

Appendix E

**M40 Junction 10:
Junction Analyses**

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-

"j:\120000\120669-00\4 Internal Project Data\4-04 Calculations\4-04-06 Junction Analysis\Arcady\2013 Base\AM\
B430 Roundabout - 2013 Base AM.vai"
(drive-on-the-left) at 16:27:25 on Monday, 12 February 2007

FILE PROPERTIES

RUN TITLE: B430 Roundabout - Junction 10 - 2013 Base AM
LOCATION: Oxfordshire
DATE: 18/01/2007
CLIENT: North Oxfordshire Consortium
ENUMERATOR: chris.morris [MCCPC062011]
JOB NUMBER: 120669
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - A43
ARM B - M40 Slips
ARM C - B430

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	7.25 *	I	7.25	I	0.00	I	30.00	I	72.00	I	17.5	I	0.608	I	38.797	I
I	ARM B	I	6.00	I	6.50	I	0.00	I	50.00	I	72.00	I	13.0	I	0.587	I	35.724	I
I	ARM C	I	3.50	I	9.00	I	38.00	I	22.50	I	72.00	I	40.0	I	0.558	I	35.585	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C: Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM A - INPUT VALUE OF V (7.30) OUTSIDE ACCEPTABLE RANGE -
HAS BEEN RESET AS INDICATED ABOVE (*). (AG17 REF. 6.3.1).

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

ARM	FLOW SCALE (%)
A	100
B	100
C	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: B430 Roundabout - Junction 10 - 2013 Base AM

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	13.21	19.82	13.21
ARM B	15.00	45.00	75.00	14.88	22.31	14.88
ARM C	15.00	45.00	75.00	5.00	7.50	5.00

DEMAND SET TITLE: B430 Roundabout - Junction 10 - 2013 Base AM

TIME	TURNING PROPORTIONS			TURNING COUNTS (VEH/HR)			(PERCENTAGE OF H.V.S)			
	FROM/TO	ARM A	ARM B	ARM C	ARM A	ARM B	ARM C	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.373	0.627	0.0	394.0	663.0	(0.0)	(0.0)	(0.0)
	ARM B	0.980	0.000	0.020	1166.0	0.0	24.0	(0.0)	(0.0)	(0.0)
	ARM C	0.488	0.512	0.000	195.0	205.0	0.0	(0.0)	(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)
07.45-08.00									
ARM A	13.21	37.24	0.355		0.0	0.5	8.1		0.04
ARM B	14.88	30.88	0.482		0.0	0.9	13.4		0.06
ARM C	5.00	27.49	0.182		0.0	0.2	3.3		0.04
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL CHANGE:	ENTRY WIDTH (.1M)	FLARE LENGTH (M)	INSCRIBED CIRC DIAM (M)	ENTRY ANGLE (10 DEGS)				
	ARM A	0.522	0.000	0.012	-1.218				
	ARM B	0.507	0.000	0.039	-0.983				
	ARM C	0.198	0.133	0.065	-0.981				

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	15.78	36.94	0.427		0.5	0.7	10.9		0.05
ARM B	17.76	29.93	0.594		0.9	1.4	20.9		0.08
ARM C	5.97	25.90	0.231		0.2	0.3	4.4		0.05
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.520	0.000	0.015	-1.208				
	ARM B	0.499	0.000	0.046	-0.953				
	ARM C	0.192	0.129	0.077	-0.924				

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	19.32	36.52	0.529		0.7	1.1	16.3		0.06
ARM B	21.75	28.63	0.760		1.4	3.0	42.5		0.14
ARM C	7.31	23.76	0.308		0.3	0.4	6.5		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.517	0.000	0.018	-1.194				
	ARM B	0.488	0.000	0.057	-0.911				
	ARM C	0.184	0.123	0.094	-0.847				

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	19.32	36.52	0.529		1.1	1.1	16.8		0.06
ARM B	21.75	28.62	0.760		3.0	3.1	46.3		0.15
ARM C	7.31	23.70	0.309		0.4	0.4	6.7		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.517	0.000	0.018	-1.194				
	ARM B	0.488	0.000	0.057	-0.911				
	ARM C	0.184	0.123	0.095	-0.845				

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	15.78	36.93	0.427		1.1	0.7	11.5		0.05
ARM B	17.76	29.91	0.594		3.1	1.5	23.2		0.08
ARM C	5.97	25.82	0.231		0.4	0.3	4.6		0.05
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.520	0.000	0.015	-1.208				
	ARM B	0.499	0.000	0.046	-0.952				
	ARM C	0.192	0.129	0.078	-0.921				

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	13.21	37.24	0.355		0.7	0.6	8.4		0.04
ARM B	14.88	30.86	0.482		1.5	0.9	14.4		0.06
ARM C	5.00	27.44	0.182		0.3	0.2	3.4		0.04

EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:					
MARGINAL CHANGE:	ENTRY WIDTH (.1M)	FLARE LENGTH (M)	INSCRIBED CIRC DIAM (M)	ENTRY ANGLE (10 DEGS)	
ARM A	0.522	0.000	0.012	-1.218	
ARM B	0.507	0.000	0.039	-0.982	
ARM C	0.198	0.133	0.065	-0.979	

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5 *
08.15	0.7 *
08.30	1.1 *
08.45	1.1 *
09.00	0.7 *
09.15	0.6 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.9 *
08.15	1.4 *
08.30	3.0 ***
08.45	3.1 ***
09.00	1.5 *
09.15	0.9 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.2

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND		* QUEUEING *		* INCLUSIVE QUEUEING *	
			I	I	I	I	I	I
			(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
I	A	I	1449.4	I 966.2	I 72.0	I 0.05	I 72.0	I 0.05
I	B	I	1631.7	I 1087.8	I 160.8	I 0.10	I 160.8	I 0.10
I	C	I	548.5	I 365.7	I 28.9	I 0.05	I 28.9	I 0.05
I	ALL	I	3629.6	I 2419.7	I 261.6	I 0.07	I 261.6	I 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

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Run with file:-

"j:\120000\120669-00\4 Internal Project Data\4-04 Calculations\4-04-06 Junction Analysis\Arcady\2013 Base\PM\B430 Roundabout - 2013 Base PM.vai"
 (drive-on-the-left) at 16:29:55 on Monday, 12 February 2007

FILE PROPERTIES

RUN TITLE: B430 Roundabout - Junction 10 - 2013 Base PM
 LOCATION: Oxfordshire
 DATE: 18/01/2007
 CLIENT: North Oxfordshire Consortium
 ENUMERATOR: chris.morris [MCCPC062011]
 JOB NUMBER: 120669
 STATUS:
 DESCRIPTION:

INPUT DATA

 ARM A - A43
 ARM B - M40 Slips
 ARM C - B430

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	7.25 *	I	7.25	I	0.00	I	30.00	I	72.00	I	17.5	I	0.608	I	38.797	I
I	ARM B	I	6.00	I	6.50	I	0.00	I	50.00	I	72.00	I	13.0	I	0.587	I	35.724	I
I	ARM C	I	3.50	I	9.00	I	38.00	I	22.50	I	72.00	I	40.0	I	0.558	I	35.585	I

V = approach half-width L = effective flare length D = inscribed circle diameter
 E = entry width R = entry radius PHI = entry angle

WARNING ARM C: Effective flare length is outside normal range.
 Treat capacities with increasing caution.

