09	1.35	(0.00)	0.007
16:15-16:30	**Eastbound off-slip**	347.92	1676.95	0.207	0.00	0.18	0.26	3.86	(0.00)	0.045
16:15-16:30	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)

16:15-16:30	**A3064**	993.12	9802.94	0.101	0.00	0.09	0.11	1.69	(0.00)	0.007
16:30-16:45	**Eastbound off-slip**	347.92	1676.87	0.207	0.00	0.26	0.26	3.92	(0.00)	0.045
16:30-16:45	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
16:30-16:45	**A3064**	993.12	9802.94	0.101	0.00	0.11	0.11	1.69	(0.00)	0.007
16:45-17:00	**Eastbound off-slip**	284.08	1833.27	0.155	0.00	0.26	0.18	2.79	(0.00)	0.039
16:45-17:00	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
16:45-17:00	**A3064**	810.88	9802.94	0.083	0.00	0.11	0.09	1.36	(0.00)	0.007
17:00-17:15	**Eastbound off-slip**	237.90	1946.47	0.122	0.00	0.18	0.14	2.12	(0.00)	0.035
17:00-17:15	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
17:00-17:15	**A3064**	679.07	9802.94	0.069	0.00	0.09	0.07	1.12	(0.00)	0.007

A1 - (Default Analysis Set) - D3 - 2014 Do Something MAX, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2014 Do Something MAX,	2014 Do Something MAX	AM			Yes			07:45	09:15	90	15	ONE HOUR

AM												

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))	

Custom Capacity Adjustment

Use Adjustment	Reason	Slope Adjustment	Intercept Adjustment (PCU/hr)
Yes		0.000	0.000

Arms

Arms

ID	Name	Description
A	Eastbound off-slip	
B	Eastbound on-slip	
C	A3064	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Eastbound off-slip	0.00	99999.00		0.00
Eastbound on-slip	0.00	99999.00		0.00
A3064	0.00	99999.00		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
Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00	
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes
A3064	4.00	4.00	0.00	51.00	27.50	7.00	

Pedestrian Crossings

Arm	Crossing Type
Eastbound off-slip	None
Eastbound on-slip	None
A3064	None

Arm Slope/ Intercept and Capacity

Arm Intercept Adjustments

Arm	Use Adjustment	Reason	Direct Intercept Adjustment (PCU/hr)
Eastbound off-slip		N/A	N/A
Eastbound on-slip		N/A	N/A
A3064	Yes		8654.25

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Eastbound off-slip		((calculated))	((calculated))	0.859	2580.205
Eastbound on-slip		((calculated))	((calculated))	(Exit-only)	(Exit-only)
A3064		((calculated))	((calculated))	0.621	9999.000

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/hr)	Flow Scaling Factor (%)	PHF
Eastbound off-slip	ONE HOUR	Yes	759.00	100.000	N/A
Eastbound on-slip	(Exit-only)		(Exit-only)	(Exit-only)	(N/A)
A3064	ONE HOUR	Yes	473.00	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (Veh/hr)	Direct Demand Pedestrian Flow (Ped/hr)
07:45-08:00	**Eastbound off-slip**	571.41	583.99	N/A	N/A
07:45-08:00	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
07:45-08:00	**A3064**	356.10	387.44	N/A	N/A
08:00-08:15	**Eastbound off-slip**	682.33	697.34	N/A	N/A
08:00-08:15	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:00-08:15	**A3064**	425.22	462.64	N/A	N/A
08:15-08:30	**Eastbound off-slip**	835.67	854.06	N/A	N/A
08:15-08:30	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:15-08:30	**A3064**	520.78	566.61	N/A	N/A
08:30-08:45	**Eastbound off-slip**	835.67	854.06	N/A	N/A
08:30-08:45	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:30-08:45	**A3064**	520.78	566.61	N/A	N/A

08:45-09:00	**Eastbound off-slip**	682.33	697.34	N/A	N/A
08:45-09:00	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:45-09:00	**A3064**	425.22	462.64	N/A	N/A
09:00-09:15	**Eastbound off-slip**	571.41	583.99	N/A	N/A
09:00-09:15	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
09:00-09:15	**A3064**	356.10	387.44	N/A	N/A

Turning Proportions

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

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	759.00
	B	0.00	0.00	0.00
	C	0.00	473.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00
	B	0.33	0.33	0.33
	C	0.00	1.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

Vehicle Mix

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

		To		
From		**A**	**B**	**C**

	A	1.00	1.00	1.02
	B	1.00	1.00	1.00
	C	1.00	1.09	1.00

Arm B is exit only and so the above grid should be ignored for this Arm.

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	2.20
	B	0.00	0.00	0.00
	C	0.00	8.80	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	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/hr)
Eastbound off-slip	0.41	0.05	0.69	A	696.47	1044.71	45.01	0.04	0.50	45.01	0.04	0.859	2580.205
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.06	0.01	0.06	A	434.03	651.05	4.46	0.01	0.05	4.46	0.01	0.621	9999.000

Main Results

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	571.41	142.85	570.02	0.00	355.94	0.00	2199.30	0.00	0.260	0.00	0.35
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	355.94	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-	(Exit-only)	(Exit-only)

									only)		
A3064	356.10	89.02	355.94	570.02	0.00	0.00	9190.26	8904.08	0.039	0.00	0.04

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	682.33	170.58	681.85	0.00	425.18	0.00	2136.00	0.00	0.319	0.35	0.47
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	425.18	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	425.22	106.30	425.18	681.85	0.00	0.00	9190.26	8904.08	0.046	0.04	0.05

