

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 AM flows with Exemplar devt A.vai"
(drive-on-the-left) at 08:40:49 on Wednesday, 24 November 2010

FILE PROPERTIES

RUN TITLE: Proposed A4095 Howes Lane / B4030 Middleton Stoney Rd Roundabout
LOCATION: Bicester
DATE: 02/11/10
CLIENT: P3 Eco Ltd
ENUMERATOR: msu02620 [HCL55810]
JOB NUMBER: UA01881
STATUS: Preliminary
DESCRIPTION: 2026 AM peak hour 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
E = entry width

L = effective flare length
R = entry radius

D = inscribed circle diameter
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 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 AM peak with exem devt

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	6.30	9.45	6.30
ARM B	15.00	45.00	75.00	4.43	6.64	4.43
ARM C	15.00	45.00	75.00	3.39	5.08	3.39
ARM D	15.00	45.00	75.00	4.11	6.17	4.11

DEMAND SET TITLE: 2016 AM peak with exem devt

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
07.45 - 09.15	ARM A	0.000	0.115	0.710	0.175
		0.0	58.0	358.0	88.0
		(0.0)	(0.0)	(2.1)	(3.1)
	ARM B	0.059	0.000	0.432	0.508
		21.0	0.0	153.0	180.0
		(0.0)	(0.0)	(1.8)	(9.5)
	ARM C	0.594	0.362	0.000	0.044
		161.0	98.0	0.0	12.0
		(4.5)	(6.4)	(0.0)	(0.0)
	ARM D	0.198	0.769	0.033	0.000
		65.0	253.0	11.0	0.0
		(9.7)	(10.6)	(0.0)	(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	6.30	22.38	0.281		0.0	0.4	5.7		0.06
ARM B	4.43	20.27	0.218		0.0	0.3	4.1		0.06
ARM C	3.39	25.71	0.132		0.0	0.2	2.2		0.04
ARM D	4.11	20.10	0.205		0.0	0.3	3.8		0.06

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	7.52	21.84	0.345		0.4	0.5	7.7		0.07
ARM B	5.28	19.68	0.268		0.3	0.4	5.4		0.07
ARM C	4.05	25.27	0.160		0.2	0.2	2.8		0.05
ARM D	4.91	19.74	0.249		0.3	0.3	4.9		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)
08.15-08.30									
ARM A	9.21	21.09	0.437		0.5	0.8	11.2		0.08
ARM B	6.47	18.89	0.343		0.4	0.5	7.6		0.08
ARM C	4.95	24.67	0.201		0.2	0.3	3.7		0.05
ARM D	6.01	19.25	0.312		0.3	0.5	6.6		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)
08.30-08.45									
ARM A	9.21	21.09	0.437		0.8	0.8	11.6		0.08
ARM B	6.47	18.88	0.343		0.5	0.5	7.8		0.08
ARM C	4.95	24.66	0.201		0.3	0.3	3.8		0.05
ARM D	6.01	19.25	0.312		0.5	0.5	6.8		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)
08.45-09.00									
ARM A	7.52	21.83	0.345		0.8	0.5	8.1		0.07
ARM B	5.28	19.67	0.269		0.5	0.4	5.7		0.07
ARM C	4.05	25.26	0.160		0.3	0.2	2.9		0.05
ARM D	4.91	19.74	0.249		0.5	0.3	5.1		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)
09.00-09.15									
ARM A	6.30	22.37	0.282		0.5	0.4	6.0		0.06
ARM B	4.43	20.25	0.219		0.4	0.3	4.3		0.06
ARM C	3.39	25.70	0.132		0.2	0.2	2.3		0.04
ARM D	4.11	20.09	0.205		0.3	0.3	3.9		0.06

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.4
08.15	0.5 *
08.30	0.8 *
08.45	0.8 *
09.00	0.5 *
09.15	0.4

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	0.2
08.30	0.3
08.45	0.3
09.00	0.2
09.15	0.2

QUEUE AT ARM D

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

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	(VEH)	I	(MIN)	I	(MIN)	I
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I
I	A	I	691.1	I	50.3	I	50.3	I
I	B	I	485.4	I	34.8	I	34.8	I
I	C	I	371.6	I	17.7	I	17.7	I
I	D	I	451.1	I	31.1	I	31.1	I
I	ALL	I	1999.2	I	133.9	I	133.9	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

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[Printed at 08:41:08 on 24/11/2010]

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.0 ANALYSIS PROGRAM
RELEASE 3.0 (JUNE 2006)

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Run with file:-
"C:\E DRIVE DOCS\WORKING JOB FILES\Bicester\Oct 2010 onwards\Junction Capacity\Site 6\Site 6.vpi"
(drive-on-the-left) at 08:14:21 on Wednesday, 24 November 2010

RUN INFORMATION

RUN TITLE: Site 6 - B4100 Banbury Rd / Bainton Rd
LOCATION: Bicester
DATE: 10/11/10
CLIENT:
ENUMERATOR: msu02620 [HCL55810]
JOB NUMBER: UA001881
STATUS: Preliminary
DESCRIPTION:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

MAJOR ROAD (ARM C) ----- MAJOR ROAD (ARM A)
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS B4100 Banbury Rd (s)
ARM B IS Bainton Rd
ARM C IS B4100 Banbury Rd (n)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

I	DATA ITEM	I	MINOR ROAD B	I
I	TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	I (W)	7.00 M.	I
I	CENTRAL RESERVE WIDTH	I (WCR)	0.00 M.	I
I		I		I
I	MAJOR ROAD RIGHT TURN - WIDTH	I (WC-B)	2.20 M.	I
I	- VISIBILITY	I (VC-B)	215.0 M.	I
I	- BLOCKS TRAFFIC	I	YES	I
I		I		I
I	MINOR ROAD - VISIBILITY TO LEFT	I (VB-C)	215.0 M.	I
I	- VISIBILITY TO RIGHT	I (VB-A)	215.0 M.	I
I	- LANE 1 WIDTH	I (WB-C)	2.20 M.	I
I	- LANE 2 WIDTH	I (WB-A)	0.00 M.	I

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

I	Intercept For	Slope For	Opposing	Slope For	Opposing	I
I	Stream B-C	Stream	A-C	Stream	A-B	I
I	698.47		0.26		0.10	I

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	Stream B-A	Stream	A-C	Stream	A-B	Stream	C-A	I
I	610.77		0.27		0.11		0.17	I

I	Intercept For	Slope For	Opposing	Slope For	Opposing	I
I	Stream C-B	Stream	A-C	Stream	A-B	I
I	698.47		0.26		0.26	I

NB These values do not allow for any site specific corrections

TRAFFIC DEMAND DATA

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									
B-AC	0.35	6.33	0.055		0.04	0.06	0.8		0.17
C-AB	0.51	17.93	0.028		0.02	0.04	0.5		0.06
C-A	15.04								
A-B	0.33								
A-C	9.43								

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									
B-AC	0.35	6.33	0.055		0.06	0.06	0.9		0.17
C-AB	0.51	17.93	0.028		0.04	0.04	0.5		0.06
C-A	15.04								
A-B	0.33								
A-C	9.43								

