

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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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\0ct 2010 onwards\Junction Capacity\Site 2b\Conversion to Mini Rnbt\
convert Howes Lane to mini RDBT experimental geometry rev2 ms edit.vai"
(drive-on-the-left) at 11:19:20 on Thursday, 25 November 2010

FILE PROPERTIES

RUN TITLE: Convert Hpwes Lane junction to mini RDBT
LOCATION:
DATE: 07/10/10
CLIENT:
ENUMERATOR: mba24773 [HCL56181]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Bucknell Road (South)
ARM B - Howes Lane
ARM C - Bucknell Road (North)

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I
I		I		I		I		I		I		I		I		I		I	(PCU/MIN)	I
I	ARM A	I	3.65	I	7.10	I	12.00	I	3.65	I	20.00	I	25.70	I	0.00	I	10.601	I	195.392	I
I	ARM B	I	3.60	I	6.50	I	45.00	I	3.60	I	15.80	I	10.30	I	0.00	I	0.659	I	18.806	I
I	ARM C	I	3.70	I	5.90	I	6.10	I	3.70	I	20.00	I	20.00	I	0.00	I	1.167	I	24.335	I

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K = entry corner kerb line
G = gradient over 50m

WARNING ARM A:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.

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

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 + Exemplar 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	3.29	I	4.93	I	3.29	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.56	I	6.84	I	4.56	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	9.29	I	13.93	I	9.29	I

DEMAND SET TITLE: 2016 + Exemplar AM

I	TIME	I	FROM/TO	I	ARM A	I	ARM B	I	ARM C	I
I	07.45 - 09.15	I	ARM A	I	0.000	I	0.190	I	0.810	I
I		I		I	0.0	I	50.0	I	213.0	I
I		I		I	(0.0)	I	(5.0)	I	(3.0)	I
I		I	ARM B	I	0.052	I	0.000	I	0.948	I
I		I		I	19.0	I	0.0	I	346.0	I
I		I		I	(0.0)	I	(0.0)	I	(3.0)	I
I		I	ARM C	I	0.265	I	0.735	I	0.000	I
I		I		I	197.0	I	546.0	I	0.0	I
I		I		I	(1.0)	I	(2.0)	I	(0.0)	I
I		I		I		I		I		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	CROSSING USE PER MIN	I	START QUEUE (VEHS)	I	END QUEUE (VEHS)	I	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	ARM A	I	3.29	I	117.94	I	0.028	I		I	0.0	I	0.0	I	0.4	I	0.01	I
I	ARM B	I	4.56	I	16.53	I	0.276	I		I	0.0	I	0.4	I	5.5	I	0.08	I
I	ARM C	I	9.29	I	23.65	I	0.393	I		I	0.0	I	0.6	I	9.4	I	0.07	I

I	TIME	I	DEMAND (VEH/MIN)	I	CAPACITY (VEH/MIN)	I	DEMAND/CAPACITY (RFC)	I	CROSSING USE PER MIN	I	START QUEUE (VEHS)	I	END QUEUE (VEHS)	I	DELAY (VEH.MIN/ TIME SEGMENT)	I	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.00-08.15	I		I		I		I		I		I		I		I		I
I	ARM A	I	3.93	I	103.88	I	0.038	I		I	0.0	I	0.0	I	0.6	I	0.01	I
I	ARM B	I	5.45	I	16.19	I	0.337	I		I	0.4	I	0.5	I	7.4	I	0.09	I
I	ARM C	I	11.09	I	23.59	I	0.470	I		I	0.6	I	0.9	I	12.9	I	0.08	I

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30								
ARM A	4.81	84.84	0.057		0.0	0.1	0.9	0.01
ARM B	6.67	15.72	0.425		0.5	0.7	10.6	0.11
ARM C	13.58	23.52	0.577		0.9	1.3	19.5	0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45								
ARM A	4.81	84.61	0.057		0.1	0.1	0.9	0.01
ARM B	6.67	15.72	0.425		0.7	0.7	11.0	0.11
ARM C	13.58	23.52	0.577		1.3	1.4	20.3	0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00								
ARM A	3.93	103.52	0.038		0.1	0.0	0.6	0.01
ARM B	5.45	16.19	0.337		0.7	0.5	7.9	0.09
ARM C	11.09	23.59	0.470		1.4	0.9	13.8	0.08

