_____ 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

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\12.Barry Rd_Ty Newydd Rd\Barry Rd_TyNewydd Rd Roundabout.vai"
(drive-on-the-left) at 16:23:55 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Barry Rd_Ty Newydd Rd Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cemetery Road (N)
ARM B - Barry Rd (E)
ARM C - Ty-newydd Rd (S)
ARM D - Barry Rd (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.60	4.60	0.00	11.70	18.50	28.3	0.584	22.561
ARM B	3.86	4.80	22.00	11.80	18.50	23.6	0.600	23.390
ARM C	4.70	4.70	0.00	8.00	18.50	32.9	0.557	21.755
ARM D	4.02	4.40	0.10	10.30	18.50	28.7	0.544	19.597

V = approach half-width E = 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

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

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 2008 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS TO RISE	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	0.50	0.75	0.50
ARM B	15.00	45.00	75.00	6.13	9.19	6.13
ARM C	15.00	45.00	75.00	3.36	5.04	3.36
ARM D	15.00	45.00	75.00	7.11	10.67	7.11

DEMAND SET TITLE: AM 2008 Base

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
08.15 - 09.45					
	ARM A	0.000	0.725	0.200	0.075
		0.0	29.0	8.0	3.0
		(0.0)	(17.0)	(0.0)	(0.0)
	ARM B	0.006	0.000	0.267	0.727
		3.0	0.0	131.0	356.0
		(0.0)	(0.0)	(4.0)	(3.0)
	ARM C	0.033	0.361	0.000	0.606
		9.0	97.0	0.0	163.0
		(33.0)	(11.0)	(0.0)	(4.0)
	ARM D	0.007	0.448	0.545	0.000
		4.0	255.0	310.0	0.0
		(0.0)	(2.0)	(2.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	0.50	15.65	0.032	- -	0.0	0.0	0.5	-	0.066
ARM B	6.15	20.28	0.303	- -	0.0	0.4	6.3	-	0.070
ARM C	3.38	17.83	0.189	- -	0.0	0.2	3.4	-	0.069
ARM D	7.14	18.40	0.388	- -	0.0	0.6	9.1	-	0.088
08.30-08.45									
ARM A	0.60	14.76	0.041	- -	0.0	0.0	0.6	-	0.071
ARM B	7.34	19.81	0.371	- -	0.4	0.6	8.6	-	0.080
ARM C	4.03	17.35	0.232	- -	0.2	0.3	4.4	-	0.075
ARM D	8.53	18.24	0.467	- -	0.6	0.9	12.6	-	0.102
08.45-09.00									
ARM A	0.73	13.57	0.054	- -	0.0	0.1	0.8	-	0.078
ARM B	8.99	19.18	0.469	- -	0.6	0.9	12.7	-	0.098
ARM C	4.94	16.70	0.296	- -	0.3	0.4	6.1	-	0.085
ARM D	10.44	18.02	0.579	- -	0.9	1.4	19.4	-	0.131
09.00-09.15									
ARM A	0.73	13.56	0.054	- -	0.1	0.1	0.9	-	0.078
ARM B	8.99	19.17	0.469	- -	0.9	0.9	13.1	-	0.098
ARM C	4.94	16.69	0.296	- -	0.4	0.4	6.3	-	0.085
ARM D	10.44	18.02	0.580	- -	1.4	1.4	20.4	-	0.132
09.15-09.30									
ARM A	0.60	14.74	0.041	- -	0.1	0.0	0.6	-	0.071
ARM B	7.34	19.80	0.371	- -	0.9	0.6	9.1	-	0.081
ARM C	4.03	17.34	0.232	- -	0.4	0.3	4.7	-	0.075
ARM D	8.53	18.23	0.468	- -	1.4	0.9	13.8	-	0.104
09.30-09.45									
ARM A	0.50	15.61	0.032	- -	0.0	0.0	0.5	-	0.066
ARM B	6.15	20.26	0.303	- -	0.6	0.4	6.7	-	0.071
ARM C	3.38	17.81	0.190	- -	0.3	0.2	3.6	-	0.069
ARM D	7.14	18.39	0.388	- -	0.9	0.6	9.9	-	0.089

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0

09.00	0.1
09.15	0.1
09.30	0.0
09.45	0.0

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.4	
08.45	0.6	*
09.00	0.9	*
09.15	0.9	*
09.30	0.6	*
09.45	0.4	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.2
08.45	0.3
09.00	0.4
09.15	0.4
09.30	0.3
09.45	0.2

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.6	*
08.45	0.9	*
09.00	1.4	*
09.15	1.4	*
09.30	0.9	*
09.45	0.6	*

.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	55.1	36.7	4.0	0.07	4.0	0.07
B	674.4	449.6	56.6	0.08	56.6	0.08
C	370.3	246.8	28.5	0.08	28.5	0.08
D	783.2	522.1	85.2	0.11	85.2	0.11
ALL	1883.0	1255.3	174.2	0.09	174.2	0.09

* 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.
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END OF JOB

_____ A R C A D Y 6 _____

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.FILE PROPERTIES
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RUN TITLE: Barry Rd_Ty Newydd Rd Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cemetery Road (N)
ARM B - Barry Rd (E)
ARM C - Ty-newydd Rd (S)
ARM D - Barry Rd (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.60	4.60	0.00	11.70	18.50	28.3	0.584	22.561
ARM B	3.86	4.80	22.00	11.80	18.50	23.6	0.600	23.390
ARM C	4.70	4.70	0.00	8.00	18.50	32.9	0.557	21.755
ARM D	4.02	4.40	0.10	10.30	18.50	28.7	0.544	19.597

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

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 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	0.96	1.44	0.96
ARM B	15.00	45.00	75.00	7.14	10.71	7.14
ARM C	15.00	45.00	75.00	3.91	5.87	3.91
ARM D	15.00	45.00	75.00	8.29	12.43	8.29

DEMAND SET TITLE: AM 2020 Base

T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
08.15 - 09.45	ARM A	0.000	0.442	0.117	0.442
		0.0	34.0	9.0	34.0
		(0.0)	(17.0)	(0.0)	(0.0)
	ARM B	0.005	0.000	0.268	0.727
		3.0	0.0	153.0	415.0
		(0.0)	(0.0)	(4.0)	(3.0)
	ARM C	0.032	0.361	0.000	0.607
		10.0	113.0	0.0	190.0
		(33.0)	(11.0)	(0.0)	(4.0)
	ARM D	0.008	0.448	0.544	0.000
		5.0	297.0	361.0	0.0
		(0.0)	(2.0)	(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)
08.15-08.30									
ARM A	0.97	15.59	0.062	- - -	0.0	0.1	1.0	-	0.068
ARM B	7.16	19.67	0.364	- - -	0.0	0.6	8.3	-	0.079
ARM C	3.93	17.24	0.228	- - -	0.0	0.3	4.3	-	0.075
ARM D	8.32	18.27	0.455	- - -	0.0	0.8	11.9	-	0.099
08.30-08.45									
ARM A	1.15	14.51	0.079	- - -	0.1	0.1	1.3	-	0.075
ARM B	8.56	19.08	0.448	- - -	0.6	0.8	11.7	-	0.095
ARM C	4.69	16.64	0.282	- - -	0.3	0.4	5.7	-	0.084
ARM D	9.93	18.09	0.549	- - -	0.8	1.2	17.3	-	0.122
08.45-09.00									
ARM A	1.41	13.08	0.108	- - -	0.1	0.1	1.8	-	0.086
ARM B	10.48	18.29	0.573	- - -	0.8	1.3	18.9	-	0.127
ARM C	5.74	15.84	0.363	- - -	0.4	0.6	8.2	-	0.099
ARM D	12.17	17.83	0.682	- - -	1.2	2.1	29.2	-	0.173
09.00-09.15									
ARM A	1.41	13.04	0.108	- - -	0.1	0.1	1.8	-	0.086
ARM B	10.48	18.27	0.574	- - -	1.3	1.3	19.9	-	0.128
ARM C	5.74	15.83	0.363	- - -	0.6	0.6	8.5	-	0.099
ARM D	12.17	17.83	0.682	- - -	2.1	2.1	31.4	-	0.176
09.15-09.30									
ARM A	1.15	14.46	0.080	- - -	0.1	0.1	1.3	-	0.075
ARM B	8.56	19.05	0.449	- - -	1.3	0.8	12.8	-	0.096
ARM C	4.69	16.62	0.282	- - -	0.6	0.4	6.1	-	0.084
ARM D	9.93	18.08	0.549	- - -	2.1	1.2	19.5	-	0.124
09.30-09.45									
ARM A	0.97	15.54	0.062	- - -	0.1	0.1	1.0	-	0.069
ARM B	7.16	19.65	0.365	- - -	0.8	0.6	8.9	-	0.080
ARM C	3.93	17.22	0.228	- - -	0.4	0.3	4.5	-	0.075
ARM D	8.32	18.27	0.455	- - -	1.2	0.8	13.1	-	0.101

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1

09.00	0.1
09.15	0.1
09.30	0.1
09.45	0.1

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.6	*
08.45	0.8	*
09.00	1.3	*
09.15	1.3	*
09.30	0.8	*
09.45	0.6	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.3	
08.45	0.4	
09.00	0.6	*
09.15	0.6	*
09.30	0.4	
09.45	0.3	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.8	*
08.45	1.2	*
09.00	2.1	**
09.15	2.1	**
09.30	1.2	*
09.45	0.8	*

.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	106.0	70.7	8.2	0.08	8.2	0.08
B	785.9	524.0	80.5	0.10	80.5	0.10
C	430.8	287.2	37.3	0.09	37.3	0.09
D	912.6	608.4	122.4	0.13	122.5	0.13
ALL	2235.3	1490.2	248.4	0.11	248.4	0.11

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END OF JOB

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RUN TITLE: Barry Rd_Ty Newydd Rd Roundabout
LOCATION:
DATE: 06/04/10
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JOB NUMBER:
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DESCRIPTION:

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ARM A - Cemetery Road (N)
ARM B - Barry Rd (E)
ARM C - Ty-newydd Rd (S)
ARM D - Barry Rd (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.60	4.60	0.00	11.70	18.50	28.3	0.584	22.561
ARM B	3.86	4.80	22.00	11.80	18.50	23.6	0.600	23.390
ARM C	4.70	4.70	0.00	8.00	18.50	32.9	0.557	21.755
ARM D	4.02	4.40	0.10	10.30	18.50	28.7	0.544	19.597

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

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T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(08.15)AND ENDS(09.45)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

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.DEMAND SET TITLE: AM 2020 With Development

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
	TO RISE	IS REACHED	FALLING			
ARM A	15.00	45.00	75.00	0.57	0.86	0.57
ARM B	15.00	45.00	75.00	7.94	11.91	7.94
ARM C	15.00	45.00	75.00	4.41	6.62	4.41
ARM D	15.00	45.00	75.00	8.79	13.18	8.79

DEMAND SET TITLE: AM 2020 With Development

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
08.15 - 09.45					
	ARM A	0.000	0.739	0.196	0.065
		0.0	34.0	9.0	3.0
		(0.0)	(17.0)	(0.0)	(0.0)
	ARM B	0.005	0.000	0.291	0.704
		3.0	0.0	185.0	447.0
		(0.0)	(0.0)	(4.0)	(3.0)
	ARM C	0.028	0.433	0.000	0.538
		10.0	153.0	0.0	190.0
		(33.0)	(11.0)	(0.0)	(4.0)
	ARM D	0.007	0.479	0.514	0.000
		5.0	337.0	361.0	0.0
		(0.0)	(2.0)	(2.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	0.58	14.34	0.040	- -	0.0	0.0	0.6	-	0.073
ARM B	7.97	19.90	0.400	- -	0.0	0.7	9.6	-	0.083
ARM C	4.43	17.16	0.258	- -	0.0	0.3	5.0	-	0.078
ARM D	8.82	17.98	0.491	- -	0.0	0.9	13.6	-	0.108
08.30-08.45									
ARM A	0.69	13.20	0.052	- -	0.0	0.1	0.8	-	0.080
ARM B	9.51	19.35	0.492	- -	0.7	1.0	13.9	-	0.101
ARM C	5.29	16.57	0.319	- -	0.3	0.5	6.8	-	0.088
ARM D	10.53	17.73	0.594	- -	0.9	1.4	20.6	-	0.138
08.45-09.00									
ARM A	0.84	11.69	0.072	- -	0.1	0.1	1.1	-	0.092
ARM B	11.65	18.62	0.626	- -	1.0	1.6	23.3	-	0.142
ARM C	6.48	15.77	0.411	- -	0.5	0.7	10.0	-	0.107
ARM D	12.90	17.40	0.741	- -	1.4	2.7	37.6	-	0.214
09.00-09.15									
ARM A	0.84	11.65	0.072	- -	0.1	0.1	1.2	-	0.093
ARM B	11.65	18.60	0.627	- -	1.6	1.7	24.7	-	0.144
ARM C	6.48	15.75	0.411	- -	0.7	0.7	10.4	-	0.108
ARM D	12.90	17.40	0.742	- -	2.7	2.8	41.5	-	0.222
09.15-09.30									
ARM A	0.69	13.14	0.052	- -	0.1	0.1	0.9	-	0.080
ARM B	9.51	19.31	0.493	- -	1.7	1.0	15.3	-	0.103
ARM C	5.29	16.54	0.320	- -	0.7	0.5	7.3	-	0.089
ARM D	10.53	17.73	0.594	- -	2.8	1.5	23.7	-	0.142
09.30-09.45									
ARM A	0.58	14.28	0.040	- -	0.1	0.0	0.6	-	0.073
ARM B	7.97	19.87	0.401	- -	1.0	0.7	10.4	-	0.084
ARM C	4.43	17.14	0.258	- -	0.5	0.4	5.4	-	0.079
ARM D	8.82	17.97	0.491	- -	1.5	1.0	15.2	-	0.110