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	835.67	208.92	834.80	0.00	520.74	0.00	2048.66	0.00	0.408	0.47	0.69
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	520.74	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	520.78	130.20	520.74	834.80	0.00	0.00	9190.26	8904.08	0.057	0.05	0.06

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	835.67	208.92	835.67	0.00	520.78	0.00	2048.61	0.00	0.408	0.69	0.69
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	520.78	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	520.78	130.20	520.78	835.67	0.00	0.00	9190.26	8904.08	0.057	0.06	0.06

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	682.33	170.58	683.19	0.00	425.26	0.00	2135.93	0.00	0.319	0.69	0.47
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	425.26	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	425.22	106.30	425.26	683.19	0.00	0.00	9190.26	8904.08	0.046	0.06	0.05

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	571.41	142.85	571.89	0.00	356.13	0.00	2199.12	0.00	0.260	0.47	0.35
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	356.13	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	356.10	89.02	356.13	571.89	0.00	0.00	9190.26	8904.08	0.039	0.05	0.04

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
Eastbound off-slip	5.17	0.34	0.037	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.60	0.04	0.007	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
Eastbound off-slip	6.92	0.46	0.041	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.73	0.05	0.007	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
Eastbound off-slip	10.10	0.67	0.049	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.90	0.06	0.007	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
Eastbound off-slip	10.29	0.69	0.049	A	A

Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.90	0.06	0.007	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
Eastbound off-slip	7.18	0.48	0.041	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.73	0.05	0.007	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
Eastbound off-slip	5.35	0.36	0.037	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.61	0.04	0.007	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/hr)
Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00		0.859	2580.205
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes	(Exit-only)	(Exit-only)
A3064	4.00	4.00	0.00	51.00	27.50	7.00		0.621	9999.000

Overview: Time Segment Results

Time Segment Results

Time	Arm	Demand	Capacity	RFC	Pedestrian Demand	Start Queue	End Queue	Queueing Total Delay	Geometric Total Delay	Average Delay Per

Segment		(Veh/hr)	(Veh/hr)		(Ped/hr)	(Veh)	(Veh)	(Veh-min)	(Veh-min)	Arriving Vehicle (min)
07:45-08:00	Eastbound off-slip	571.41	2199.30	0.260	0.00	0.00	0.35	5.17	(0.00)	0.037
07:45-08:00	Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
07:45-08:00	A3064	356.10	9190.26	0.039	0.00	0.00	0.04	0.60	(0.00)	0.007
08:00-08:15	Eastbound off-slip	682.33	2136.00	0.319	0.00	0.35	0.47	6.92	(0.00)	0.041
08:00-08:15	Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:00-08:15	A3064	425.22	9190.26	0.046	0.00	0.04	0.05	0.73	(0.00)	0.007
08:15-08:30	Eastbound off-slip	835.67	2048.66	0.408	0.00	0.47	0.69	10.10	(0.00)	0.049
08:15-08:30	Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:15-08:30	A3064	520.78	9190.26	0.057	0.00	0.05	0.06	0.90	(0.00)	0.007
08:30-08:45	Eastbound off-slip	835.67	2048.61	0.408	0.00	0.69	0.69	10.29	(0.00)	0.049
08:30-08:45	Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:30-08:45	A3064	520.78	9190.26	0.057	0.00	0.06	0.06	0.90	(0.00)	0.007
08:45-09:00	Eastbound off-slip	682.33	2135.93	0.319	0.00	0.69	0.47	7.18	(0.00)	0.041
08:45-09:00	Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:45-09:00	A3064	425.22	9190.26	0.046	0.00	0.06	0.05	0.73	(0.00)	0.007
09:00-09:15	Eastbound off-slip	571.41	2199.12	0.260	0.00	0.47	0.35	5.35	(0.00)	0.037
09:00-09:15	Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
09:00-09:15	A3064	356.10	9190.26	0.039	0.00	0.05	0.04	0.61	(0.00)	0.007

A1 - (Default Analysis Set) - D4 - 2014 Do Something MAX, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2014 Do Something MAX, PM	2014 Do Something MAX	PM			Yes			15:45	17:15	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))	

Custom Capacity Adjustment

Use Adjustment	Reason	Slope Adjustment	Intercept Adjustment (PCU/hr)
Yes		0.000	0.000

Arms

Arms

ID	Name	Description
A	Eastbound off-slip	
B	Eastbound on-slip	
C	A3064	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Eastbound off-slip	0.00	99999.00		0.00
Eastbound on-slip	0.00	99999.00		0.00
A3064	0.00	99999.00		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
Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00	
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes
A3064	4.00	4.00	0.00	51.00	27.50	7.00	

Pedestrian Crossings

Arm	Crossing Type
Eastbound off-slip	None
Eastbound on-slip	None
A3064	None

Arm Slope/ Intercept and Capacity

Arm Intercept Adjustments

Arm	Use Adjustment	Reason	Direct Intercept Adjustment (PCU/hr)
Eastbound off-slip		N/A	N/A
Eastbound on-slip		N/A	N/A
A3064	Yes		8654.25

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Eastbound off-slip		((calculated))	((calculated))	0.859	2580.205
Eastbound on-slip		((calculated))	((calculated))	(Exit-only)	(Exit-only)
A3064		((calculated))	((calculated))	0.621	9999.000