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									
B-AC	0.28	7.27	0.039		0.06	0.04	0.6		0.14
C-AB	0.35	16.94	0.020		0.04	0.02	0.4		0.06
C-A	12.34								
A-B	0.27								
A-C	7.70								

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									
B-AC	0.24	7.90	0.030		0.04	0.03	0.5		0.13
C-AB	0.25	16.16	0.016		0.02	0.02	0.3		0.06
C-A	10.37								
A-B	0.23								
A-C	6.45								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-AC

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 FOR STREAM C-AB

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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL	I	DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I		I	* DELAY *	I	* DELAY *	I
I		I		I		I		I		I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I	(MIN/VEH)	I
I		I		I		I		I		I
I	B-AC	I	26.2	I	17.4	I	3.9	I	0.15	I
I	C-AB	I	33.2	I	22.1	I	2.4	I	0.07	I
I	C-A	I	1132.7	I	755.1	I		I		I
I	A-B	I	24.8	I	16.5	I		I		I
I	A-C	I	707.5	I	471.7	I		I		I
I	ALL	I	1924.2	I	1282.8	I	6.2	I	0.00	I

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 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity
 will be adjusted)

I	Intercept For	Slope For	Opposing	Slope For	Opposing	I
I	Stream B-C	Stream	A-C	Stream	A-B	I
I	698.47		0.26		0.10	I

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	Stream B-A	Stream	A-C	Stream	A-B	Stream	C-A	I
I	610.77		0.27		0.11		0.17	I

I	Intercept For	Slope For	Opposing	Slope For	Opposing	I
I	Stream C-B	Stream	A-C	Stream	A-B	I
I	698.47		0.26		0.26	I

NB These values do not allow for any site specific corrections

TRAFFIC DEMAND DATA

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									
B-AC	0.24	5.70	0.042		0.03	0.04	0.6		0.18
C-AB	0.50	15.39	0.032		0.03	0.04	0.6		0.07
C-A	11.08								
A-B	0.24								
A-C	13.73								

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									
B-AC	0.24	5.70	0.042		0.04	0.04	0.6		0.18
C-AB	0.50	15.39	0.032		0.04	0.04	0.6		0.07
C-A	11.08								
A-B	0.24								
A-C	13.73								

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									
B-AC	0.19	6.74	0.029		0.04	0.03	0.5		0.15
C-AB	0.34	14.69	0.023		0.04	0.03	0.4		0.07
C-A	9.11								
A-B	0.19								
A-C	11.21								

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									
B-AC	0.16	7.46	0.022		0.03	0.02	0.3		0.14
C-AB	0.25	14.17	0.018		0.03	0.02	0.3		0.07
C-A	7.67								
A-B	0.16								
A-C	9.39								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-AC

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 FOR STREAM C-AB

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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
B-AC	17.9	11.9	2.8
C-AB	32.6	21.7	0.16
C-A	835.9	557.3	0.08
A-B	17.9	11.9	
A-C	1029.6	686.4	
ALL	1933.9	1289.3	5.6

* 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 08:14:47 on 24/11/2010]

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.0 ANALYSIS PROGRAM
RELEASE 3.0 (JUNE 2006)

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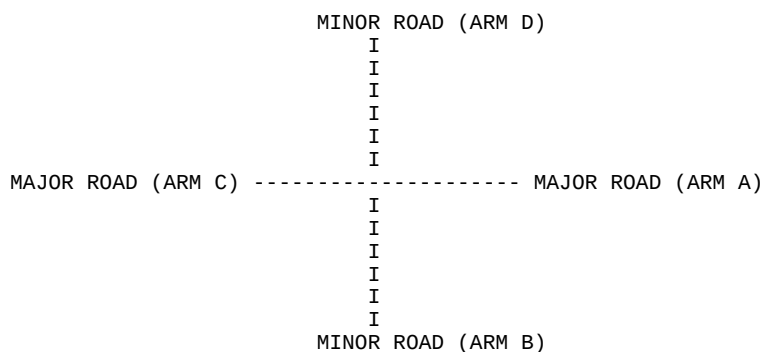
Run with file:-
"C:\E DRIVE DOCS\WORKING JOB FILES\Bicester\Oct 2010 onwards\Junction Capacity\Site 5\Site 5.vpi"
(drive-on-the-left) at 08:07:52 on Wednesday, 24 November 2010

RUN INFORMATION

RUN TITLE: Site 5 - Ardley Rd/Bainton Rd/Bicester Rd/Middleton Rd
LOCATION: Bicester
DATE: 08/11/10
CLIENT:
ENUMERATOR: msu02620 [HCL55810]
JOB NUMBER: UA001881
STATUS: Preliminary
DESCRIPTION:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Ardley Rd
ARM B IS Bainton Rd
ARM C IS Bicester Rd
ARM D IS Middleton Rd

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

DATA ITEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 6.00 M.	(W) 6.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.	(WA-D) 2.20 M.
- VISIBILITY	(VC-B) 90.0 M.	(VA-D) 90.0 M.
- BLOCKS TRAFFIC	YES	YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 23.0 M.	(VD-A) 27.0 M.
- VISIBILITY TO RIGHT	(VB-A) 20.0 M.	(VD-C) 16.0 M.
- LANE 1 WIDTH	(WB-C) 2.50 M.	(WD-A) 2.20 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.	(WD-C) 0.00 M.

SLOPES AND INTERCPET

(NB:Streams may be combined, in which case capacity will be adjusted)

B-C Stream

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
604.66	0.23	0.09

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D
583.23	0.23	0.09

B-A Stream

Intercept For Stream B-A	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream D-A	Slope For Opposing Stream D-B
470.11	0.22	0.22	0.22	0.22

Slope For Opposing Stream A-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C
0.09	0.14	0.31	0.11

D-C Stream

Intercept For Stream D-C	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream B-C	Slope For Opposing Stream B-D
454.63	0.21	0.21	0.21	0.21

Slope For Opposing Stream C-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream B-A
0.08	0.13	0.30	0.10

C-B Stream

Intercept For Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D
626.08	0.24	0.35

A-D Stream

Intercept For Stream A-D	Slope For Opposing Stream B-C	Slope For Opposing Stream B-D
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I Stream A-D	Stream C-A	Stream C-B	I
I 626.08	0.24	0.35	I

B-D Stream From Left Hand Lane

I Intercept For I Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B	I
I 470.11	0.22	0.22	0.09	0.31	I
I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing	I
I	0.14	0.14			I

B-D Stream From Right Hand Lane

I Intercept For I Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B	I
I 470.11	0.22	0.22	0.09	0.31	I
I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing	I
I	0.14	0.14			I

D-B Stream From Left Hand Lane

I Intercept For I Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C	Slope For Opposing Stream A-D	I
I 454.63	0.21	0.21	0.08	0.30	I
I	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing	I
I	0.13	0.13			I

D-B Stream From Right Hand Lane

I Intercept For I Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream C-D	Slope For Opposing Stream A-D	I
I 454.63	0.21	0.21	0.08	0.30	I
I	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing	I
I	0.13	0.13			I