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.1

09.00	0.1
09.15	0.1
09.30	0.1
09.45	0.0

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.7	*
08.45	1.0	*
09.00	1.6	**
09.15	1.7	**
09.30	1.0	*
09.45	0.7	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.3	
08.45	0.5	
09.00	0.7	*
09.15	0.7	*
09.30	0.5	
09.45	0.4	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.9	*
08.45	1.4	*
09.00	2.7	***
09.15	2.8	***
09.30	1.5	*
09.45	1.0	*

.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	63.3	42.2	5.2	0.08	5.2	0.08
B	874.0	582.7	97.2	0.11	97.2	0.11
C	485.9	323.9	45.0	0.09	45.0	0.09
D	967.6	645.1	152.2	0.16	152.2	0.16
ALL	2390.9	1593.9	299.5	0.13	299.6	0.13

* 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

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
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Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\12.Barry Rd_Ty Newydd Rd\Barry Rd_TyNewydd Rd Roundabout.vai"
(drive-on-the-left) at 16:25:29 on Tuesday, 6 April 2010

.FILE PROPERTIES

RUN TITLE: Barry Rd_Ty Newydd Rd Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA

ARM A - Cemetery Road (N)
ARM B - Barry Rd (E)
ARM C - Ty-newydd Rd (S)
ARM D - Barry Rd (W)

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.60	4.60	0.00	11.70	18.50	28.3	0.584	22.561
ARM B	3.86	4.80	22.00	11.80	18.50	23.6	0.600	23.390
ARM C	4.70	4.70	0.00	8.00	18.50	32.9	0.557	21.755
ARM D	4.02	4.40	0.10	10.30	18.50	28.7	0.544	19.597

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 2008 Base

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	0.19	0.28	0.19
ARM B	15.00	45.00	75.00	5.20	7.80	5.20
ARM C	15.00	45.00	75.00	4.46	6.69	4.46
ARM D	15.00	45.00	75.00	5.70	8.55	5.70

DEMAND SET TITLE: PM 2008 Base

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45					
	ARM A	0.000	0.600	0.267	0.133
		0.0	9.0	4.0	2.0
		(0.0)	(11.0)	(25.0)	(0.0)
	ARM B	0.007	0.000	0.195	0.798
		3.0	0.0	81.0	332.0
		(0.0)	(0.0)	(7.0)	(1.0)
	ARM C	0.014	0.294	0.000	0.692
		5.0	105.0	0.0	247.0
		(40.0)	(9.0)	(0.0)	(1.0)
	ARM D	0.022	0.581	0.397	0.000
		10.0	265.0	181.0	0.0
		(0.0)	(1.0)	(3.0)	(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	0.19	16.26	0.012	- -	0.0	0.0	0.2	-	0.062
ARM B	5.22	21.48	0.243	- -	0.0	0.3	4.7	-	0.061
ARM C	4.48	18.66	0.240	- -	0.0	0.3	4.6	-	0.070
ARM D	5.72	18.43	0.311	- -	0.0	0.4	6.5	-	0.078
16.30-16.45									
ARM A	0.22	15.53	0.014	- -	0.0	0.0	0.2	-	0.065
ARM B	6.23	21.20	0.294	- -	0.3	0.4	6.1	-	0.067
ARM C	5.35	18.21	0.294	- -	0.3	0.4	6.1	-	0.078
ARM D	6.83	18.26	0.374	- -	0.4	0.6	8.7	-	0.087
16.45-17.00									
ARM A	0.28	14.55	0.019	- -	0.0	0.0	0.3	-	0.070
ARM B	7.63	20.82	0.367	- -	0.4	0.6	8.4	-	0.076
ARM C	6.55	17.59	0.372	- -	0.4	0.6	8.6	-	0.090
ARM D	8.37	18.04	0.464	- -	0.6	0.9	12.4	-	0.103
17.00-17.15									
ARM A	0.28	14.54	0.019	- -	0.0	0.0	0.3	-	0.070
ARM B	7.63	20.81	0.367	- -	0.6	0.6	8.6	-	0.076
ARM C	6.55	17.59	0.372	- -	0.6	0.6	8.8	-	0.091
ARM D	8.37	18.04	0.464	- -	0.9	0.9	12.9	-	0.103
17.15-17.30									
ARM A	0.22	15.51	0.014	- -	0.0	0.0	0.2	-	0.065
ARM B	6.23	21.19	0.294	- -	0.6	0.4	6.4	-	0.067
ARM C	5.35	18.20	0.294	- -	0.6	0.4	6.4	-	0.078
ARM D	6.83	18.26	0.374	- -	0.9	0.6	9.3	-	0.088
17.30-17.45									
ARM A	0.19	16.23	0.012	- -	0.0	0.0	0.2	-	0.062
ARM B	5.22	21.47	0.243	- -	0.4	0.3	4.9	-	0.062
ARM C	4.48	18.65	0.240	- -	0.4	0.3	4.9	-	0.071
ARM D	5.72	18.42	0.311	- -	0.6	0.5	7.0	-	0.079

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0

17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.3	
16.45	0.4	
17.00	0.6	*
17.15	0.6	*
17.30	0.4	
17.45	0.3	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.3	
16.45	0.4	
17.00	0.6	*
17.15	0.6	*
17.30	0.4	
17.45	0.3	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.6	*
17.00	0.9	*
17.15	0.9	*
17.30	0.6	*
17.45	0.5	

.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	20.6	13.8	1.4	0.07	1.4	0.07
B	572.6	381.7	39.2	0.07	39.2	0.07
C	491.4	327.6	39.4	0.08	39.4	0.08
D	627.7	418.4	56.8	0.09	56.8	0.09
ALL	1712.3	1141.5	136.7	0.08	136.7	0.08

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\12.Barry Rd_Ty Newydd Rd\Barry Rd_TyNewydd Rd Roundabout.vai"
(drive-on-the-left) at 16:26:05 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Barry Rd_Ty Newydd Rd Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cemetery Road (N)
ARM B - Barry Rd (E)
ARM C - Ty-newydd Rd (S)
ARM D - Barry Rd (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.60	4.60	0.00	11.70	18.50	28.3	0.584	22.561
ARM B	3.86	4.80	22.00	11.80	18.50	23.6	0.600	23.390
ARM C	4.70	4.70	0.00	8.00	18.50	32.9	0.557	21.755
ARM D	4.02	4.40	0.10	10.30	18.50	28.7	0.544	19.597

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	0.21	0.32	0.21
ARM B	15.00	45.00	75.00	6.04	9.06	6.04
ARM C	15.00	45.00	75.00	5.19	7.78	5.19
ARM D	15.00	45.00	75.00	6.63	9.94	6.63

DEMAND SET TITLE: PM 2020 Base

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45					
	ARM A	0.000	0.588	0.294	0.118
		0.0	10.0	5.0	2.0
		(0.0)	(11.0)	(25.0)	(0.0)
	ARM B	0.006	0.000	0.195	0.799
		3.0	0.0	94.0	386.0
		(0.0)	(0.0)	(7.0)	(1.0)
	ARM C	0.014	0.294	0.000	0.692
		6.0	122.0	0.0	287.0
		(40.0)	(9.0)	(0.0)	(1.0)
	ARM D	0.023	0.581	0.396	0.000
		12.0	308.0	210.0	0.0
		(0.0)	(1.0)	(3.0)	(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	0.21	15.59	0.014	- - -	0.0	0.0	0.2	-	0.065
ARM B	6.06	21.25	0.285	- - -	0.0	0.4	5.8	-	0.066
ARM C	5.21	18.29	0.285	- - -	0.0	0.4	5.8	-	0.076
ARM D	6.65	18.29	0.364	- - -	0.0	0.6	8.2	-	0.085
16.30-16.45									
ARM A	0.25	14.75	0.017	- - -	0.0	0.0	0.3	-	0.069
ARM B	7.24	20.92	0.346	- - -	0.4	0.5	7.7	-	0.073
ARM C	6.22	17.77	0.350	- - -	0.4	0.5	7.8	-	0.086
ARM D	7.94	18.10	0.439	- - -	0.6	0.8	11.3	-	0.098
16.45-17.00									
ARM A	0.31	13.62	0.023	- - -	0.0	0.0	0.3	-	0.075
ARM B	8.86	20.48	0.433	- - -	0.5	0.8	11.0	-	0.086
ARM C	7.62	17.06	0.446	- - -	0.5	0.8	11.6	-	0.105
ARM D	9.73	17.84	0.545	- - -	0.8	1.2	17.0	-	0.122
17.00-17.15									
ARM A	0.31	13.60	0.023	- - -	0.0	0.0	0.4	-	0.075
ARM B	8.86	20.48	0.433	- - -	0.8	0.8	11.4	-	0.086
ARM C	7.62	17.05	0.447	- - -	0.8	0.8	12.0	-	0.106
ARM D	9.73	17.84	0.545	- - -	1.2	1.2	17.8	-	0.123
17.15-17.30									
ARM A	0.25	14.73	0.017	- - -	0.0	0.0	0.3	-	0.069
ARM B	7.24	20.91	0.346	- - -	0.8	0.5	8.2	-	0.073
ARM C	6.22	17.76	0.350	- - -	0.8	0.5	8.4	-	0.087
ARM D	7.94	18.10	0.439	- - -	1.2	0.8	12.2	-	0.099
17.30-17.45									
ARM A	0.21	15.56	0.014	- - -	0.0	0.0	0.2	-	0.065
ARM B	6.06	21.24	0.285	- - -	0.5	0.4	6.1	-	0.066
ARM C	5.21	18.27	0.285	- - -	0.5	0.4	6.1	-	0.077
ARM D	6.65	18.29	0.364	- - -	0.8	0.6	8.9	-	0.086

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0

17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	*
17.00	0.8	*
17.15	0.8	*
17.30	0.5	*
17.45	0.4	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	*
17.00	0.8	*
17.15	0.8	*
17.30	0.5	*
17.45	0.4	

.QUEUE AT ARM D

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

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	23.4	15.6	1.6	0.07	1.6	0.07
B	664.8	443.2	50.3	0.08	50.3	0.08
C	571.2	380.8	51.7	0.09	51.7	0.09
D	729.5	486.3	75.4	0.10	75.4	0.10
ALL	1988.9	1326.0	178.9	0.09	179.0	0.09

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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program advice and maintenance, contact:

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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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
12.Barry Rd_Ty Newydd Rd\Barry Rd_TyNewydd Rd Roundabout.vai"
(drive-on-the-left) at 11:55:33 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Barry Rd_Ty Newydd Rd Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cemetery Road (N)
ARM B - Barry Rd (E)
ARM C - Ty-newydd Rd (S)
ARM D - Barry Rd (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.60	4.60	0.00	11.70	18.50	28.3	0.584	22.561
ARM B	3.86	4.80	22.00	11.80	18.50	23.6	0.600	23.390
ARM C	4.70	4.70	0.00	8.00	18.50	32.9	0.557	21.755
ARM D	4.02	4.40	0.10	10.30	18.50	28.7	0.544	19.597

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 Base +tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK FLOW IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	0.21	0.32	0.21
ARM B	15.00	45.00	75.00	6.04	9.06	6.04
ARM C	15.00	45.00	75.00	5.19	7.78	5.19
ARM D	15.00	45.00	75.00	6.63	9.94	6.63