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/hr)	Flow Scaling Factor (%)	PHF
Eastbound off-slip	ONE HOUR	Yes	319.00	100.000	N/A
Eastbound on-slip	(Exit-only)		(Exit-only)	(Exit-only)	(N/A)
A3064	ONE HOUR	Yes	921.00	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (Veh/hr)	Direct Demand Pedestrian Flow (Ped/hr)
15:45-16:00	**Eastbound off-slip**	240.16	246.88	N/A	N/A

15:45-16:00	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
15:45-16:00	**A3064**	693.38	721.11	N/A	N/A
16:00-16:15	**Eastbound off-slip**	286.77	294.80	N/A	N/A
16:00-16:15	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
16:00-16:15	**A3064**	827.96	861.08	N/A	N/A
16:15-16:30	**Eastbound off-slip**	351.23	361.06	N/A	N/A
16:15-16:30	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
16:15-16:30	**A3064**	1014.04	1054.60	N/A	N/A
16:30-16:45	**Eastbound off-slip**	351.23	361.06	N/A	N/A
16:30-16:45	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
16:30-16:45	**A3064**	1014.04	1054.60	N/A	N/A
16:45-17:00	**Eastbound off-slip**	286.77	294.80	N/A	N/A
16:45-17:00	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
16:45-17:00	**A3064**	827.96	861.08	N/A	N/A
17:00-17:15	**Eastbound off-slip**	240.16	246.88	N/A	N/A
17:00-17:15	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
17:00-17:15	**A3064**	693.38	721.11	N/A	N/A

Turning Proportions

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

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	319.00
	B	0.00	0.00	0.00
	C	0.00	921.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00

	B	0.33	0.33	0.33
	C	0.00	1.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

Vehicle Mix

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

		To		
		A	**B**	**C**
From	**A**	1.00	1.00	1.03
	B	1.00	1.00	1.00
	C	1.00	1.04	1.00

Arm B is exit only and so the above grid should be ignored for this Arm.

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	2.80
	B	0.00	0.00	0.00
	C	0.00	4.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	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/hr)
Eastbound off-slip	0.22	0.05	0.27	A	292.72	439.08	18.20	0.04	0.20	18.20	0.04	0.859	2580.205

Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.11	0.01	0.12	A	845.13	1267.69	8.69	0.01	0.10	8.69	0.01	0.621	9999.000

Main Results

Main results: (15:45-16:00)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	240.16	60.04	239.59	0.00	693.07	0.00	1907.88	0.00	0.126	0.00	0.14
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	693.07	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	693.38	173.34	693.07	239.59	0.00	0.00	9614.42	9315.04	0.072	0.00	0.08

Main results: (16:00-16:15)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	286.77	71.69	286.59	0.00	827.89	0.00	1790.76	0.00	0.160	0.14	0.19
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	827.89	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	827.96	206.99	827.89	286.59	0.00	0.00	9614.42	9315.04	0.086	0.08	0.09

Main results: (16:15-16:30)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	351.23	87.81	350.89	0.00	1013.95	0.00	1629.14	0.00	0.216	0.19	0.27
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	1013.95	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1014.04	253.51	1013.95	350.89	0.00	0.00	9614.42	9315.04	0.105	0.09	0.12

Main results: (16:30-16:45)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	351.23	87.81	351.22	0.00	1014.04	0.00	1629.06	0.00	0.216	0.27	0.27
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	1014.04	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-	(Exit-only)	(Exit-only)

									only)		
A3064	1014.04	253.51	1014.04	351.22	0.00	0.00	9614.42	9315.04	0.105	0.12	0.12

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	286.77	71.69	287.11	0.00	828.05	0.00	1790.62	0.00	0.160	0.27	0.19
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	828.05	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	827.96	206.99	828.05	287.11	0.00	0.00	9614.42	9315.04	0.086	0.12	0.09

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	240.16	60.04	240.35	0.00	693.44	0.00	1907.55	0.00	0.126	0.19	0.14
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	693.44	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	693.38	173.34	693.44	240.35	0.00	0.00	9614.42	9315.04	0.072	0.09	0.08

Queueing Delay Results

Queueing Delay results: (15:45-16:00)

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
Eastbound off-slip	2.13	0.14	0.036	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.16	0.08	0.007	A	A

Queueing Delay results: (16:00-16:15)

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
Eastbound off-slip	2.82	0.19	0.040	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.41	0.09	0.007	A	A

Queueing Delay results: (16:15-16:30)

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
Eastbound off-slip	4.05	0.27	0.047	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.76	0.12	0.007	A	A

Queueing Delay results: (16:30-16:45)

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
Eastbound off-slip	4.11	0.27	0.047	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.77	0.12	0.007	A	A

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
Eastbound off-slip	2.91	0.19	0.040	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.42	0.09	0.007	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
Eastbound off-slip	2.19	0.15	0.036	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.17	0.08	0.007	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/hr)

Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00		0.859	2580.205
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes	(Exit-only)	(Exit-only)
A3064	4.00	4.00	0.00	51.00	27.50	7.00		0.621	9999.000

