

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Run with file:-
"j:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\
15.Vere St_Gladstone Rise\Cardiff Rd_Vere St Roundabout\Cardiff Rd_Vere St Rndbt.vai"
(drive-on-the-left) at 10:17:53 on wednesday, 15 July 2009

.FILE PROPERTIES

RUN TITLE: Cardiff Rd / Vere Street Roundabout
LOCATION:
DATE: 15/07/09
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA

ARM A - Vere Street (N)
ARM B - Cardiff Road (S)
ARM C - Gladstone Rd (N)

.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	5.48 *	I	5.48	I	12.00	I	21.80	I	28.00	I	21.3	I	0.674	I	28.621	I
I	ARM	B	I	3.46	I	4.63	I	15.70	I	16.40	I	27.00	I	50.9	I	0.537	I	20.392	I
I	ARM	C	I	4.39	I	4.90	I	29.20	I	9.30	I	27.00	I	33.7	I	0.572	I	22.908	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 - INPUT VALUE OF V (6.96) 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

.SCALING FACTORS

----- T13

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

TIME PERIOD BEGINS(16.15)AND ENDS(17.45)
.LENGTH OF TIME PERIOD - (90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: PM 2020 with Development

----- T15

I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I									
I	I	I	FLOW STARTS	I	I	I									
I	I	I	TOP OF PEAK	I	I	I									
I	I	I	FLOW STOPS	I	I	I									
I	I	I	BEFORE	I	I	I									
I	I	I	AT TOP	I	I	I									
I	I	I	AFTER	I	I	I									
I	I	I	TO RISE	I	I	I									
I	I	I	IS REACHED	I	I	I									
I	I	I	FALLING	I	I	I									
I	I	I	PEAK	I	I	I									
I	I	I	OF PEAK	I	I	I									
I	I	I	PEAK	I	I	I									
I	ARM	A	I	15.00	I	45.00	I	75.00	I	2.76	I	4.14	I	2.76	I
I	ARM	B	I	15.00	I	45.00	I	75.00	I	12.24	I	18.36	I	12.24	I
I	ARM	C	I	15.00	I	45.00	I	75.00	I	7.66	I	11.49	I	7.66	I

DEMAND SET TITLE: PM 2020 with Development

T33

TIME	TURNING PROPORTIONS			
	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.543	0.457
		(0.0)	(6.0)	(2.0)
	ARM B	0.190	0.000	0.810
		(1.0)	(0.0)	(2.0)
	ARM C	0.153	0.847	0.000
		(0.0)	(2.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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)
16.15-16.30									
ARM A	2.77	23.20	0.120	-	0.0	0.1	2.0	-	0.049
ARM B	12.28	19.35	0.635	-	0.0	1.7	23.8	-	0.137
ARM C	7.69	21.21	0.363	-	0.0	0.6	8.2	-	0.074

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)
16.30-16.45									
ARM A	3.31	22.35	0.148	-	0.1	0.2	2.6	-	0.052
ARM B	14.67	19.22	0.763	-	1.7	3.1	42.1	-	0.211
ARM C	9.18	20.95	0.438	-	0.6	0.8	11.3	-	0.085

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	4.06	21.21	0.191	-	0.2	0.2	3.5	-	0.058
ARM B	17.96	19.03	0.944	-	3.1	10.1	117.1	-	0.534
ARM C	11.25	20.64	0.545	-	0.8	1.2	17.1	-	0.106

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	4.06	21.19	0.191	-	0.2	0.2	3.5	-	0.058
ARM B	17.96	19.03	0.944	-	10.1	12.0	168.2	-	0.715
ARM C	11.25	20.60	0.546	-	1.2	1.2	17.8	-	0.107

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	3.31	22.33	0.148	-	0.2	0.2	2.7	-	0.053
ARM B	14.67	19.21	0.763	-	12.0	3.4	66.5	-	0.282
ARM C	9.18	20.88	0.440	-	1.2	0.8	12.2	-	0.086

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	2.77	23.17	0.120	-	0.2	0.1	2.1	-	0.049
ARM B	12.28	19.35	0.635	-	3.4	1.8	28.4	-	0.146
ARM C	7.69	21.19	0.363	-	0.8	0.6	8.8	-	0.074

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.1
16.45	0.2
17.00	0.2
17.15	0.2
17.30	0.2
17.45	0.1

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES
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IN QUEUE

16.30	1.7	**
16.45	3.1	***
17.00	10.1	*****
17.15	12.0	*****
17.30	3.4	***
17.45	1.8	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.8	*
17.00	1.2	*
17.15	1.2	*
17.30	0.8	*
17.45	0.6	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

										T75
I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I		I
I	I	I	I	I	* DELAY *	I	* DELAY *	I		I
I	I	I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)		I
I	A	I	304.2	I	202.8	I	16.3	I	0.05	I
I	B	I	1347.5	I	898.3	I	446.1	I	0.33	I
I	C	I	843.7	I	562.5	I	75.5	I	0.09	I
I	ALL	I	2495.5	I	1663.6	I	537.9	I	0.22	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