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	3.29	117.49	0.028		0.0	0.0	0.4	0.01
ARM B	4.56	16.53	0.276		0.5	0.4	5.9	0.08
ARM C	9.29	23.65	0.393		0.9	0.7	10.0	0.07

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.1
08.45	0.1
09.00	0.0
09.15	0.0

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.4
08.15	0.5 *
08.30	0.7 *
08.45	0.7 *
09.00	0.5 *
09.15	0.4

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.6 *
08.15	0.9 *
08.30	1.3 *
08.45	1.4 *
09.00	0.9 *
09.15	0.7 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	360.6	3.8	0.01
B	500.5	48.2	0.10
C	1018.8	85.8	0.08
ALL	1879.9	137.9	0.07

* 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 =====

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

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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 4\Improved for Cap\
Site 4 Imp Cap Rnbt.vai"
(drive-on-the-left) at 11:52:51 on Thursday, 25 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	9.60	I	23.30	I	42.50	I	50.00	I	17.0	I	0.726	I	36.882	I
I	ARM B	I	3.50	I	10.50	I	25.30	I	15.50	I	50.00	I	34.0	I	0.681	I	35.402	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	8.61	I	16.80	I	25.00	I	50.00	I	26.0	I	0.649	I	31.287	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: 2016 + Exemplar AM

I		NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)								
I	ARM	I	FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	BEFORE	I	AT TOP	I	AFTER
I	I	I	TO RISE	I	IS REACHED	I	IF FALLING	I	PEAK	I	OF PEAK	I	PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	11.43	I	17.14	I	11.43
I	ARM B	I	15.00	I	45.00	I	75.00	I	7.15	I	10.73	I	7.15
I	ARM C	I	15.00	I	45.00	I	75.00	I	6.43	I	9.64	I	6.43
I	ARM D	I	15.00	I	45.00	I	75.00	I	13.86	I	20.79	I	13.86

DEMAND SET TITLE: 2016 + Exemplar AM

		TURNING PROPORTIONS								
		TURNING COUNTS (VEH/HR)								
		(PERCENTAGE OF H.V.S)								
TIME		FROM/TO	ARM A	ARM B	ARM C	ARM D				
07.45 - 09.15	ARM A	0.000	0.501	0.360	0.139					
		0.0	458.0	329.0	127.0					
		(0.0)	(6.9)	(1.9)	(5.7)					
	ARM B	0.353	0.000	0.035	0.612					
		202.0	0.0	20.0	350.0					
		(14.2)	(0.0)	(4.5)	(6.2)					
	ARM C	0.508	0.154	0.000	0.339					
		261.0	79.0	0.0	174.0					
		(2.4)	(0.0)	(0.0)	(0.0)					
ARM D	0.117	0.757	0.126	0.000						
	130.0	839.0	140.0	0.0						
	(2.1)	(4.7)	(1.3)	(0.0)						

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

	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)
	07.45-08.00									
	ARM A	11.43	25.69	0.445		0.0	0.8	11.5		0.07
	ARM B	7.15	27.74	0.258		0.0	0.3	5.1		0.05
	ARM C	6.43	25.43	0.253		0.0	0.3	4.9		0.05
	ARM D	13.86	25.61	0.541		0.0	1.2	16.8		0.08

