

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)  
 Patch 15 Apr 2011  
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THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS  
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Run with file:-

"u:\11210446 - SCCC 2011 PA\ANALYSIS\ARCADY\Turnpike Rbt WSP Geometry\DIRECT\CAPITA Response\  
 2025 AM BASE + Com Dev + Dev 450\_with improvements\_TEST.vai"  
 (drive-on-the-left ) at 10:38:19 on Friday, 5 October 2012

FILE PROPERTIES  
 \*\*\*\*\*

RUN TITLE: 2025 AM BASE + Com Dev + Dev 450 with Improvements  
 LOCATION: Turnpike Roundabout  
 DATE: 27/06/08  
 CLIENT:  
 ENUMERATOR: ukej002 [ZW0147BRI1UK]  
 JOB NUMBER: 11280208  
 STATUS:  
 DESCRIPTION: A4042 N. Entry width increased to 11.5 plus 40m Flare / Caerleon  
 Road: Entry width increased to 9.1 and Flare of 40m

INPUT DATA  
 \*\*\*\*\*  
 ARM A - A4042 North  
 ARM B - Caerleon Road  
 ARM C - A4042 South  
 ARM D - Turnpike Road

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	7.78	I	11.50	I	40.00	I	69.00	I	72.00	I	21.0	I	0.782	I	57.313	I
I	ARM B	I	3.60	I	9.10	I	40.00	I	30.00	I	72.00	I	17.5	I	0.617	I	39.704	I
I	ARM C	I	7.80	I	9.29	I	12.60	I	75.00	I	72.00	I	17.5	I	0.702	I	48.402	I
I	ARM D	I	4.60	I	7.11	I	20.00	I	21.00	I	72.00	I	26.0	I	0.542	I	32.797	I

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

\*\*WARNING\*\* ARM A Effective flare length is outside normal range.  
 Treat capacities with increasing caution.

\*\*WARNING\*\* ARM B Effective flare length is outside normal range.  
 Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

IARM	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 (08.00) AND ENDS (09.00)

LENGTH OF TIME PERIOD - ( 60) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

DEMAND SET TITLE: 2025 AM BASE + COM DEV + DEV 450 TRAFFIC - EXISTING SITE TRAFFIC

DEMAND SET TITLE: 2025 AM BASE + COM DEV + DEV 450 TRAFFIC - EXISTING SITE TRAFFIC

T33

		TURNING PROPORTIONS								
		TURNING COUNTS								
		(PERCENTAGE OF H.V.S)								
TIME	FROM/T	ARM	A	B	C	D				
08.00 - 08.15	ARM A	0.000	0.152	0.787	0.061					
		0.0	100.0	517.0	40.0					
		( 0.0)	( 3.0)	( 3.0)	( 5.0)					
	ARM B	0.398	0.000	0.347	0.255					
		78.0	0.0	68.0	50.0					
		( 7.0)	( 0.0)	( 1.0)	( 6.0)					
	ARM C	0.646	0.216	0.000	0.138					
		323.0	108.0	0.0	69.0					
		( 5.0)	( 7.0)	( 0.0)	( 1.0)					
ARM D	0.134	0.433	0.433	0.000						
	22.0	71.0	71.0	0.0						
	( 4.0)	( 4.0)	( 7.0)	( 0.0)						
08.15 - 08.30	ARM A	0.000	0.152	0.787	0.061					
		0.0	100.0	517.0	40.0					
		( 0.0)	( 3.0)	( 3.0)	( 5.0)					
	ARM B	0.398	0.000	0.347	0.255					
		78.0	0.0	68.0	50.0					
		( 7.0)	( 0.0)	( 1.0)	( 6.0)					
	ARM C	0.646	0.216	0.000	0.138					
		323.0	108.0	0.0	69.0					
		( 5.0)	( 7.0)	( 0.0)	( 1.0)					
ARM D	0.134	0.433	0.433	0.000						
	22.0	71.0	71.0	0.0						
	( 4.0)	( 4.0)	( 7.0)	( 0.0)						
08.30 - 08.45	ARM A	0.000	0.152	0.787	0.061					
		0.0	100.0	517.0	40.0					
		( 0.0)	( 3.0)	( 3.0)	( 5.0)					
	ARM B	0.398	0.000	0.347	0.255					
		78.0	0.0	68.0	50.0					
		( 7.0)	( 0.0)	( 1.0)	( 6.0)					
	ARM C	0.646	0.216	0.000	0.138					
		323.0	108.0	0.0	69.0					
		( 5.0)	( 7.0)	( 0.0)	( 1.0)					
ARM D	0.134	0.433	0.433	0.000						
	22.0	71.0	71.0	0.0						
	( 4.0)	( 4.0)	( 7.0)	( 0.0)						
08.45 - 09.00	ARM A	0.000	0.152	0.787	0.061					
		0.0	100.0	517.0	40.0					
		( 0.0)	( 3.0)	( 3.0)	( 5.0)					
	ARM B	0.398	0.000	0.347	0.255					
		78.0	0.0	68.0	50.0					
		( 7.0)	( 0.0)	( 1.0)	( 6.0)					
	ARM C	0.646	0.216	0.000	0.138					
		323.0	108.0	0.0	69.0					
		( 5.0)	( 7.0)	( 0.0)	( 1.0)					
ARM D	0.134	0.433	0.433	0.000						
	22.0	71.0	71.0	0.0						
	( 4.0)	( 4.0)	( 7.0)	( 0.0)						