WARNING ARM A - INPUT VALUE OF V (7.30) OUTSIDE ACCEPTABLE RANGE -
 HAS BEEN RESET AS INDICATED ABOVE (*). (AG17 REF. 6.3.1).

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

ARM	FLOW SCALE (%)
A	100
B	100
C	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: B430 Roundabout - Junction 10 - 2013 Base PM

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.76	11.64	7.76
ARM B	15.00	45.00	75.00	18.77	28.16	18.77
ARM C	15.00	45.00	75.00	4.60	6.90	4.60

DEMAND SET TITLE: B430 Roundabout - Junction 10 - 2013 Base PM

TIME	TURNING PROPORTIONS			TURNING COUNTS (VEH/HR)			
	FROM/TO	ARM A	ARM B	ARM C	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.002	0.459	0.539	1.0	285.0	335.0
		(0.0)	(0.0)	(0.0)			
	ARM B	0.966	0.000	0.034	1451.0	0.0	51.0
		(0.0)	(0.0)	(0.0)			
	ARM C	0.701	0.299	0.000	258.0	110.0	0.0
		(0.0)	(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	7.76	37.96	0.204		0.0	0.3	3.8		0.03
ARM B	18.77	33.27	0.564		0.0	1.3	18.6		0.07
ARM C	4.60	25.51	0.180		0.0	0.2	3.2		0.05
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL CHANGE:	ENTRY WIDTH (.1M)	FLARE LENGTH (M)	INSCRIBED CIRC DIAM (M)	ENTRY ANGLE (10 DEGS)				
	ARM A	0.528	0.000	0.007	-1.241				
	ARM B	0.528	0.000	0.020	-1.059				
	ARM C	0.191	0.128	0.080	-0.910				

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	9.27	37.80	0.245		0.3	0.3	4.8		0.04
ARM B	22.42	32.78	0.684		1.3	2.1	30.5		0.10
ARM C	5.49	23.53	0.233		0.2	0.3	4.5		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.527	0.000	0.008	-1.236				
	ARM B	0.524	0.000	0.023	-1.044				
	ARM C	0.183	0.123	0.096	-0.839				

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	11.35	37.58	0.302		0.3	0.4	6.4		0.04
ARM B	27.46	32.12	0.855		2.1	5.4	71.9		0.20
ARM C	6.73	20.90	0.322		0.3	0.5	6.9		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.525	0.000	0.010	-1.229				
	ARM B	0.518	0.000	0.029	-1.023				
	ARM C	0.173	0.116	0.117	-0.745				

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	11.35	37.57	0.302		0.4	0.4	6.5		0.04
ARM B	27.46	32.12	0.855		5.4	5.6	83.0		0.21
ARM C	6.73	20.79	0.324		0.5	0.5	7.1		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.525	0.000	0.010	-1.229				
	ARM B	0.518	0.000	0.029	-1.023				
	ARM C	0.173	0.116	0.118	-0.741				

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	9.27	37.80	0.245		0.4	0.3	4.9		0.04
ARM B	22.42	32.78	0.684		5.6	2.2	35.5		0.10
ARM C	5.49	23.38	0.235		0.5	0.3	4.7		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.527	0.000	0.008	-1.236				
	ARM B	0.524	0.000	0.023	-1.044				
	ARM C	0.182	0.122	0.097	-0.834				

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	7.76	37.96	0.204		0.3	0.3	3.9		0.03
ARM B	18.77	33.26	0.564		2.2	1.3	20.3		0.07
ARM C	4.60	25.43	0.181		0.3	0.2	3.4		0.05
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.528	0.000	0.007	-1.241				
	ARM B	0.528	0.000	0.020	-1.059				
	ARM C	0.190	0.128	0.081	-0.907				

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.3

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.3 *
17.15	2.1 **
17.30	5.4 *****
17.45	5.6 *****
18.00	2.2 **
18.15	1.3 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.5
17.45	0.5
18.00	0.3
18.15	0.2

 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	851.5	I	567.7	I	30.3	I	0.04
I	B	I	2059.6	I	1373.0	I	259.7	I	0.13
I	C	I	504.6	I	336.4	I	29.8	I	0.06
I	ALL	I	3415.7	I	2277.1	I	319.9	I	0.09

* 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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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:-

"j:\120000\120669-00\4 Internal Project Data\4-04 Calculations\4-04-06 Junction Analysis\Arcady\2013 Base + Gen\
AM\B430 Roundabout - 2013 Base + Gen AM.vai"
(drive-on-the-left) at 16:38:12 on Thursday, 2 August 2007

FILE PROPERTIES

RUN TITLE: B430 Roundabout - Junction 10 - 2013 Base + Gen AM
LOCATION: Oxfordshire
DATE: 31/07/2007
CLIENT: North Oxfordshire Consortium
ENUMERATOR: Paul Dickens
JOB NUMBER: 120669
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - A43
ARM B - M40 Slips
ARM C - B430

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	7.25 *	I	7.25	I	0.00	I	30.00	I	72.00	I	17.5	I	0.608	I	38.797	I
I	ARM B	I	6.00	I	6.50	I	0.00	I	50.00	I	72.00	I	13.0	I	0.587	I	35.724	I
I	ARM C	I	3.50	I	9.00	I	38.00	I	22.50	I	72.00	I	40.0	I	0.558	I	35.585	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C: Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM A - INPUT VALUE OF V (7.30) OUTSIDE ACCEPTABLE RANGE -
HAS BEEN RESET AS INDICATED ABOVE (*). (AG17 REF. 6.3.1).

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

ARM	FLOW SCALE (%)
A	100
B	100
C	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: B430 Roundabout - Junction 10 - 2013 Base + Gen AM

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	17.06	25.59	17.06
ARM B	15.00	45.00	75.00	15.34	23.01	15.34
ARM C	15.00	45.00	75.00	8.24	12.36	8.24

DEMAND SET TITLE: B430 Roundabout - Junction 10 - 2013 Base + Gen AM

TIME	TURNING PROPORTIONS			TURNING COUNTS (VEH/HR)			(PERCENTAGE OF H.V.S)			
	FROM/TO	ARM A	ARM B	ARM C	ARM A	ARM B	ARM C	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.289	0.711	0.0	394.0	971.0	(0.0)	(0.0)	(0.0)
	ARM B	0.950	0.000	0.050	1166.0	0.0	61.0	(0.0)	(0.0)	(0.0)
	ARM C	0.590	0.410	0.000	389.0	270.0	0.0	(0.0)	(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)
07.45-08.00									
ARM A	17.06	36.75	0.464		0.0	0.9	12.6		0.05
ARM B	15.34	28.63	0.536		0.0	1.1	16.5		0.07
ARM C	8.24	27.50	0.300		0.0	0.4	6.3		0.05
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL CHANGE:	ENTRY WIDTH (.1M)	FLARE LENGTH (M)	INSCRIBED CIRC DIAM (M)	ENTRY ANGLE (10 DEGS)				
	ARM A	0.518	0.000	0.016	-1.202				
	ARM B	0.488	0.000	0.057	-0.911				
	ARM C	0.198	0.133	0.064	-0.981				

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	20.37	36.35	0.561		0.9	1.3	18.5		0.06
ARM B	18.31	27.24	0.672		1.1	2.0	28.7		0.11
ARM C	9.84	25.91	0.380		0.4	0.6	8.9		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.515	0.000	0.020	-1.189				
	ARM B	0.476	0.000	0.068	-0.867				
	ARM C	0.192	0.129	0.077	-0.924				