TRAFFIC DEMAND DATA

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									
B-ACD	0.43	7.70	0.056		0.05	0.06	0.9		0.14
A-BCD	0.04	11.02	0.003		0.00	0.00	0.1		0.09
A-B	0.18								
A-C	1.66								
D-ABC	0.36	6.94	0.052		0.04	0.05	0.8		0.15
C-ABD	0.13	11.58	0.011		0.01	0.01	0.2		0.09
C-D	0.06								
C-A	2.36								

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									
B-ACD	0.53	7.54	0.071		0.06	0.08	1.1		0.14
A-BCD	0.05	11.16	0.004		0.00	0.00	0.1		0.09
A-B	0.22								
A-C	2.03								
D-ABC	0.44	6.77	0.065		0.05	0.07	1.0		0.16
C-ABD	0.17	11.84	0.014		0.01	0.02	0.2		0.09
C-D	0.07								
C-A	2.88								

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									
B-ACD	0.53	7.54	0.071		0.08	0.08	1.1		0.14
A-BCD	0.05	11.16	0.004		0.00	0.00	0.1		0.09
A-B	0.22								
A-C	2.03								
D-ABC	0.44	6.77	0.065		0.07	0.07	1.0		0.16
C-ABD	0.17	11.84	0.014		0.02	0.02	0.2		0.09
C-D	0.07								
C-A	2.88								

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									
B-ACD	0.43	7.70	0.056		0.08	0.06	0.9		0.14
A-BCD	0.04	11.02	0.003		0.00	0.00	0.1		0.09
A-B	0.18								
A-C	1.66								
D-ABC	0.36	6.94	0.052		0.07	0.06	0.8		0.15
C-ABD	0.13	11.58	0.011		0.02	0.01	0.2		0.09
C-D	0.06								
C-A	2.36								

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									
B-ACD	0.36	7.82	0.047		0.06	0.05	0.8		0.13
A-BCD	0.03	10.92	0.003		0.00	0.00	0.0		0.09
A-B	0.15								
A-C	1.39								
D-ABC	0.30	7.06	0.043		0.06	0.05	0.7		0.15
C-ABD	0.11	11.39	0.009		0.01	0.01	0.2		0.09
C-D	0.05								
C-A	1.98								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-ACD

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

QUEUE FOR STREAM A-BCD

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

QUEUE FOR STREAM D-ABC

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

QUEUE FOR STREAM C-ABD

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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
B-ACD	39.9	5.5	0.14
A-BCD	3.3	0.3	0.09
A-B	16.5		
A-C	152.3		
D-ABC	33.0	5.0	0.15
C-ABD	12.3	1.2	0.10
C-D	5.4		
C-A	216.3		
ALL	479.0	12.0	0.03

* 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

.SLOPES AND INTERCPET

(NB:Streams may be combined, in which case capacity

will be adjusted)

B-C Stream

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
604.66	0.23	0.09

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D
583.23	0.23	0.09

B-A Stream

Intercept For Stream B-A	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream D-A	Slope For Opposing Stream D-B
470.11	0.22	0.22	0.22	0.22

Slope For Opposing Stream A-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C
0.09	0.14	0.31	0.11

D-C Stream

Intercept For Stream D-C	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream B-C	Slope For Opposing Stream B-D
454.63	0.21	0.21	0.21	0.21

Slope For Opposing Stream C-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream B-A
0.08	0.13	0.30	0.10

C-B Stream

I	Intercept For	Slope For Opposing	Slope For Opposing	I
I	Stream C-B	Stream A-C	Stream A-D	I
I	626.08	0.24	0.35	I

A-D Stream

I	Intercept For	Slope For Opposing	Slope For Opposing	I
I	Stream A-D	Stream C-A	Stream C-B	I
I	626.08	0.24	0.35	I

B-D Stream From Left Hand Lane

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	Stream B-D	Stream A-C	Stream A-D	Stream A-B	Stream C-B	I
I	470.11	0.22	0.22	0.09	0.31	I
I		Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I		Stream C-A	Stream C-D			I
I		0.14	0.14			I

B-D Stream From Right Hand Lane

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	Stream B-D	Stream A-C	Stream A-D	Stream A-B	Stream C-B	I
I	470.11	0.22	0.22	0.09	0.31	I
I		Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I		Stream C-A	Stream C-D			I
I		0.14	0.14			I

D-B Stream From Left Hand Lane

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	Stream D-B	Stream C-A	Stream C-B	Stream D-C	Stream A-D	I
I	454.63	0.21	0.21	0.08	0.30	I
I		Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I		Stream A-C	Stream A-B			I
I		0.13	0.13			I

D-B Stream From Right Hand Lane

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	Stream D-B	Stream C-A	Stream C-B	Stream C-D	Stream A-D	I
I	454.63	0.21	0.21	0.08	0.30	I
I		Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I		Stream A-C	Stream A-B			I
I		0.13	0.13			I

TRAFFIC DEMAND DATA

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									
B-ACD	0.42	7.97	0.053		0.05	0.06	0.8		0.13
A-BCD	0.09	11.10	0.008		0.01	0.01	0.1		0.09
A-B	0.06								
A-C	1.52								
D-ABC	0.22	7.80	0.029		0.02	0.03	0.4		0.13
C-ABD	0.03	11.06	0.003		0.00	0.00	0.0		0.09
C-D	0.09								
C-A	1.46								

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									
B-ACD	0.51	7.85	0.065		0.06	0.07	1.0		0.14
A-BCD	0.11	11.25	0.010		0.01	0.01	0.2		0.09
A-B	0.07								
A-C	1.85								
D-ABC	0.28	7.68	0.036		0.03	0.04	0.5		0.14
C-ABD	0.04	11.20	0.004		0.00	0.00	0.1		0.09
C-D	0.11								
C-A	1.79								

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									
B-ACD	0.51	7.85	0.065		0.07	0.07	1.0		0.14
A-BCD	0.11	11.25	0.010		0.01	0.01	0.2		0.09
A-B	0.07								
A-C	1.85								
D-ABC	0.28	7.68	0.036		0.04	0.04	0.6		0.14
C-ABD	0.04	11.20	0.004		0.00	0.00	0.1		0.09
C-D	0.11								
C-A	1.79								

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									
B-ACD	0.42	7.97	0.053		0.07	0.06	0.9		0.13
A-BCD	0.09	11.10	0.008		0.01	0.01	0.1		0.09
A-B	0.06								
A-C	1.52								
D-ABC	0.22	7.80	0.029		0.04	0.03	0.5		0.13
C-ABD	0.03	11.06	0.003		0.00	0.00	0.0		0.09
C-D	0.09								
C-A	1.46								

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									
B-ACD	0.35	8.06	0.044		0.06	0.05	0.7		0.13
A-BCD	0.07	10.99	0.006		0.01	0.01	0.1		0.09
A-B	0.05								
A-C	1.27								
D-ABC	0.19	7.88	0.024		0.03	0.02	0.4		0.13
C-ABD	0.03	10.95	0.003		0.00	0.00	0.0		0.09
C-D	0.08								
C-A	1.23								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.0