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Pedestrian Demand (Ped/hr)	Start Queue (Veh)	End Queue (Veh)	Queueing Total Delay (Veh-min)	Geometric Total Delay (Veh-min)	Average Delay Per Arriving Vehicle (min)
15:45-16:00	**Eastbound off-slip**	240.16	1907.88	0.126	0.00	0.00	0.14	2.13	(0.00)	0.036
15:45-16:00	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
15:45-16:00	**A3064**	693.38	9614.42	0.072	0.00	0.00	0.08	1.16	(0.00)	0.007
16:00-16:15	**Eastbound off-slip**	286.77	1790.76	0.160	0.00	0.14	0.19	2.82	(0.00)	0.040
16:00-16:15	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
16:00-16:15	**A3064**	827.96	9614.42	0.086	0.00	0.08	0.09	1.41	(0.00)	0.007
16:15-16:30	**Eastbound off-slip**	351.23	1629.14	0.216	0.00	0.19	0.27	4.05	(0.00)	0.047
16:15-16:30	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
16:15-16:30	**A3064**	1014.04	9614.42	0.105	0.00	0.09	0.12	1.76	(0.00)	0.007
16:30-16:45	**Eastbound off-slip**	351.23	1629.06	0.216	0.00	0.27	0.27	4.11	(0.00)	0.047
16:30-16:45	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
16:30-16:45	**A3064**	1014.04	9614.42	0.105	0.00	0.12	0.12	1.77	(0.00)	0.007
16:45-17:00	**Eastbound off-slip**	286.77	1790.62	0.160	0.00	0.27	0.19	2.91	(0.00)	0.040
16:45-17:00	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)

16:45-17:00	**A3064**	827.96	9614.42	0.086	0.00	0.12	0.09	1.42	(0.00)	0.007
17:00-17:15	**Eastbound off-slip**	240.16	1907.55	0.126	0.00	0.19	0.14	2.19	(0.00)	0.036
17:00-17:15	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
17:00-17:15	**A3064**	693.38	9614.42	0.072	0.00	0.09	0.08	1.17	(0.00)	0.007

A1 - (Default Analysis Set) - D5 - 2014 Do Minimum, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2014 Do Minimum, AM	2014 Do Minimum	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))	

Custom Capacity Adjustment

Use Adjustment	Reason	Slope Adjustment	Intercept Adjustment (PCU/hr)
Yes		0.000	0.000

Arms

Arms

ID	Name	Description
A	Eastbound off-slip	
B	Eastbound on-slip	
C	A3064	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Eastbound off-slip	0.00	99999.00		0.00
Eastbound on-slip	0.00	99999.00		0.00
A3064	0.00	99999.00		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
Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00	
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes
A3064	4.00	4.00	0.00	51.00	27.50	7.00	

Pedestrian Crossings

Arm	Crossing Type

Eastbound off-slip	None
Eastbound on-slip	None
A3064	None

Arm Slope/ Intercept and Capacity

Arm Intercept Adjustments

Arm	Use Adjustment	Reason	Direct Intercept Adjustment (PCU/hr)
Eastbound off-slip		N/A	N/A
Eastbound on-slip		N/A	N/A
A3064	Yes		8654.25

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Eastbound off-slip		((calculated))	((calculated))	0.859	2580.205
Eastbound on-slip		((calculated))	((calculated))	(Exit-only)	(Exit-only)
A3064		((calculated))	((calculated))	0.621	9999.000

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/hr)	Flow Scaling Factor (%)	PHF
Eastbound off-slip	ONE HOUR	Yes	755.00	100.000	N/A
Eastbound on-slip	(Exit-only)		(Exit-only)	(Exit-only)	(N/A)
A3064	ONE HOUR	Yes	448.00	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (Veh/hr)	Direct Demand Pedestrian Flow (Ped/hr)
07:45-08:00	**Eastbound off-slip**	568.40	579.77	N/A	N/A
07:45-08:00	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
07:45-08:00	**A3064**	337.28	350.77	N/A	N/A
08:00-08:15	**Eastbound off-slip**	678.73	692.30	N/A	N/A
08:00-08:15	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:00-08:15	**A3064**	402.74	418.85	N/A	N/A
08:15-08:30	**Eastbound off-slip**	831.27	847.90	N/A	N/A
08:15-08:30	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:15-08:30	**A3064**	493.26	512.99	N/A	N/A
08:30-08:45	**Eastbound off-slip**	831.27	847.90	N/A	N/A
08:30-08:45	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:30-08:45	**A3064**	493.26	512.99	N/A	N/A
08:45-09:00	**Eastbound off-slip**	678.73	692.30	N/A	N/A
08:45-09:00	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
08:45-09:00	**A3064**	402.74	418.85	N/A	N/A
09:00-09:15	**Eastbound off-slip**	568.40	579.77	N/A	N/A
09:00-09:15	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
09:00-09:15	**A3064**	337.28	350.77	N/A	N/A

Turning Proportions

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

		To		
		A	B	C
From	A	0.00	0.00	755.00
	B	0.00	0.00	0.00
	C	0.00	448.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.33	0.33	0.33
	C	0.00	1.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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	1.00
	C	1.00	1.04	1.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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	0.00

	C	0.00	4.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	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/hr)
Eastbound off-slip	0.40	0.05	0.65	A	692.80	1039.20	43.27	0.04	0.48	43.27	0.04	0.859	2580.205
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.05	0.01	0.05	A	411.09	616.64	4.02	0.01	0.04	4.02	0.01	0.621	9999.000

Main Results

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	568.40	142.10	567.04	0.00	337.13	0.00	2234.46	0.00	0.254	0.00	0.34
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	337.13	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	337.28	84.32	337.13	567.04	0.00	0.00	9614.42	9315.04	0.035	0.00	0.04

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	678.73	169.68	678.28	0.00	402.71	0.00	2177.04	0.00	0.312	0.34	0.45
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	402.71	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	402.74	100.69	402.71	678.28	0.00	0.00	9614.42	9315.04	0.042	0.04	0.04

