

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 PM flows with Exemplar devt A.vai"
(drive-on-the-left) at 08:44:55 on Wednesday, 24 November 2010

FILE PROPERTIES

RUN TITLE: Proposed A4095 Howes Lane / B4030 Middleton Stoney Rd Roundabout - 2026 PM Flows

LOCATION: Bicester

DATE: 02/11/10

CLIENT: P3 Eco Ltd

ENUMERATOR: msu02620 [HCL55810]

JOB NUMBER: UA01881

STATUS: Preliminary

DESCRIPTION: 2026 PM peak hours 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

L = effective flare length

D = inscribed circle diameter

E = entry width

R = entry radius

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 16.45 AND ENDS 18.15

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 w/o exemplar PM peak

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	IF FLOW STOPS FALLING	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	3.44	I	5.16	I	3.44	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	5.32	I	7.99	I	5.32	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	5.36	I	8.04	I	5.36	I
I	ARM D	I	15.00	I	45.00	I	75.00	I	5.39	I	8.08	I	5.39	I

DEMAND SET TITLE: 2016 w/o exemplar PM peak

I	TIME	I	FROM/TO	I	ARM A	I	ARM B	I	ARM C	I	ARM D	I
I	16.45 - 18.15	I	ARM A	I	0.000	I	0.113	I	0.582	I	0.305	I
I		I		I	0.0	I	31.0	I	160.0	I	84.0	I
I		I		I	(0.0)	I	(0.0)	I	(0.9)	I	(0.0)	I
I		I	ARM B	I	0.209	I	0.000	I	0.279	I	0.512	I
I		I		I	89.0	I	0.0	I	119.0	I	218.0	I
I		I		I	(3.1)	I	(0.0)	I	(0.8)	I	(0.4)	I
I		I	ARM C	I	0.643	I	0.322	I	0.000	I	0.035	I
I		I		I	276.0	I	138.0	I	0.0	I	15.0	I
I		I		I	(1.9)	I	(0.7)	I	(0.0)	I	(0.0)	I
I		I	ARM D	I	0.445	I	0.541	I	0.014	I	0.000	I
I		I		I	192.0	I	233.0	I	6.0	I	0.0	I
I		I		I	(0.5)	I	(2.0)	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	16.45-17.00	I		I		I		I		I		I		I		I		I		I
I	ARM A	I	3.44	I	22.81	I	0.151	I		I	0.0	I	0.2	I	2.6	I		I	0.05	I
I	ARM B	I	5.32	I	22.60	I	0.236	I		I	0.0	I	0.3	I	4.5	I		I	0.06	I
I	ARM C	I	5.36	I	25.96	I	0.207	I		I	0.0	I	0.3	I	3.8	I		I	0.05	I
I	ARM D	I	5.39	I	20.37	I	0.264	I		I	0.0	I	0.4	I	5.2	I		I	0.07	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)
17.00-17.15									
ARM A	4.10	22.27	0.184		0.2	0.2	3.3		0.06
ARM B	6.36	22.28	0.285		0.3	0.4	5.9		0.06
ARM C	6.40	25.38	0.252		0.3	0.3	5.0		0.05
ARM D	6.43	19.69	0.327		0.4	0.5	7.1		0.08

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
ARM A	5.03	21.54	0.233		0.2	0.3	4.5		0.06
ARM B	7.79	21.83	0.357		0.4	0.6	8.1		0.07
ARM C	7.84	24.58	0.319		0.3	0.5	6.9		0.06
ARM D	7.88	18.77	0.420		0.5	0.7	10.5		0.09

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
ARM A	5.03	21.54	0.233		0.3	0.3	4.6		0.06
ARM B	7.79	21.82	0.357		0.6	0.6	8.3		0.07
ARM C	7.84	24.57	0.319		0.5	0.5	7.0		0.06
ARM D	7.88	18.76	0.420		0.7	0.7	10.8		0.09

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	4.10	22.26	0.184		0.3	0.2	3.5		0.06
ARM B	6.36	22.27	0.286		0.6	0.4	6.1		0.06
ARM C	6.40	25.37	0.252		0.5	0.3	5.2		0.05
ARM D	6.43	19.68	0.327		0.7	0.5	7.5		0.08

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									
ARM A	3.44	22.79	0.151		0.2	0.2	2.7		0.05
ARM B	5.32	22.60	0.236		0.4	0.3	4.7		0.06
ARM C	5.36	25.95	0.207		0.3	0.3	4.0		0.05
ARM D	5.39	20.36	0.265		0.5	0.4	5.5		0.07

QUEUE AT ARM A

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

QUEUE AT ARM B

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

QUEUE AT ARM C

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

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.5
17.30	0.7 *
17.45	0.7 *
18.00	0.5
18.15	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND	I	* QUEUEING * * DELAY *	I	* INCLUSIVE QUEUEING * * DELAY *	I
I		I		I	(MIN)	I	(MIN)	I
I		I	(VEH)	I	(VEH/H)	I	(MIN/VEH)	I
I	A	I	377.1	I	251.4	I	21.1	I
I	B	I	584.1	I	389.4	I	37.6	I
I	C	I	588.2	I	392.2	I	31.8	I
I	D	I	591.0	I	394.0	I	46.6	I
I	ALL	I	2140.5	I	1427.0	I	137.1	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 =====