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	24.95	35.80	0.697		1.3	2.3	32.3		0.09
ARM B	22.43	25.34	0.885		2.0	6.6	83.4		0.29
ARM C	12.05	23.86	0.505		0.6	1.0	14.7		0.08
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.511	0.000	0.024	-1.171				
	ARM B	0.459	0.000	0.083	-0.806				
	ARM C	0.184	0.124	0.093	-0.851				

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	24.95	35.80	0.697		2.3	2.3	34.0		0.09
ARM B	22.43	25.31	0.886		6.6	7.1	103.4		0.33
ARM C	12.05	23.72	0.508		1.0	1.0	15.3		0.09
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.511	0.000	0.024	-1.170				
	ARM B	0.459	0.000	0.083	-0.805				
	ARM C	0.184	0.123	0.095	-0.846				

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	20.37	36.34	0.561		2.3	1.3	19.9		0.06
ARM B	18.31	27.20	0.673		7.1	2.1	35.3		0.12
ARM C	9.84	25.70	0.383		1.0	0.6	9.6		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.515	0.000	0.020	-1.188				
	ARM B	0.475	0.000	0.068	-0.865				
	ARM C	0.191	0.128	0.079	-0.917				

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	17.06	36.74	0.464		1.3	0.9	13.4		0.05	I	
I	ARM B	15.34	28.59	0.536		2.1	1.2	18.1		0.08	I	
I	ARM C	8.24	27.42	0.300		0.6	0.4	6.6		0.05	I	
I		EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:										I
I			ENTRY	FLARE	INSCRIBED	ENTRY					I	
I		MARGINAL	WIDTH	LENGTH	CIRC DIAM	ANGLE					I	
I		CHANGE:	(.1M)	(M)	(M)	(10 DEGS)					I	
I		ARM A	0.518	0.000	0.016	-1.201					I	
I		ARM B	0.488	0.000	0.057	-0.910					I	
I		ARM C	0.198	0.133	0.065	-0.978					I	

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.9	*
08.15	1.3	*
08.30	2.3	**
08.45	2.3	**
09.00	1.3	*
09.15	0.9	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.1	*
08.15	2.0	**
08.30	6.6	*****
08.45	7.1	*****
09.00	2.1	**
09.15	1.2	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.4	
08.15	0.6	*
08.30	1.0	*
08.45	1.0	*
09.00	0.6	*
09.15	0.4	

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	TOTAL DEMAND		* QUEUEING *		* INCLUSIVE QUEUEING *	
		I	I	I	I	I	I
		(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
I	A	I 1871.7	I 1247.8	I 130.8	I 0.07	I 130.8	I 0.07
I	B	I 1682.5	I 1121.7	I 285.5	I 0.17	I 285.5	I 0.17
I	C	I 903.6	I 602.4	I 61.3	I 0.07	I 61.3	I 0.07
I	ALL	I 4457.8	I 2971.9	I 477.6	I 0.11	I 477.6	I 0.11

* 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-

"j:\120000\120669-00\4 Internal Project Data\4-04 Calculations\4-04-06 Junction Analysis\Arcady\2013 Base + Gen\PM\B430 Roundabout - 2013 Base + Gen PM.vai"
(drive-on-the-left) at 16:38:49 on Thursday, 2 August 2007

FILE PROPERTIES *****

RUN TITLE: B430 Roundabout - Junction 10 - 2013 Base + Gen PM
LOCATION: Oxfordshire
DATE: 28/07/2007
CLIENT: North Oxfordshire Consortium
ENUMERATOR: Paul Dickens
JOB NUMBER: 120669
STATUS:
DESCRIPTION:

INPUT DATA *****
ARM A - A43
ARM B - M40 Slips
ARM C - B430

GEOMETRIC DATA

Table with 15 columns: 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. Rows include data for ARM A, B, and C.

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C: Effective flare length is outside normal range. Treat capacities with increasing caution.

WARNING ARM A - INPUT VALUE OF V (7.30) OUTSIDE ACCEPTABLE RANGE - HAS BEEN RESET AS INDICATED ABOVE (*). (AG17 REF. 6.3.1).

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

ARM	FLOW SCALE (%)
A	100
B	100
C	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: B430 Roundabout - Junction 10 - 2013 Base + Gen PM

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	10.40	15.60	10.40
ARM B	15.00	45.00	75.00	19.09	28.63	19.09
ARM C	15.00	45.00	75.00	8.94	13.41	8.94

DEMAND SET TITLE: B430 Roundabout - Junction 10 - 2013 Base + Gen PM

TIME	TURNING PROPORTIONS			TURNING COUNTS (VEH/HR)			(PERCENTAGE OF H.V.S)			
	FROM/TO	ARM A	ARM B	ARM C	ARM A	ARM B	ARM C	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.001	0.343	0.656	1.0	285.0	546.0	(0.0)	(0.0)	(0.0)
	ARM B	0.950	0.000	0.050	1451.0	0.0	76.0	(0.0)	(0.0)	(0.0)
	ARM C	0.723	0.277	0.000	517.0	198.0	0.0	(0.0)	(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	10.40	37.30	0.279		0.0	0.4	5.7		0.04
ARM B	19.09	31.72	0.602		0.0	1.5	21.4		0.08
ARM C	8.94	25.52	0.350		0.0	0.5	7.8		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL CHANGE:	ENTRY WIDTH (.1M)	FLARE LENGTH (M)	INSCRIBED CIRC DIAM (M)	ENTRY ANGLE (10 DEGS)				
	ARM A	0.523	0.000	0.012	-1.220				
	ARM B	0.515	0.000	0.032	-1.010				
	ARM C	0.191	0.128	0.080	-0.910				

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	12.42	37.00	0.336		0.4	0.5	7.5		0.04
ARM B	22.79	30.94	0.737		1.5	2.7	38.4		0.12
ARM C	10.67	23.54	0.453		0.5	0.8	12.0		0.08
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.520	0.000	0.014	-1.210				
	ARM B	0.508	0.000	0.038	-0.985				
	ARM C	0.183	0.123	0.096	-0.840				

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	15.21	36.61	0.416		0.5	0.7	10.4		0.05
ARM B	27.91	29.86	0.935		2.7	10.4	123.5		0.35
ARM C	13.07	21.06	0.621		0.8	1.6	22.9		0.12
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.517	0.000	0.017	-1.197				
	ARM B	0.499	0.000	0.047	-0.951				
	ARM C	0.174	0.116	0.116	-0.751				

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	15.21	36.60	0.416		0.7	0.7	10.6		0.05
ARM B	27.91	29.86	0.935		10.4	11.8	168.0		0.45
ARM C	13.07	20.83	0.627		1.6	1.7	24.6		0.13
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.517	0.000	0.018	-1.197				
	ARM B	0.499	0.000	0.047	-0.950				
	ARM C	0.173	0.116	0.118	-0.743				

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	12.42	36.99	0.336		0.7	0.5	7.7		0.04
ARM B	22.79	30.93	0.737		11.8	2.9	52.4		0.14
ARM C	10.67	23.18	0.460		1.7	0.9	13.3		0.08
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.520	0.000	0.014	-1.210				
	ARM B	0.508	0.000	0.038	-0.985				
	ARM C	0.182	0.122	0.099	-0.827				