DEMAND SET TITLE: PM 2020 Base +tourism

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45					
	ARM A	0.000	0.588	0.294	0.118
		0.0	10.0	5.0	2.0
		(0.0)	(11.0)	(25.0)	(0.0)
	ARM B	0.006	0.000	0.195	0.799
		3.0	0.0	94.0	386.0
		(0.0)	(0.0)	(7.0)	(1.0)
	ARM C	0.014	0.294	0.000	0.692
		6.0	122.0	0.0	287.0
		(40.0)	(9.0)	(0.0)	(1.0)
	ARM D	0.023	0.581	0.396	0.000
		12.0	308.0	210.0	0.0
		(0.0)	(1.0)	(3.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	0.21	15.59	0.014	- - -	0.0	0.0	0.2	-	0.065
ARM B	6.06	21.25	0.285	- - -	0.0	0.4	5.8	-	0.066
ARM C	5.21	18.29	0.285	- - -	0.0	0.4	5.8	-	0.076
ARM D	6.65	18.29	0.364	- - -	0.0	0.6	8.2	-	0.085
16.30-16.45									
ARM A	0.25	14.75	0.017	- - -	0.0	0.0	0.3	-	0.069
ARM B	7.24	20.92	0.346	- - -	0.4	0.5	7.7	-	0.073
ARM C	6.22	17.77	0.350	- - -	0.4	0.5	7.8	-	0.086
ARM D	7.94	18.10	0.439	- - -	0.6	0.8	11.3	-	0.098
16.45-17.00									
ARM A	0.31	13.62	0.023	- - -	0.0	0.0	0.3	-	0.075
ARM B	8.86	20.48	0.433	- - -	0.5	0.8	11.0	-	0.086
ARM C	7.62	17.06	0.446	- - -	0.5	0.8	11.6	-	0.105
ARM D	9.73	17.84	0.545	- - -	0.8	1.2	17.0	-	0.122
17.00-17.15									
ARM A	0.31	13.60	0.023	- - -	0.0	0.0	0.4	-	0.075
ARM B	8.86	20.48	0.433	- - -	0.8	0.8	11.4	-	0.086
ARM C	7.62	17.05	0.447	- - -	0.8	0.8	12.0	-	0.106
ARM D	9.73	17.84	0.545	- - -	1.2	1.2	17.8	-	0.123
17.15-17.30									
ARM A	0.25	14.73	0.017	- - -	0.0	0.0	0.3	-	0.069
ARM B	7.24	20.91	0.346	- - -	0.8	0.5	8.2	-	0.073
ARM C	6.22	17.76	0.350	- - -	0.8	0.5	8.4	-	0.087
ARM D	7.94	18.10	0.439	- - -	1.2	0.8	12.2	-	0.099
17.30-17.45									
ARM A	0.21	15.56	0.014	- - -	0.0	0.0	0.2	-	0.065
ARM B	6.06	21.24	0.285	- - -	0.5	0.4	6.1	-	0.066
ARM C	5.21	18.27	0.285	- - -	0.5	0.4	6.1	-	0.077
ARM D	6.65	18.29	0.364	- - -	0.8	0.6	8.9	-	0.086

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0

16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	*
17.00	0.8	*
17.15	0.8	*
17.30	0.5	*
17.45	0.4	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	*
17.00	0.8	*
17.15	0.8	*
17.30	0.5	*
17.45	0.4	

.QUEUE AT ARM D

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

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	23.4	15.6	1.6	0.07	1.6	0.07	
B	664.8	443.2	50.3	0.08	50.3	0.08	
C	571.2	380.8	51.7	0.09	51.7	0.09	
D	729.5	486.3	75.4	0.10	75.4	0.10	
ALL	1988.9	1326.0	178.9	0.09	179.0	0.09	

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

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Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
12.Barry Rd_Ty Newydd Rd\Barry Rd_TyNewydd Rd Roundabout.vai"
(drive-on-the-left) at 17:09:52 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Barry Rd_Ty Newydd Rd Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cemetery Road (N)
ARM B - Barry Rd (E)
ARM C - Ty-newydd Rd (S)
ARM D - Barry Rd (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.60	4.60	0.00	11.70	18.50	28.3	0.584	22.561
ARM B	3.86	4.80	22.00	11.80	18.50	23.6	0.600	23.390
ARM C	4.70	4.70	0.00	8.00	18.50	32.9	0.557	21.755
ARM D	4.02	4.40	0.10	10.30	18.50	28.7	0.544	19.597

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	0.21	0.32	0.21
ARM B	15.00	45.00	75.00	7.10	10.65	7.10
ARM C	15.00	45.00	75.00	5.66	8.49	5.66
ARM D	15.00	45.00	75.00	7.10	10.65	7.10

DEMAND SET TITLE: PM 2020 With Development

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45					
	ARM A	0.000	0.588	0.294	0.118
		0.0	10.0	5.0	2.0
		(0.0)	(11.0)	(25.0)	(0.0)
	ARM B	0.005	0.000	0.241	0.754
		3.0	0.0	137.0	428.0
		(0.0)	(0.0)	(7.0)	(1.0)
	ARM C	0.013	0.353	0.000	0.634
		6.0	160.0	0.0	287.0
		(40.0)	(9.0)	(0.0)	(1.0)
	ARM D	0.021	0.609	0.370	0.000
		12.0	346.0	210.0	0.0
		(0.0)	(1.0)	(3.0)	(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	0.21	15.08	0.014	- - -	0.0	0.0	0.2	-	0.067
ARM B	7.13	21.19	0.336	- - -	0.0	0.5	7.3	-	0.071
ARM C	5.68	17.93	0.317	- - -	0.0	0.5	6.7	-	0.081
ARM D	7.13	18.03	0.395	- - -	0.0	0.6	9.4	-	0.091
16.30-16.45									
ARM A	0.25	14.14	0.018	- - -	0.0	0.0	0.3	-	0.072
ARM B	8.51	20.87	0.408	- - -	0.5	0.7	10.0	-	0.081
ARM C	6.79	17.36	0.391	- - -	0.5	0.6	9.3	-	0.094
ARM D	8.51	17.78	0.479	- - -	0.6	0.9	13.2	-	0.107
16.45-17.00									
ARM A	0.31	12.87	0.024	- - -	0.0	0.0	0.4	-	0.080
ARM B	10.42	20.43	0.510	- - -	0.7	1.0	14.9	-	0.099
ARM C	8.31	16.57	0.502	- - -	0.6	1.0	14.3	-	0.120
ARM D	10.42	17.45	0.597	- - -	0.9	1.5	20.8	-	0.141
17.00-17.15									
ARM A	0.31	12.85	0.024	- - -	0.0	0.0	0.4	-	0.080
ARM B	10.42	20.42	0.510	- - -	1.0	1.0	15.5	-	0.100
ARM C	8.31	16.56	0.502	- - -	1.0	1.0	14.9	-	0.121
ARM D	10.42	17.44	0.597	- - -	1.5	1.5	21.9	-	0.142
17.15-17.30									
ARM A	0.25	14.11	0.018	- - -	0.0	0.0	0.3	-	0.072
ARM B	8.51	20.85	0.408	- - -	1.0	0.7	10.7	-	0.081
ARM C	6.79	17.34	0.391	- - -	1.0	0.6	10.0	-	0.095
ARM D	8.51	17.77	0.479	- - -	1.5	0.9	14.5	-	0.109
17.30-17.45									
ARM A	0.21	15.04	0.014	- - -	0.0	0.0	0.2	-	0.067
ARM B	7.13	21.18	0.337	- - -	0.7	0.5	7.8	-	0.071
ARM C	5.68	17.91	0.317	- - -	0.6	0.5	7.2	-	0.082
ARM D	7.13	18.02	0.396	- - -	0.9	0.7	10.2	-	0.092

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0

17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	*
16.45	0.7	*
17.00	1.0	*
17.15	1.0	*
17.30	0.7	*
17.45	0.5	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	
16.45	0.6	*
17.00	1.0	*
17.15	1.0	*
17.30	0.6	*
17.45	0.5	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.5	*
17.15	1.5	*
17.30	0.9	*
17.45	0.7	*

.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	23.4	15.6	1.7	0.07	1.7	0.07
B	781.8	521.2	66.3	0.08	66.3	0.08
C	623.5	415.7	62.5	0.10	62.5	0.10
D	781.8	521.2	89.9	0.11	89.9	0.12
ALL	2210.5	1473.7	220.4	0.10	220.5	0.10

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

For sales and distribution information,
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Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
12.Barry Rd_Ty Newydd Rd\Barry Rd_TyNewydd Rd Roundabout.vai"
(drive-on-the-left) at 17:10:21 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Barry Rd_Ty Newydd Rd Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cemetery Road (N)
ARM B - Barry Rd (E)
ARM C - Ty-newydd Rd (S)
ARM D - Barry Rd (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.60	4.60	0.00	11.70	18.50	28.3	0.584	22.561
ARM B	3.86	4.80	22.00	11.80	18.50	23.6	0.600	23.390
ARM C	4.70	4.70	0.00	8.00	18.50	32.9	0.557	21.755
ARM D	4.02	4.40	0.10	10.30	18.50	28.7	0.544	19.597

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 + Tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP OF PEAK	AFTER PEAK
	TO RISE	IS REACHED	FALLING	PEAK		
ARM A	15.00	45.00	75.00	0.21	0.32	0.21
ARM B	15.00	45.00	75.00	7.10	10.65	7.10
ARM C	15.00	45.00	75.00	5.66	8.49	5.66
ARM D	15.00	45.00	75.00	7.10	10.65	7.10

DEMAND SET TITLE: PM 2020 With Development + Tourism

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
		TURNING PROPORTIONS			
		TURNING COUNTS			
		(PERCENTAGE OF H.V.S)			
16.15 - 17.45	ARM A	0.000	0.588	0.294	0.118
		0.0	10.0	5.0	2.0
		(0.0)	(11.0)	(25.0)	(0.0)
	ARM B	0.005	0.000	0.241	0.754
		3.0	0.0	137.0	428.0
		(0.0)	(0.0)	(7.0)	(1.0)
	ARM C	0.013	0.353	0.000	0.634
		6.0	160.0	0.0	287.0
		(40.0)	(9.0)	(0.0)	(1.0)
	ARM D	0.021	0.609	0.370	0.000
		12.0	346.0	210.0	0.0
		(0.0)	(1.0)	(3.0)	(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	0.21	15.08	0.014	- - -	0.0	0.0	0.2	-	0.067
ARM B	7.13	21.19	0.336	- - -	0.0	0.5	7.3	-	0.071
ARM C	5.68	17.93	0.317	- - -	0.0	0.5	6.7	-	0.081
ARM D	7.13	18.03	0.395	- - -	0.0	0.6	9.4	-	0.091
16.30-16.45									
ARM A	0.25	14.14	0.018	- - -	0.0	0.0	0.3	-	0.072
ARM B	8.51	20.87	0.408	- - -	0.5	0.7	10.0	-	0.081
ARM C	6.79	17.36	0.391	- - -	0.5	0.6	9.3	-	0.094
ARM D	8.51	17.78	0.479	- - -	0.6	0.9	13.2	-	0.107
16.45-17.00									
ARM A	0.31	12.87	0.024	- - -	0.0	0.0	0.4	-	0.080
ARM B	10.42	20.43	0.510	- - -	0.7	1.0	14.9	-	0.099
ARM C	8.31	16.57	0.502	- - -	0.6	1.0	14.3	-	0.120
ARM D	10.42	17.45	0.597	- - -	0.9	1.5	20.8	-	0.141
17.00-17.15									
ARM A	0.31	12.85	0.024	- - -	0.0	0.0	0.4	-	0.080
ARM B	10.42	20.42	0.510	- - -	1.0	1.0	15.5	-	0.100
ARM C	8.31	16.56	0.502	- - -	1.0	1.0	14.9	-	0.121
ARM D	10.42	17.44	0.597	- - -	1.5	1.5	21.9	-	0.142
17.15-17.30									
ARM A	0.25	14.11	0.018	- - -	0.0	0.0	0.3	-	0.072
ARM B	8.51	20.85	0.408	- - -	1.0	0.7	10.7	-	0.081
ARM C	6.79	17.34	0.391	- - -	1.0	0.6	10.0	-	0.095
ARM D	8.51	17.77	0.479	- - -	1.5	0.9	14.5	-	0.109
17.30-17.45									
ARM A	0.21	15.04	0.014	- - -	0.0	0.0	0.2	-	0.067
ARM B	7.13	21.18	0.337	- - -	0.7	0.5	7.8	-	0.071
ARM C	5.68	17.91	0.317	- - -	0.6	0.5	7.2	-	0.082
ARM D	7.13	18.02	0.396	- - -	0.9	0.7	10.2	-	0.092

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0

17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	*
16.45	0.7	*
17.00	1.0	*
17.15	1.0	*
17.30	0.7	*
17.45	0.5	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	
16.45	0.6	*
17.00	1.0	*
17.15	1.0	*
17.30	0.6	*
17.45	0.5	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.5	*
17.15	1.5	*
17.30	0.9	*
17.45	0.7	*

.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	23.4	15.6	1.7	0.07	1.7	0.07
B	781.8	521.2	66.3	0.08	66.3	0.08
C	623.5	415.7	62.5	0.10	62.5	0.10
D	781.8	521.2	89.9	0.11	89.9	0.12
ALL	2210.5	1473.7	220.4	0.10	220.5	0.10

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
5.Biglis Roundabout\Biglis Roundabout.vai"
(drive-on-the-left) at 16:17:26 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Biglis Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR:
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Barry Dock Link Rd (N)
ARM B - Cardiff Road (E)
ARM C - Sully Moors Rd (S)
ARM D - Cardiff Rd (W)