QUEUE FOR STREAM A-BCD

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 FOR STREAM D-ABC

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 FOR STREAM C-ABD

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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I	I	I	I	I	* DELAY *	I	* DELAY *	I
I	I	I	I	I	I	I	I	I
I	I	I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
I	B-ACD	I	38.5	I 25.7	I 5.1	I 0.13	I 5.1	I 0.13
I	A-BCD	I	8.1	I 5.4	I 0.8	I 0.10	I 0.8	I 0.10
I	A-B	I	5.5	I 3.6	I	I	I	I
I	A-C	I	139.3	I 92.8	I	I	I	I
I	D-ABC	I	20.6	I 13.8	I 2.7	I 0.13	I 2.7	I 0.13
I	C-ABD	I	3.2	I 2.1	I 0.3	I 0.09	I 0.3	I 0.09
I	C-D	I	8.2	I 5.5	I	I	I	I
I	C-A	I	134.4	I 89.6	I	I	I	I
I	ALL	I	357.9	I 238.6	I 8.9	I 0.02	I 8.9	I 0.02

* 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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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 4\Existing Rnbt\
Site 4 Ex Rnbt.vai"
(drive-on-the-left) at 09:55:14 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 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 with Exem devt PM

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	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 with Exem devt 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	(4.7)	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	25.04	I	0.326	I		I	0.0	I	0.5	I	7.0	I		I	0.06	I
I	ARM B	I	17.51	I	25.79	I	0.679	I		I	0.0	I	2.1	I	29.0	I		I	0.12	I
I	ARM C	I	7.71	I	19.05	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	21.55	I	0.441	I		I	0.0	I	0.8	I	11.3	I		I	0.08	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	17.00-17.15										I
I	ARM A	9.75	23.97	0.407		0.5	0.7	10.0		0.07	I
I	ARM B	20.91	24.91	0.839		2.1	4.8	63.7		0.23	I
I	ARM C	9.21	16.63	0.554		0.7	1.2	17.5		0.13	I
I	ARM D	11.34	20.07	0.565		0.8	1.3	18.4		0.11	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	17.15-17.30										I
I	ARM A	11.94	22.55	0.529		0.7	1.1	16.1		0.09	I
I	ARM B	25.61	23.73	1.079		4.8	39.1	347.7		1.12	I
I	ARM C	11.28	14.57	0.774		1.2	3.2	42.3		0.28	I
I	ARM D	13.89	18.59	0.747		1.3	2.8	38.6		0.20	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	17.30-17.45										I
I	ARM A	11.94	22.50	0.531		1.1	1.1	16.8		0.09	I
I	ARM B	25.61	23.71	1.080		39.1	68.8	810.6		2.41	I
I	ARM C	11.28	14.38	0.785		3.2	3.4	50.1		0.32	I
I	ARM D	13.89	18.46	0.753		2.8	2.9	43.4		0.22	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	17.45-18.00										I
I	ARM A	9.75	23.90	0.408		1.1	0.7	10.7		0.07	I
I	ARM B	20.91	24.88	0.840		68.8	14.6	625.8		1.77	I
I	ARM C	9.21	14.20	0.649		3.4	1.9	30.8		0.21	I
I	ARM D	11.34	19.03	0.596		2.9	1.5	23.8		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	18.00-18.15										I
I	ARM A	8.16	24.98	0.327		0.7	0.5	7.5		0.06	I
I	ARM B	17.51	25.76	0.680		14.6	2.2	46.0		0.15	I
I	ARM C	7.71	18.43	0.419		1.9	0.7	11.4		0.09	I
I	ARM D	9.50	21.25	0.447		1.5	0.8	12.7		0.09	I

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.5
17.15	0.7 *
17.30	1.1 *
17.45	1.1 *
18.00	0.7 *
18.15	0.5

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	2.1	**
17.15	4.8	*****
17.30	39.1	*****
17.45	68.8	*****
18.00	14.6	*****
18.15	2.2	**

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.7	*
17.15	1.2	*
17.30	3.2	***
17.45	3.4	***
18.00	1.9	**
18.15	0.7	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.8	*
17.15	1.3	*
17.30	2.8	***
17.45	2.9	***
18.00	1.5	**
18.15	0.8	*

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	A	I	895.4	I	596.9	I	68.0	I	0.08	I
I	B	I	1921.1	I	1280.7	I	1922.7	I	1.00	I
I	C	I	846.0	I	564.0	I	161.7	I	0.19	I
I	D	I	1042.1	I	694.7	I	148.3	I	0.14	I
I	ALL	I	4704.6	I	3136.4	I	2300.8	I	0.49	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 =====

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.vai"
(drive-on-the-left) at 09:51:35 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: 2016 with Exem devt 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	11.43	I	17.14	I	11.43	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	7.15	I	10.73	I	7.15	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	6.43	I	9.64	I	6.43	I
I	ARM D	I	15.00	I	45.00	I	75.00	I	13.57	I	20.36	I	13.57	I

DEMAND SET TITLE: 2016 with Exem devt 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	458.0	I	329.0	I	127.0	I
I		I		I	(0.0)	I	(6.9)	I	(1.9)	I	(5.7)	I
I		I	ARM B	I	0.353	I	0.000	I	0.035	I	0.612	I
I		I		I	202.0	I	0.0	I	20.0	I	350.0	I
I		I		I	(14.2)	I	(0.0)	I	(4.5)	I	(6.1)	I
I		I	ARM C	I	0.508	I	0.154	I	0.000	I	0.339	I
I		I		I	261.0	I	79.0	I	0.0	I	174.0	I
I		I		I	(2.4)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I	ARM D	I	0.120	I	0.751	I	0.129	I	0.000	I
I		I		I	130.0	I	816.0	I	140.0	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	11.43	I	21.91	I	0.522	I		I	0.0	I	1.1	I	15.5	I		I	0.09	I
I	ARM B	I	7.15	I	24.39	I	0.293	I		I	0.0	I	0.4	I	6.0	I		I	0.06	I
I	ARM C	I	6.43	I	25.43	I	0.253	I		I	0.0	I	0.3	I	4.9	I		I	0.05	I
I	ARM D	I	13.57	I	24.72	I	0.549	I		I	0.0	I	1.2	I	17.3	I		I	0.09	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	13.64	20.22	0.675		1.1	2.0	28.5		0.15
ARM B	8.54	23.53	0.363		0.4	0.6	8.3		0.07
ARM C	7.67	24.29	0.316		0.3	0.5	6.8		0.06
ARM D	16.21	23.85	0.680		1.2	2.1	29.4		0.13

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	16.71	18.04	0.926		2.0	8.6	99.9		0.48
ARM B	10.46	22.47	0.465		0.6	0.9	12.6		0.08
ARM C	9.40	22.75	0.413		0.5	0.7	10.2		0.07
ARM D	19.85	22.67	0.876		2.1	6.1	77.3		0.30

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	16.71	17.90	0.934		8.6	10.4	144.6		0.67
ARM B	10.46	22.36	0.468		0.9	0.9	13.0		0.08
ARM C	9.40	22.71	0.414		0.7	0.7	10.5		0.08
ARM D	19.85	22.66	0.876		6.1	6.5	94.9		0.34