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	831.27	207.82	830.46	0.00	493.22	0.00	2097.81	0.00	0.396	0.45	0.65
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	493.22	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	493.26	123.31	493.22	830.46	0.00	0.00	9614.42	9315.04	0.051	0.04	0.05

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	831.27	207.82	831.26	0.00	493.26	0.00	2097.77	0.00	0.396	0.65	0.65
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	493.26	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	493.26	123.31	493.26	831.26	0.00	0.00	9614.42	9315.04	0.051	0.05	0.05

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	678.73	169.68	679.53	0.00	402.78	0.00	2176.98	0.00	0.312	0.65	0.45
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	402.78	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	402.74	100.69	402.78	679.53	0.00	0.00	9614.42	9315.04	0.042	0.05	0.04

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	568.40	142.10	568.85	0.00	337.31	0.00	2234.30	0.00	0.254	0.45	0.34
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	337.31	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	337.28	84.32	337.31	568.85	0.00	0.00	9614.42	9315.04	0.035	0.04	0.04

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
Eastbound off-slip	5.02	0.34	0.036	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.54	0.04	0.006	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
Eastbound off-slip	6.69	0.45	0.040	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.65	0.04	0.006	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
Eastbound off-slip	9.63	0.64	0.047	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.81	0.05	0.007	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
Eastbound off-slip	9.81	0.65	0.047	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.81	0.05	0.007	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
Eastbound off-slip	6.92	0.46	0.040	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.66	0.04	0.006	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
Eastbound off-slip	5.19	0.35	0.036	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.55	0.04	0.006	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/hr)
Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00		0.859	2580.205
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes	(Exit-only)	(Exit-only)
A3064	4.00	4.00	0.00	51.00	27.50	7.00		0.621	9999.000

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Pedestrian Demand (Ped/hr)	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	**Eastbound off-slip**	568.40	2234.46	0.254	0.00	0.00	0.34	5.02	(0.00)	0.036
07:45-08:00	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
07:45-08:00	**A3064**	337.28	9614.42	0.035	0.00	0.00	0.04	0.54	(0.00)	0.006
08:00-08:15	**Eastbound off-slip**	678.73	2177.04	0.312	0.00	0.34	0.45	6.69	(0.00)	0.040
08:00-08:15	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:00-08:15	**A3064**	402.74	9614.42	0.042	0.00	0.04	0.04	0.65	(0.00)	0.006
08:15-08:30	**Eastbound off-**	831.27	2097.81	0.396	0.00	0.45	0.65	9.63	(0.00)	0.047

	slip									
08:15-08:30	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:15-08:30	**A3064**	493.26	9614.42	0.051	0.00	0.04	0.05	0.81	(0.00)	0.007
08:30-08:45	**Eastbound off-slip**	831.27	2097.77	0.396	0.00	0.65	0.65	9.81	(0.00)	0.047
08:30-08:45	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:30-08:45	**A3064**	493.26	9614.42	0.051	0.00	0.05	0.05	0.81	(0.00)	0.007
08:45-09:00	**Eastbound off-slip**	678.73	2176.98	0.312	0.00	0.65	0.45	6.92	(0.00)	0.040
08:45-09:00	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
08:45-09:00	**A3064**	402.74	9614.42	0.042	0.00	0.05	0.04	0.66	(0.00)	0.006
09:00-09:15	**Eastbound off-slip**	568.40	2234.30	0.254	0.00	0.45	0.34	5.19	(0.00)	0.036
09:00-09:15	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
09:00-09:15	**A3064**	337.28	9614.42	0.035	0.00	0.04	0.04	0.55	(0.00)	0.006

A1 - (Default Analysis Set) - D6 - 2014 Do Minimum, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Demand Set Details

Name	Scenario Name	Time Period	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

		Name										
2014 Do Minimum, PM	2014 Do Minimum	PM			Yes			15:45	17:15	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))	

Custom Capacity Adjustment

Use Adjustment	Reason	Slope Adjustment	Intercept Adjustment (PCU/hr)
Yes		0.000	0.000

Arms

Arms

ID	Name	Description
A	Eastbound off-slip	
B	Eastbound on-slip	
C	A3064	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Eastbound off-slip	0.00	99999.00		0.00
Eastbound on-slip	0.00	99999.00		0.00

A3064	0.00	99999.00		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
Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00	
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes
A3064	4.00	4.00	0.00	51.00	27.50	7.00	

Pedestrian Crossings

Arm	Crossing Type
Eastbound off-slip	None
Eastbound on-slip	None
A3064	None

Arm Slope/ Intercept and Capacity

Arm Intercept Adjustments

Arm	Use Adjustment	Reason	Direct Intercept Adjustment (PCU/hr)
Eastbound off-slip		N/A	N/A
Eastbound on-slip		N/A	N/A
A3064	Yes		8654.25

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Eastbound off-slip		((calculated))	((calculated))	0.859	2580.205
Eastbound on-slip		((calculated))	((calculated))	(Exit-only)	(Exit-only)
A3064		((calculated))	((calculated))	0.621	9999.000