.GEOMETRIC DATA

---- T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.67	33.10	20.70	40.00	26.0	0.709	33.565
ARM B	3.78	6.70	20.00	24.70	40.00	14.0	0.694	31.028
ARM C	3.99	6.30	15.20	70.00	40.00	23.0	0.676	29.656
ARM D	6.50	7.54	15.40	12.00	40.00	33.4	0.714	35.495

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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: AM 2008 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS: TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED: TOP OF PEAK	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING: FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	8.59	12.88	8.59
ARM B	15.00	45.00	75.00	7.63	11.44	7.63
ARM C	15.00	45.00	75.00	8.39	12.58	8.39
ARM D	15.00	45.00	75.00	12.77	19.16	12.77

DEMAND SET TITLE: AM 2008 Base

T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.195	0.464	0.341
		0.0	134.0	319.0	234.0
		(0.0)	(13.0)	(8.0)	(10.0)
	ARM B	0.159	0.000	0.143	0.698
		97.0	0.0	87.0	426.0
		(13.0)	(0.0)	(2.0)	(7.0)
	ARM C	0.355	0.066	0.000	0.580
		238.0	44.0	0.0	389.0
		(15.0)	(2.0)	(0.0)	(5.0)
	ARM D	0.188	0.498	0.314	0.000
		192.0	509.0	321.0	0.0
		(21.0)	(4.0)	(0.0)	(7.0)

. 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	8.62	23.37	0.369	- -	0.0	0.6	8.5	-	0.067
ARM B	7.65	21.47	0.356	- -	0.0	0.5	8.0	-	0.072
ARM C	8.42	20.96	0.402	- -	0.0	0.7	9.7	-	0.079
ARM D	12.82	29.90	0.429	- -	0.0	0.7	10.9	-	0.058
16.30-16.45									
ARM A	10.29	21.95	0.469	- -	0.6	0.9	12.8	-	0.086
ARM B	9.14	20.00	0.457	- -	0.5	0.8	12.1	-	0.092
ARM C	10.05	19.70	0.510	- -	0.7	1.0	14.9	-	0.103
ARM D	15.31	29.19	0.525	- -	0.7	1.1	16.0	-	0.072
16.45-17.00									
ARM A	12.61	20.02	0.630	- -	0.9	1.7	23.7	-	0.133
ARM B	11.19	18.02	0.621	- -	0.8	1.6	22.7	-	0.144
ARM C	12.31	18.00	0.684	- -	1.0	2.1	29.3	-	0.171
ARM D	18.75	28.24	0.664	- -	1.1	1.9	27.8	-	0.104
17.00-17.15									
ARM A	12.61	19.98	0.631	- -	1.7	1.7	25.2	-	0.136
ARM B	11.19	17.98	0.623	- -	1.6	1.6	24.3	-	0.147
ARM C	12.31	17.96	0.686	- -	2.1	2.1	31.8	-	0.177
ARM D	18.75	28.21	0.665	- -	1.9	2.0	29.3	-	0.106
17.15-17.30									
ARM A	10.29	21.90	0.470	- -	1.7	0.9	13.9	-	0.087

ARM B	9.14	19.95	0.458	- -	-	1.6	0.9	13.3	-	0.093
ARM C	10.05	19.64	0.512	- -	-	2.1	1.1	16.6	-	0.106
ARM D	15.31	29.15	0.525	- -	-	2.0	1.1	17.3	-	0.073

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	8.62	23.33	0.369	- -	-	0.9	0.6	9.1	-	0.068
ARM B	7.65	21.42	0.357	- -	-	0.9	0.6	8.6	-	0.073
ARM C	8.42	20.92	0.403	- -	-	1.1	0.7	10.5	-	0.080
ARM D	12.82	29.87	0.429	- -	-	1.1	0.8	11.6	-	0.059

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.7	**
17.15	1.7	**
17.30	0.9	*
17.45	0.6	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	*
16.45	0.8	*
17.00	1.6	**
17.15	1.6	**
17.30	0.9	*
17.45	0.6	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.0	*
17.00	2.1	**
17.15	2.1	**
17.30	1.1	*
17.45	0.7	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.1	*
17.00	1.9	**
17.15	2.0	**
17.30	1.1	*
17.45	0.8	*

.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	945.6	630.4	93.0	0.10	93.0	0.10
B	839.6	559.7	89.0	0.11	89.0	0.11
C	923.6	615.7	112.8	0.12	112.8	0.12
D	1406.7	937.8	112.8	0.08	112.9	0.08
ALL	4115.5	2743.7	407.7	0.10	407.8	0.10

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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Crowthorne House
Nine Mile Ride
Wokingham, Berks.
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Tel: +44 (0) 1344 770758
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Web: www.trlsoftware.co.uk

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
5.Biglis Roundabout\Biglis Roundabout.vai"
(drive-on-the-left) at 16:18:22 on Tuesday, 6 April 2010

.FILE PROPERTIES

RUN TITLE: Biglis Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR:
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA

ARM A - Barry Dock Link Rd (N)
ARM B - Cardiff Road (E)
ARM C - Sully Moors Rd (S)
ARM D - Cardiff Rd (W)

.GEOMETRIC DATA

---- T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.67	33.10	20.70	40.00	26.0	0.709	33.565
ARM B	3.78	6.70	20.00	24.70	40.00	14.0	0.694	31.028
ARM C	3.99	6.30	15.20	70.00	40.00	23.0	0.676	29.656
ARM D	6.50	7.54	15.40	12.00	40.00	33.4	0.714	35.495

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

---- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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: AM 2020 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	10.00	15.00	10.00
ARM B	15.00	45.00	75.00	8.89	13.33	8.89
ARM C	15.00	45.00	75.00	9.77	14.66	9.77
ARM D	15.00	45.00	75.00	14.89	22.33	14.89

DEMAND SET TITLE: AM 2020 Base

T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.195	0.465	0.340
		0.0	156.0	372.0	272.0
		(0.0)	(13.0)	(8.0)	(10.0)
	ARM B	0.159	0.000	0.142	0.699
		113.0	0.0	101.0	497.0
		(13.0)	(0.0)	(2.0)	(7.0)
	ARM C	0.354	0.065	0.000	0.581
		277.0	51.0	0.0	454.0
		(15.0)	(2.0)	(0.0)	(5.0)
	ARM D	0.188	0.498	0.314	0.000
		224.0	593.0	374.0	0.0
		(21.0)	(4.0)	(7.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	ARM	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	10.04	21.98	0.457	- -	0.0	0.8	12.0	-	0.083
	ARM B	8.92	20.04	0.445	- -	0.0	0.8	11.5	-	0.089
	ARM C	9.81	19.91	0.493	- -	0.0	1.0	13.8	-	0.098
	ARM D	14.94	28.72	0.520	- -	0.0	1.1	15.6	-	0.072
16.30-16.45										
	ARM A	11.99	20.28	0.591	- -	0.8	1.4	20.4	-	0.119
	ARM B	10.65	18.29	0.582	- -	0.8	1.4	19.6	-	0.130
	ARM C	11.72	18.45	0.635	- -	1.0	1.7	24.1	-	0.146
	ARM D	17.84	27.91	0.639	- -	1.1	1.7	25.1	-	0.098
16.45-17.00										
	ARM A	14.68	18.02	0.815	- -	1.4	4.0	52.8	-	0.273
	ARM B	13.05	15.99	0.816	- -	1.4	4.0	52.2	-	0.305
	ARM C	14.35	16.54	0.867	- -	1.7	5.5	68.9	-	0.375
	ARM D	21.86	26.88	0.813	- -	1.7	4.1	55.4	-	0.187
17.00-17.15										
	ARM A	14.68	17.93	0.819	- -	4.0	4.3	62.4	-	0.303
	ARM B	13.05	15.87	0.822	- -	4.0	4.3	62.8	-	0.346
	ARM C	14.35	16.42	0.874	- -	5.5	6.2	88.3	-	0.455
	ARM D	21.86	26.80	0.816	- -	4.1	4.3	62.8	-	0.201
17.15-17.30										
	ARM A	11.99	20.15	0.595	- -	4.3	1.5	24.3	-	0.128

ARM B	10.65	18.12	0.588	- -	-	4.3	1.5	23.8	-	0.141
ARM C	11.72	18.26	0.642	- -	-	6.2	1.8	31.3	-	0.167
ARM D	17.84	27.78	0.642	- -	-	4.3	1.8	29.1	-	0.104

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	10.04	21.91	0.458	- -	-	1.5	0.9	13.2	-	0.085
ARM B	8.92	19.96	0.447	- -	-	1.5	0.8	12.7	-	0.091
ARM C	9.81	19.84	0.495	- -	-	1.8	1.0	15.5	-	0.101
ARM D	14.94	28.67	0.521	- -	-	1.8	1.1	17.0	-	0.073

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.4	*
17.00	4.0	****
17.15	4.3	****
17.30	1.5	*
17.45	0.9	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.4	*
17.00	4.0	****
17.15	4.3	****
17.30	1.5	*
17.45	0.8	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.7	**
17.00	5.5	*****
17.15	6.2	******
17.30	1.8	**
17.45	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.1	*
16.45	1.7	**
17.00	4.1	****
17.15	4.3	****
17.30	1.8	**
17.45	1.1	*

.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	1101.1	734.1	185.2	0.17	185.2	0.17
B	978.6	652.4	182.5	0.19	182.6	0.19
C	1076.4	717.6	241.9	0.22	242.0	0.22
D	1639.3	1092.9	204.9	0.13	205.0	0.13
ALL	4795.5	3197.0	814.6	0.17	814.7	0.17

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\5.Biglis Roundabout\Biglis Roundabout.vai"
(drive-on-the-left) at 14:16:59 on Friday, 9 April 2010

.FILE PROPERTIES
****

RUN TITLE: Biglis Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR:
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Barry Dock Link Rd (N)
ARM B - Cardiff Road (E)
ARM C - Sully Moors Rd (S)
ARM D - Cardiff Rd (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.67	33.10	20.70	40.00	26.0	0.709	33.565
ARM B	3.78	6.70	20.00	24.70	40.00	14.0	0.694	31.028
ARM C	3.99	6.30	15.20	70.00	40.00	23.0	0.676	29.656
ARM D	6.50	7.54	15.40	12.00	40.00	33.4	0.714	35.495

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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: AM 2020 with Development

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	10.90	16.35	10.90
ARM B	15.00	45.00	75.00	9.38	14.06	9.38
ARM C	15.00	45.00	75.00	10.07	15.11	10.07
ARM D	15.00	45.00	75.00	18.69	28.03	18.69

DEMAND SET TITLE: AM 2020 with Development

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45		TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S)			
	ARM A	0.000	0.179	0.427	0.394
		0.0	156.0	372.0	344.0
		(0.0)	(13.0)	(8.0)	(10.0)
	ARM B	0.151	0.000	0.135	0.715
		113.0	0.0	101.0	536.0
		(13.0)	(0.0)	(2.0)	(7.0)
	ARM C	0.344	0.063	0.000	0.593
		277.0	51.0	0.0	478.0
		(15.0)	(2.0)	(0.0)	(5.0)
	ARM D	0.236	0.498	0.266	0.000
		353.0	745.0	397.0	0.0
		(21.0)	(4.0)	(0.0)	(7.0)

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	10.94	20.74	0.528	- -	0.0	1.1	15.8	-	0.101
ARM B	9.41	19.44	0.484	- -	0.0	0.9	13.3	-	0.098
ARM C	10.11	19.00	0.532	- -	0.0	1.1	16.0	-	0.111
ARM D	18.76	29.04	0.646	- -	0.0	1.8	25.5	-	0.095
16.30-16.45									
ARM A	13.07	18.81	0.695	- -	1.1	2.2	30.7	-	0.170
ARM B	11.24	17.59	0.639	- -	0.9	1.7	24.4	-	0.155
ARM C	12.08	17.35	0.696	- -	1.1	2.2	30.8	-	0.184
ARM D	22.40	28.23	0.793	- -	1.8	3.7	50.4	-	0.164
16.45-17.00									
ARM A	16.00	16.70	0.958	- -	2.2	10.9	119.9	-	0.611
ARM B	13.76	15.49	0.888	- -	1.7	6.3	76.2	-	0.438
ARM C	14.79	15.36	0.963	- -	2.2	11.0	119.6	-	0.665
ARM D	27.43	27.29	1.005	- -	3.7	21.3	214.7	-	0.640
17.00-17.15									
ARM A	16.00	16.44	0.973	- -	10.9	15.3	199.7	-	0.982
ARM B	13.76	15.25	0.903	- -	6.3	7.5	105.3	-	0.588
ARM C	14.79	15.17	0.975	- -	11.0	15.3	200.0	-	1.063
ARM D	27.43	27.18	1.009	- -	21.3	31.8	402.0	-	1.130
17.15-17.30									
ARM A	13.07	17.78	0.735	- -	15.3	2.9	67.5	-	0.306
ARM B	11.24	16.74	0.671	- -	7.5	2.1	37.7	-	0.207
ARM C	12.08	16.87	0.716	- -	15.3	2.7	63.3	-	0.303
ARM D	22.40	27.91	0.803	- -	31.8	4.4	150.0	-	0.389
17.30-17.45									
ARM A	10.94	20.58	0.532	- -	2.9	1.2	18.2	-	0.106
ARM B	9.41	19.28	0.488	- -	2.1	1.0	15.1	-	0.103
ARM C	10.11	18.86	0.536	- -	2.7	1.2	18.6	-	0.117
ARM D	18.76	28.97	0.647	- -	4.4	1.9	29.8	-	0.101