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	13.64	20.02	0.682		10.4	2.2	42.2		0.19
ARM B	8.54	23.32	0.366		0.9	0.6	8.9		0.07
ARM C	7.67	24.21	0.317		0.7	0.5	7.1		0.06
ARM D	16.21	23.83	0.680		6.5	2.2	36.4		0.14

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	11.43	21.82	0.524		2.2	1.1	17.4		0.10
ARM B	7.15	24.34	0.294		0.6	0.4	6.4		0.06
ARM C	6.43	25.40	0.253		0.5	0.3	5.2		0.05
ARM D	13.57	24.70	0.550		2.2	1.2	19.3		0.09

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.1 *
08.15	2.0 **
08.30	8.6 *****
08.45	10.4 *****
09.00	2.2 **
09.15	1.1 *

[Printed at 09:52:00 on 24/11/2010]

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\Oct 2010 onwards\Junction Capacity\Site 3\Existing Rnbt\
Site 3 Banbury Road Lords Lane.vai"
(drive-on-the-left) at 09:43:35 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: 2016 + Exem Dev PM

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	13.75	I	20.63	I	13.75	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	6.22	I	9.34	I	6.22	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	9.85	I	14.78	I	9.85	I
I	ARM D	I	15.00	I	45.00	I	75.00	I	9.43	I	14.14	I	9.43	I

DEMAND SET TITLE: 2016 + Exem Dev 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	0.016	I	0.144	I	0.401	I	0.439	I
I		I		I	18.0	I	158.0	I	441.0	I	483.0	I
I		I		I	(0.0)	I	(2.0)	I	(1.0)	I	(5.0)	I
I		I	ARM B	I	0.365	I	0.000	I	0.175	I	0.460	I
I		I		I	182.0	I	0.0	I	87.0	I	229.0	I
I		I		I	(1.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I	ARM C	I	0.718	I	0.114	I	0.000	I	0.168	I
I		I		I	566.0	I	90.0	I	0.0	I	132.0	I
I		I		I	(1.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I	ARM D	I	0.475	I	0.292	I	0.228	I	0.005	I
I		I		I	358.0	I	220.0	I	172.0	I	4.0	I
I		I		I	(6.0)	I	(1.0)	I	(1.0)	I	(25.0)	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	13.75	I	25.75	I	0.534	I		I	0.0	I	1.1	I	16.3	I		I	0.08	I
I	ARM B	I	6.22	I	20.81	I	0.299	I		I	0.0	I	0.4	I	6.2	I		I	0.07	I
I	ARM C	I	9.85	I	21.75	I	0.453	I		I	0.0	I	0.8	I	11.9	I		I	0.08	I
I	ARM D	I	9.43	I	22.31	I	0.423	I		I	0.0	I	0.7	I	10.5	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	16.42	24.96	0.658		1.1	1.9	26.9		0.12
ARM B	7.43	18.94	0.393		0.4	0.6	9.4		0.09
ARM C	11.76	20.19	0.583		0.8	1.4	19.7		0.12
ARM D	11.25	20.90	0.539		0.7	1.2	16.7		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	20.11	23.91	0.841		1.9	4.8	63.7		0.24
ARM B	9.10	16.47	0.553		0.6	1.2	17.4		0.13
ARM C	14.41	18.11	0.795		1.4	3.6	48.1		0.25
ARM D	13.78	19.04	0.724		1.2	2.5	34.8		0.18

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	20.11	23.87	0.843		4.8	5.1	74.5		0.26
ARM B	9.10	16.35	0.557		1.2	1.2	18.5		0.14
ARM C	14.41	18.03	0.799		3.6	3.8	55.7		0.27
ARM D	13.78	18.96	0.727		2.5	2.6	38.5		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)
17.45-18.00									
ARM A	16.42	24.90	0.659		5.1	2.0	32.1		0.12
ARM B	7.43	18.77	0.396		1.2	0.7	10.3		0.09
ARM C	11.76	20.07	0.586		3.8	1.4	23.2		0.12
ARM D	11.25	20.77	0.542		2.6	1.2	18.9		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	13.75	25.71	0.535		2.0	1.2	18.1		0.08
ARM B	6.22	20.72	0.300		0.7	0.4	6.6		0.07
ARM C	9.85	21.68	0.454		1.4	0.8	13.0		0.09
ARM D	9.43	22.24	0.424		1.2	0.7	11.4		0.08

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.1 *
17.15	1.9 **
17.30	4.8 *****
17.45	5.1 *****
18.00	2.0 **
18.15	1.2 *

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 3\Existing Rnbt\
Site 3 Banbury Road Lords Lane.vai"
(drive-on-the-left) at 09:38:29 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)

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

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 + Exem Dev AM

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED IF FALLING	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	10.02	15.04	10.02
ARM B	15.00	45.00	75.00	4.34	6.51	4.34
ARM C	15.00	45.00	75.00	8.29	12.43	8.29
ARM D	15.00	45.00	75.00	13.26	19.89	13.26

DEMAND SET TITLE: 2016 + Exem Dev AM

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
07.45 - 09.15	ARM A	0.031 25.0 (0.0)	0.146 117.0 (0.0)	0.453 363.0 (3.0)	0.370 297.0 (4.0)
	ARM B	0.326 113.0 (0.0)	0.000 0.0 (0.0)	0.219 76.0 (0.0)	0.455 158.0 (0.0)
	ARM C	0.606 402.0 (2.0)	0.119 79.0 (1.0)	0.000 0.0 (0.0)	0.275 182.0 (6.0)
	ARM D	0.516 547.0 (7.0)	0.320 340.0 (2.0)	0.162 172.0 (3.0)	0.002 2.0 (33.0)

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	10.02	24.82	0.404		0.0	0.7	9.8		0.07
ARM B	4.34	23.05	0.188		0.0	0.2	3.4		0.05
ARM C	8.29	24.03	0.345		0.0	0.5	7.6		0.06
ARM D	13.26	23.95	0.554		0.0	1.2	17.6		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)
08.00-08.15									
ARM A	11.97	23.84	0.502		0.7	1.0	14.5		0.08
ARM B	5.18	21.60	0.240		0.2	0.3	4.6		0.06
ARM C	9.90	23.04	0.429		0.5	0.7	10.9		0.08
ARM D	15.84	22.94	0.690		1.2	2.2	30.7		0.14

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	14.66	22.60	0.649		1.0	1.8	25.8		0.12
ARM B	6.34	19.66	0.323		0.3	0.5	6.9		0.08
ARM C	12.12	21.70	0.558		0.7	1.2	18.0		0.10
ARM D	19.40	21.56	0.900		2.2	7.2	88.7		0.36

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	14.66	22.50	0.651		1.8	1.8	27.4		0.13
ARM B	6.34	19.60	0.324		0.5	0.5	7.1		0.08
ARM C	12.12	21.68	0.559		1.2	1.3	18.8		0.10
ARM D	19.40	21.54	0.900		7.2	7.9	114.4		0.43

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	11.97	23.70	0.505		1.8	1.0	16.0		0.09
ARM B	5.18	21.51	0.241		0.5	0.3	4.9		0.06
ARM C	9.90	23.01	0.430		1.3	0.8	11.7		0.08
ARM D	15.84	22.91	0.691		7.9	2.3	39.9		0.16