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/hr)	Flow Scaling Factor (%)	PHF
Eastbound off-slip	ONE HOUR	Yes	316.00	100.000	N/A
Eastbound on-slip	(Exit-only)		(Exit-only)	(Exit-only)	(N/A)
A3064	ONE HOUR	Yes	891.00	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (Veh/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (Veh/hr)	Direct Demand Pedestrian Flow (Ped/hr)
15:45-16:00	**Eastbound off-slip**	237.90	242.66	N/A	N/A
15:45-16:00	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
15:45-16:00	**A3064**	670.79	677.50	N/A	N/A
16:00-16:15	**Eastbound off-slip**	284.08	289.76	N/A	N/A
16:00-16:15	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
16:00-16:15	**A3064**	800.99	809.00	N/A	N/A
16:15-16:30	**Eastbound off-slip**	347.92	354.88	N/A	N/A
16:15-16:30	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
16:15-16:30	**A3064**	981.01	990.82	N/A	N/A
16:30-16:45	**Eastbound off-slip**	347.92	354.88	N/A	N/A
16:30-16:45	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A

16:30-16:45	**A3064**	981.01	990.82	N/A	N/A
16:45-17:00	**Eastbound off-slip**	284.08	289.76	N/A	N/A
16:45-17:00	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
16:45-17:00	**A3064**	800.99	809.00	N/A	N/A
17:00-17:15	**Eastbound off-slip**	237.90	242.66	N/A	N/A
17:00-17:15	**Eastbound on-slip**	(Exit-only)	0.00	N/A	N/A
17:00-17:15	**A3064**	670.79	677.50	N/A	N/A

Turning Proportions

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

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	316.00
	B	0.00	0.00	0.00
	C	0.00	891.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

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

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00
	B	0.33	0.33	0.33
	C	0.00	1.00	0.00

Arm B is exit only and so the above grid should be ignored for this Arm.

Vehicle Mix

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

	To

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

Arm B is exit only and so the above grid should be ignored for this Arm.

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

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

Arm B is exit only and so the above grid should be ignored for this Arm.

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	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/hr)
Eastbound off-slip	0.21	0.04	0.26	A	289.97	434.95	17.26	0.04	0.19	17.26	0.04	0.859	2580.205
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	0.10	0.01	0.11	A	817.60	1226.40	8.12	0.01	0.09	8.12	0.01	0.621	9999.000

Main Results

Main results: (15:45-16:00)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	237.90	59.48	237.35	0.00	670.50	0.00	1959.53	0.00	0.121	0.00	0.14

Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	670.50	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	670.79	167.70	670.50	237.35	0.00	0.00	9900.00	9591.72	0.068	0.00	0.07

Main results: (16:00-16:15)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	284.08	71.02	283.90	0.00	800.93	0.00	1848.64	0.00	0.154	0.14	0.18
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	800.93	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	800.99	200.25	800.93	283.90	0.00	0.00	9900.00	9591.72	0.081	0.07	0.09

Main results: (16:15-16:30)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	347.92	86.98	347.62	0.00	980.92	0.00	1695.60	0.00	0.205	0.18	0.26
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	980.92	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	981.01	245.25	980.92	347.62	0.00	0.00	9900.00	9591.72	0.099	0.09	0.11

Main results: (16:30-16:45)

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	347.92	86.98	347.92	0.00	981.01	0.00	1695.53	0.00	0.205	0.26	0.26
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	981.01	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	981.01	245.25	981.01	347.92	0.00	0.00	9900.00	9591.72	0.099	0.11	0.11

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	284.08	71.02	284.38	0.00	801.08	0.00	1848.51	0.00	0.154	0.26	0.18
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	801.08	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	800.99	200.25	801.08	284.38	0.00	0.00	9900.00	9591.72	0.081	0.11	0.09

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

Arm	Demand (Veh/hr)	Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)
Eastbound off-slip	237.90	59.48	238.08	0.00	670.85	0.00	1959.23	0.00	0.121	0.18	0.14
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	670.85	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	670.79	167.70	670.85	238.08	0.00	0.00	9900.00	9591.72	0.068	0.09	0.07

Queueing Delay Results

Queueing Delay results: (15:45-16:00)

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
Eastbound off-slip	2.04	0.14	0.035	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.09	0.07	0.006	A	A

Queueing Delay results: (16:00-16:15)

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
Eastbound off-slip	2.69	0.18	0.038	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.32	0.09	0.007	A	A

Queueing Delay results: (16:15-16:30)

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
Eastbound off-slip	3.81	0.25	0.045	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.64	0.11	0.007	A	A

Queueing Delay results: (16:30-16:45)

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
Eastbound off-slip	3.86	0.26	0.045	A	A

Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.65	0.11	0.007	A	A

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
Eastbound off-slip	2.76	0.18	0.038	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.32	0.09	0.007	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
Eastbound off-slip	2.10	0.14	0.035	A	A
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
A3064	1.09	0.07	0.007	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/hr)
Eastbound off-slip	7.50	8.50	4.00	50.00	27.50	22.00		0.859	2580.205
Eastbound on-slip	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes	(Exit-only)	(Exit-only)
A3064	4.00	4.00	0.00	51.00	27.50	7.00		0.621	9999.000

Overview: Time Segment Results

Time Segment Results

Time	Arm	Demand	Capacity	RFC	Pedestrian Demand	Start Queue	End Queue	Queueing Total Delay	Geometric Total Delay	Average Delay Per