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	08.00-08.15										I
I	ARM A	13.64	23.83	0.572		0.8	1.3	19.1		0.10	I
I	ARM B	8.54	26.80	0.319		0.3	0.5	6.9		0.05	I
I	ARM C	7.67	24.28	0.316		0.3	0.5	6.8		0.06	I
I	ARM D	16.55	24.72	0.670		1.2	2.0	28.3		0.12	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	08.15-08.30										I
I	ARM A	16.71	21.40	0.781		1.3	3.4	45.7		0.20	I
I	ARM B	10.46	25.57	0.409		0.5	0.7	10.1		0.07	I
I	ARM C	9.40	22.72	0.414		0.5	0.7	10.2		0.07	I
I	ARM D	20.27	23.52	0.862		2.0	5.5	71.6		0.27	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	08.30-08.45										I
I	ARM A	16.71	21.26	0.786		3.4	3.5	52.0		0.22	I
I	ARM B	10.46	25.52	0.410		0.7	0.7	10.3		0.07	I
I	ARM C	9.40	22.70	0.414		0.7	0.7	10.5		0.08	I
I	ARM D	20.27	23.51	0.862		5.5	5.8	85.8		0.30	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	08.45-09.00										I
I	ARM A	13.64	23.63	0.577		3.5	1.4	22.0		0.10	I
I	ARM B	8.54	26.72	0.319		0.7	0.5	7.2		0.06	I
I	ARM C	7.67	24.25	0.316		0.7	0.5	7.1		0.06	I
I	ARM D	16.55	24.71	0.670		5.8	2.1	34.1		0.13	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	09.00-09.15										I
I	ARM A	11.43	25.60	0.446		1.4	0.8	12.5		0.07	I
I	ARM B	7.15	27.70	0.258		0.5	0.3	5.3		0.05	I
I	ARM C	6.43	25.40	0.253		0.5	0.3	5.2		0.05	I
I	ARM D	13.86	25.59	0.542		2.1	1.2	18.6		0.09	I

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.8 *
08.15	1.3 *
08.30	3.4 ***
08.45	3.5 ****
09.00	1.4 *
09.15	0.8 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.5
08.30	0.7 *
08.45	0.7 *
09.00	0.5
09.15	0.3

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.5
08.30	0.7 *
08.45	0.7 *
09.00	0.5
09.15	0.3

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.2 *
08.15	2.0 **
08.30	5.5 *****
08.45	5.8 *****
09.00	2.1 **
09.15	1.2 *

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	1253.3	I	835.5	I	162.9	I
I	B	I	784.3	I	522.9	I	44.9	I
I	C	I	704.8	I	469.9	I	44.8	I
I	D	I	1520.7	I	1013.8	I	255.1	I
I	ALL	I	4263.1	I	2842.1	I	507.7	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 =====

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ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

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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\Improved\
Site 3 Banbury Road Lords Lane ms edit.vai"
(drive-on-the-left) at 11:36:25 on Thursday, 25 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

ARM C HAS A PELICAN CROSSING

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	9.00	I	24.70	I	13.30	I	40.00	I	17.0	I	0.731	I	35.261	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	7.00	I	18.50	I	34.40	I	40.00	I	16.0	I	0.720	I	33.150	I
I	ARM D	I	3.30	I	9.00	I	23.50	I	25.00	I	40.00	I	10.0	I	0.751	I	35.474	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)

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

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 + Exempar PM

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS IF FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	13.75	20.63	13.75
ARM B	15.00	45.00	75.00	6.22	9.34	6.22
ARM C	15.00	45.00	75.00	9.85	14.78	9.85
ARM D	15.00	45.00	75.00	9.43	14.14	9.43

DEMAND SET TITLE: 2016 + Exempar PM

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.016 18.0 (0.0)	0.144 158.0 (2.0)	0.401 441.0 (1.0)	0.439 483.0 (5.0)
	ARM B	0.365 182.0 (1.0)	0.000 0.0 (0.0)	0.175 87.0 (0.0)	0.460 229.0 (1.0)
	ARM C	0.718 566.0 (1.0)	0.114 90.0 (0.0)	0.000 0.0 (0.0)	0.168 132.0 (2.0)
	ARM D	0.475 358.0 (6.0)	0.292 220.0 (1.0)	0.228 172.0 (2.0)	0.005 4.0 (25.0)

PEDESTRIAN CROSSING DATA

PEDESTRIAN CROSSING FLOW:

ARM C: FLOW IS 144.0 PEDESTRIANS PER HOUR, AND IS CONSTANT THROUGHOUT THE PERIOD.