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

16.30	1.1	*
16.45	2.2	**
17.00	10.9	**********
17.15	15.3	***************
17.30	2.9	***
17.45	1.2	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.9	*
16.45	1.7	**
17.00	6.3	******
17.15	7.5	********
17.30	2.1	**
17.45	1.0	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.1	*
16.45	2.2	**
17.00	11.0	**********
17.15	15.3	***************
17.30	2.7	***
17.45	1.2	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.8	**
16.45	3.7	****
17.00	21.3	**********
17.15	31.8	**********
17.30	4.4	****
17.45	1.9	**

.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	1200.2	800.2	451.8	0.38	451.9	0.38
B	1032.3	688.2	272.0	0.26	272.0	0.26
C	1109.4	739.6	448.2	0.40	448.3	0.40
D	2057.8	1371.8	872.3	0.42	872.3	0.42
ALL	5399.7	3599.8	2044.3	0.38	2044.5	0.38

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

For sales and distribution information,
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Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\5.Biglis Roundabout\Biglis Roundabout.vai"
(drive-on-the-left) at 09:46:13 on Thursday, 15 April 2010

.FILE PROPERTIES
****

RUN TITLE: Biglis Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR:
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Barry Dock Link Rd (N)
ARM B - Cardiff Road (E)
ARM C - Sully Moors Rd (S)
ARM D - Cardiff Rd (W)

.GEOMETRIC DATA

T5

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	7.67	I	33.10	I	20.70	I	40.00	I	26.0	I	0.709	I	33.565	I
I ARM B	I	3.78	I	6.70	I	20.00	I	24.70	I	40.00	I	14.0	I	0.694	I	31.028	I
I ARM C	I	3.99	I	6.30	I	15.20	I	70.00	I	40.00	I	23.0	I	0.676	I	29.656	I
I ARM D	I	6.50	I	7.54	I	15.40	I	12.00	I	40.00	I	33.4	I	0.714	I	35.495	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 Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	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 Base+tourism

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
I ARM A	I	15.00	I	45.00	I	75.00	I	7.65	I	11.48	I	7.65	I
I ARM B	I	15.00	I	45.00	I	75.00	I	14.57	I	21.86	I	14.57	I

ARM C	15.00	45.00	75.00	10.44	15.66	10.44
ARM D	15.00	45.00	75.00	17.63	26.44	17.63

DEMAND SET TITLE: PM 2020 Base+tourism

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45					
	ARM A	0.000	0.165	0.338	0.497
		0.0	101.0	207.0	304.0
		(0.0)	(0.0)	(2.0)	(0.0)
	ARM B	0.254	0.000	0.037	0.709
		296.0	0.0	43.0	827.0
		(8.0)	(0.0)	(0.0)	(4.0)
	ARM C	0.507	0.122	0.000	0.371
		423.0	102.0	0.0	310.0
		(4.0)	(0.0)	(0.0)	(1.0)
	ARM D	0.251	0.474	0.275	0.000
		354.0	668.0	388.0	0.0
		(4.0)	(2.0)	(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	7.68	22.99	0.334	- - -	0.0	0.5	7.3	-	0.065
ARM B	14.63	22.07	0.663	- - -	0.0	1.9	26.9	-	0.130
ARM C	10.48	16.77	0.625	- - -	0.0	1.6	22.6	-	0.154
ARM D	17.69	27.17	0.651	- - -	0.0	1.8	26.0	-	0.103
16.30-16.45									
ARM A	9.17	21.00	0.437	- - -	0.5	0.8	11.2	-	0.084
ARM B	17.47	20.60	0.848	- - -	1.9	5.0	64.8	-	0.284
ARM C	12.51	14.43	0.867	- - -	1.6	5.4	66.6	-	0.420
ARM D	21.13	25.78	0.819	- - -	1.8	4.2	57.1	-	0.201
16.45-17.00									
ARM A	11.23	19.04	0.590	- - -	0.8	1.4	20.2	-	0.127
ARM B	21.40	18.80	1.138	- - -	5.0	47.3	404.8	-	1.604
ARM C	15.32	12.88	1.189	- - -	5.4	44.1	379.1	-	2.183
ARM D	25.87	25.31	1.022	- - -	4.2	24.5	239.6	-	0.760
17.00-17.15									
ARM A	11.23	18.80	0.597	- - -	1.4	1.5	21.7	-	0.132
ARM B	21.40	18.70	1.144	- - -	47.3	88.2	1017.0	-	3.720
ARM C	15.32	12.82	1.196	- - -	44.1	82.0	946.3	-	5.119
ARM D	25.87	25.27	1.024	- - -	24.5	38.0	471.6	-	1.401
17.15-17.30									
ARM A	9.17	19.75	0.464	- - -	1.5	0.9	13.6	-	0.095
ARM B	17.47	20.14	0.867	- - -	88.2	51.5	1047.8	-	3.515
ARM C	12.51	12.65	0.989	- - -	82.0	82.0	1230.1	-	6.390
ARM D	21.13	25.17	0.839	- - -	38.0	6.1	243.8	-	0.743
17.30-17.45									
ARM A	7.68	22.46	0.342	- - -	0.9	0.5	8.0	-	0.068
ARM B	14.63	21.97	0.666	- - -	51.5	2.1	208.9	-	0.529
ARM C	10.48	14.47	0.724	- - -	82.0	24.7	800.6	-	3.802
ARM D	17.69	24.74	0.715	- - -	6.1	2.6	42.4	-	0.151

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	
16.45	0.8	*
17.00	1.4	*
17.15	1.5	*
17.30	0.9	*
17.45	0.5	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.9	**
16.45	5.0	*****
17.00	47.3	**********
17.15	88.2	**********
17.30	51.5	**********
17.45	2.1	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.6	**
16.45	5.4	*****
17.00	44.1	**********
17.15	82.0	**********
17.30	82.0	**********
17.45	24.7	**********

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.8	**
16.45	4.2	****
17.00	24.5	**********
17.15	38.0	**********
17.30	6.1	******
17.45	2.6	***

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	842.4	561.6	82.0	0.10	82.0	0.10
B	1604.9	1069.9	2770.1	1.73	2770.2	1.73
C	1149.3	766.2	3445.4	3.00	3466.6	3.02
D	1940.8	1293.8	1080.5	0.56	1080.6	0.56
ALL	5537.4	3691.6	7378.0	1.33	7399.4	1.34

T75

* 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

_____ 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\IssueRevA\
5.Biglis Roundabout\Biglis Roundabout.vai"
(drive-on-the-left) at 16:17:59 on Tuesday, 6 April 2010

.FILE PROPERTIES

RUN TITLE: Biglis Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR:
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA

ARM A - Barry Dock Link Rd (N)
ARM B - Cardiff Road (E)
ARM C - Sully Moors Rd (S)
ARM D - Cardiff Rd (W)

.GEOMETRIC DATA

---- T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.67	33.10	20.70	40.00	26.0	0.709	33.565
ARM B	3.78	6.70	20.00	24.70	40.00	14.0	0.694	31.028
ARM C	3.99	6.30	15.20	70.00	40.00	23.0	0.676	29.656
ARM D	6.50	7.54	15.40	12.00	40.00	33.4	0.714	35.495

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 2008 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	6.57	9.86	6.57
ARM B	15.00	45.00	75.00	11.48	17.21	11.48
ARM C	15.00	45.00	75.00	8.98	13.46	8.98
ARM D	15.00	45.00	75.00	13.99	20.98	13.99

DEMAND SET TITLE: PM 2008 Base

T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.165	0.338	0.496
		0.0	87.0	178.0	261.0
		(0.0)	(0.0)	(2.0)	(0.0)
	ARM B	0.278	0.000	0.040	0.682
		255.0	0.0	37.0	626.0
		(8.0)	(0.0)	(0.0)	(4.0)
	ARM C	0.507	0.123	0.000	0.370
		364.0	88.0	0.0	266.0
		(4.0)	(0.0)	(0.0)	(1.0)
	ARM D	0.273	0.429	0.298	0.000
		305.0	480.0	334.0	0.0
		(4.0)	(2.0)	(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	6.60	25.26	0.261	- -	0.0	0.4	5.2	-	0.053
ARM B	11.52	23.09	0.499	- -	0.0	1.0	14.2	-	0.085
ARM C	9.01	19.18	0.470	- -	0.0	0.9	12.6	-	0.097
ARM D	14.04	28.17	0.498	- -	0.0	1.0	14.3	-	0.070
16.30-16.45									
ARM A	7.88	23.67	0.333	- -	0.4	0.5	7.3	-	0.063
ARM B	13.75	21.82	0.630	- -	1.0	1.7	23.9	-	0.123
ARM C	10.76	17.26	0.623	- -	0.9	1.6	22.9	-	0.151
ARM D	16.77	26.90	0.623	- -	1.0	1.6	23.4	-	0.098
16.45-17.00									
ARM A	9.65	21.58	0.447	- -	0.5	0.8	11.7	-	0.084
ARM B	16.85	20.11	0.838	- -	1.7	4.6	60.7	-	0.275
ARM C	13.18	14.72	0.895	- -	1.6	6.5	77.8	-	0.471
ARM D	20.53	25.32	0.811	- -	1.6	4.0	54.3	-	0.196
17.00-17.15									
ARM A	9.65	21.48	0.449	- -	0.8	0.8	12.1	-	0.084
ARM B	16.85	20.07	0.839	- -	4.6	4.9	72.1	-	0.303
ARM C	13.18	14.60	0.903	- -	6.5	7.6	107.0	-	0.618
ARM D	20.53	25.17	0.816	- -	4.0	4.2	62.4	-	0.214
17.15-17.30									
ARM A	7.88	23.53	0.335	- -	0.8	0.5	7.8	-	0.064

ARM B	13.75	21.76	0.632	- -	-	4.9	1.8	28.6	-	0.132
ARM C	10.76	17.08	0.630	- -	-	7.6	1.8	31.6	-	0.179
ARM D	16.77	26.65	0.629	- -	-	4.2	1.7	27.5	-	0.105

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	6.60	25.19	0.262	- -	-	0.5	0.4	5.4	-	0.054
ARM B	11.52	23.05	0.500	- -	-	1.8	1.0	15.7	-	0.088
ARM C	9.01	19.09	0.472	- -	-	1.8	0.9	14.1	-	0.100
ARM D	14.04	28.09	0.500	- -	-	1.7	1.0	15.6	-	0.072

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	
17.00	0.8	*
17.15	0.8	*
17.30	0.5	*
17.45	0.4	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.7	**
17.00	4.6	*****
17.15	4.9	*****
17.30	1.8	**
17.45	1.0	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.9	*
16.45	1.6	**
17.00	6.5	******
17.15	7.6	********
17.30	1.8	**
17.45	0.9	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.6	**
17.00	4.0	****
17.15	4.2	****
17.30	1.7	**
17.45	1.0	*

.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	724.0	482.7	49.5	0.07	49.5	0.07
B	1263.6	842.4	215.3	0.17	215.3	0.17
C	988.3	658.8	266.0	0.27	266.0	0.27
D	1540.2	1026.8	197.6	0.13	197.6	0.13
ALL	4516.1	3010.7	728.4	0.16	728.4	0.16

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
5.Biglis Roundabout\Biglis Roundabout.vai"
(drive-on-the-left) at 16:18:49 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Biglis Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR:
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Barry Dock Link Rd (N)
ARM B - Cardiff Road (E)
ARM C - Sully Moors Rd (S)
ARM D - Cardiff Rd (W)

.GEOMETRIC DATA

---- T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.67	33.10	20.70	40.00	26.0	0.709	33.565
ARM B	3.78	6.70	20.00	24.70	40.00	14.0	0.694	31.028
ARM C	3.99	6.30	15.20	70.00	40.00	23.0	0.676	29.656
ARM D	6.50	7.54	15.40	12.00	40.00	33.4	0.714	35.495

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 Base

T15

ARM	FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.65	11.48	7.65
ARM B	15.00	45.00	75.00	13.32	19.99	13.32
ARM C	15.00	45.00	75.00	10.44	15.66	10.44
ARM D	15.00	45.00	75.00	16.25	24.38	16.25