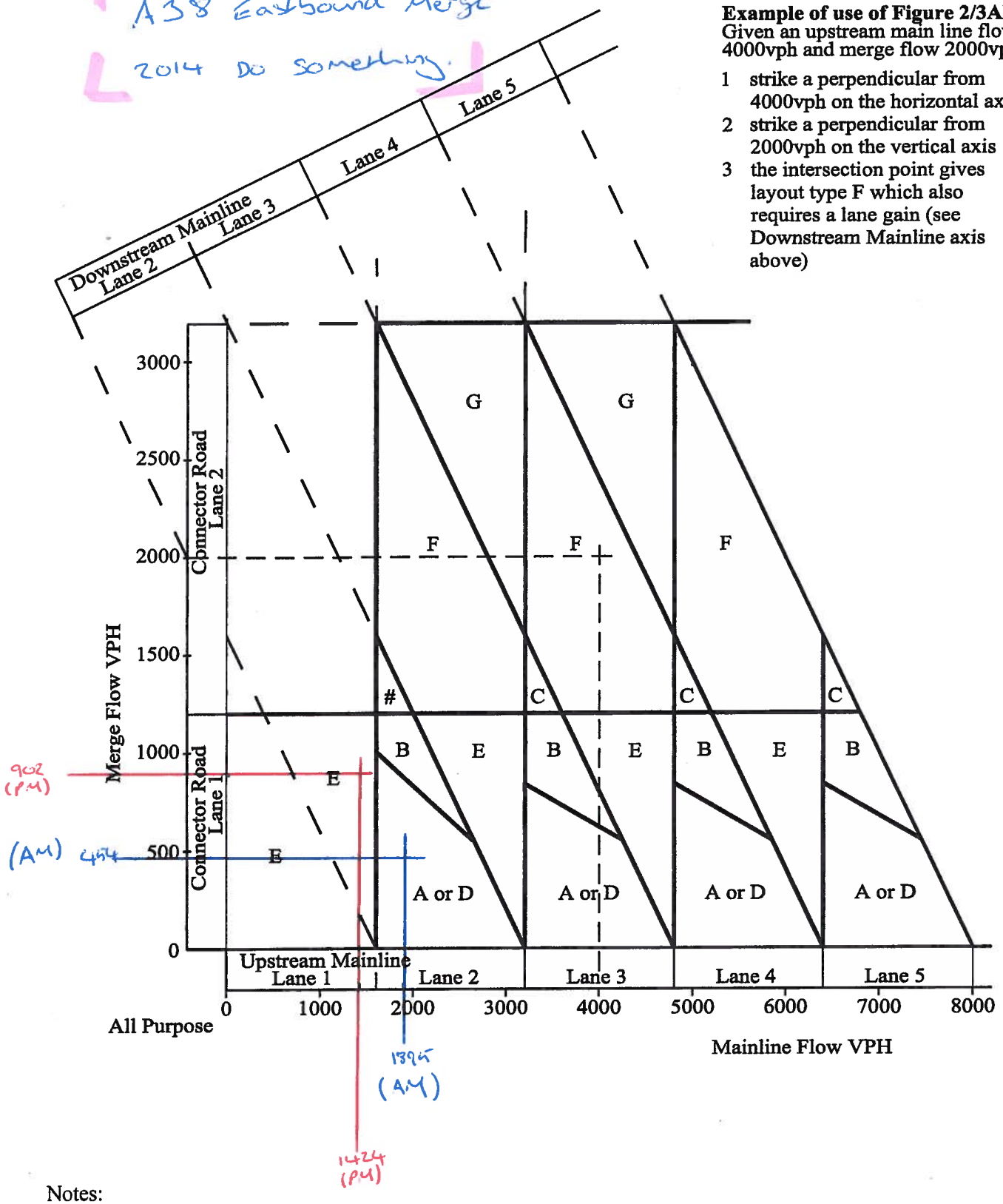
Segment		(Veh/hr)	(Veh/hr)		(Ped/hr)	(Veh)	(Veh)	(Veh-min)	(Veh-min)	Arriving Vehicle (min)
15:45-16:00	**Eastbound off-slip**	237.90	1959.53	0.121	0.00	0.00	0.14	2.04	(0.00)	0.035
15:45-16:00	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
15:45-16:00	**A3064**	670.79	9900.00	0.068	0.00	0.00	0.07	1.09	(0.00)	0.006
16:00-16:15	**Eastbound off-slip**	284.08	1848.64	0.154	0.00	0.14	0.18	2.69	(0.00)	0.038
16:00-16:15	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
16:00-16:15	**A3064**	800.99	9900.00	0.081	0.00	0.07	0.09	1.32	(0.00)	0.007
16:15-16:30	**Eastbound off-slip**	347.92	1695.60	0.205	0.00	0.18	0.26	3.81	(0.00)	0.045
16:15-16:30	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
16:15-16:30	**A3064**	981.01	9900.00	0.099	0.00	0.09	0.11	1.64	(0.00)	0.007
16:30-16:45	**Eastbound off-slip**	347.92	1695.53	0.205	0.00	0.26	0.26	3.86	(0.00)	0.045
16:30-16:45	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
16:30-16:45	**A3064**	981.01	9900.00	0.099	0.00	0.11	0.11	1.65	(0.00)	0.007
16:45-17:00	**Eastbound off-slip**	284.08	1848.51	0.154	0.00	0.26	0.18	2.76	(0.00)	0.038
16:45-17:00	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
16:45-17:00	**A3064**	800.99	9900.00	0.081	0.00	0.11	0.09	1.32	(0.00)	0.007
17:00-17:15	**Eastbound off-slip**	237.90	1959.23	0.121	0.00	0.18	0.14	2.10	(0.00)	0.035
17:00-17:15	**Eastbound on-slip**	(Exit-only)	(Exit-only)	(Exit-only)	0.00	(Exit-only)	(Exit-only)	(Exit-only)	(0.00)	(Exit-only)
17:00-17:15	**A3064**	670.79	9900.00	0.068	0.00	0.09	0.07	1.09	(0.00)	0.007

Appendix B

A38 Eastbound Merge
2014 Do Something.