PELICAN CROSSINGS

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I (times in seconds) I ARM C I
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I amber time I 2.0I
I "green" amber time I 1.0I
I both signals red timeI 1.0I
I green man time I 8.0I
I flashing amber time I 6.0I
I minimum green time I 20.0I
I queuing space(pcu) I 7.0I
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QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 16.45-17.00
I ARM A 13.75 29.92 0.460 0.0 0.8 12.3 0.06 I
I ARM B 6.22 20.69 0.301 0.0 0.4 6.2 0.07 I
I ARM C 9.85 19.73 0.499 2.4 0.0 1.0 14.1 0.10 I
I ARM D 9.43 26.43 0.357 0.0 0.6 8.1 0.06 I
I
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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 17.00-17.15
I ARM A 16.42 29.06 0.565 0.8 1.3 18.7 0.08 I
I ARM B 7.43 18.82 0.395 0.4 0.6 9.5 0.09 I
I ARM C 11.76 19.57 0.601 2.4 1.0 1.5 21.2 0.13 I
I ARM D 11.25 24.89 0.452 0.6 0.8 12.0 0.07 I
I
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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 17.15-17.30
I ARM A 20.11 27.90 0.721 1.3 2.5 35.4 0.13 I
I ARM B 9.10 16.30 0.559 0.6 1.2 17.7 0.14 I
I ARM C 14.41 19.09 0.755 2.4 1.5 2.9 40.2 0.21 I
I ARM D 13.78 22.84 0.604 0.8 1.5 21.5 0.11 I
I
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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 17.30-17.45
I ARM A 20.11 27.87 0.721 2.5 2.5 38.0 0.13 I
I ARM B 9.10 16.25 0.560 1.2 1.3 18.8 0.14 I
I ARM C 14.41 19.60 0.735 2.4 2.9 2.8 43.1 0.19 I
I ARM D 13.78 22.76 0.606 1.5 1.5 22.7 0.11 I
I
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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 17.45-18.00
I ARM A 16.42 29.02 0.566 2.5 1.3 20.5 0.08 I
I ARM B 7.43 18.74 0.397 1.3 0.7 10.3 0.09 I
I ARM C 11.76 20.48 0.574 2.4 2.8 1.4 21.7 0.12 I
I ARM D 11.25 24.79 0.454 1.5 0.8 13.0 0.07 I
I
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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 18.00-18.15
I ARM A 13.75 29.89 0.460 1.3 0.9 13.2 0.06 I
I ARM B 6.22 20.63 0.302 0.7 0.4 6.7 0.07 I
I ARM C 9.85 20.52 0.480 2.4 1.4 0.9 14.5 0.09 I
I ARM D 9.43 26.36 0.358 0.8 0.6 8.6 0.06 I
I
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QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.8	*
17.15	1.3	*
17.30	2.5	***
17.45	2.5	***
18.00	1.3	*
18.15	0.9	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.6	*
17.30	1.2	*
17.45	1.3	*
18.00	0.7	*
18.15	0.4	

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.0	*
17.15	1.5	*
17.30	2.9	***
17.45	2.8	***
18.00	1.4	*
18.15	0.9	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.6	*
17.15	0.8	*
17.30	1.5	*
17.45	1.5	**
18.00	0.8	*
18.15	0.6	*

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			I			I			I			
I		I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	I	(MIN)	(MIN/VEH)	I			
I	A	I	1508.3	I	1005.6	I	138.1	I	0.09	I	138.1	I	0.09	I
I	B	I	682.9	I	455.2	I	69.2	I	0.10	I	69.2	I	0.10	I
I	C	I	1080.5	I	720.3	I	154.7	I	0.14	I	154.7	I	0.14	I
I	D	I	1033.9	I	689.3	I	85.7	I	0.08	I	85.7	I	0.08	I
I	ALL	I	4305.6	I	2870.4	I	447.7	I	0.10	I	447.8	I	0.10	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 11:37:56 on 25/11/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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RG40 3GA, UK	

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Run with file:-
"C:\E DRIVE DOCS\WORKING JOB FILES\Bicester\Oct 2010 onwards\Junction Capacity\Site 3\Improved\
Site 3 Banbury Road Lords Lane ms edit.vai"
(drive-on-the-left) at 11:39:45 on Thursday, 25 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

