

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

(c) Copyright TRL Limited, 2004

Adapted from ARCADY/3 which is Crown Copyright
by permission of the controller of HMSO

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	

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

Run with file:-
"C:\E DRIVE DOCS\WORKING JOB FILES\Bicester\Oct 2010 onwards\Junction Capacity\Site 3\Existing Rnbt\
Site 3 Banbury Road Lords Lane Base Years.vai"
(drive-on-the-left) at 09:36:07 on Wednesday, 24 November 2010

FILE PROPERTIES

RUN TITLE: Banbury Road Roundabout
LOCATION: Bicester
DATE: 05/07/10
CLIENT:
ENUMERATOR: mba24773 [HCL56181]
JOB NUMBER: UA001881
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Arm Southwold Lane A4095
ARM B - Banbury Road B4100 (South)
ARM C - Lords Lane A4095
ARM D - B4100 (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	3.70	I	7.80	I	15.80	I	13.30	I	40.00	I	17.0	I	0.675	I	30.611	I
I	ARM B	I	3.65	I	7.40	I	20.40	I	14.50	I	40.00	I	24.0	I	0.668	I	30.425	I
I	ARM C	I	4.30	I	6.30	I	10.40	I	34.40	I	40.00	I	16.0	I	0.682	I	29.899	I
I	ARM D	I	3.30	I	7.10	I	19.30	I	21.20	I	40.00	I	10.0	I	0.690	I	30.490	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: PM 2010 Base

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	10.94	I	16.41	I	10.94	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.84	I	7.26	I	4.84	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	7.35	I	11.02	I	7.35	I
I	ARM D	I	15.00	I	45.00	I	75.00	I	6.40	I	9.60	I	6.40	I

DEMAND SET TITLE: PM 2010 Base

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	0.017	I	0.146	I	0.409	I	0.427	I
I		I		I	15.0	I	128.0	I	358.0	I	374.0	I
I		I		I	(0.0)	I	(2.0)	I	(1.0)	I	(5.0)	I
I		I	ARM B	I	0.382	I	0.000	I	0.183	I	0.434	I
I		I		I	148.0	I	0.0	I	71.0	I	168.0	I
I		I		I	(1.0)	I	(0.0)	I	(0.0)	I	(1.0)	I
I		I	ARM C	I	0.782	I	0.124	I	0.000	I	0.094	I
I		I		I	460.0	I	73.0	I	0.0	I	55.0	I
I		I		I	(1.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I	ARM D	I	0.545	I	0.285	I	0.164	I	0.006	I
I		I		I	279.0	I	146.0	I	84.0	I	3.0	I
I		I		I	(6.0)	I	(1.0)	I	(1.0)	I	(33.0)	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	10.94	I	27.24	I	0.402	I		I	0.0	I	0.7	I	9.7	I		I	0.06	I
I	ARM B	I	4.84	I	23.10	I	0.209	I		I	0.0	I	0.3	I	3.9	I		I	0.05	I
I	ARM C	I	7.35	I	23.51	I	0.313	I		I	0.0	I	0.5	I	6.6	I		I	0.06	I
I	ARM D	I	6.40	I	23.54	I	0.272	I		I	0.0	I	0.4	I	5.4	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)
17.00-17.15									
ARM A	13.06	26.74	0.488		0.7	0.9	13.8		0.07
ARM B	5.78	21.71	0.266		0.3	0.4	5.3		0.06
ARM C	8.78	22.30	0.394		0.5	0.6	9.4		0.07
ARM D	7.64	22.40	0.341		0.4	0.5	7.6		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)
17.15-17.30									
ARM A	16.00	26.06	0.614		0.9	1.6	22.5		0.10
ARM B	7.07	19.82	0.357		0.4	0.6	8.1		0.08
ARM C	10.75	20.65	0.520		0.6	1.1	15.5		0.10
ARM D	9.36	20.85	0.449		0.5	0.8	11.8		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)
17.30-17.45									
ARM A	16.00	26.05	0.614		1.6	1.6	23.6		0.10
ARM B	7.07	19.79	0.357		0.6	0.6	8.3		0.08
ARM C	10.75	20.63	0.521		1.1	1.1	16.1		0.10
ARM D	9.36	20.83	0.449		0.8	0.8	12.1		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	13.06	26.73	0.489		1.6	1.0	14.9		0.07
ARM B	5.78	21.67	0.267		0.6	0.4	5.6		0.06
ARM C	8.78	22.27	0.394		1.1	0.7	10.1		0.07
ARM D	7.64	22.37	0.342		0.8	0.5	8.0		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)
18.00-18.15									
ARM A	10.94	27.22	0.402		1.0	0.7	10.4		0.06
ARM B	4.84	23.06	0.210		0.4	0.3	4.1		0.05
ARM C	7.35	23.48	0.313		0.7	0.5	7.0		0.06
ARM D	6.40	23.51	0.272		0.5	0.4	5.7		0.06

QUEUE AT ARM A

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

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	0.5
17.15	0.6 *
17.30	1.1 *
17.45	1.1 *
18.00	0.7 *
18.15	0.5

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.5 *
17.30	0.8 *
17.45	0.8 *
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		I		I
I		I	(VEH)	I	(MIN)	I	(MIN)	I
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I
I	A	I	1199.8	I	799.9	I	95.0	I
I	B	I	530.7	I	353.8	I	35.2	I
I	C	I	806.3	I	537.5	I	64.8	I
I	D	I	702.1	I	468.0	I	50.7	I
I	ALL	I	3238.8	I	2159.2	I	245.7	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 =====