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	10.02	24.76	0.405		1.0	0.7	10.5		0.07
ARM B	4.34	23.00	0.189		0.3	0.2	3.6		0.05
ARM C	8.29	24.00	0.345		0.8	0.5	8.1		0.06
ARM D	13.26	23.92	0.554		2.3	1.3	19.7		0.09

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.7 *
08.15	1.0 *
08.30	1.8 **
08.45	1.8 **
09.00	1.0 *
09.15	0.7 *

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	0.5 *
08.15	0.7 *
08.30	1.2 *
08.45	1.3 *
09.00	0.8 *
09.15	0.5 *

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.2 *
08.15	2.2 **
08.30	7.2 *****
08.45	7.9 *****
09.00	2.3 **
09.15	1.3 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	QUEUEING * DELAY *	INCLUSIVE QUEUEING * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	1099.7	104.1	0.09
B	475.8	30.5	0.06
C	909.1	75.2	0.08
D	1454.9	310.9	0.21
ALL	3939.5	520.8	0.13

* 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 09:38:49 on 24/11/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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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 ms edit.vai"
(drive-on-the-left) at 09:21:19 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	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 PM with Exemplar

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	8.27	I	12.41	I	8.27	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	9.39	I	14.08	I	9.39	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	1.54	I	2.31	I	1.54	I

DEMAND SET TITLE: 2016 PM with Exemplar

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	0.934	I	0.066	I
I		I		I	0.0	I	618.0	I	44.0	I
I		I		I	(0.0)	I	(6.0)	I	(0.0)	I
I		I	ARM B	I	0.916	I	0.000	I	0.084	I
I		I		I	688.0	I	0.0	I	63.0	I
I		I		I	(12.0)	I	(0.0)	I	(1.0)	I
I		I	ARM C	I	0.407	I	0.593	I	0.000	I
I		I		I	50.0	I	73.0	I	0.0	I
I		I		I	(1.0)	I	(0.0)	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	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	8.27	I	26.10	I	0.317	I		I	0.0	I	0.5	I	6.8	I		I	0.06	I
I	ARM B	I	9.39	I	22.86	I	0.411	I		I	0.0	I	0.7	I	10.0	I		I	0.07	I
I	ARM C	I	1.54	I	20.69	I	0.074	I		I	0.0	I	0.1	I	1.2	I		I	0.05	I

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	17.00-17.15	I		I		I		I		I		I		I		I		I		I
I	ARM A	I	9.88	I	25.99	I	0.380	I		I	0.5	I	0.6	I	9.0	I		I	0.06	I
I	ARM B	I	11.21	I	22.80	I	0.492	I		I	0.7	I	1.0	I	14.0	I		I	0.09	I
I	ARM C	I	1.84	I	19.43	I	0.095	I		I	0.1	I	0.1	I	1.5	I		I	0.06	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	17.15-17.30										I
I	ARM A	12.10	25.84	0.468		0.6	0.9	12.8		0.07	I
I	ARM B	13.73	22.72	0.604		1.0	1.5	21.6		0.11	I
I	ARM C	2.25	17.73	0.127		0.1	0.1	2.1		0.06	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	17.30-17.45										I
I	ARM A	12.10	25.83	0.468		0.9	0.9	13.1		0.07	I
I	ARM B	13.73	22.71	0.604		1.5	1.5	22.6		0.11	I
I	ARM C	2.25	17.70	0.127		0.1	0.1	2.2		0.06	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	17.45-18.00										I
I	ARM A	9.88	25.99	0.380		0.9	0.6	9.5		0.06	I
I	ARM B	11.21	22.80	0.492		1.5	1.0	15.1		0.09	I
I	ARM C	1.84	19.39	0.095		0.1	0.1	1.6		0.06	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	18.00-18.15										I
I	ARM A	8.27	26.10	0.317		0.6	0.5	7.1		0.06	I
I	ARM B	9.39	22.86	0.411		1.0	0.7	10.8		0.07	I
I	ARM C	1.54	20.64	0.074		0.1	0.1	1.2		0.05	I

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.5	
17.15	0.6	*
17.30	0.9	*
17.45	0.9	*
18.00	0.6	*
18.15	0.5	

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.7	*
17.15	1.0	*
17.30	1.5	**
17.45	1.5	**
18.00	1.0	*
18.15	0.7	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.1

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	(VEH)	I	(MIN)	I	(MIN)	I
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I
I	A	I	907.7	I	58.3	I	58.3	I
I	B	I	1029.8	I	94.2	I	94.2	I
I	C	I	168.7	I	9.9	I	9.9	I
I	ALL	I	2106.2	I	162.3	I	162.3	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 09:21:46 on 24/11/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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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 ms edit.vai"
(drive-on-the-left) at 09:14:07 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 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 PM without Exemplar

I	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I
I	ARM	I FLOW STARTS I TOP OF PEAK I FLOW STOPS	I	BEFORE I AT TOP I AFTER	I
I	I	I TO RISE I IS REACHED IF FALLING	I	PEAK I OF PEAK I PEAK	I
I	ARM A	I 15.00 I 45.00 I 75.00	I	7.46 I 11.19 I 7.46	I
I	ARM B	I 15.00 I 45.00 I 75.00	I	8.60 I 12.90 I 8.60	I
I	ARM C	I 15.00 I 45.00 I 75.00	I	1.54 I 2.31 I 1.54	I

DEMAND SET TITLE: 2016 PM without Exemplar

I	I	TURNING PROPORTIONS	I
I	I	TURNING COUNTS (VEH/HR)	I
I	I	(PERCENTAGE OF H.V.S)	I
I	TIME	I FROM/TO I ARM A I ARM B I ARM C	I
I	07.45 - 09.15	I	I
I		I ARM A I 0.000 I 0.926 I 0.074	I
I		I I 0.0 I 553.0 I 44.0	I
I		I I (0.0) I (6.0) I (0.0)	I
I		I I I I	I
I		I ARM B I 0.908 I 0.000 I 0.092	I
I		I I 625.0 I 0.0 I 63.0	I
I		I I (12.0) I (0.0) I (1.0)	I
I		I I I I	I
I		I ARM C I 0.407 I 0.593 I 0.000	I
I		I I 50.0 I 73.0 I 0.0	I
I		I I (1.0) I (0.0) I (0.0)	I
I		I I I I	I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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	07.45-08.00										I
I	ARM A	7.46	26.11	0.286		0.0	0.4	5.8		0.05	I
I	ARM B	8.60	22.88	0.376		0.0	0.6	8.7		0.07	I
I	ARM C	1.54	21.27	0.072		0.0	0.1	1.1		0.05	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	08.00-08.15										I
I	ARM A	8.91	26.00	0.343		0.4	0.5	7.7		0.06	I
I	ARM B	10.27	22.82	0.450		0.6	0.8	11.9		0.08	I
I	ARM C	1.84	20.12	0.091		0.1	0.1	1.5		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)
08.15-08.30									
ARM A	10.91	25.85	0.422		0.5	0.7	10.7		0.07
ARM B	12.58	22.73	0.553		0.8	1.2	17.7		0.10
ARM C	2.25	18.58	0.121		0.1	0.1	2.0		0.06

