

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 4\Existing Rnbt\
Site 4 Ex Rnbt Base 2010.vai"
(drive-on-the-left) at 09:48:35 on Wednesday, 24 November 2010

FILE PROPERTIES

RUN TITLE: Skimmingdish Lane Roundabout
LOCATION: Bicester
DATE: 09/11/10
CLIENT:
ENUMERATOR:
JOB NUMBER: UA001881
STATUS: Preliminary
DESCRIPTION:

INPUT DATA

ARM A - A4421 north
ARM B - A4095 Skimmingdish Lane
ARM C - A4421 Buckingham Road
ARM D - Southwold Lane A4095

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	3.50	I	7.60	I	18.00	I	42.50	I	50.00	I	15.0	I	0.672	I	31.962	I
I	ARM B	I	3.50	I	8.80	I	21.80	I	15.00	I	50.00	I	37.5	I	0.631	I	31.343	I
I	ARM C	I	3.35	I	7.67	I	30.00	I	21.00	I	50.00	I	32.5	I	0.644	I	31.650	I
I	ARM D	I	3.45	I	8.13	I	15.80	I	25.00	I	50.00	I	26.0	I	0.637	I	30.255	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 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: Base 2010 AM

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF 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	9.20	I	13.80	I	9.20	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	5.65	I	8.48	I	5.65	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	5.18	I	7.76	I	5.18	I
I	ARM D	I	15.00	I	45.00	I	75.00	I	10.82	I	16.24	I	10.82	I

DEMAND SET TITLE: Base 2010 AM

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	0.501	I	0.360	I	0.139	I
I		I		I	0.0	I	369.0	I	265.0	I	102.0	I
I		I		I	(0.0)	I	(6.9)	I	(1.9)	I	(5.7)	I
I		I	ARM B	I	0.361	I	0.000	I	0.035	I	0.604	I
I		I		I	163.0	I	0.0	I	16.0	I	273.0	I
I		I		I	(14.2)	I	(0.0)	I	(4.5)	I	(6.1)	I
I		I	ARM C	I	0.507	I	0.155	I	0.000	I	0.338	I
I		I		I	210.0	I	64.0	I	0.0	I	140.0	I
I		I		I	(2.4)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I	ARM D	I	0.121	I	0.759	I	0.120	I	0.000	I
I		I		I	105.0	I	657.0	I	104.0	I	0.0	I
I		I		I	(2.1)	I	(4.7)	I	(0.7)	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	9.20	I	23.63	I	0.389	I		I	0.0	I	0.6	I	9.2	I		I	0.07	I
I	ARM B	I	5.65	I	25.29	I	0.223	I		I	0.0	I	0.3	I	4.2	I		I	0.05	I
I	ARM C	I	5.18	I	26.64	I	0.194	I		I	0.0	I	0.2	I	3.5	I		I	0.05	I
I	ARM D	I	10.82	I	25.56	I	0.423	I		I	0.0	I	0.7	I	10.6	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)
08.00-08.15									
ARM A	10.99	22.28	0.493		0.6	1.0	14.0		0.09
ARM B	6.75	24.60	0.274		0.3	0.4	5.6		0.06
ARM C	6.18	25.73	0.240		0.2	0.3	4.7		0.05
ARM D	12.93	24.86	0.520		0.7	1.1	15.6		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)
08.15-08.30									
ARM A	13.45	20.46	0.658		1.0	1.9	26.5		0.14
ARM B	8.26	23.68	0.349		0.4	0.5	7.8		0.06
ARM C	7.57	24.49	0.309		0.3	0.4	6.6		0.06
ARM D	15.83	23.91	0.662		1.1	1.9	27.3		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
ARM A	13.45	20.43	0.659		1.9	1.9	28.3		0.14
ARM B	8.26	23.66	0.349		0.5	0.5	8.0		0.06
ARM C	7.57	24.48	0.309		0.4	0.4	6.7		0.06
ARM D	15.83	23.90	0.662		1.9	1.9	28.9		0.12

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	10.99	22.24	0.494		1.9	1.0	15.4		0.09
ARM B	6.75	24.57	0.275		0.5	0.4	5.8		0.06
ARM C	6.18	25.71	0.240		0.4	0.3	4.8		0.05
ARM D	12.93	24.85	0.520		1.9	1.1	17.0		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)
09.00-09.15									
ARM A	9.20	23.59	0.390		1.0	0.6	9.9		0.07
ARM B	5.65	25.27	0.224		0.4	0.3	4.4		0.05
ARM C	5.18	26.62	0.194		0.3	0.2	3.7		0.05
ARM D	10.82	25.55	0.424		1.1	0.7	11.4		0.07

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.6 *
08.15	1.0 *
08.30	1.9 **
08.45	1.9 **
09.00	1.0 *
09.15	0.6 *

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	0.2
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.2

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.7 *
08.15	1.1 *
08.30	1.9 **
08.45	1.9 **
09.00	1.1 *
09.15	0.7 *

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	1009.2	I	672.8	I	103.3	I
I	B	I	619.8	I	413.2	I	35.8	I
I	C	I	567.7	I	378.5	I	30.0	I
I	D	I	1187.5	I	791.6	I	110.9	I
I	ALL	I	3384.1	I	2256.1	I	280.0	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 09:49:00 on 24/11/2010]