DEMAND SET TITLE: PM 2020 Base

T33

TIME	FROM/TO	TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.165	0.338	0.497
		0.0	101.0	207.0	304.0
		(0.0)%	(0.0)%	(2.0)%	(0.0)%
	ARM B	0.278	0.000	0.040	0.682
		296.0	0.0	43.0	727.0
		(8.0)%	(0.0)%	(0.0)%	(4.0)%
	ARM C	0.507	0.122	0.000	0.371
		423.0	102.0	0.0	310.0
		(4.0)%	(0.0)%	(0.0)%	(1.0)%
	ARM D	0.272	0.429	0.298	0.000
		354.0	558.0	388.0	0.0
		(4.0)%	(2.0)%	(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	7.68	23.97	0.320	- -	0.0	0.5	6.9	-	0.061
ARM B	13.38	22.05	0.607	- -	0.0	1.5	21.5	-	0.113
ARM C	10.48	17.62	0.595	- -	0.0	1.4	20.2	-	0.137
ARM D	16.31	27.15	0.601	- -	0.0	1.5	21.2	-	0.091
16.30-16.45									
ARM A	9.17	22.15	0.414	- -	0.5	0.7	10.3	-	0.077
ARM B	15.97	20.57	0.776	- -	1.5	3.3	44.7	-	0.207
ARM C	12.51	15.41	0.812	- -	1.4	3.9	51.0	-	0.311
ARM D	19.48	25.73	0.757	- -	1.5	3.0	41.7	-	0.155
16.45-17.00									
ARM A	11.23	20.07	0.560	- -	0.7	1.2	18.0	-	0.112
ARM B	19.56	18.66	1.048	- -	3.3	25.2	234.8	-	0.995
ARM C	15.32	13.24	1.157	- -	3.9	38.2	327.4	-	1.858
ARM D	23.86	24.94	0.957	- -	3.0	12.3	139.0	-	0.473
17.00-17.15									
ARM A	11.23	19.84	0.566	- -	1.2	1.3	19.1	-	0.116
ARM B	19.56	18.55	1.054	- -	25.2	42.6	510.3	-	2.000
ARM C	15.32	13.03	1.176	- -	38.2	73.0	835.2	-	4.417
ARM D	23.86	24.89	0.958	- -	12.3	15.1	208.2	-	0.669
17.15-17.30									
ARM A	9.17	21.61	0.424	- -	1.3	0.7	11.5	-	0.081

ARM B	15.97	20.37	0.784	- -	-	42.6	4.1	251.5	-	0.920
ARM C	12.51	13.61	0.919	- -	-	73.0	59.4	993.1	-	4.790
ARM D	19.48	24.67	0.789	- -	-	15.1	4.0	80.1	-	0.256

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	7.68	23.50	0.327	- -	-	0.7	0.5	7.5	-	0.063
ARM B	13.38	21.97	0.609	- -	-	4.1	1.6	25.5	-	0.121
ARM C	10.48	17.42	0.601	- -	-	59.4	1.6	275.4	-	0.935
ARM D	16.31	25.31	0.645	- -	-	4.0	1.8	29.4	-	0.115

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	
16.45	0.7	*
17.00	1.2	*
17.15	1.3	*
17.30	0.7	*
17.45	0.5	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.5	**
16.45	3.3	***
17.00	25.2	************************
17.15	42.6	**
17.30	4.1	****
17.45	1.6	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.4	*
16.45	3.9	****
17.00	38.2	************************************
17.15	73.0	**
17.30	59.4	**
17.45	1.6	**

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.5	*
16.45	3.0	***
17.00	12.3	************
17.15	15.1	***************
17.30	4.0	****
17.45	1.8	**

.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	842.4	561.6	73.2	0.09	73.2	0.09
B	1467.3	978.2	1088.3	0.74	1088.4	0.74
C	1149.3	766.2	2502.3	2.18	2502.4	2.18
D	1789.4	1192.9	519.6	0.29	519.7	0.29
ALL	5248.3	3498.9	4183.5	0.80	4183.7	0.80

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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

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"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\5.Biglis Roundabout\Biglis Roundabout.vai"
(drive-on-the-left) at 14:17:38 on Friday, 9 April 2010

.FILE PROPERTIES
****

RUN TITLE: Biglis Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR:
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Barry Dock Link Rd (N)
ARM B - Cardiff Road (E)
ARM C - Sully Moors Rd (S)
ARM D - Cardiff Rd (W)

.GEOMETRIC DATA

T5

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	7.67	I	33.10	I	20.70	I	40.00	I	26.0	I	0.709	I	33.565	I
I ARM B	I	3.78	I	6.70	I	20.00	I	24.70	I	40.00	I	14.0	I	0.694	I	31.028	I
I ARM C	I	3.99	I	6.30	I	15.20	I	70.00	I	40.00	I	23.0	I	0.676	I	29.656	I
I ARM D	I	6.50	I	7.54	I	15.40	I	12.00	I	40.00	I	33.4	I	0.714	I	35.495	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 Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	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	I	NUMBER OF MINUTES FROM START WHEN			I	RATE OF FLOW (VEH/MIN)			I
I ARM	I	FLOW STARTS	I TOP OF PEAK	I FLOW STOPS	I	BEFORE	I AT TOP	I AFTER	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 PEAK	I
I ARM A	I	15.00	I 45.00	I 75.00	I	9.34	I 14.01	I 9.34	I
I ARM B	I	15.00	I 45.00	I 75.00	I	15.34	I 23.01	I 15.34	I
I ARM C	I	15.00	I 45.00	I 75.00	I	10.74	I 16.11	I 10.74	I
I ARM D	I	15.00	I 45.00	I 75.00	I	18.56	I 27.84	I 18.56	I

DEMAND SET TITLE: PM 2020 with Development

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45		TURNING PROPORTIONS			
	ARM A	0.000	0.135	0.277	0.588
		TURNING COUNTS			
		0.0	101.0	207.0	439.0
		(PERCENTAGE OF H.V.S)			
		(0.0)%	(0.0)%	(2.0)%	(0.0)%
	ARM B	0.241	0.000	0.035	0.724
		296.0	0.0	43.0	888.0
		(8.0)%	(0.0)%	(0.0)%	(4.0)%
	ARM C	0.492	0.119	0.000	0.389
		423.0	102.0	0.0	334.0
		(4.0)%	(0.0)%	(0.0)%	(1.0)%
	ARM D	0.305	0.412	0.283	0.000
		453.0	612.0	420.0	0.0
		(4.0)%	(2.0)%	(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	9.37	23.25	0.403	- -	-	0.0	0.7	9.8	-	0.072
ARM B	15.40	20.70	0.744	- -	-	0.0	2.8	37.7	-	0.177
ARM C	10.78	15.18	0.710	- -	-	0.0	2.3	31.6	-	0.213
ARM D	18.63	27.17	0.686	- -	-	0.0	2.1	30.0	-	0.114
16.30-16.45									
ARM A	11.19	21.35	0.524	- -	-	0.7	1.1	15.8	-	0.098
ARM B	18.38	18.96	0.970	- -	-	2.8	12.7	137.6	-	0.617
ARM C	12.87	12.79	1.007	- -	-	2.3	14.3	143.8	-	0.938
ARM D	22.25	26.08	0.853	- -	-	2.1	5.3	69.3	-	0.236
16.45-17.00									
ARM A	13.71	19.58	0.700	- -	-	1.1	2.3	31.5	-	0.166
ARM B	22.52	16.88	1.334	- -	-	12.7	97.8	830.8	-	3.452
ARM C	15.76	12.42	1.269	- -	-	14.3	65.1	597.6	-	3.424
ARM D	27.25	26.10	1.044	- -	-	5.3	31.3	295.1	-	0.893
17.00-17.15									
ARM A	13.71	19.38	0.707	- -	-	2.3	2.4	34.8	-	0.176
ARM B	22.52	16.76	1.343	- -	-	97.8	184.2	2114.7	-	8.260
ARM C	15.76	12.45	1.266	- -	-	65.1	114.9	1349.8	-	7.401
ARM D	27.25	26.09	1.045	- -	-	31.3	51.3	621.7	-	1.742
17.15-17.30									
ARM A	11.19	19.79	0.565	- -	-	2.4	1.3	20.8	-	0.118
ARM B	18.38	18.32	1.003	- -	-	184.2	185.7	2773.7	-	9.798
ARM C	12.87	12.37	1.041	- -	-	114.9	122.7	1781.5	-	9.939
ARM D	22.25	25.85	0.861	- -	-	51.3	8.4	422.3	-	1.219
17.30-17.45									
ARM A	9.37	22.91	0.409	- -	-	1.3	0.7	10.8	-	0.074
ARM B	15.40	20.55	0.749	- -	-	185.7	110.1	2217.9	-	7.253
ARM C	10.78	11.65	0.925	- -	-	122.7	111.0	1752.1	-	10.119
ARM D	18.63	25.81	0.722	- -	-	8.4	2.7	46.0	-	0.155

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

16.30	0.7	*
16.45	1.1	*
17.00	2.3	**
17.15	2.4	**
17.30	1.3	*
17.45	0.7	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	2.8	***
16.45	12.7	*************
17.00	97.8	**********
17.15	184.2	**********
17.30	185.7	**********
17.45	110.1	**********

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	2.3	**
16.45	14.3	**************
17.00	65.1	**********
17.15	114.9	**********
17.30	122.7	**********
17.45	111.0	**********

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	2.1	**
16.45	5.3	*****
17.00	31.3	**********
17.15	51.3	**********
17.30	8.4	********
17.45	2.7	***

.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	1028.2	685.5	123.4	0.12	123.4	0.12
B	1688.9	1125.9	8112.5	4.80	8407.3	4.98
C	1182.4	788.2	5656.4	4.78	6184.7	5.23
D	2044.0	1362.7	1484.3	0.73	1484.4	0.73
ALL	5943.4	3962.3	15376.7	2.59	16199.8	2.73

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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\5.Biglis Roundabout\Biglis Roundabout.vai"
(drive-on-the-left) at 14:18:15 on Friday, 9 April 2010

.FILE PROPERTIES
****

RUN TITLE: Biglis Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR:
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Barry Dock Link Rd (N)
ARM B - Cardiff Road (E)
ARM C - Sully Moors Rd (S)
ARM D - Cardiff Rd (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	3.65	I	7.67	I	33.10	I	20.70	I	40.00	I	26.0	I	0.709	I	33.565	I
I ARM B	I	3.78	I	6.70	I	20.00	I	24.70	I	40.00	I	14.0	I	0.694	I	31.028	I
I ARM C	I	3.99	I	6.30	I	15.20	I	70.00	I	40.00	I	23.0	I	0.676	I	29.656	I
I ARM D	I	6.50	I	7.54	I	15.40	I	12.00	I	40.00	I	33.4	I	0.714	I	35.495	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 Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

IARM	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+Tourism

I ARM	I	NUMBER OF MINUTES FROM START WHEN TO RISE	I	IS REACHED	I	FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I ARM A	I	15.00	I	45.00	I	75.00	I	9.34	I	14.01	I	9.34	I
I ARM B	I	15.00	I	45.00	I	75.00	I	16.58	I	24.86	I	16.58	I
I ARM C	I	15.00	I	45.00	I	75.00	I	10.74	I	16.11	I	10.74	I

ARM	D	15.00	45.00	75.00	19.92	29.89	19.92

DEMAND SET TITLE: PM 2020 with Development+Tourism

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45					
	ARM A	0.000	0.135	0.277	0.588
		0.0	101.0	207.0	439.0
		(0.0)	(0.0)	(2.0)	(0.0)
	ARM B	0.223	0.000	0.032	0.744
		296.0	0.0	43.0	987.0
		(8.0)	(0.0)	(0.0)	(4.0)
	ARM C	0.492	0.119	0.000	0.389
		423.0	102.0	0.0	334.0
		(4.0)	(0.0)	(0.0)	(1.0)
	ARM D	0.284	0.452	0.263	0.000
		453.0	721.0	420.0	0.0
		(4.0)	(2.0)	(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	9.37	22.29	0.421	- -	0.0	0.7	10.4	-	0.077
ARM B	16.64	20.72	0.803	- -	0.0	3.8	49.9	-	0.220
ARM C	10.78	14.38	0.750	- -	0.0	2.8	37.1	-	0.253
ARM D	20.00	27.21	0.735	- -	0.0	2.7	37.2	-	0.132
16.30-16.45									
ARM A	11.19	20.27	0.552	- -	0.7	1.2	17.5	-	0.109
ARM B	19.87	19.00	1.046	- -	3.8	25.2	237.2	-	1.002
ARM C	12.87	12.29	1.048	- -	2.8	18.9	179.4	-	1.185
ARM D	23.88	26.32	0.907	- -	2.7	7.9	98.5	-	0.324
16.45-17.00									
ARM A	13.71	18.90	0.725	- -	1.2	2.5	35.1	-	0.186
ARM B	24.33	17.12	1.421	- -	25.2	133.6	1191.6	-	4.787
ARM C	15.76	12.23	1.289	- -	18.9	72.4	685.9	-	3.949
ARM D	29.25	26.38	1.109	- -	7.9	54.8	482.5	-	1.363
17.00-17.15									
ARM A	13.71	18.79	0.729	- -	2.5	2.6	38.8	-	0.195
ARM B	24.33	17.03	1.428	- -	133.6	243.1	2825.3	-	10.766
ARM C	15.76	12.24	1.287	- -	72.4	125.3	1482.3	-	8.233
ARM D	29.25	26.37	1.109	- -	54.8	98.6	1150.7	-	3.031
17.15-17.30									
ARM A	11.19	19.03	0.588	- -	2.6	1.5	23.0	-	0.130
ARM B	19.87	18.52	1.073	- -	243.1	263.4	3798.9	-	13.326
ARM C	12.87	12.20	1.055	- -	125.3	135.5	1955.9	-	10.868
ARM D	23.88	26.14	0.913	- -	98.6	68.6	1253.4	-	3.247
17.30-17.45									
ARM A	9.37	19.85	0.472	- -	1.5	0.9	14.0	-	0.096
ARM B	16.64	19.87	0.838	- -	263.4	216.1	3596.6	-	12.123
ARM C	10.78	12.06	0.894	- -	135.5	117.6	1898.7	-	10.582
ARM D	20.00	26.02	0.769	- -	68.6	3.8	429.5	-	1.186