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
ARM A	10.40	37.29	0.279		0.5	0.4	5.9		0.04
ARM B	19.09	31.71	0.602		2.9	1.5	23.9		0.08
ARM C	8.94	25.42	0.352		0.9	0.5	8.4		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.523	0.000	0.012	-1.219				
	ARM B	0.515	0.000	0.032	-1.009				
	ARM C	0.190	0.127	0.081	-0.907				

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.5 *
17.30	0.7 *
17.45	0.7 *
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	10.4 *****
17.45	11.8 *****
18.00	2.9 ***
18.15	1.5 **

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.5 *
17.15	0.8 *
17.30	1.6 **
17.45	1.7 **
18.00	0.9 *
18.15	0.5 *

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND		* QUEUEING *		* INCLUSIVE QUEUEING *	
			I	I	I	I	I	I
			(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
I	A	I	1140.8	I 760.6	I 47.8	I 0.04	I 47.8	I 0.04
I	B	I	2093.8	I 1395.9	I 427.7	I 0.20	I 427.7	I 0.20
I	C	I	980.4	I 653.6	I 89.0	I 0.09	I 89.0	I 0.09
I	ALL	I	4215.1	I 2810.1	I 564.5	I 0.13	I 564.6	I 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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

Run with file:-

"j:\120000\120669-00\4 Internal Project Data\4-04 Calculations\4-04-06 Junction Analysis\Arcady\2028 Base\AM\
B430 Roundabout - 2028 Base AM.vai"
(drive-on-the-left) at 09:45:16 on Friday, 3 August 2007

FILE PROPERTIES

RUN TITLE: B430 Roundabout - Junction 10 - 2028 Base AM
LOCATION: Oxfordshire
DATE: 03/08/2007
CLIENT: North Oxfordshire Consortium
ENUMERATOR: Paul Dickens
JOB NUMBER: 120669
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - A43
ARM B - M40 Slips
ARM C - B430

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	7.25 *	I	7.25	I	0.00	I	30.00	I	72.00	I	17.5	I	0.608	I	38.797	I
I	ARM B	I	6.00	I	6.50	I	0.00	I	50.00	I	72.00	I	13.0	I	0.587	I	35.724	I
I	ARM C	I	3.50	I	9.00	I	38.00	I	22.50	I	72.00	I	40.0	I	0.558	I	35.585	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C: Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM A - INPUT VALUE OF V (7.30) OUTSIDE ACCEPTABLE RANGE -
HAS BEEN RESET AS INDICATED ABOVE (*). (AG17 REF. 6.3.1).

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

ARM	FLOW SCALE (%)
A	100
B	100
C	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: B430 Roundabout - Junction 10 - 2028 Base AM

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	14.39	21.58	14.39
ARM B	15.00	45.00	75.00	16.20	24.30	16.20
ARM C	15.00	45.00	75.00	5.45	8.17	5.45

DEMAND SET TITLE: B430 Roundabout - Junction 10 - 2028 Base AM

TIME	TURNING PROPORTIONS			TURNING COUNTS (VEH/HR)		
	FROM/TO	ARM A	ARM B	ARM C	(PERCENTAGE OF H.V.S)	(VEH/HR)
07.45 - 09.15	ARM A	0.000	0.373	0.627	(0.0)	(0.0)
	ARM B	0.980	0.000	0.020	(0.0)	(0.0)
	ARM C	0.489	0.511	0.000	(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	14.39	37.11	0.388		0.0	0.6	9.3		0.04
ARM B	16.20	30.45	0.532		0.0	1.1	16.3		0.07
ARM C	5.45	26.77	0.204		0.0	0.3	3.8		0.05
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL CHANGE:	ENTRY WIDTH (.1M)	FLARE LENGTH (M)	INSCRIBED CIRC DIAM (M)	ENTRY ANGLE (10 DEGS)				
	ARM A	0.521	0.000	0.013	-1.213				
	ARM B	0.504	0.000	0.042	-0.969				
	ARM C	0.195	0.131	0.070	-0.955				

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	17.18	36.77	0.467		0.6	0.9	12.8		0.05
ARM B	19.34	29.41	0.658		1.1	1.9	27.1		0.10
ARM C	6.51	25.04	0.260		0.3	0.3	5.2		0.05
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.519	0.000	0.016	-1.202				
	ARM B	0.495	0.000	0.050	-0.936				
	ARM C	0.189	0.127	0.084	-0.893				

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	21.04	36.32	0.579		0.9	1.4	19.9		0.07
ARM B	23.69	28.00	0.846		1.9	5.0	66.9		0.21
ARM C	7.97	22.75	0.350		0.3	0.5	7.9		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.515	0.000	0.020	-1.188				
	ARM B	0.482	0.000	0.062	-0.891				
	ARM C	0.180	0.121	0.102	-0.811				

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	21.04	36.32	0.579		1.4	1.4	20.5		0.07
ARM B	23.69	27.98	0.847		5.0	5.3	77.6		0.23
ARM C	7.97	22.65	0.352		0.5	0.5	8.1		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.515	0.000	0.020	-1.188				
	ARM B	0.482	0.000	0.062	-0.891				
	ARM C	0.180	0.120	0.103	-0.808				

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	17.18	36.77	0.467		1.4	0.9	13.5		0.05
ARM B	19.34	29.39	0.658		5.3	2.0	31.6		0.10
ARM C	6.51	24.89	0.261		0.5	0.4	5.4		0.05
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.519	0.000	0.016	-1.202				
	ARM B	0.495	0.000	0.050	-0.936				
	ARM C	0.188	0.126	0.085	-0.888				

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	14.39	37.10	0.388		0.9	0.6	9.7		0.04	I
I	ARM B	16.20	30.43	0.532		2.0	1.2	17.8		0.07	I
I	ARM C	5.45	26.70	0.204		0.4	0.3	3.9		0.05	I
I		EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									I
I		ENTRY FLARE INSCRIBED ENTRY									I
I		MARGINAL	WIDTH	LENGTH	CIRC DIAM	ANGLE					I
I		CHANGE:	(.1M)	(M)	(M)	(10 DEGS)					I
I		ARM A	0.521	0.000	0.014	-1.213					I
I		ARM B	0.504	0.000	0.042	-0.968					I
I		ARM C	0.195	0.131	0.071	-0.953					I

QUEUE AT ARM A

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 B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.1	*
08.15	1.9	**
08.30	5.0	*****
08.45	5.3	*****
09.00	2.0	**
09.15	1.2	*

QUEUE AT ARM C

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	0.4	
09.15	0.3	

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND		I	* QUEUEING *		I	* INCLUSIVE QUEUEING *		I
I		I		I	I	* DELAY *		I	* DELAY *		I
I		I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	I	(MIN)	(MIN/VEH)	I
I	A	I	1578.3	I 1052.2	I	85.7	I 0.05	I	85.7	I 0.05	I
I	B	I	1777.1	I 1184.7	I	237.4	I 0.13	I	237.4	I 0.13	I
I	C	I	597.8	I 398.6	I	34.2	I 0.06	I	34.2	I 0.06	I
I	ALL	I	3953.2	I 2635.5	I	357.4	I 0.09	I	357.4	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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-

"j:\120000\120669-00\4 Internal Project Data\4-04 Calculations\4-04-06 Junction Analysis\Arcady\2028 Base\PM\
B430 Roundabout - 2028 Base PM.vai"
(drive-on-the-left) at 09:39:23 on Friday, 3 August 2007

FILE PROPERTIES

RUN TITLE: B430 Roundabout - Junction 10 - 2028 Base PM
LOCATION: Oxfordshire
DATE: 03/08/2007
CLIENT: North Oxfordshire Consortium
ENUMERATOR: Paul Dickens
JOB NUMBER: 120669
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - A43
ARM B - M40 Slips
ARM C - B430

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	7.25 *	I	7.25	I	0.00	I	30.00	I	72.00	I	17.5	I	0.608	I	38.797	I
I	ARM B	I	6.00	I	6.50	I	0.00	I	50.00	I	72.00	I	13.0	I	0.587	I	35.724	I
I	ARM C	I	3.50	I	9.00	I	38.00	I	22.50	I	72.00	I	40.0	I	0.558	I	35.585	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C: Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM A - INPUT VALUE OF V (7.30) OUTSIDE ACCEPTABLE RANGE -
HAS BEEN RESET AS INDICATED ABOVE (*). (AG17 REF. 6.3.1).