ARM C HAS A PELICAN CROSSING

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	9.00	I	24.70	I	13.30	I	40.00	I	17.0	I	0.731	I	35.261	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	7.00	I	18.50	I	34.40	I	40.00	I	16.0	I	0.720	I	33.150	I
I	ARM D	I	3.30	I	9.00	I	23.50	I	25.00	I	40.00	I	10.0	I	0.751	I	35.474	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: 2016 + Exemplar AM

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED IF FALLING	I	FLOW STOPS	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	10.02	I	15.04	I	10.02	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.34	I	6.51	I	4.34	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	8.29	I	12.43	I	8.29	I
I	ARM D	I	15.00	I	45.00	I	75.00	I	13.26	I	19.89	I	13.26	I

DEMAND SET TITLE: 2016 + Exemplar 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	0.031	I	0.146	I	0.453	I	0.370	I
I		I		I	25.0	I	117.0	I	363.0	I	297.0	I
I		I		I	(0.0)	I	(0.0)	I	(3.0)	I	(4.0)	I
I		I	ARM B	I	0.326	I	0.000	I	0.219	I	0.455	I
I		I		I	113.0	I	0.0	I	76.0	I	158.0	I
I		I		I	(0.0)	I	(0.0)	I	(0.0)	I	(1.0)	I
I		I	ARM C	I	0.606	I	0.119	I	0.000	I	0.275	I
I		I		I	402.0	I	79.0	I	0.0	I	182.0	I
I		I		I	(2.0)	I	(1.0)	I	(0.0)	I	(5.0)	I
I		I	ARM D	I	0.516	I	0.320	I	0.162	I	0.002	I
I		I		I	547.0	I	340.0	I	172.0	I	2.0	I
I		I		I	(7.0)	I	(2.0)	I	(3.0)	I	(33.0)	I

PEDESTRIAN CROSSING DATA

PEDESTRIAN CROSSING FLOW:

ARM C: FLOW IS 144.0 PEDESTRIANS PER HOUR, AND IS CONSTANT THROUGHOUT THE PERIOD.

PELICAN CROSSINGS

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I (times in seconds) I ARM C I
-----
I amber time I 2.0I
I "green" amber time I 1.0I
I both signals red timeI 1.0I
I green man time I 8.0I
I flashing amber time I 6.0I
I minimum green time I 20.0I
I queuing space(pcu) I 7.0I
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QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 07.45-08.00
I ARM A 10.02 28.92 0.347 0.0 0.5 7.7 0.05 I
I ARM B 4.34 22.94 0.189 0.0 0.2 3.4 0.05 I
I ARM C 8.29 21.20 0.391 2.4 0.0 0.6 9.3 0.08 I
I ARM D 13.26 28.25 0.469 0.0 0.9 12.8 0.07 I
I
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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 08.00-08.15
I ARM A 11.97 27.87 0.430 0.5 0.7 11.0 0.06 I
I ARM B 5.18 21.49 0.241 0.2 0.3 4.7 0.06 I
I ARM C 9.90 21.15 0.468 2.4 0.6 0.9 12.7 0.09 I
I ARM D 15.84 27.14 0.584 0.9 1.4 20.0 0.09 I
I
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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 08.15-08.30
I ARM A 14.66 26.45 0.554 0.7 1.2 17.8 0.08 I
I ARM B 6.34 19.53 0.325 0.3 0.5 7.0 0.08 I
I ARM C 12.12 20.76 0.584 2.4 0.9 1.4 19.9 0.11 I
I ARM D 19.40 25.64 0.756 1.4 3.0 41.4 0.15 I
I
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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 08.30-08.45
I ARM A 14.66 26.41 0.555 1.2 1.2 18.5 0.09 I
I ARM B 6.34 19.50 0.325 0.5 0.5 7.2 0.08 I
I ARM C 12.12 21.01 0.577 2.4 1.4 1.4 20.6 0.11 I
I ARM D 19.40 25.62 0.757 3.0 3.0 45.3 0.16 I
I
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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 08.45-09.00
I ARM A 11.97 27.81 0.430 1.2 0.8 11.7 0.06 I
I ARM B 5.18 21.45 0.241 0.5 0.3 4.9 0.06 I
I ARM C 9.90 21.61 0.458 2.4 1.4 0.9 13.2 0.09 I
I ARM D 15.84 27.11 0.584 3.0 1.4 22.3 0.09 I
I
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I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 09.00-09.15
I ARM A 10.02 28.89 0.347 0.8 0.5 8.2 0.05 I
I ARM B 4.34 22.90 0.189 0.3 0.2 3.6 0.05 I
I ARM C 8.29 21.77 0.381 2.4 0.9 0.6 9.5 0.07 I
I ARM D 13.26 28.21 0.470 1.4 0.9 13.8 0.07 I
I
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QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	*
08.15	0.7	*
08.30	1.2	*
08.45	1.2	*
09.00	0.8	*
09.15	0.5	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.2	
08.15	0.3	
08.30	0.5	
08.45	0.5	
09.00	0.3	
09.15	0.2	

