

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

(c) Copyright TRL Limited, 2004

Adapted from ARCADY/3 which is Crown Copyright
by permission of the controller of HMSO



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

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"j:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\
17.Cory Way_Ffordd y Mileniwm\with Improvements\Cory Way_Ffordd y Mileniwm Roundabout.vai"
(drive-on-the-left) at 16:57:27 on Thursday, 16 July 2009

.FILE PROPERTIES

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

.INPUT DATA

ARM A - Ffordd y Mileniwm (E)
ARM B - Cory Way (S)
ARM C - Ffordd y Mileniwm (W)
ARM D - Docks Office (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	3.65	I	8.50	I	20.00	I	30.00	I	40.00	I	15.5	I	0.734	I	34.370	I
I	ARM B	I	3.77	I	6.08	I	14.50	I	17.60	I	40.00	I	26.0	I	0.628	I	26.958	I
I	ARM C	I	3.63	I	6.44	I	13.50	I	60.00	I	40.00	I	6.0	I	0.696	I	29.960	I
I	ARM D	I	3.42	I	4.54	I	9.20	I	15.00	I	40.00	I	21.0	I	0.566	I	21.660	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	A	I	100
I	B	I	100
I	C	I	100
I	D	I	100

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	I	I	I	
I	I	I	FLOW STARTS	I	I	I	I	I	I	I	I	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	
I	I	I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	
I	ARM A	I	15.00	I	45.00	I	75.00	I	17.14	I	25.71	I	17.14
I	ARM B	I	15.00	I	45.00	I	75.00	I	2.17	I	3.26	I	2.17
I	ARM C	I	15.00	I	45.00	I	75.00	I	12.76	I	19.14	I	12.76
I	ARM D	I	15.00	I	45.00	I	75.00	I	0.95	I	1.42	I	0.95

.DEMAND SET TITLE: PM 2020 with Development

----- T33		
I	I	TURNING PROPORTIONS
I	I	I

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	0.020	0.939	0.042
		(0.0)	(27.0)	(1287.0)	(57.0)
		(0.0)	(62.0)	(1.0)	(0.0)
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.506	0.000	0.460	0.034
		(88.0)	(0.0)	(80.0)	(6.0)
		(21.0)	(0.0)	(0.0)	(20.0)
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.869	0.127	0.000	0.004
		(887.0)	(130.0)	(0.0)	(4.0)
		(1.0)	(24.0)	(0.0)	(0.0)
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.855	0.000	0.145	0.000
		(65.0)	(0.0)	(11.0)	(0.0)
		(0.0)	(0.0)	(0.0)	(0.0)
		(0.0)	(0.0)	(0.0)	(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	17.20	32.10	0.536	--	0.0	1.1	16.6	-	0.066
ARM B	2.18	14.58	0.150	--	0.0	0.2	2.6	-	0.081
ARM C	12.81	27.40	0.468	--	0.0	0.9	12.7	-	0.068
ARM D	0.95	13.43	0.071	--	0.0	0.1	1.1	-	0.080

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	20.54	31.79	0.646	--	1.1	1.8	26.0	-	0.088
ARM B	2.61	12.69	0.205	--	0.2	0.3	3.8	-	0.099
ARM C	15.30	27.12	0.564	--	0.9	1.3	18.6	-	0.084
ARM D	1.14	11.80	0.096	--	0.1	0.1	1.6	-	0.094

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	25.16	31.38	0.802	--	1.8	3.8	53.1	-	0.154
ARM B	3.19	10.14	0.315	--	0.3	0.5	6.6	-	0.144
ARM C	18.74	26.74	0.701	--	1.3	2.3	32.4	-	0.123
ARM D	1.39	9.61	0.145	--	0.1	0.2	2.5	-	0.122

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	25.16	31.37	0.802	--	3.8	3.9	58.6	-	0.160
ARM B	3.19	10.07	0.317	--	0.5	0.5	6.9	-	0.145
ARM C	18.74	26.73	0.701	--	2.3	2.3	34.5	-	0.125
ARM D	1.39	9.57	0.146	--	0.2	0.2	2.5	-	0.122

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	20.54	31.78	0.646	--	3.9	1.9	29.3	-	0.091
ARM B	2.61	12.59	0.207	--	0.5	0.3	4.1	-	0.100
ARM C	15.30	27.11	0.564	--	2.3	1.3	20.4	-	0.086
ARM D	1.14	11.74	0.097	--	0.2	0.1	1.7	-	0.094

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	17.20	32.09	0.536	--	1.9	1.2	18.0	-	0.068
ARM B	2.18	14.52	0.150	--	0.3	0.2	2.7	-	0.081
ARM C	12.81	27.39	0.468	--	1.3	0.9	13.6	-	0.069
ARM D	0.95	13.37	0.071	--	0.1	0.1	1.2	-	0.081

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	1.1 *
16.45	1.8 **
17.00	3.8 ****
17.15	3.9 ****
17.30	1.9 **
17.45	1.2 *

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.2
16.45	0.3
17.00	0.5
17.15	0.5
17.30	0.3
17.45	0.2

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.9 *
16.45	1.3 *
17.00	2.3 **
17.15	2.3 **
17.30	1.3 *
17.45	0.9 *

.QUEUE AT ARM D

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

.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	1887.1	I	1258.1	I	201.5	I	0.11	I	201.5	I	0.11	I
I	B	I	239.5	I	159.7	I	26.5	I	0.11	I	26.5	I	0.11	I
I	C	I	1405.3	I	936.9	I	132.2	I	0.09	I	132.2	I	0.09	I
I	D	I	104.6	I	69.7	I	10.5	I	0.10	I	10.5	I	0.10	I
I	ALL	I	3636.5	I	2424.3	I	370.7	I	0.10	I	370.8	I	0.10	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