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

ARM	FLOW SCALE (%)
A	100
B	100
C	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: B430 Roundabout - Junction 10 - 2028 Base PM

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	8.51	12.77	8.51
ARM B	15.00	45.00	75.00	20.59	30.88	20.59
ARM C	15.00	45.00	75.00	5.05	7.58	5.05

DEMAND SET TITLE: B430 Roundabout - Junction 10 - 2028 Base PM

TIME	TURNING PROPORTIONS			TURNING COUNTS (VEH/HR)		
	FROM/TO	ARM A	ARM B	ARM C	(PERCENTAGE OF H.V.S)	(VEH/HR)
16.45 - 18.15	ARM A	0.001	0.460	0.539	(0.0)	(313.0)
	ARM B	0.966	0.000	0.034	(0.0)	(0.0)
	ARM C	0.700	0.300	0.000	(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	8.51	37.88	0.225		0.0	0.3	4.3		0.03
ARM B	20.59	33.03	0.623		0.0	1.6	23.4		0.08
ARM C	5.05	24.55	0.206		0.0	0.3	3.8		0.05
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL CHANGE:	ENTRY WIDTH (.1M)	FLARE LENGTH (M)	INSCRIBED CIRC DIAM (M)	ENTRY ANGLE (10 DEGS)				
	ARM A	0.528	0.000	0.007	-1.239				
	ARM B	0.526	0.000	0.021	-1.052				
	ARM C	0.187	0.125	0.088	-0.876				

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	10.16	37.70	0.270		0.3	0.4	5.5		0.04
ARM B	24.58	32.50	0.756		1.6	3.0	42.3		0.12
ARM C	6.03	22.38	0.269		0.3	0.4	5.4		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.526	0.000	0.009	-1.233				
	ARM B	0.522	0.000	0.026	-1.035				
	ARM C	0.179	0.120	0.105	-0.798				

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	12.45	37.45	0.332		0.4	0.5	7.3		0.04
ARM B	30.11	31.78	0.947		3.0	12.0	139.5		0.37
ARM C	7.39	19.68	0.375		0.4	0.6	8.7		0.08
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.524	0.000	0.011	-1.225				
	ARM B	0.515	0.000	0.031	-1.012				
	ARM C	0.168	0.113	0.127	-0.702				

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	12.45	37.45	0.332		0.5	0.5	7.4		0.04
ARM B	30.11	31.78	0.947		12.0	13.9	196.4		0.49
ARM C	7.39	19.43	0.380		0.6	0.6	9.1		0.08
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.524	0.000	0.011	-1.225				
	ARM B	0.515	0.000	0.031	-1.012				
	ARM C	0.167	0.112	0.129	-0.692				

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	10.16	37.70	0.270		0.5	0.4	5.6		0.04
ARM B	24.58	32.50	0.756		13.9	3.2	60.7		0.15
ARM C	6.03	21.95	0.275		0.6	0.4	5.8		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.526	0.000	0.009	-1.233				
	ARM B	0.522	0.000	0.026	-1.035				
	ARM C	0.177	0.119	0.109	-0.783				

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	8.51	37.88	0.225		0.4	0.3	4.4		0.03
ARM B	20.59	33.02	0.623		3.2	1.7	26.2		0.08
ARM C	5.05	24.43	0.207		0.4	0.3	4.0		0.05
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.528	0.000	0.007	-1.239				
	ARM B	0.526	0.000	0.022	-1.051				
	ARM C	0.186	0.125	0.089	-0.871				

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.4
17.30	0.5
17.45	0.5
18.00	0.4
18.15	0.3

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.6	**
17.15	3.0	***
17.30	12.0	*****
17.45	13.9	*****
18.00	3.2	***
18.15	1.7	**

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	

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND		I	* QUEUEING *		I	* INCLUSIVE QUEUEING *		I
I		I		I	I	* DELAY *		I	* DELAY *		I
I		I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	I	(MIN)	(MIN/VEH)	I
I	A	I	933.8	I 622.5	I	34.6	I 0.04	I	34.6	I 0.04	I
I	B	I	2258.4	I 1505.6	I	488.7	I 0.22	I	488.7	I 0.22	I
I	C	I	554.0	I 369.3	I	36.8	I 0.07	I	36.8	I 0.07	I
I	ALL	I	3746.1	I 2497.4	I	560.0	I 0.15	I	560.1	I 0.15	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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-

"j:\120000\120669-00\4 Internal Project Data\4-04 Calculations\4-04-06 Junction Analysis\Arcady\2028 Base + Gen\
AM\B430 Roundabout - 2028 Base + Gen AM.vai"
(drive-on-the-left) at 09:40:48 on Friday, 3 August 2007

FILE PROPERTIES

RUN TITLE: B430 Roundabout - Junction 10 - 2028 Base + Gen AM
LOCATION: Oxfordshire
DATE: 03/08/2007
CLIENT: North Oxfordshire Consortium
ENUMERATOR: Paul Dickens
JOB NUMBER: 120669
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - A43
ARM B - M40 Slips
ARM C - B430

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	7.25 *	I	7.25	I	0.00	I	30.00	I	72.00	I	17.5	I	0.608	I	38.797	I
I	ARM B	I	6.00	I	6.50	I	0.00	I	50.00	I	72.00	I	13.0	I	0.587	I	35.724	I
I	ARM C	I	3.50	I	9.00	I	38.00	I	22.50	I	72.00	I	40.0	I	0.558	I	35.585	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C: Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM A - INPUT VALUE OF V (7.30) OUTSIDE ACCEPTABLE RANGE -
HAS BEEN RESET AS INDICATED ABOVE (*). (AG17 REF. 6.3.1).