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.6	*
08.15	0.9	*
08.30	1.4	*
08.45	1.4	*
09.00	0.9	*
09.15	0.6	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.9	*
08.15	1.4	*
08.30	3.0	***
08.45	3.0	***
09.00	1.4	*
09.15	0.9	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I		
I		I		I	* DELAY *	I	* DELAY *	I		
I		I		I		I		I		
I		I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	I		
I	A	I	1099.7	I	733.1	I	75.0	I	0.07	I
I	B	I	475.8	I	317.2	I	30.7	I	0.06	I
I	C	I	909.1	I	606.1	I	85.2	I	0.09	I
I	D	I	1454.9	I	969.9	I	155.7	I	0.11	I
I	ALL	I	3939.5	I	2626.3	I	346.6	I	0.09	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 11:40:02 on 25/11/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"C:\E DRIVE DOCS\WORKING JOB FILES\Bicester\0ct 2010 onwards\Junction Capacity\Site 2b\Conversion to Mini Rnbt\
convert Howes Lane to mini RDBT experimental geometry rev2 ms edit.vai"
(drive-on-the-left) at 11:17:03 on Thursday, 25 November 2010

FILE PROPERTIES

RUN TITLE: Convert Hpwes Lane junction to mini RDBT
LOCATION:
DATE: 07/10/10
CLIENT:
ENUMERATOR: mba24773 [HCL56181]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Bucknell Road (South)
ARM B - Howes Lane
ARM C - Bucknell Road (North)

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I
I		I		I		I		I		I		I		I		I		I	(PCU/MIN)	I
I	ARM A	I	3.65	I	7.10	I	12.00	I	3.65	I	20.00	I	25.70	I	0.00	I	10.601	I	195.392	I
I	ARM B	I	3.60	I	6.50	I	45.00	I	3.60	I	15.80	I	10.30	I	0.00	I	0.659	I	18.806	I
I	ARM C	I	3.70	I	5.90	I	6.10	I	3.70	I	20.00	I	20.00	I	0.00	I	1.167	I	24.335	I

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K = entry corner kerb line
G = gradient over 50m

WARNING ARM A:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.

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

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 + Exempar PM

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	BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	3.17	I	4.76	I	3.17	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	9.52	I	14.29	I	9.52	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	8.63	I	12.94	I	8.63	I

DEMAND SET TITLE: 2016 + Exempar PM

I	TIME	I	FROM/TO	I	ARM A	I	ARM B	I	ARM C	I
I	16.45 - 18.15	I	ARM A	I	0.000	I	0.154	I	0.846	I
I		I		I	0.0	I	39.0	I	215.0	I
I		I		I	(0.0)	I	(0.0)	I	(1.0)	I
I		I	ARM B	I	0.098	I	0.000	I	0.902	I
I		I		I	75.0	I	0.0	I	687.0	I
I		I		I	(1.0)	I	(0.0)	I	(1.0)	I
I		I	ARM C	I	0.319	I	0.681	I	0.000	I
I		I		I	220.0	I	470.0	I	0.0	I
I		I		I	(1.0)	I	(1.0)	I	(0.0)	I
I		I		I		I		I		I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

