

A R C A D Y 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\  
21.Gladstone\_Bridge\_Ffordd y Mileniwm\with Improvements\Gladstone Bridge\_Ffordd Mileniwm.vai"  
(drive-on-the-left ) at 17:27:54 on Thursday, 16 July 2009

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

RUN TITLE: Gladstone Bridge\_Ffordd Y Mileniwm  
LOCATION:  
DATE: 16/07/09  
CLIENT:  
ENUMERATOR: Roddy.Beynon [WACPC145]  
JOB NUMBER: 122374  
STATUS: On-going  
DESCRIPTION:

.INPUT DATA  
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ARM A - Ffordd Y Mileniwm (E)  
ARM B - Ffordd Y Mileniwm (W)  
ARM C - Gladstone Bridge

.GEOMETRIC DATA  
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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	8.66	I	30.00	I	30.00	I	45.00	I	11.0	I	0.765	I	37.950	I
I	ARM B	I	3.64	I	7.50	I	44.00	I	20.00	I	45.00	I	40.0	I	0.666	I	32.436	I
I	ARM C	I	3.58	I	6.57	I	19.60	I	20.00	I	45.00	I	8.0	I	0.674	I	30.380	I

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

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

.TRAFFIC DEMAND DATA  
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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

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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	ARM	I	FLOW STARTS	I	TOP OF PEAK	I
I	ARM	I	FLOW STOPS	I	BEFORE	I
I	ARM	I	AT TOP	I	AFTER	I
I	ARM	I	TO RISE	I	IS REACHED	I
I	ARM	I	FALLING	I	PEAK	I
I	ARM	I	OF PEAK	I	PEAK	I
I	ARM A	I	15.00	I	45.00	I
I	ARM B	I	15.00	I	45.00	I
I	ARM C	I	15.00	I	45.00	I

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DEMAND SET TITLE: PM 2020 with Development

T33

TIME	FROM/TO	TURNING PROPORTIONS		
		ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.566	0.434
		( 0.0)	( 0.0)	( 4.0)
	ARM B	0.680	0.000	0.320
		( 1.0)	( 0.0)	( 0.0)
	ARM C	0.748	0.252	0.000
		( 6.0)	( 0.0)	( 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	19.50	35.03	0.557	-	0.0	1.2	18.0	-	0.064
ARM B	8.63	26.42	0.327	-	0.0	0.5	7.1	-	0.056
ARM C	12.03	25.26	0.476	-	0.0	0.9	13.1	-	0.075
16.30-16.45									
ARM A	23.28	34.58	0.673	-	1.2	2.0	29.2	-	0.088
ARM B	10.31	25.28	0.408	-	0.5	0.7	10.0	-	0.067
ARM C	14.37	24.51	0.586	-	0.9	1.4	20.2	-	0.098
16.45-17.00									
ARM A	28.52	33.98	0.839	-	2.0	4.9	65.9	-	0.171
ARM B	12.63	23.76	0.531	-	0.7	1.1	16.3	-	0.089
ARM C	17.60	23.49	0.749	-	1.4	2.9	39.8	-	0.164
17.00-17.15									
ARM A	28.52	33.96	0.840	-	4.9	5.0	74.7	-	0.183
ARM B	12.63	23.70	0.533	-	1.1	1.1	16.9	-	0.090
ARM C	17.60	23.48	0.750	-	2.9	2.9	43.5	-	0.170
17.15-17.30									
ARM A	23.28	34.56	0.674	-	5.0	2.1	33.5	-	0.092
ARM B	10.31	25.20	0.409	-	1.1	0.7	10.7	-	0.067
ARM C	14.37	24.49	0.587	-	2.9	1.4	22.6	-	0.101
17.30-17.45									
ARM A	19.50	35.01	0.557	-	2.1	1.3	19.6	-	0.065
ARM B	8.63	26.38	0.327	-	0.7	0.5	7.5	-	0.056
ARM C	12.03	25.24	0.477	-	1.4	0.9	14.2	-	0.076

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	1.2 *
16.45	2.0 **
17.00	4.9 *****
17.15	5.0 *****
17.30	2.1 **
17.45	1.3 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES
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IN QUEUE

16.30	0.5	*
16.45	0.7	*
17.00	1.1	*
17.15	1.1	*
17.30	0.7	*
17.45	0.5	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.9	*
16.45	1.4	*
17.00	2.9	***
17.15	2.9	***
17.30	1.4	*
17.45	0.9	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

										T75
ARM	TOTAL DEMAND		* QUEUEING * DELAY		* INCLUSIVE QUEUEING * DELAY					
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)				
A	2139.0	1426.0	240.9	0.11	240.9	0.11				
B	947.0	631.3	68.5	0.07	68.5	0.07				
C	1320.0	880.0	153.5	0.12	153.5	0.12				
ALL	4405.9	2937.3	462.8	0.11	462.9	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