

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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For sales and distribution information,  
program advice and maintenance, contact:

TRL Limited                   Tel: +44 (0) 1344 770758  
Crowthorne House         Fax: +44 (0) 1344 770356  
Nine Mile Ride            Email: software@trl.co.uk  
Wokingham, Berks.        Web: www.trlsoftware.co.uk  
RG40 3GA, UK

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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 17:26:52 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

.TIME PERIOD BEGINS(08.15)AND ENDS(09.45)  
.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: AM 2020 with Development

----- T15

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK IS REACHED	I	FLOW STOPS FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	
I	ARM	A	I	15.00	I	45.00	I	75.00	I	10.95	I	16.42	I	10.95
I	ARM	B	I	15.00	I	45.00	I	75.00	I	10.24	I	15.36	I	10.24
I	ARM	C	I	15.00	I	45.00	I	75.00	I	11.16	I	16.74	I	11.16

DEMAND SET TITLE: AM 2020 with Development

T33

TIME	TURNING PROPORTIONS			
	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45	ARM A	0.000	0.445	0.555
		0.0	390.0	486.0
		( 0.0)	( 2.0)	( 8.0)
	ARM B	0.708	0.000	0.292
		580.0	0.0	239.0
		( 1.0)	( 0.0)	( 0.0)
	ARM C	0.803	0.197	0.000
		717.0	176.0	0.0
		( 5.0)	( 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)
08.15-08.30									
ARM A	10.99	34.43	0.319	--	0.0	0.5	6.9	-	0.043
ARM B	10.28	27.87	0.369	--	0.0	0.6	8.5	-	0.057
ARM C	11.20	24.46	0.458	--	0.0	0.8	12.2	-	0.075
08.30-08.45									
ARM A	13.13	34.12	0.385	--	0.5	0.6	9.2	-	0.048
ARM B	12.27	27.01	0.454	--	0.6	0.8	12.1	-	0.068
ARM C	13.38	23.52	0.569	--	0.8	1.3	18.8	-	0.098
08.45-09.00									
ARM A	16.07	33.70	0.477	--	0.6	0.9	13.3	-	0.057
ARM B	15.03	25.85	0.581	--	0.8	1.4	19.8	-	0.092
ARM C	16.39	22.25	0.736	--	1.3	2.7	37.4	-	0.165
09.00-09.15									
ARM A	16.07	33.69	0.477	--	0.9	0.9	13.6	-	0.057
ARM B	15.03	25.84	0.582	--	1.4	1.4	20.6	-	0.093
ARM C	16.39	22.24	0.737	--	2.7	2.7	40.8	-	0.171
09.15-09.30									
ARM A	13.13	34.10	0.385	--	0.9	0.6	9.6	-	0.048
ARM B	12.27	27.00	0.454	--	1.4	0.8	12.9	-	0.068
ARM C	13.38	23.50	0.569	--	2.7	1.3	21.1	-	0.101
09.30-09.45									
ARM A	10.99	34.42	0.319	--	0.6	0.5	7.2	-	0.043
ARM B	10.28	27.85	0.369	--	0.8	0.6	9.0	-	0.057
ARM C	11.20	24.43	0.459	--	1.3	0.9	13.2	-	0.076

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.5
08.45	0.6 *
09.00	0.9 *
09.15	0.9 *
09.30	0.6 *
09.45	0.5

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES
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IN QUEUE

08.30	0.6	*
08.45	0.8	*
09.00	1.4	*
09.15	1.4	*
09.30	0.8	*
09.45	0.6	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.8	*
08.45	1.3	*
09.00	2.7	***
09.15	2.7	***
09.30	1.3	*
09.45	0.9	*

.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	1205.7	I	803.8	I	59.8	I	0.05	I
I	B	I	1127.3	I	751.5	I	83.0	I	0.07	I
I	C	I	1229.1	I	819.4	I	143.4	I	0.12	I
I	ALL	I	3562.2	I	2374.8	I	286.1	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