I	TIME	I	DEMAND (VEH/MIN)	I	CAPACITY (VEH/MIN)	I	DEMAND/CAPACITY (RFC)	I	CROSSING USE PER MIN	I	START QUEUE (VEHS)	I	END QUEUE (VEHS)	I	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	ARM A	I	3.17	I	131.66	I	0.024	I		I	0.0	I	0.0	I	0.4	I	0.01	I
I	ARM B	I	9.52	I	16.85	I	0.565	I		I	0.0	I	1.3	I	18.0	I	0.13	I
I	ARM C	I	8.63	I	23.01	I	0.375	I		I	0.0	I	0.6	I	8.7	I	0.07	I

I	TIME	I	DEMAND (VEH/MIN)	I	CAPACITY (VEH/MIN)	I	DEMAND/CAPACITY (RFC)	I	CROSSING USE PER MIN	I	START QUEUE (VEHS)	I	END QUEUE (VEHS)	I	DELAY (VEH.MIN/ TIME SEGMENT)	I	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.00-17.15	I		I		I		I		I		I		I		I		I
I	ARM A	I	3.79	I	119.37	I	0.032	I		I	0.0	I	0.0	I	0.5	I	0.01	I
I	ARM B	I	11.37	I	16.51	I	0.689	I		I	1.3	I	2.1	I	30.0	I	0.19	I
I	ARM C	I	10.30	I	22.79	I	0.452	I		I	0.6	I	0.8	I	12.0	I	0.08	I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.15-17.30									I
I	ARM A	4.64	102.74	0.045		0.0	0.0	0.7	0.01	I
I	ARM B	13.93	16.03	0.869		2.1	5.5	70.0	0.40	I
I	ARM C	12.61	22.52	0.560		0.8	1.3	18.2	0.10	I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.30-17.45									I
I	ARM A	4.64	102.53	0.045		0.0	0.0	0.7	0.01	I
I	ARM B	13.93	16.03	0.869		5.5	6.0	87.0	0.45	I
I	ARM C	12.61	22.50	0.561		1.3	1.3	18.9	0.10	I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.45-18.00									I
I	ARM A	3.79	119.06	0.032		0.0	0.0	0.5	0.01	I
I	ARM B	11.37	16.51	0.689		6.0	2.3	38.9	0.21	I
I	ARM C	10.30	22.76	0.453		1.3	0.8	12.9	0.08	I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	18.00-18.15									I
I	ARM A	3.17	131.26	0.024		0.0	0.0	0.4	0.01	I
I	ARM B	9.52	16.85	0.565		2.3	1.3	20.9	0.14	I
I	ARM C	8.63	22.99	0.375		0.8	0.6	9.3	0.07	I

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.3 *
17.15	2.1 **
17.30	5.5 *****
17.45	6.0 *****
18.00	2.3 **
18.15	1.3 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.6	*
17.15	0.8	*
17.30	1.3	*
17.45	1.3	*
18.00	0.8	*
18.15	0.6	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	QUEUEING DELAY	INCLUSIVE QUEUEING DELAY
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	348.3	3.1	0.01
B	1044.9	264.8	0.25
C	946.1	79.9	0.08
ALL	2339.3	347.8	0.15

* 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 =====

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\Improved for Cap\
Site 4 Imp Cap Rnbt.vai"
(drive-on-the-left) at 11:45:25 on Thursday, 25 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	9.60	I	23.30	I	42.50	I	50.00	I	17.0	I	0.726	I	36.882	I
I	ARM B	I	3.50	I	10.50	I	25.30	I	15.50	I	50.00	I	34.0	I	0.681	I	35.402	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	8.61	I	16.80	I	25.00	I	50.00	I	26.0	I	0.649	I	31.287	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 + Exempar PM

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED IF FALLING	I	FLOW STOPS	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	8.16	I	12.24	I	8.16	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	17.51	I	26.27	I	17.51	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	7.71	I	11.57	I	7.71	I
I	ARM D	I	15.00	I	45.00	I	75.00	I	9.50	I	14.25	I	9.50	I