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	10.91	25.85	0.422		0.7	0.7	10.9		0.07
ARM B	12.58	22.73	0.553		1.2	1.2	18.4		0.10
ARM C	2.25	18.56	0.121		0.1	0.1	2.1		0.06

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	8.91	26.00	0.343		0.7	0.5	8.0		0.06
ARM B	10.27	22.82	0.450		1.2	0.8	12.7		0.08
ARM C	1.84	20.10	0.091		0.1	0.1	1.5		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	7.46	26.11	0.286		0.5	0.4	6.1		0.05
ARM B	8.60	22.88	0.376		0.8	0.6	9.3		0.07
ARM C	1.54	21.23	0.072		0.1	0.1	1.2		0.05

QUEUE AT ARM A

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 B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.6 *
08.15	0.8 *
08.30	1.2 *
08.45	1.2 *
09.00	0.8 *
09.15	0.6 *

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 *	I	* INCLUSIVE QUEUEING *	I
I		I		I	* DELAY *	I	* DELAY *	I
I		I	(VEH)	I	(MIN)	I	(MIN)	I
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I
I	A	I	818.6	I	545.7	I	49.2	I
I	B	I	943.4	I	628.9	I	78.7	I
I	C	I	168.7	I	112.4	I	9.4	I
I	ALL	I	1930.7	I	1287.1	I	137.4	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 09:14:32 on 24/11/2010]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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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 08:46:09 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 with exemplar PM peak

		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 FALLING	I PEAK	I OF PEAK	I PEAK
I	ARM A	I 15.00	I 45.00	I 75.00	I 4.03	I 6.04	I 4.03
I	ARM B	I 15.00	I 45.00	I 75.00	I 5.32	I 7.99	I 5.32
I	ARM C	I 15.00	I 45.00	I 75.00	I 6.04	I 9.06	I 6.04
I	ARM D	I 15.00	I 45.00	I 75.00	I 5.40	I 8.10	I 5.40

DEMAND SET TITLE: 2016 with exemplar PM peak

		TURNING PROPORTIONS							
		TURNING COUNTS (VEH/HR)							
		(PERCENTAGE OF H.V.S)							
TIME		FROM/TO	ARM A	ARM B	ARM C	ARM D			
16.45 - 18.15		ARM A	0.000	0.096	0.643	0.261			
			0.0	31.0	207.0	84.0			
			(0.0)	(0.0)	(0.9)	(0.0)			
		ARM B	0.209	0.000	0.279	0.512			
			89.0	0.0	119.0	218.0			
			(3.1)	(0.0)	(0.8)	(0.4)			
		ARM C	0.683	0.286	0.000	0.031			
			330.0	138.0	0.0	15.0			
			(1.9)	(0.7)	(0.0)	(0.0)			
		ARM D	0.447	0.539	0.014	0.000			
			193.0	233.0	6.0	0.0			
			(0.5)	(2.0)	(0.0)	(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)
16.45-17.00									
ARM A	4.03	22.79	0.177		0.0	0.2	3.1		0.05
ARM B	5.32	22.29	0.239		0.0	0.3	4.6		0.06
ARM C	6.04	25.95	0.233		0.0	0.3	4.4		0.05
ARM D	5.40	20.00	0.270		0.0	0.4	5.4		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)
17.00-17.15									
ARM A	4.81	22.26	0.216		0.2	0.3	4.1		0.06
ARM B	6.36	21.90	0.290		0.3	0.4	6.0		0.06
ARM C	7.21	25.36	0.284		0.3	0.4	5.8		0.06
ARM D	6.45	19.25	0.335		0.4	0.5	7.3		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	5.89	21.53	0.273		0.3	0.4	5.5		0.06
ARM B	7.79	21.37	0.364		0.4	0.6	8.4		0.07
ARM C	8.83	24.57	0.359		0.4	0.6	8.2		0.06
ARM D	7.90	18.23	0.433		0.5	0.8	11.0		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)
17.30-17.45									
ARM A	5.89	21.52	0.273		0.4	0.4	5.6		0.06
ARM B	7.79	21.36	0.365		0.6	0.6	8.6		0.07
ARM C	8.83	24.56	0.359		0.6	0.6	8.4		0.06
ARM D	7.90	18.22	0.433		0.8	0.8	11.4		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)
17.45-18.00									
ARM A	4.81	22.25	0.216		0.4	0.3	4.2		0.06
ARM B	6.36	21.89	0.290		0.6	0.4	6.3		0.06
ARM C	7.21	25.36	0.284		0.6	0.4	6.1		0.06
ARM D	6.45	19.24	0.335		0.8	0.5	7.8		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	4.03	22.78	0.177		0.3	0.2	3.3		0.05
ARM B	5.32	22.28	0.239		0.4	0.3	4.8		0.06
ARM C	6.04	25.94	0.233		0.4	0.3	4.6		0.05
ARM D	5.40	19.98	0.270		0.5	0.4	5.7		0.07

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
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	0.4
17.30	0.6 *
17.45	0.6 *
18.00	0.4
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	0.8 *
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	(MIN)	I	(MIN)	I
I		I	(VEH)	I	(VEH/H)	I	(MIN/VEH)	I
I	A	I	441.5	I	294.4	I	25.8	I
I	B	I	584.1	I	389.4	I	38.6	I
I	C	I	662.3	I	441.5	I	37.6	I
I	D	I	592.4	I	394.9	I	48.6	I
I	ALL	I	2280.3	I	1520.2	I	150.7	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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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.0 ANALYSIS PROGRAM
RELEASE 3.0 (JUNE 2006)

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Run with file:-
"C:\E DRIVE DOCS\WORKING JOB FILES\Bicester\Oct 2010 onwards\Junction Capacity\Site 2b\Existing Junction\
Site 2b Howes Lane rev1 ms edit.vpi"
(drive-on-the-left) at 08:27:02 on Wednesday, 24 November 2010

RUN INFORMATION

RUN TITLE: Howes Lane
LOCATION:
DATE: 06/07/10
CLIENT:
ENUMERATOR: mba24773 [HCL56181]
JOB NUMBER:
STATUS:
DESCRIPTION:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

MAJOR ROAD (ARM C) ----- MAJOR ROAD (ARM A)
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS (S) Bucknell Road A4095 (South)
ARM B IS Howes Lane
ARM C IS (N) Bucknell Road A4095 (North)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

I	DATA ITEM	I	MINOR ROAD B	I
I	TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	I (W)	7.80 M.	I
I	CENTRAL RESERVE WIDTH	I (WCR)	0.00 M.	I
I		I		I
I	MAJOR ROAD RIGHT TURN - WIDTH	I (WC-B)	2.20 M.	I
I	- VISIBILITY	I (VC-B)	250.0 M.	I
I	- BLOCKS TRAFFIC	I	YES	I
I		I		I
I	MINOR ROAD - VISIBILITY TO LEFT	I (VB-C)	19.0 M.	I
I	- VISIBILITY TO RIGHT	I (VB-A)	97.0 M.	I
I	- LANE 1 WIDTH	I (WB-C)	3.50 M.	I
I	- LANE 2 WIDTH	I (WB-A)	0.00 M.	I