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

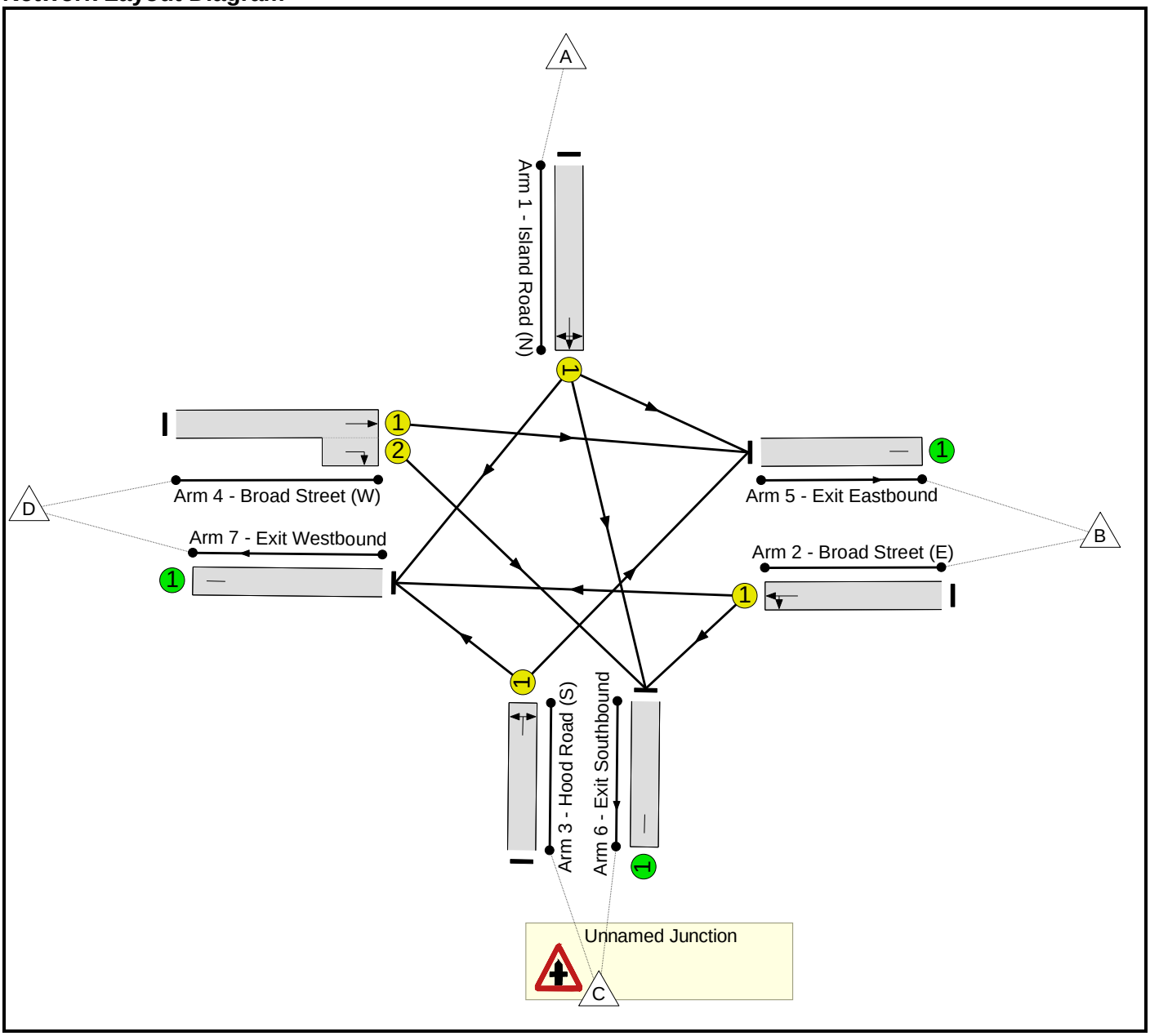
```
   16.30           0.7  *
   16.45           1.2  *
   17.00           2.5  ***
   17.15           2.6  ***
   17.30           1.5  *
   17.45           0.9  *


.QUEUE AT ARM   B
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

   16.30           3.8  ****
   16.45          25.2  *************************
   17.00         133.6  ********************************************************************************************************
   17.15         243.1  ********************************************************************************************************
   17.30         263.4  ********************************************************************************************************
   17.45         216.1  ********************************************************************************************************


.QUEUE AT ARM   C
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

   16.30           2.8  ***
   16.45          18.9  ******************
   17.00          72.4  ***************************************************************************
   17.15         125.3  ********************************************************************************************************
   17.30         135.5  ********************************************************************************************************
   17.45         117.6  ********************************************************************************************************


.QUEUE AT ARM   D
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

   16.30           2.7  ***
   16.45           7.9  ********
   17.00          54.8  *********************************************************
   17.15          98.6  ********************************************************************************************************
   17.30          68.6  ***********************************************************************
   17.45           3.8  ****


.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
.-------------------------------------------

 ------------------------------------------------------------------------------ T75
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I-----------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 ------------------------------------------------------------------------------
 I   A   I 1028.2 I  685.5 I   138.9 I    0.14   I     138.9  I     0.14    I
 I   B   I 1825.1 I 1216.8 I 11699.4 I    6.41   I   12875.1  I     7.05    I
 I   C   I 1182.4 I  788.2 I  6239.4 I    5.28   I    6813.1  I     5.76    I
 I   D   I 2194.0 I 1462.7 I  3451.8 I    1.57   I    3452.1  I     1.57    I
 ------------------------------------------------------------------------------
 I  ALL  I 6229.7 I 4153.1 I 21529.5 I    3.46   I   23279.1  I     3.74    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
```

Full Input Data And Results

User and Project Details

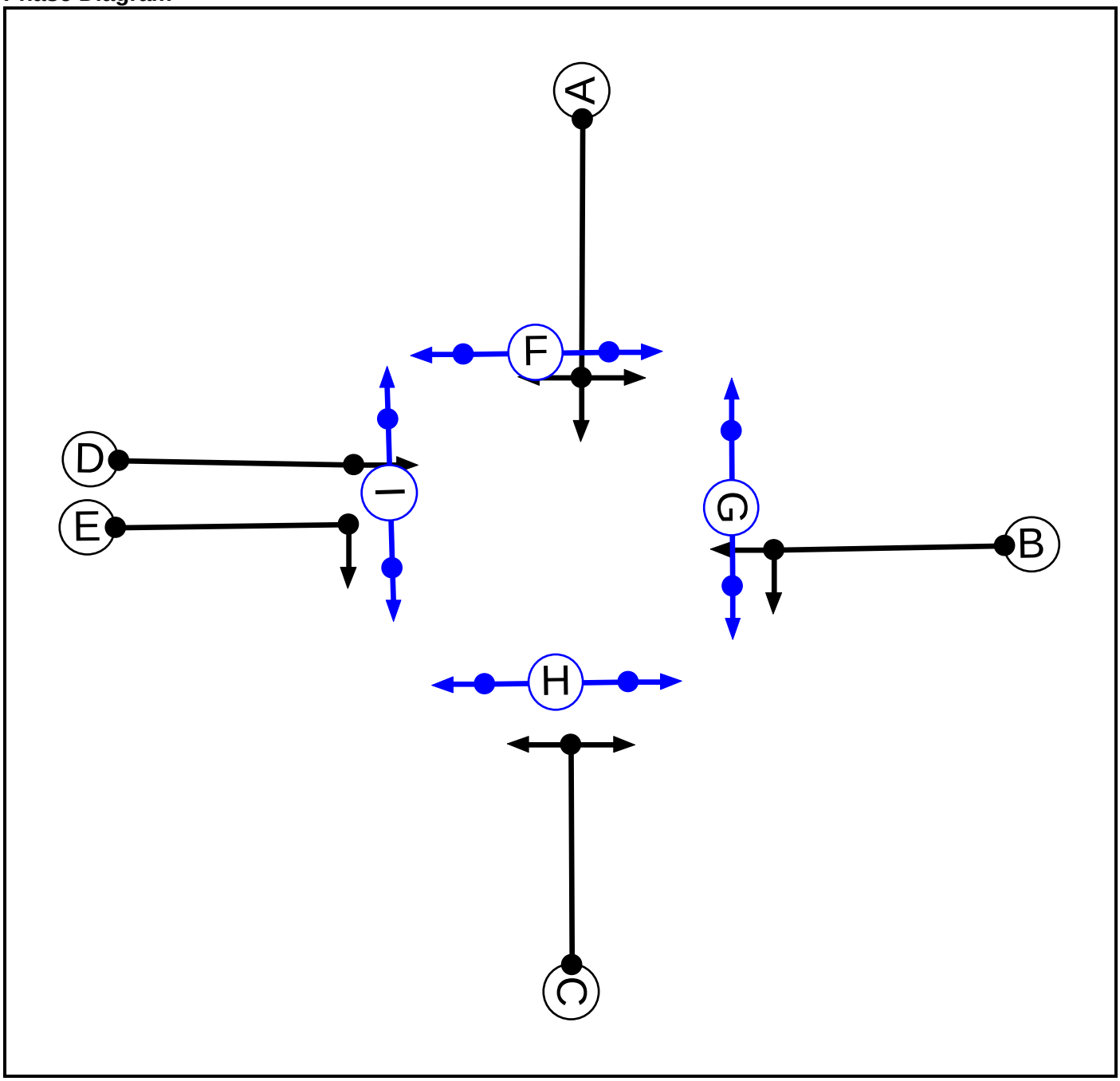
Project:	**Waterfront Barry**
Title:	
Location:	Broad Street / Hood Road, Barry
File name:	Broad Street_Hood Road.lsg3x
Author:	Ryan Hopkins
Company:	Arup
Address:	
Notes:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase type	Assoc Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Pedestrian		7	7
G	Pedestrian		7	7
H	Pedestrian		7	7
I	Pedestrian		7	7

Full Input Data And Results

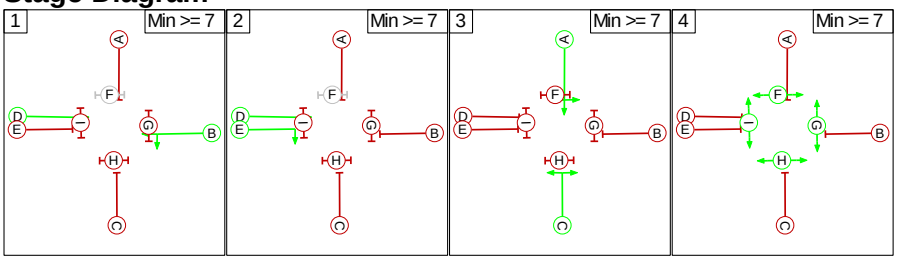
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I
A		6	-	6	6	5	8	8	8
B	6		6	-	6	-	8	8	8
C	-	6		6	6	-	8	8	8
D	6	-	6		-	-	8	8	8
E	6	6	6	-		-	8	8	8
F	5	-	-	-	-		-	-	-
G	8	8	8	8	8	-		-	-
H	8	8	8	8	8	-	-		-
I	8	8	8	8	8	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	B D
2	D E
3	A C
4	F G H I

