

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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For sales and distribution information,
program advice and maintenance, contact:

TRL Limited	Tel: +44 (0) 1344 770018
Crowthorne House	Fax: +44 (0) 1344 770864
Nine Mile Ride	Email: softwarebureau@trl.co.uk
Wokingham, Berks.	Web: www.trlsoftware.co.uk
RG40 3GA, UK	

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Run with file:-
"C:\E DRIVE DOCS\WORKING JOB FILES\Bicester\Oct 2010 onwards\Junction Capacity\Site 2a\Existing\
Site 2a Bucknell Road rev2 Exemplar base years.vai"
(drive-on-the-left) at 09:05:35 on Wednesday, 24 November 2010

FILE PROPERTIES

RUN TITLE: Bucknell Road Roundabout
LOCATION:
DATE: 06/07/10
CLIENT:
ENUMERATOR: mba24773 [HCL56181]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Lords Lane (east) A4095
ARM B - Bucknell Road (south) A4095
ARM C - Bucknell Road (north)

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	4.20	I	6.00	I	13.30	I	22.20	I	31.00	I	25.0	I	0.662	I	28.165	I
I	ARM B	I	3.00	I	7.34	I	9.80	I	41.10	I	31.00	I	19.0	I	0.645	I	25.750	I
I	ARM C	I	2.80	I	9.10	I	10.80	I	66.60	I	31.00	I	18.0	I	0.666	I	27.153	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	I	SCALE(%)	I
I	A	I	100	I		I
I	B	I	100	I		I
I	C	I	100	I		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: 2010 AM Base

I I I I I	I I I I I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I FLOW STARTS I TO RISE	I TOP OF PEAK I IS REACHED	I FLOW STOPS I FALLING	I BEFORE I PEAK	I AT TOP I OF PEAK	I AFTER I PEAK
I	ARM A	I 15.00	I 45.00	I 75.00	I 6.79	I 10.18	I 6.79
I	ARM B	I 15.00	I 45.00	I 75.00	I 4.78	I 7.16	I 4.78
I	ARM C	I 15.00	I 45.00	I 75.00	I 1.29	I 1.93	I 1.29

DEMAND SET TITLE: 2010 AM Base

I I I I I I	I I I I I I	TURNING PROPORTIONS						I I I I I I
		TURNING COUNTS (VEH/HR)						
		(PERCENTAGE OF H.V.S)						
TIME		I FROM/TO	I ARM A	I ARM B	I ARM C			
I	07.45 - 09.15	I	I	I	I	I		
I		I ARM A	I 0.000	I 0.871	I 0.129	I		
I		I	I 0.0	I 473.0	I 70.0	I		
I		I	I (0.0)	I (2.0)	I (1.0)	I		
I		I	I	I	I	I		
I		I ARM B	I 0.853	I 0.000	I 0.147	I		
I		I	I 326.0	I 0.0	I 56.0	I		
I		I	I (3.0)	I (4.0)	I (0.0)	I		
I		I	I	I	I	I		
I		I ARM C	I 0.340	I 0.660	I 0.000	I		
I		I	I 35.0	I 68.0	I 0.0	I		
I		I	I (3.0)	I (1.0)	I (0.0)	I		
I		I	I	I	I	I		

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

I I I I 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 I I I I
I	07.45-08.00										I
I	ARM A	6.79	27.09	0.251		0.0	0.3	4.9		0.05	I
I	ARM B	4.78	24.55	0.194		0.0	0.2	3.5		0.05	I
I	ARM C	1.29	23.96	0.054		0.0	0.1	0.8		0.04	I

I I I I 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 I I I I
I	08.00-08.15										I
I	ARM A	8.10	26.98	0.300		0.3	0.4	6.3		0.05	I
I	ARM B	5.70	24.44	0.233		0.2	0.3	4.5		0.05	I
I	ARM C	1.54	23.42	0.066		0.1	0.1	1.0		0.05	I

I I I I 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 I I I I
I	08.15-08.30										I
I	ARM A	9.93	26.83	0.370		0.4	0.6	8.6		0.06	I
I	ARM B	6.98	24.30	0.287		0.3	0.4	5.9		0.06	I
I	ARM C	1.88	22.69	0.083		0.1	0.1	1.3		0.05	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)
08.30-08.45									
ARM A	9.93	26.83	0.370		0.6	0.6	8.8		0.06
ARM B	6.98	24.29	0.287		0.4	0.4	6.0		0.06
ARM C	1.88	22.68	0.083		0.1	0.1	1.4		0.05

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
ARM A	8.10	26.98	0.300		0.6	0.4	6.6		0.05
ARM B	5.70	24.44	0.233		0.4	0.3	4.7		0.05
ARM C	1.54	23.42	0.066		0.1	0.1	1.1		0.05

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	6.79	27.09	0.251		0.4	0.3	5.1		0.05
ARM B	4.78	24.55	0.194		0.3	0.2	3.7		0.05
ARM C	1.29	23.95	0.054		0.1	0.1	0.9		0.04

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	0.2
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.2

QUEUE AT ARM C

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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND		I	* QUEUEING * * DELAY *		I	* INCLUSIVE QUEUEING * * DELAY *		I
I		I			I			I			I
I		I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	I	(MIN)	(MIN/VEH)	I
I	A	I	744.6	I 496.4	I	40.3	I 0.05	I	40.3	I 0.05	I
I	B	I	523.8	I 349.2	I	28.3	I 0.05	I	28.3	I 0.05	I
I	C	I	141.2	I 94.2	I	6.5	I 0.05	I	6.5	I 0.05	I
I	ALL	I	1409.6	I 939.7	I	75.1	I 0.05	I	75.1	I 0.05	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 =====