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

I	Intercept For	Slope For	Opposing	Slope For	Opposing	I
I	Stream B-C	Stream	A-C	Stream	A-B	I
I	719.29		0.26		0.10	I

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	Stream B-A	Stream	A-C	Stream	A-B	Stream	C-A	I
I	557.78		0.24		0.09		0.15	I
							0.34	I

I	Intercept For	Slope For	Opposing	Slope For	Opposing	I
I	Stream C-B	Stream	A-C	Stream	A-B	I
I	718.74		0.26		0.26	I

NB These values do not allow for any site specific corrections

TRAFFIC DEMAND DATA

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I ARM I FLOW SCALE(%) I
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I A I 100 I
I B I 100 I
I C I 100 I
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Demand set: 2016 with Exemplar AM

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

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-----
I I NUMBER OF MINUTES FROM START WHEN I RATE OF FLOW (VEH/MIN) I
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 FALLING I PEAK I OF PEAK I 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
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I I TURNING PROPORTIONS I
I I TURNING COUNTS (VEH/HR) I
I I (PERCENTAGE OF H.V.S) I
I I ----- I
I TIME I FROM/TO I ARM A I ARM B I ARM C I
I ----- I
I 07.45 - 09.15 I I I I I
I 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 ( 4.0) I ( 2.7) I
I I I I I I
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 ( 3.1) I
I I I I I I
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 ( 1.8) I ( 0.0) I
I I I I I I
I I I I I I
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TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

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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 ----- I
I 07.45-08.00 I
I B-AC 4.58 10.41 0.440 0.00 0.77 10.9 0.17 I
I C-AB 6.85 10.91 0.628 0.00 1.75 25.2 0.23 I
I A-B 0.63 I
I A-C 2.67 I
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 ----- I
I 08.00-08.15 I
I B-AC 5.47 10.16 0.538 0.77 1.13 16.2 0.21 I
I C-AB 8.18 10.74 0.761 1.75 3.34 48.3 0.37 I
I A-B 0.75 I
I A-C 3.19 I
I I
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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									
B-AC	6.70	9.76	0.686		1.13	2.05	28.2		0.31
C-AB	10.02	10.51	0.953		3.34	11.48	137.5		0.00
A-B	0.92								
A-C	3.91								

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									
B-AC	6.70	9.71	0.690		2.05	2.14	31.6		0.33
C-AB	10.02	10.51	0.953		11.48	14.51	213.8		0.00
A-B	0.92								
A-C	3.91								

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									
B-AC	5.47	10.10	0.542		2.14	1.22	19.5		0.22
C-AB	8.18	10.74	0.761		14.51	4.13	94.1		0.68
A-B	0.75								
A-C	3.19								

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)
09.00-09.15									
B-AC	4.58	10.40	0.440		1.22	0.80	12.6		0.17
C-AB	6.85	10.91	0.628		4.13	1.93	30.2		0.27
A-B	0.63								
A-C	2.67								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.8 *
08.15	1.1 *
08.30	2.1 **
08.45	2.1 **
09.00	1.2 *
09.15	0.8 *

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.7 **
08.15	3.3 ***
08.30	11.5 *****
08.45	14.5 *****
09.00	4.1 ****
09.15	1.9 **

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL	I	DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I		I	* DELAY *	I	* DELAY *	I
I		I		I		I		I		I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I	(MIN)	I
I		I		I		I	(MIN/VEH)	I	(MIN/VEH)	I
I	B-AC	I	502.4	I	334.9	I	118.9	I	0.24	I
I	C-AB	I	751.5	I	501.0	I	549.2	I	0.73	I
I	A-B	I	68.8	I	45.9	I		I		I
I	A-C	I	293.2	I	195.5	I		I		I
I	ALL	I	1887.1	I	1258.1	I	668.1	I	0.35	I

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END OF JOB

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity
 will be adjusted)

I	Intercept For	Slope For Opposing	Slope For Opposing	I
I	Stream B-C	Stream A-C	Stream A-B	I
I	719.29	0.26	0.10	I

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	Stream B-A	Stream A-C	Stream A-B	Stream C-A	Stream C-B	I
I	557.78	0.24	0.09	0.15	0.34	I

I	Intercept For	Slope For Opposing	Slope For Opposing	I
I	Stream C-B	Stream A-C	Stream A-B	I
I	718.74	0.26	0.26	I

NB These values do not allow for any site specific corrections

TRAFFIC DEMAND DATA

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

Demand set: 2016 with Exemplar PM

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	3.17	4.76	3.17
ARM B	15.00	45.00	75.00	9.52	14.29	9.52
ARM C	15.00	45.00	75.00	8.63	12.94	8.63

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000 0.0 (0.0)	0.154 39.0 (0.0)	0.846 215.0 (0.5)
	ARM B	0.098 75.0 (1.3)	0.000 0.0 (0.0)	0.902 687.0 (1.4)
	ARM C	0.319 220.0 (0.9)	0.681 470.0 (0.2)	0.000 0.0 (0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

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)
16.45-17.00									
B-AC	9.56	10.27	0.931		0.00	7.52	81.8		0.67
C-AB	5.90	11.14	0.530		0.00	1.17	17.0		0.19
A-B	0.49								
A-C	2.70								

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									
B-AC	11.42	9.97	1.145		7.52	31.35	296.8		0.00
C-AB	7.04	10.98	0.642		1.17	1.91	28.3		0.25
A-B	0.58								
A-C	3.22								

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									
B-AC	13.98	9.52	1.469		31.35	98.39	973.4		0.00
C-AB	8.62	10.76	0.802		1.91	4.36	61.5		0.43
A-B	0.72								
A-C	3.95								

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									
B-AC	13.98	9.50	1.472		98.39	165.67	1980.5		0.00
C-AB	8.62	10.76	0.802		4.36	4.64	72.2		0.48
A-B	0.72								
A-C	3.95								

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									
B-AC	11.42	9.95	1.148		165.67	187.77	2650.9		0.00
C-AB	7.04	10.98	0.642		4.64	2.12	33.3		0.28
A-B	0.58								
A-C	3.22								

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									
B-AC	9.56	10.25	0.933		187.77	178.22	2744.9		17.95
C-AB	5.90	11.14	0.530		2.12	1.24	19.0		0.20
A-B	0.49								
A-C	2.70								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	7.5	*****
17.15	31.3	*****
17.30	98.4	*****
17.45	165.7	*****
18.00	187.8	*****
18.15	178.2	*****

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.2	*
17.15	1.9	**
17.30	4.4	****
17.45	4.6	*****
18.00	2.1	**
18.15	1.2	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	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	B-AC	I	1048.8	I 699.2	I	8728.2	I 8.32	I	10277.2	I 9.80	I
I	C-AB	I	646.9	I 431.3	I	231.4	I 0.36	I	231.5	I 0.36	I
I	A-B	I	53.7	I 35.8	I			I			I
I	A-C	I	295.9	I 197.3	I			I			I
I	ALL	I	2348.2	I 1565.5	I	8959.6	I 3.82	I	10508.6	I 4.48	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 08:27:27 on 24/11/2010]