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

ARM	FLOW SCALE (%)
A	100
B	100
C	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: B430 Roundabout - Junction 10 - 2028 Base + Gen AM

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	18.24	27.36	18.24
ARM B	15.00	45.00	75.00	16.66	24.99	16.66
ARM C	15.00	45.00	75.00	8.69	13.03	8.69

DEMAND SET TITLE: B430 Roundabout - Junction 10 - 2028 Base + Gen AM

TIME	TURNING PROPORTIONS (PERCENTAGE OF H.V.S)			
	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.294	0.706
		0.0	429.0	1030.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.953	0.000	0.047
		1270.0	0.0	63.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.584	0.416	0.000
		406.0	289.0	0.0
		(0.0)	(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)
07.45-08.00									
ARM A	18.24	36.61	0.498		0.0	1.0	14.4		0.05
ARM B	16.66	28.20	0.591		0.0	1.4	20.4		0.09
ARM C	8.69	26.78	0.324		0.0	0.5	7.0		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL CHANGE:	ENTRY WIDTH (.1M)	FLARE LENGTH (M)	INSCRIBED CIRC DIAM (M)	ENTRY ANGLE (10 DEGS)				
	ARM A	0.517	0.000	0.017	-1.197				
	ARM B	0.484	0.000	0.060	-0.898				
	ARM C	0.195	0.131	0.070	-0.956				

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	21.78	36.18	0.602		1.0	1.5	21.8		0.07
ARM B	19.90	26.72	0.745		1.4	2.8	39.4		0.14
ARM C	10.37	25.06	0.414		0.5	0.7	10.3		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
MARGINAL ENTRY FLARE INSCRIBED ENTRY									
CHANGE: WIDTH LENGTH CIRC DIAM ANGLE									
(0.1M) (M) (M) (10 DEGS)									
ARM A		0.514	0.000	0.021			-1.183		
ARM B		0.471	0.000	0.072			-0.850		
ARM C		0.189	0.127	0.084			-0.894		

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	26.67	35.59	0.749		1.5	2.9	41.1		0.11
ARM B	24.37	24.72	0.986		2.8	16.5	172.6		0.58
ARM C	12.71	23.12	0.549		0.7	1.2	17.4		0.10
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
MARGINAL ENTRY FLARE INSCRIBED ENTRY									
CHANGE: WIDTH LENGTH CIRC DIAM ANGLE									
(0.1M) (M) (M) (10 DEGS)									
ARM A		0.509	0.000	0.026			-1.164		
ARM B		0.454	0.000	0.088			-0.786		
ARM C		0.181	0.122	0.099			-0.825		

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	26.67	35.58	0.750		2.9	2.9	44.0		0.11
ARM B	24.37	24.68	0.987		16.5	22.3	294.1		0.93
ARM C	12.71	22.85	0.556		1.2	1.2	18.4		0.10
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
MARGINAL ENTRY FLARE INSCRIBED ENTRY									
CHANGE: WIDTH LENGTH CIRC DIAM ANGLE									
(0.1M) (M) (M) (10 DEGS)									
ARM A		0.509	0.000	0.026			-1.163		
ARM B		0.454	0.000	0.088			-0.785		
ARM C		0.180	0.121	0.102			-0.815		

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	21.78	36.17	0.602		2.9	1.5	23.8		0.07
ARM B	19.90	26.67	0.746		22.3	3.1	81.3		0.22
ARM C	10.37	24.33	0.426		1.2	0.7	11.5		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
MARGINAL ENTRY FLARE INSCRIBED ENTRY									
CHANGE: WIDTH LENGTH CIRC DIAM ANGLE									
(0.1M) (M) (M) (10 DEGS)									
ARM A		0.514	0.000	0.021			-1.183		
ARM B		0.471	0.000	0.072			-0.849		
ARM C		0.186	0.125	0.090			-0.868		

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	18.24	36.60	0.498		1.5	1.0	15.4		0.05	I
I	ARM B	16.66	28.16	0.592		3.1	1.5	23.0		0.09	I
I	ARM C	8.69	26.68	0.326		0.7	0.5	7.4		0.06	I
I		EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									I
I			ENTRY	FLARE	INSCRIBED	ENTRY					I
I		MARGINAL	WIDTH	LENGTH	CIRC DIAM	ANGLE					I
I		CHANGE:	(.1M)	(M)	(M)	(10 DEGS)					I
I		ARM A	0.517	0.000	0.018	-1.197					I
I		ARM B	0.484	0.000	0.060	-0.896					I
I		ARM C	0.195	0.131	0.071	-0.952					I

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.0	*
08.15	1.5	*
08.30	2.9	***
08.45	2.9	***
09.00	1.5	**
09.15	1.0	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.4	*
08.15	2.8	***
08.30	16.5	*****
08.45	22.3	*****
09.00	3.1	***
09.15	1.5	*

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	1.2	*
09.00	0.7	*
09.15	0.5	

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I	
I	I	I	I	I	* DELAY *	I	* DELAY *	I	
I	I	I	I	I	(MIN)	I	(MIN)	I	
I	I	(VEH)	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I	
I	A	I	2000.6	I	1333.7	I	160.4	I	0.08
I	B	I	1827.8	I	1218.5	I	630.9	I	0.35
I	C	I	953.0	I	635.3	I	72.1	I	0.08
I	ALL	I	4781.4	I	3187.6	I	863.4	I	0.18

* 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-

"j:\120000\120669-00\4 Internal Project Data\4-04 Calculations\4-04-06 Junction Analysis\Arcady\2028 Base + Gen\PM\B430 Roundabout - 2028 Base + Gen PM.vai"
(drive-on-the-left) at 09:42:21 on Friday, 3 August 2007

FILE PROPERTIES *****

RUN TITLE: B430 Roundabout - Junction 10 - 2028 Base + Gen PM
LOCATION: Oxfordshire
DATE: 03/08/2007
CLIENT: North Oxfordshire Consortium
ENUMERATOR: Paul Dickens
JOB NUMBER: 120669
STATUS:
DESCRIPTION:

INPUT DATA *****
ARM A - A43
ARM B - M40 Slips
ARM C - B430

GEOMETRIC DATA

Table with 15 columns: 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. Rows include data for ARM A, B, and C.

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C: Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM A - INPUT VALUE OF V (7.30) OUTSIDE ACCEPTABLE RANGE -
HAS BEEN RESET AS INDICATED ABOVE (*). (AG17 REF. 6.3.1).

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

ARM	FLOW SCALE (%)
A	100
B	100
C	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: B430 Roundabout - Junction 10 - 2028 Base + Gen PM

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	11.15	16.72	11.15
ARM B	15.00	45.00	75.00	20.90	31.35	20.90
ARM C	15.00	45.00	75.00	9.39	14.08	9.39

DEMAND SET TITLE: B430 Roundabout - Junction 10 - 2028 Base + Gen PM

TIME	TURNING PROPORTIONS			TURNING COUNTS (VEH/HR)			
	FROM/TO	ARM A	ARM B	ARM C	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.001	0.351	0.648	1.0	313.0	578.0
	ARM B	0.952	0.000	0.048	1591.0	0.0	81.0
	ARM C	0.722	0.278	0.000	542.0	209.0	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	11.15	37.22	0.300		0.0	0.4	6.3		0.04
ARM B	20.90	31.49	0.664		0.0	1.9	27.6		0.09
ARM C	9.39	24.56	0.382		0.0	0.6	9.0		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL CHANGE:	ENTRY WIDTH (.1M)		FLARE LENGTH (M)	INSCRIBED CIRC DIAM (M)		ENTRY ANGLE (10 DEGS)		
	ARM A	0.522		0.000	0.013		-1.217		
	ARM B	0.513		0.000	0.034		-1.002		
	ARM C	0.187		0.125	0.088		-0.876		

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
ARM A	13.31	36.90	0.361		0.4	0.6	8.3		0.04
ARM B	24.96	30.66	0.814		1.9	4.1	56.6		0.17
ARM C	11.21	22.41	0.500		0.6	1.0	14.4		0.09
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.520	0.000	0.015	-1.207				
	ARM B	0.506	0.000	0.040	-0.976				
	ARM C	0.179	0.120	0.105	-0.799				