T70

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	43.78	42.46	1.031	-	0.0	36.7	332.7	-	0.568
ARM B	13.12	13.75	0.954	-	0.0	9.8	104.0	-	0.615
ARM C	33.32	38.58	0.864	-	0.0	5.8	76.5	-	0.167
ARM D	10.91	12.99	0.840	-	0.0	4.5	55.2	-	0.383

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	43.78	42.23	1.037	-	36.7	63.5	755.0	-	1.306
ARM B	13.12	13.33	0.984	-	9.8	15.1	190.2	-	1.171
ARM C	33.32	38.40	0.868	-	5.8	6.2	91.1	-	0.194
ARM D	10.91	12.75	0.856	-	4.5	5.2	73.9	-	0.508

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	43.78	42.20	1.037	-	63.5	88.9	1144.4	-	1.900
ARM B	13.12	13.28	0.988	-	15.1	19.0	257.2	-	1.499
ARM C	33.32	38.35	0.869	-	6.2	6.4	94.6	-	0.197
ARM D	10.91	12.72	0.858	-	5.2	5.5	80.6	-	0.532

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	43.78	42.19	1.038	-	88.9	113.8	1521.3	-	2.487
ARM B	13.12	13.26	0.990	-	19.0	22.2	309.9	-	1.755
ARM C	33.32	38.33	0.869	-	6.4	6.5	96.2	-	0.198
ARM D	10.91	12.71	0.859	-	5.5	5.6	83.7	-	0.542

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	36.7 *****
08.30	63.5 *****
08.45	88.9 *****
09.00	113.8 *****

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	9.8 *****
08.30	15.1 *****
08.45	19.0 *****
09.00	22.2 *****

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 QUEUE AT ARM C  
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TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	5.8	*****
08.30	6.2	*****
08.45	6.4	*****
09.00	6.5	*****

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 QUEUE AT ARM D  
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TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	4.5	****
08.30	5.2	*****
08.45	5.5	*****
09.00	5.6	*****

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 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD  
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										T75				
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		I	(VEH)	I	(VEH/H)	I	(MIN)	I	(MIN/VEH)	I				
I	A	I	2626.8	I	2626.8	I	3753.4	I	1.43	I	3906.9	I	1.49	I
I	B	I	787.2	I	787.2	I	861.3	I	1.09	I	879.9	I	1.12	I
I	C	I	1999.2	I	1999.2	I	358.3	I	0.18	I	358.8	I	0.18	I
I	D	I	654.6	I	654.6	I	293.4	I	0.45	I	294.7	I	0.45	I
I	ALL	I	6067.8	I	6067.8	I	5266.5	I	0.87	I	5440.4	I	0.90	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 =====