

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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Run with file:-

"C:\E DRIVE DOCS\WORKING JOB FILES\Bicester\Oct 2010 onwards\Junction Capacity\Site 1\Proposed WSP Rnbt\
Site 1 - Prop Rnbt AM flows with Exemplar devt A.vai"
(drive-on-the-left) at 08:38:22 on Wednesday, 24 November 2010

FILE PROPERTIES

RUN TITLE: Proposed A4095 Howes Lane / B4030 Middleton Stoney Rd Roundabout
LOCATION: Bicester
DATE: 02/11/10
CLIENT: P3 Eco Ltd
ENUMERATOR: msu02620 [HCL55810]
JOB NUMBER: UA01881
STATUS: Preliminary
DESCRIPTION: 2026 AM peak hour with Exemplar Development. Note from supplied
traffic flows arming convention was in wrong format for Arcady
and has been revised accordingly

INPUT DATA

ARM A - A4095 Howes Lane (north)
ARM B - B4030 Middleton Stoney Road (east)
ARM C - A4095 (south)
ARM D - B4030 Middleton Stoney Road (west)

GEOMETRIC DATA

I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I
I	ARM A	I	3.40	I	6.21	I	9.80	I	21.00	I	54.00	I	18.0	I	0.572	I	25.651	I
I	ARM B	I	3.65	I	6.90	I	7.70	I	20.00	I	54.00	I	40.0	I	0.538	I	24.533	I
I	ARM C	I	4.13	I	7.13	I	8.80	I	25.00	I	54.00	I	20.0	I	0.613	I	29.352	I
I	ARM D	I	3.50	I	7.10	I	5.90	I	20.00	I	54.00	I	26.5	I	0.547	I	24.122	I

V = approach half-width
E = entry width

L = effective flare length
R = entry radius

D = inscribed circle diameter
PHI = entry angle

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

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

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2016 AM peak w/o exemplar

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	IF FLOW FALLS	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	5.57	I	8.36	I	5.57	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.43	I	6.64	I	4.43	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	2.67	I	4.01	I	2.67	I
I	ARM D	I	15.00	I	45.00	I	75.00	I	4.11	I	6.17	I	4.11	I

DEMAND SET TITLE: 2016 AM peak w/o exemplar

I	TIME	I	FROM/TO	I	ARM A	I	ARM B	I	ARM C	I	ARM D	I
I	07.45 - 09.15	I	ARM A	I	0.000	I	0.126	I	0.677	I	0.197	I
I		I		I	0.0	I	56.0	I	302.0	I	88.0	I
I		I		I	(0.0)	I	(0.0)	I	(2.1)	I	(3.1)	I
I		I	ARM B	I	0.059	I	0.000	I	0.432	I	0.508	I
I		I		I	21.0	I	0.0	I	153.0	I	180.0	I
I		I		I	(0.0)	I	(0.0)	I	(1.8)	I	(9.5)	I
I		I	ARM C	I	0.486	I	0.458	I	0.000	I	0.056	I
I		I		I	104.0	I	98.0	I	0.0	I	12.0	I
I		I		I	(4.5)	I	(6.4)	I	(0.0)	I	(0.0)	I
I		I	ARM D	I	0.198	I	0.769	I	0.033	I	0.000	I
I		I		I	65.0	I	253.0	I	11.0	I	0.0	I
I		I		I	(9.7)	I	(10.6)	I	(0.0)	I	(0.0)	I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

I	TIME	I	DEMAND (VEH/MIN)	I	CAPACITY (VEH/MIN)	I	DEMAND/CAPACITY (RFC)	I	PEDESTRIAN FLOW (PEDS/MIN)	I	START QUEUE (VEHS)	I	END QUEUE (VEHS)	I	DELAY (VEH.MIN/ TIME SEGMENT)	I	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	07.45-08.00	I		I		I		I		I		I		I		I		I		I
I	ARM A	I	5.57	I	22.38	I	0.249	I		I	0.0	I	0.3	I	4.8	I		I	0.06	I
I	ARM B	I	4.43	I	20.63	I	0.215	I		I	0.0	I	0.3	I	4.0	I		I	0.06	I
I	ARM C	I	2.67	I	25.68	I	0.104	I		I	0.0	I	0.1	I	1.7	I		I	0.04	I
I	ARM D	I	4.11	I	20.47	I	0.201	I		I	0.0	I	0.3	I	3.7	I		I	0.06	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)
08.00-08.15									
ARM A	6.66	21.84	0.305		0.3	0.4	6.4		0.07
ARM B	5.28	20.11	0.263		0.3	0.4	5.2		0.07
ARM C	3.19	25.24	0.127		0.1	0.1	2.1		0.05
ARM D	4.91	20.18	0.243		0.3	0.3	4.7		0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
ARM A	8.15	21.09	0.387		0.4	0.6	9.2		0.08
ARM B	6.47	19.42	0.333		0.4	0.5	7.3		0.08
ARM C	3.91	24.64	0.159		0.1	0.2	2.8		0.05
ARM D	6.01	19.79	0.304		0.3	0.4	6.4		0.07

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08.30-08.45									
ARM A	8.15	21.09	0.387		0.6	0.6	9.4		0.08
ARM B	6.47	19.41	0.333		0.5	0.5	7.5		0.08
ARM C	3.91	24.63	0.159		0.2	0.2	2.8		0.05
ARM D	6.01	19.79	0.304		0.4	0.4	6.5		0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
ARM A	6.66	21.83	0.305		0.6	0.4	6.8		0.07
ARM B	5.28	20.11	0.263		0.5	0.4	5.5		0.07
ARM C	3.19	25.23	0.127		0.2	0.1	2.2		0.05
ARM D	4.91	20.18	0.243		0.4	0.3	4.9		0.07

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									
ARM A	5.57	22.37	0.249		0.4	0.3	5.1		0.06
ARM B	4.43	20.61	0.215		0.4	0.3	4.2		0.06
ARM C	2.67	25.67	0.104		0.1	0.1	1.8		0.04
ARM D	4.11	20.46	0.201		0.3	0.3	3.9		0.06

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.4
08.30	0.6 *
08.45	0.6 *
09.00	0.4
09.15	0.3

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.4
08.30	0.5
08.45	0.5
09.00	0.4
09.15	0.3

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.1
08.30	0.2
08.45	0.2
09.00	0.1
09.15	0.1

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.3

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I	* DELAY *	I	* DELAY *	I
I		I	(VEH)	I	(MIN)	I	(MIN)	I
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I
I	A	I	611.6	I	41.7	I	0.07	I
I	B	I	485.4	I	33.6	I	0.07	I
I	C	I	293.4	I	13.4	I	0.05	I
I	D	I	451.1	I	30.1	I	0.07	I
I	ALL	I	1841.5	I	118.8	I	0.06	I

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

END OF JOB

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

[Printed at 08:40:02 on 24/11/2010]