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
ARM A	16.31	36.49	0.447		0.6	0.8	11.8		0.05
ARM B	30.57	29.52	1.035		4.1	30.8	289.0		0.77
ARM C	13.73	20.29	0.676		1.0	2.0	28.6		0.15
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.516	0.000	0.018	-1.193				
	ARM B	0.496	0.000	0.049	-0.940				
	ARM C	0.171	0.114	0.122	-0.724				

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
ARM A	16.31	36.47	0.447		0.8	0.8	12.1		0.05
ARM B	30.57	29.52	1.036		30.8	49.8	607.2		1.51
ARM C	13.73	20.03	0.686		2.0	2.1	31.5		0.16
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.516	0.000	0.019	-1.193				
	ARM B	0.496	0.000	0.049	-0.939				
	ARM C	0.170	0.114	0.124	-0.714				

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	13.31	36.89	0.361		0.8	0.6	8.6		0.04
ARM B	24.96	30.65	0.814		49.8	4.9	274.1		0.64
ARM C	11.21	20.74	0.540		2.1	1.2	18.7		0.11
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.520	0.000	0.015	-1.206				
	ARM B	0.505	0.000	0.040	-0.976				
	ARM C	0.172	0.116	0.118	-0.740				

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	11.15	37.20	0.300		0.6	0.4	6.5		0.04
ARM B	20.90	31.48	0.664		4.9	2.0	32.1		0.10
ARM C	9.39	24.39	0.385		1.2	0.6	9.7		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.522	0.000	0.013	-1.216				
	ARM B	0.513	0.000	0.034	-1.002				
	ARM C	0.186	0.125	0.089	-0.870				

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.6 *
17.30	0.8 *
17.45	0.8 *
18.00	0.6 *
18.15	0.4

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.9 **
17.15	4.1 ****
17.30	30.8 *****
17.45	49.8 *****
18.00	4.9 *****
18.15	2.0 **

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.6 *
17.15	1.0 *
17.30	2.0 **
17.45	2.1 **
18.00	1.2 *
18.15	0.6 *

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND		I	* QUEUEING *		I	* INCLUSIVE QUEUEING *		I
I		I		I	I	* DELAY *		I	* DELAY *		I
I		I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	I	(MIN)	(MIN/VEH)	I
I	A	I	1223.1	I 815.4	I	53.7	I 0.04	I	53.7	I 0.04	I
I	B	I	2292.7	I 1528.4	I	1286.5	I 0.56	I	1286.6	I 0.56	I
I	C	I	1029.8	I 686.5	I	111.8	I 0.11	I	111.8	I 0.11	I
I	ALL	I	4545.6	I 3030.4	I	1452.0	I 0.32	I	1452.1	I 0.32	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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-

"j:\120000\120669-00\4 Internal Project Data\4-04 Calculations\4-04-06 Junction Analysis\Arcady\
2028 Base + Gen Modified Roundabout\AM\B430 Roundabout - 2028 Base + Gen AM.vai"
(drive-on-the-left) at 13:34:37 on Tuesday, 14 August 2007

FILE PROPERTIES

RUN TITLE: B430 Roundabout - Junction 10 - 2028 Base + Gen AM Modified Roudabout
LOCATION: Oxfordshire
DATE: 03/08/2007
CLIENT: North Oxfordshire Consortium
ENUMERATOR: Paul Dickens
JOB NUMBER: 120669
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - A43
ARM B - M40 Slips
ARM C - B430

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	7.25 *	I	7.25	I	0.00	I	30.00	I	72.00	I	17.5	I	0.608	I	38.797	I
I	ARM B	I	6.00	I	9.00	I	18.00	I	50.00	I	72.00	I	12.5	I	0.662	I	43.799	I
I	ARM C	I	3.50	I	9.00	I	38.00	I	22.50	I	72.00	I	40.0	I	0.558	I	35.585	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C: Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM A - INPUT VALUE OF V (7.30) OUTSIDE ACCEPTABLE RANGE -
HAS BEEN RESET AS INDICATED ABOVE (*). (AG17 REF. 6.3.1).

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

ARM	FLOW SCALE (%)
A	100
B	100
C	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: B430 Roundabout - Junction 10 - 2028 Base + Gen AM

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	18.24	27.36	18.24
ARM B	15.00	45.00	75.00	16.66	24.99	16.66
ARM C	15.00	45.00	75.00	8.69	13.03	8.69

DEMAND SET TITLE: B430 Roundabout - Junction 10 - 2028 Base + Gen AM

TIME	TURNING PROPORTIONS			TURNING COUNTS (VEH/HR)			(PERCENTAGE OF H.V.S)			
	FROM/TO	ARM A	ARM B	ARM C	ARM A	ARM B	ARM C	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.294	0.706	0.0	429.0	1030.0	(0.0)	(0.0)	(0.0)
	ARM B	0.953	0.000	0.047	1270.0	0.0	63.0	(0.0)	(0.0)	(0.0)
	ARM C	0.584	0.416	0.000	406.0	289.0	0.0	(0.0)	(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)
07.45-08.00									
ARM A	18.24	36.61	0.498		0.0	1.0	14.4		0.05
ARM B	16.66	35.31	0.472		0.0	0.9	13.0		0.05
ARM C	8.69	26.76	0.325		0.0	0.5	7.0		0.06
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL CHANGE:	ENTRY WIDTH (.1M)	FLARE LENGTH (M)	INSCRIBED CIRC DIAM (M)	ENTRY ANGLE (10 DEGS)				
	ARM A	0.517	0.000	0.017	-1.197				
	ARM B	0.206	0.183	0.068	-1.122				
	ARM C	0.195	0.131	0.070	-0.955				

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	21.78	36.18	0.602		1.0	1.5	21.8		0.07
ARM B	19.90	33.64	0.591		0.9	1.4	20.8		0.07
ARM C	10.37	25.03	0.414		0.5	0.7	10.3		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.514	0.000	0.021	-1.183				
	ARM B	0.201	0.178	0.081	-1.069				
	ARM C	0.189	0.126	0.084	-0.893				

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	26.67	35.59	0.749		1.5	2.9	41.1		0.11
ARM B	24.37	31.38	0.777		1.4	3.3	46.4		0.14
ARM C	12.71	22.71	0.560		0.7	1.3	18.1		0.10
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.509	0.000	0.026	-1.164				
	ARM B	0.193	0.172	0.099	-0.997				
	ARM C	0.180	0.121	0.103	-0.810				

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	26.67	35.58	0.750		2.9	2.9	44.0		0.11
ARM B	24.37	31.34	0.778		3.3	3.4	50.8		0.14
ARM C	12.71	22.64	0.561		1.3	1.3	18.9		0.10
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.509	0.000	0.026	-1.163				
	ARM B	0.193	0.172	0.099	-0.996				
	ARM C	0.180	0.120	0.103	-0.807				

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	21.78	36.16	0.602		2.9	1.5	23.8		0.07
ARM B	19.90	33.58	0.593		3.4	1.5	23.0		0.07
ARM C	10.37	24.95	0.416		1.3	0.7	11.1		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.514	0.000	0.021	-1.182				
	ARM B	0.201	0.178	0.081	-1.067				
	ARM C	0.188	0.126	0.085	-0.890				