DEMAND SET TITLE: 2016 + Exempar PM

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	0.361	I	0.369	I	0.270	I
I		I		I	0.0	I	236.0	I	241.0	I	176.0	I
I		I		I	(0.0)	I	(8.2)	I	(2.7)	I	(3.7)	I
I		I	ARM B	I	0.395	I	0.000	I	0.046	I	0.559	I
I		I		I	554.0	I	0.0	I	64.0	I	783.0	I
I		I		I	(6.5)	I	(0.0)	I	(0.0)	I	(1.9)	I
I		I	ARM C	I	0.587	I	0.078	I	0.000	I	0.335	I
I		I		I	362.0	I	48.0	I	0.0	I	207.0	I
I		I		I	(0.3)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I	ARM D	I	0.196	I	0.596	I	0.207	I	0.001	I
I		I		I	149.0	I	453.0	I	157.0	I	1.0	I
I		I		I	(4.3)	I	(4.9)	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	8.16	I	29.28	I	0.279	I		I	0.0	I	0.4	I	5.7	I		I	0.05	I
I	ARM B	I	17.51	I	29.35	I	0.597	I		I	0.0	I	1.5	I	21.0	I		I	0.08	I
I	ARM C	I	7.71	I	19.03	I	0.405	I		I	0.0	I	0.7	I	9.8	I		I	0.09	I
I	ARM D	I	9.50	I	22.37	I	0.425	I		I	0.0	I	0.7	I	10.6	I		I	0.08	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	9.75	28.13	0.347		0.4	0.5	7.8		0.05
ARM B	20.91	28.40	0.736		1.5	2.7	38.1		0.13
ARM C	9.21	16.56	0.556		0.7	1.2	17.6		0.13
ARM D	11.34	20.85	0.544		0.7	1.2	17.0		0.10

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	11.94	26.59	0.449		0.5	0.8	11.8		0.07
ARM B	25.61	27.12	0.944		2.7	11.2	129.3		0.40
ARM C	11.28	13.48	0.837		1.2	4.4	55.9		0.39
ARM D	13.89	18.94	0.733		1.2	2.6	36.3		0.19

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	11.94	26.53	0.450		0.8	0.8	12.2		0.07
ARM B	25.61	27.10	0.945		11.2	13.1	183.8		0.55
ARM C	11.28	13.20	0.855		4.4	5.2	73.3		0.49
ARM D	13.89	18.76	0.740		2.6	2.8	40.7		0.20

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	9.75	28.04	0.348		0.8	0.5	8.2		0.05
ARM B	20.91	28.37	0.737		13.1	2.9	55.3		0.16
ARM C	9.21	16.07	0.573		5.2	1.4	23.2		0.16
ARM D	11.34	20.52	0.553		2.8	1.3	19.8		0.11

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	8.16	29.23	0.279		0.5	0.4	5.9		0.05
ARM B	17.51	29.32	0.597		2.9	1.5	23.5		0.09
ARM C	7.71	18.90	0.408		1.4	0.7	10.8		0.09
ARM D	9.50	22.28	0.426		1.3	0.7	11.6		0.08

QUEUE AT ARM A

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

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.5	*
17.15	2.7	***
17.30	11.2	*****
17.45	13.1	*****
18.00	2.9	***
18.15	1.5	**

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.7	*
17.15	1.2	*
17.30	4.4	****
17.45	5.2	*****
18.00	1.4	*
18.15	0.7	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.7	*
17.15	1.2	*
17.30	2.6	***
17.45	2.8	***
18.00	1.3	*
18.15	0.7	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND	I	* QUEUEING * * DELAY *	I	* INCLUSIVE QUEUEING * * DELAY *	I
I		I		I		I		I
I		I	(VEH)	I	(MIN)	I	(MIN)	I
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I
I	A	I	895.4	I	51.6	I	0.06	I
I	B	I	1921.1	I	451.0	I	0.23	I
I	C	I	846.0	I	190.7	I	0.23	I
I	D	I	1042.1	I	136.0	I	0.13	I
I	ALL	I	4704.6	I	829.3	I	0.18	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 11:46:30 on 25/11/2010]