Example of use of Figure 2/3AP
Given an upstream main line flow 4000vph and merge flow 2000vph.

1 strike a perpendicular from 4000vph on the horizontal axis
2 strike a perpendicular from 2000vph on the vertical axis
3 the intersection point gives layout type F which also requires a lane gain (see Downstream Mainline axis above)



Notes:

\# Area of uncertainty – In this area the choice will depend on the downstream provision. If there is a lane gain then use Layout E or F.

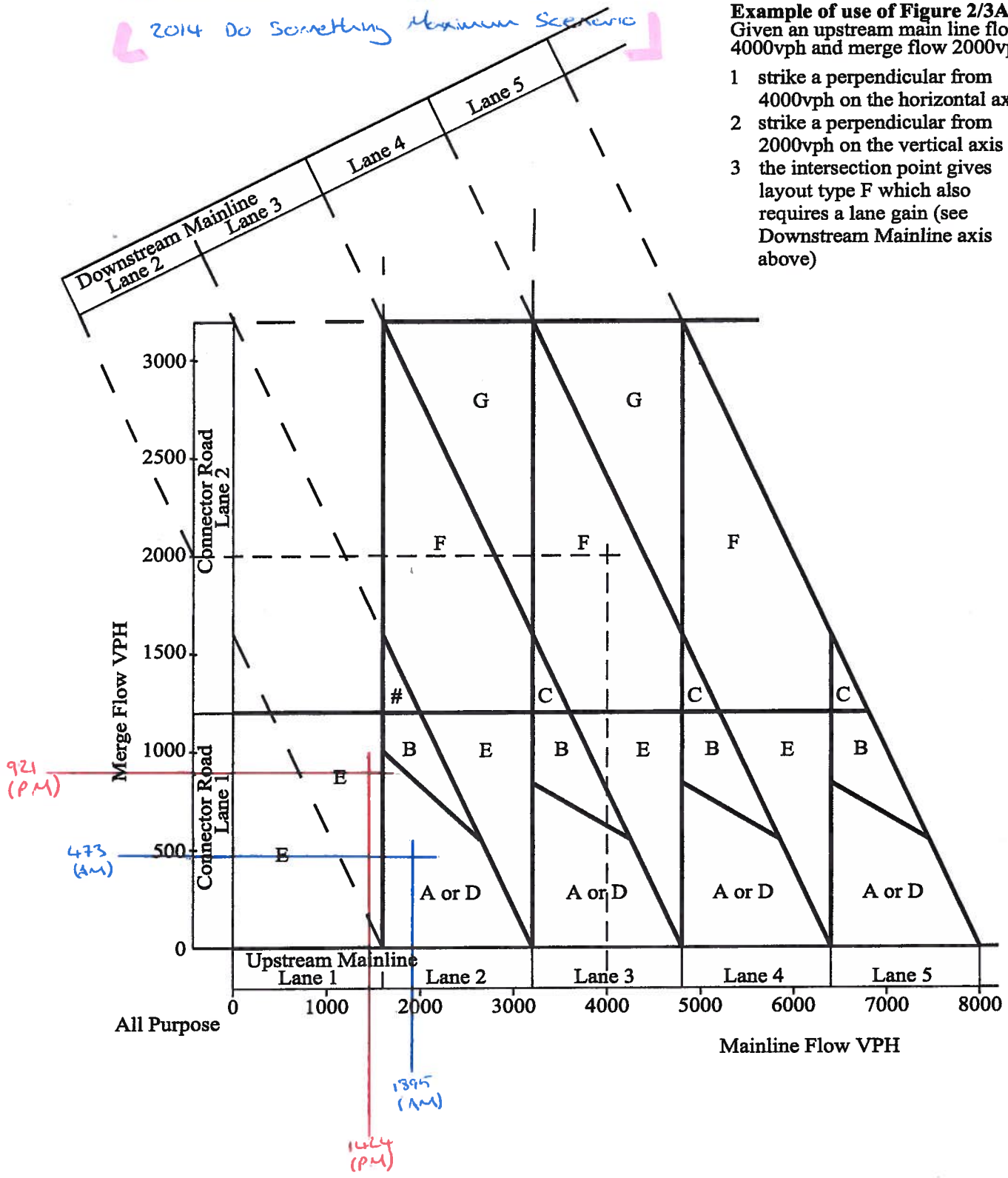
See paragraph 2.29 and the example above, for explanation of the usage of this diagram.

Figure 2/3 AP All-Purpose Road Merging Diagram

A38 Eastbound Merge
2014 Do Something Maximum Scenario

Example of use of Figure 2/3AP
Given an upstream main line flow 4000vph and merge flow 2000vph.

1 strike a perpendicular from 4000vph on the horizontal axis
2 strike a perpendicular from 2000vph on the vertical axis
3 the intersection point gives layout type F which also requires a lane gain (see Downstream Mainline axis above)



Notes:

\# Area of uncertainty – In this area the choice will depend on the downstream provision. If there is a lane gain then use Layout E or F.

See paragraph 2.29 and the example above, for explanation of the usage of this diagram.

Figure 2/3 AP All-Purpose Road Merging Diagram