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	18.24	36.60	0.498		1.5	1.0	15.4		0.05	I	
I	ARM B	16.66	35.26	0.473		1.5	0.9	13.8		0.05	I	
I	ARM C	8.69	26.71	0.325		0.7	0.5	7.4		0.06	I	
I		EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:										I
I		MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY					I	
I		CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE					I	
I			(.1M)	(M)	(M)	(10 DEGS)					I	
I		ARM A	0.517	0.000	0.018	-1.197					I	
I		ARM B	0.206	0.183	0.068	-1.120					I	
I		ARM C	0.195	0.131	0.071	-0.953					I	

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.0	*
08.15	1.5	*
08.30	2.9	***
08.45	2.9	***
09.00	1.5	**
09.15	1.0	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.9	*
08.15	1.4	*
08.30	3.3	***
08.45	3.4	***
09.00	1.5	*
09.15	0.9	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	
08.15	0.7	*
08.30	1.3	*
08.45	1.3	*
09.00	0.7	*
09.15	0.5	

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND		I	* QUEUEING *		I	* INCLUSIVE QUEUEING *		I
I		I		I	I	* DELAY *		I	* DELAY *		I
I		I		I	I			I			I
I		I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	I	(MIN)	(MIN/VEH)	I
I	A	I	2000.6	I 1333.7	I	160.4	I 0.08	I	160.4	I 0.08	I
I	B	I	1827.8	I 1218.5	I	167.9	I 0.09	I	167.9	I 0.09	I
I	C	I	953.0	I 635.3	I	72.8	I 0.08	I	72.8	I 0.08	I
I	ALL	I	4781.4	I 3187.6	I	401.1	I 0.08	I	401.1	I 0.08	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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-

"j:\120000\120669-00\4 Internal Project Data\4-04 Calculations\4-04-06 Junction Analysis\Arcady\
2028 Base + Gen Modified Roundabout\PM\B430 Roundabout - 2028 Base + Gen PM.vai"
(drive-on-the-left) at 13:34:01 on Tuesday, 14 August 2007

FILE PROPERTIES

RUN TITLE: B430 Roundabout - Junction 10 - 2028 Base + Gen PM Modified Roundabout
LOCATION: Oxfordshire
DATE: 03/08/2007
CLIENT: North Oxfordshire Consortium
ENUMERATOR: Paul Dickens
JOB NUMBER: 120669
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - A43
ARM B - M40 Slips
ARM C - B430

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	7.25 *	I	7.25	I	0.00	I	30.00	I	72.00	I	17.5	I	0.608	I	38.797	I
I	ARM B	I	6.00	I	9.00	I	18.00	I	50.00	I	72.00	I	12.5	I	0.662	I	43.799	I
I	ARM C	I	3.50	I	9.00	I	38.00	I	22.50	I	72.00	I	40.0	I	0.558	I	35.585	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM C: Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM A - INPUT VALUE OF V (7.30) OUTSIDE ACCEPTABLE RANGE -
HAS BEEN RESET AS INDICATED ABOVE (*). (AG17 REF. 6.3.1).

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

ARM	FLOW SCALE (%)
A	100
B	100
C	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: B430 Roundabout - Junction 10 - 2028 Base + Gen PM

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	11.15	16.72	11.15
ARM B	15.00	45.00	75.00	20.90	31.35	20.90
ARM C	15.00	45.00	75.00	9.39	14.08	9.39

DEMAND SET TITLE: B430 Roundabout - Junction 10 - 2028 Base + Gen PM

TIME	TURNING PROPORTIONS			TURNING COUNTS (VEH/HR)			
	FROM/TO	ARM A	ARM B	ARM C	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.001	0.351	0.648	1.0	313.0	578.0
	ARM B	0.952	0.000	0.048	1591.0	0.0	81.0
	ARM C	0.722	0.278	0.000	542.0	209.0	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	11.15	37.22	0.300		0.0	0.4	6.3		0.04
ARM B	20.90	39.02	0.536		0.0	1.1	16.7		0.05
ARM C	9.39	24.53	0.383		0.0	0.6	9.0		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL CHANGE:	ENTRY WIDTH (.1M)		FLARE LENGTH (M)	INSCRIBED CIRC DIAM (M)		ENTRY ANGLE (10 DEGS)		
	ARM A	0.522		0.000	0.013		-1.217		
	ARM B	0.218		0.194	0.038		-1.240		
	ARM C	0.187		0.125	0.088		-0.875		

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
ARM A	13.31	36.90	0.361		0.4	0.6	8.3		0.04
ARM B	24.96	38.08	0.655		1.1	1.9	27.1		0.08
ARM C	11.21	22.36	0.501		0.6	1.0	14.5		0.09
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.520	0.000	0.015	-1.207				
	ARM B	0.215	0.191	0.046	-1.210				
	ARM C	0.179	0.120	0.105	-0.797				

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
ARM A	16.31	36.49	0.447		0.6	0.8	11.8		0.05
ARM B	30.57	36.80	0.831		1.9	4.6	63.1		0.15
ARM C	13.73	19.45	0.706		1.0	2.3	32.2		0.17
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.516	0.000	0.018	-1.193				
	ARM B	0.211	0.188	0.056	-1.170				
	ARM C	0.168	0.112	0.129	-0.693				

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
ARM A	16.31	36.47	0.447		0.8	0.8	12.1		0.05
ARM B	30.57	36.79	0.831		4.6	4.8	70.6		0.16
ARM C	13.73	19.36	0.709		2.3	2.4	35.3		0.18
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.516	0.000	0.019	-1.193				
	ARM B	0.211	0.188	0.056	-1.169				
	ARM C	0.167	0.112	0.129	-0.690				

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	13.31	36.88	0.361		0.8	0.6	8.6		0.04
ARM B	24.96	38.07	0.656		4.8	1.9	30.5		0.08
ARM C	11.21	22.23	0.504		2.4	1.0	16.1		0.09
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.520	0.000	0.015	-1.206				
	ARM B	0.215	0.191	0.046	-1.210				
	ARM C	0.178	0.119	0.106	-0.793				

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	11.15	37.20	0.300		0.6	0.4	6.5		0.04
ARM B	20.90	39.01	0.536		1.9	1.2	17.9		0.06
ARM C	9.39	24.46	0.384		1.0	0.6	9.6		0.07
EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:									
	MARGINAL	ENTRY	FLARE	INSCRIBED	ENTRY				
	CHANGE:	WIDTH	LENGTH	CIRC DIAM	ANGLE				
		(.1M)	(M)	(M)	(10 DEGS)				
	ARM A	0.522	0.000	0.013	-1.217				
	ARM B	0.218	0.194	0.038	-1.240				
	ARM C	0.187	0.125	0.089	-0.873				

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.6 *
17.30	0.8 *
17.45	0.8 *
18.00	0.6 *
18.15	0.4

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.1 *
17.15	1.9 **
17.30	4.6 *****
17.45	4.8 *****
18.00	1.9 **
18.15	1.2 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.6 *
17.15	1.0 *
17.30	2.3 **
17.45	2.4 **
18.00	1.0 *
18.15	0.6 *

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND		* QUEUEING *		* INCLUSIVE QUEUEING *	
			I	I	I	I	I	I
			(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
I	A	I	1223.1	I 815.4	I 53.7	I 0.04	I 53.7	I 0.04
I	B	I	2292.7	I 1528.4	I 226.0	I 0.10	I 226.0	I 0.10
I	C	I	1029.8	I 686.5	I 116.7	I 0.11	I 116.7	I 0.11
I	ALL	I	4545.6	I 3030.4	I 396.4	I 0.09	I 396.4	I 0.09

* 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 =====