

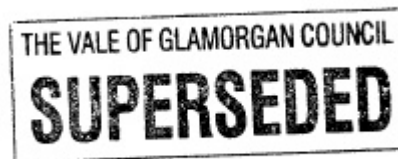
A R C A D Y 6

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\19.Y Rhodfa_Fford y Mileniwm\With Improvements\Ffordd y Mileniwm_Y Rhodfa.vai"
 (drive-on-the-left) at 17:10:37 on Thursday, 16 July 2009

.FILE PROPERTIES

RUN TITLE: Ffordd y Mileniwm / Morrisons Retail
 LOCATION:
 DATE: 16/07/09
 CLIENT:
 ENUMERATOR: Ryan.Hopkins [WACMSJQ2J]
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

.INPUT DATA

ARM A - Brummel Gardens (N)
 ARM B - Ffordd y Mileniwm (E)
 ARM C - Y Rhodfa (S)
 ARM D - Ffordd y Mileniwm (W)

.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	2.96	I	6.04	I	5.60	I	34.50	I	45.00	I	34.5	I	0.540	I	20.685	I
I	ARM B	I	3.84	I	8.60	I	11.70	I	30.00	I	45.00	I	25.5	I	0.666	I	30.787	I
I	ARM C	I	3.39	I	5.62	I	3.40	I	26.90	I	45.00	I	18.7	I	0.567	I	21.828	I
I	ARM D	I	3.76	I	6.51	I	3.70	I	23.90	I	45.00	I	22.2	I	0.586	I	23.908	I

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

.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
I	D	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 FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	RATE OF FLOW (VEH/MIN) BEFORE	I	AT TOP	I	AFTER
I		I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	0.86	I	1.29	I	0.86
I	ARM B	I	15.00	I	45.00	I	75.00	I	16.89	I	25.33	I	16.89
I	ARM C	I	15.00	I	45.00	I	75.00	I	0.63	I	0.94	I	0.63
I	ARM D	I	15.00	I	45.00	I	75.00	I	11.36	I	17.04	I	11.36

.DEMAND SET TITLE: PM 2020 with Development

----- T33

I		I	TURNING PROPORTIONS	I
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TIME	TURNING COUNTS (PERCENTAGE OF H.V.S)				
	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.493	0.000	0.507
		(0.0)	(34.0)	(0.0)	(35.0)
	ARM B	0.032	0.024	0.030	0.913
		(43.0)	(33.0)	(41.0)	(1234.0)
	ARM C	0.000	0.340	0.000	0.660
		(0.0)	(17.0)	(0.0)	(33.0)
	ARM D	0.052	0.923	0.025	0.000
		(47.0)	(839.0)	(23.0)	(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)
16.15-16.30									
ARM A	0.87	14.43	0.060	--	0.0	0.1	0.9	-	0.074
ARM B	16.95	30.03	0.564	--	0.0	1.3	18.5	-	0.075
ARM C	0.63	12.22	0.051	--	0.0	0.1	0.8	-	0.086
ARM D	11.41	22.81	0.500	--	0.0	1.0	14.3	-	0.087

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	1.03	13.19	0.078	--	0.1	0.1	1.2	-	0.082
ARM B	20.24	29.94	0.676	--	1.3	2.0	29.4	-	0.102
ARM C	0.75	10.33	0.073	--	0.1	0.1	1.1	-	0.104
ARM D	13.62	22.67	0.601	--	1.0	1.5	21.3	-	0.110

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	1.27	11.53	0.110	--	0.1	0.1	1.8	-	0.097
ARM B	24.79	29.81	0.832	--	2.0	4.6	62.3	-	0.187
ARM C	0.92	7.80	0.118	--	0.1	0.1	1.9	-	0.145
ARM D	16.68	22.50	0.741	--	1.5	2.8	38.4	-	0.167

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	1.27	11.49	0.110	--	0.1	0.1	1.8	-	0.098
ARM B	24.79	29.81	0.832	--	4.6	4.8	70.5	-	0.198
ARM C	0.92	7.71	0.119	--	0.1	0.1	2.0	-	0.147
ARM D	16.68	22.49	0.742	--	2.8	2.8	41.8	-	0.172

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	1.03	13.13	0.079	--	0.1	0.1	1.3	-	0.083
ARM B	20.24	29.93	0.676	--	4.8	2.1	34.0	-	0.107
ARM C	0.75	10.20	0.073	--	0.1	0.1	1.2	-	0.106
ARM D	13.62	22.67	0.601	--	2.8	1.5	24.1	-	0.113

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	0.87	14.38	0.060	--	0.1	0.1	1.0	-	0.074
ARM B	16.95	30.03	0.565	--	2.1	1.3	20.3	-	0.077
ARM C	0.63	12.14	0.052	--	0.1	0.1	0.8	-	0.087
ARM D	11.41	22.80	0.500	--	1.5	1.0	15.7	-	0.088

QUEUE AT ARM A

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

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	1.3 *
16.45	2.0 **
17.00	4.6 *****
17.15	4.8 *****
17.30	2.1 **
17.45	1.3 *

.QUEUE AT ARM C

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

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	1.0 *
16.45	1.5 **
17.00	2.8 ***
17.15	2.8 ***
17.30	1.5 **
17.45	1.0 *

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

----- T75											
I	ARM	I	TOTAL DEMAND		I	* QUEUEING * * DELAY *		I	* INCLUSIVE QUEUEING * * DELAY *		I
I	I	I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	I	(MIN)	(MIN/VEH)	I
I	A	I	95.0	I 63.3	I	8.1	I 0.09	I	8.1	I 0.09	I
I	B	I	1859.6	I 1239.7	I	235.0	I 0.13	I	235.1	I 0.13	I
I	C	I	68.8	I 45.9	I	7.9	I 0.11	I	7.9	I 0.11	I
I	D	I	1251.2	I 834.1	I	155.6	I 0.12	I	155.6	I 0.12	I
I	ALL	I	3274.5	I 2183.0	I	406.7	I 0.12	I	406.7	I 0.12	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