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no phase delays defined					

Prohibited Stage Changes

From Stage \ To Stage	1	2	3	4
1		6	6	8
2	6		6	8
3	6	6		8
4	8	8	8	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Unnamed Junction
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Island Road (N))	U	A	2	3	60.0	Geom	-	3.70	0.00	Y	Arm 5 Left	7.00
											Arm 6 Ahead	Inf
											Arm 7 Right	16.50
2/1 (Broad Street (E))	U	B	2	3	60.0	Geom	-	4.30	0.00	Y	Arm 6 Left	7.90
											Arm 7 Ahead	Inf
3/1 (Hood Road (S))	U	C	2	3	60.0	Geom	-	3.15	0.00	Y	Arm 5 Right	15.30
											Arm 7 Left	10.12
4/1 (Broad Street (W))	U	D	2	3	60.0	Geom	-	3.05	0.00	Y	Arm 5 Ahead	Inf
4/2 (Broad Street (W))	U	E	2	3	3.0	Geom	-	3.05	0.00	Y	Arm 6 Right	14.00
5/1 (Exit Eastbound)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Exit Southbound)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Exit Westbound)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM 2008 Base'	08:30	09:30	01:00	
2: 'PM 2008 Base'	16:30	17:30	01:00	
3: 'AM 2020 Base'	08:30	09:30	01:00	
4: 'PM 2020 Base'	16:30	17:30	01:00	
5: 'AM 2020 Dev + BI'	08:30	09:30	01:00	
6: 'PM 2020 Dev + BI'	16:30	17:30	01:00	
7: '2020 Dev + Tour'	16:30	17:30	01:00	

Traffic Lane Flows

Lane	Scenario 1: AM 2008 Base
Junction: Unnamed Junction	
1/1	68
2/1	419
3/1	107
4/1 (with short)	697(In) 633(Out)
4/2 (short)	64
5/1	658
6/1	93
7/1	540

Scenario 1: 'AM 2008 Base' (FG1: 'AM 2008 Base', Plan 1: 'Staging Plan No. 1')

Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Island Road (N))	3.70	0.00	Y	Arm 5 Left	7.00	27.9 %	1816
				Arm 6 Ahead	Inf	35.3 %	
				Arm 7 Right	16.50	36.8 %	
2/1 (Broad Street (E))	4.30	0.00	Y	Arm 6 Left	7.90	1.2 %	2040
				Arm 7 Ahead	Inf	98.8 %	
3/1 (Hood Road (S))	3.15	0.00	Y	Arm 5 Right	15.30	5.6 %	1685
				Arm 7 Left	10.12	94.4 %	
4/1 (Broad Street (W))	3.05	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1920
4/2 (Broad Street (W))	3.05	0.00	Y	Arm 6 Right	14.00	100.0 %	1734
5/1 (Exit Eastbound Lane 1)	Infinite Saturation Flow						Inf
6/1 (Exit Southbound Lane 1)	Infinite Saturation Flow						Inf
7/1 (Exit Westbound Lane 1)	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: PM 2008 Base
Junction: Unnamed Junction	
1/1	75
2/1	640
3/1	305
4/1 (with short)	585(In) 529(Out)
4/2 (short)	56
5/1	562
6/1	82
7/1	961

Scenario 2: 'PM 2008 Base' (FG2: 'PM 2008 Base', Plan 1: 'Staging Plan No. 1')

Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Island Road (N))	3.70	0.00	Y	Arm 5 Left	7.00	37.3 %	1778
				Arm 6 Ahead	Inf	22.7 %	
				Arm 7 Right	16.50	40.0 %	
2/1 (Broad Street (E))	4.30	0.00	Y	Arm 6 Left	7.90	1.4 %	2040
				Arm 7 Ahead	Inf	98.6 %	
3/1 (Hood Road (S))	3.15	0.00	Y	Arm 5 Right	15.30	1.6 %	1682
				Arm 7 Left	10.12	98.4 %	
4/1 (Broad Street (W))	3.05	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1920
4/2 (Broad Street (W))	3.05	0.00	Y	Arm 6 Right	14.00	100.0 %	1734
5/1 (Exit Eastbound Lane 1)	Infinite Saturation Flow						Inf
6/1 (Exit Southbound Lane 1)	Infinite Saturation Flow						Inf
7/1 (Exit Westbound Lane 1)	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: AM 2020 Base
Junction: Unnamed Junction	
1/1	79
2/1	488
3/1	124
4/1 (with short)	811(In) 737(Out)
4/2 (short)	74
5/1	766
6/1	108
7/1	628

Scenario 3: 'AM 2020 Base' (FG3: 'AM 2020 Base', Plan 1: 'Staging Plan No. 1')

Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Island Road (N))	3.70	0.00	Y	Arm 5 Left	7.00	27.8 %	1816
				Arm 6 Ahead	Inf	35.4 %	
				Arm 7 Right	16.50	36.7 %	
2/1 (Broad Street (E))	4.30	0.00	Y	Arm 6 Left	7.90	1.2 %	2040
				Arm 7 Ahead	Inf	98.8 %	
3/1 (Hood Road (S))	3.15	0.00	Y	Arm 5 Right	15.30	5.6 %	1685
				Arm 7 Left	10.12	94.4 %	
4/1 (Broad Street (W))	3.05	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1920
4/2 (Broad Street (W))	3.05	0.00	Y	Arm 6 Right	14.00	100.0 %	1734
5/1 (Exit Eastbound Lane 1)	Infinite Saturation Flow						Inf
6/1 (Exit Southbound Lane 1)	Infinite Saturation Flow						Inf
7/1 (Exit Westbound Lane 1)	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: PM 2020 Base
Junction: Unnamed Junction	
1/1	87
2/1	745
3/1	354
4/1 (with short)	680(In) 615(Out)
4/2 (short)	65
5/1	654
6/1	95
7/1	1117

Scenario 4: 'PM 2020 Base' (FG4: 'PM 2020 Base', Plan 1: 'Staging Plan No. 1')

Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Island Road (N))	3.70	0.00	Y	Arm 5 Left	7.00	37.9 %	1776
				Arm 6 Ahead	Inf	21.8 %	
				Arm 7 Right	16.50	40.2 %	
2/1 (Broad Street (E))	4.30	0.00	Y	Arm 6 Left	7.90	1.5 %	2039
				Arm 7 Ahead	Inf	98.5 %	
3/1 (Hood Road (S))	3.15	0.00	Y	Arm 5 Right	15.30	1.7 %	1682
				Arm 7 Left	10.12	98.3 %	
4/1 (Broad Street (W))	3.05	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1920
4/2 (Broad Street (W))	3.05	0.00	Y	Arm 6 Right	14.00	100.0 %	1734
5/1 (Exit Eastbound Lane 1)	Infinite Saturation Flow						Inf
6/1 (Exit Southbound Lane 1)	Infinite Saturation Flow						Inf
7/1 (Exit Westbound Lane 1)	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: AM 2020 Dev + BI
Junction: Unnamed Junction	
1/1	79
2/1	401
3/1	161
4/1 (with short)	646(In) 548(Out)
4/2 (short)	98
5/1	577
6/1	132
7/1	578

Scenario 5: 'AM 2020 Dev + BI' (FG5: 'AM 2020 Dev + BI', Plan 1: 'Staging Plan No. 1')

Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Island Road (N))	3.70	0.00	Y	Arm 5 Left	7.00	27.8 %	1816
				Arm 6 Ahead	Inf	35.4 %	
				Arm 7 Right	16.50	36.7 %	
2/1 (Broad Street (E))	4.30	0.00	Y	Arm 6 Left	7.90	1.5 %	2039
				Arm 7 Ahead	Inf	98.5 %	
3/1 (Hood Road (S))	3.15	0.00	Y	Arm 5 Right	15.30	4.3 %	1684
				Arm 7 Left	10.12	95.7 %	
4/1 (Broad Street (W))	3.05	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1920
4/2 (Broad Street (W))	3.05	0.00	Y	Arm 6 Right	14.00	100.0 %	1734
5/1 (Exit Eastbound Lane 1)	Infinite Saturation Flow						Inf
6/1 (Exit Southbound Lane 1)	Infinite Saturation Flow						Inf
7/1 (Exit Westbound Lane 1)	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: PM 2020 Dev + BI
Junction: Unnamed Junction	
1/1	87
2/1	524
3/1	387
4/1 (with short)	598(In) 494(Out)
4/2 (short)	104
5/1	533
6/1	134
7/1	929

Scenario 6: 'PM 2020 Dev + BI' (FG6: 'PM 2020 Dev + BI', Plan 1: 'Staging Plan No. 1')

Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Island Road (N))	3.70	0.00	Y	Arm 5 Left	7.00	37.9 %	1776
				Arm 6 Ahead	Inf	21.8 %	
				Arm 7 Right	16.50	40.2 %	
2/1 (Broad Street (E))	4.30	0.00	Y	Arm 6 Left	7.90	2.1 %	2037
				Arm 7 Ahead	Inf	97.9 %	
3/1 (Hood Road (S))	3.15	0.00	Y	Arm 5 Right	15.30	1.6 %	1682
				Arm 7 Left	10.12	98.4 %	
4/1 (Broad Street (W))	3.05	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1920
4/2 (Broad Street (W))	3.05	0.00	Y	Arm 6 Right	14.00	100.0 %	1734
5/1 (Exit Eastbound Lane 1)	Infinite Saturation Flow						Inf
6/1 (Exit Southbound Lane 1)	Infinite Saturation Flow						Inf
7/1 (Exit Westbound Lane 1)	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: PM 2020 Dev + Tourism
Junction: Unnamed Junction	
1/1	87
2/1	524
3/1	387
4/1 (with short)	598(In) 494(Out)
4/2 (short)	104
5/1	533
6/1	134
7/1	929

Scenario 7: 'PM 2020 Dev + Tourism' (FG7: '2020 Dev + Tour', Plan 1: 'Staging Plan No. 1')

Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Island Road (N))	3.70	0.00	Y	Arm 5 Left	7.00	37.9 %	1776
				Arm 6 Ahead	Inf	21.8 %	
				Arm 7 Right	16.50	40.2 %	
2/1 (Broad Street (E))	4.30	0.00	Y	Arm 6 Left	7.90	2.1 %	2037
				Arm 7 Ahead	Inf	97.9 %	
3/1 (Hood Road (S))	3.15	0.00	Y	Arm 5 Right	15.30	1.6 %	1682
				Arm 7 Left	10.12	98.4 %	
4/1 (Broad Street (W))	3.05	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1920
4/2 (Broad Street (W))	3.05	0.00	Y	Arm 6 Right	14.00	100.0 %	1734
5/1 (Exit Eastbound Lane 1)	Infinite Saturation Flow						Inf
6/1 (Exit Southbound Lane 1)	Infinite Saturation Flow						Inf
7/1 (Exit Westbound Lane 1)	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: PM 2020 Base + Tourism
Junction: Unnamed Junction	
1/1	87
2/1	846
3/1	354
4/1 (with short)	795(In) 730(Out)
4/2 (short)	65
5/1	769
6/1	95
7/1	1218

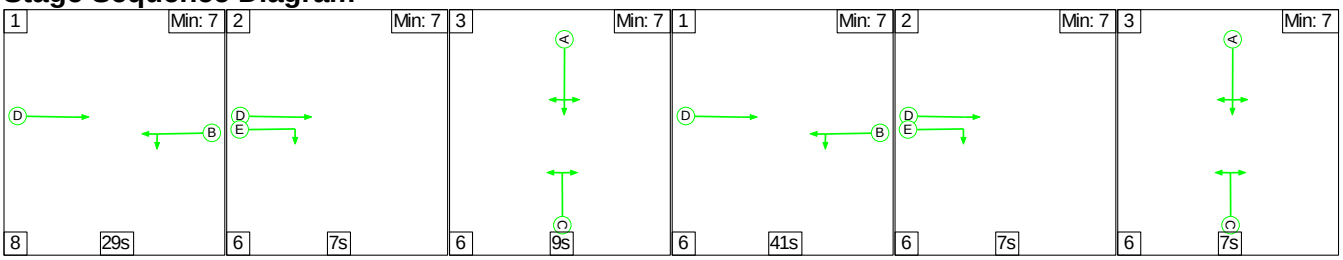
Scenario 8: 'PM 2020 Base + Tourism' (FG8: 'PM 2020 Base + Tourism', Plan 1: 'Staging Plan No. 1')

Traffic Lane Flows

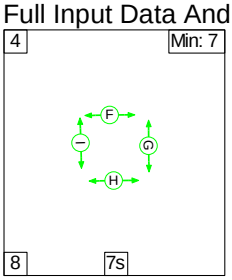
Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Island Road (N))	3.70	0.00	Y	Arm 5 Left	7.00	37.9 %	1776
				Arm 6 Ahead	Inf	21.8 %	
				Arm 7 Right	16.50	40.2 %	
2/1 (Broad Street (E))	4.30	0.00	Y	Arm 6 Left	7.90	1.3 %	2040
				Arm 7 Ahead	Inf	98.7 %	
3/1 (Hood Road (S))	3.15	0.00	Y	Arm 5 Right	15.30	1.7 %	1682
				Arm 7 Left	10.12	98.3 %	
4/1 (Broad Street (W))	3.05	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1920
4/2 (Broad Street (W))	3.05	0.00	Y	Arm 6 Right	14.00	100.0 %	1734
5/1 (Exit Eastbound Lane 1)	Infinite Saturation Flow						Inf
6/1 (Exit Southbound Lane 1)	Infinite Saturation Flow						Inf
7/1 (Exit Westbound Lane 1)	Infinite Saturation Flow						Inf

Scenario 1: 'AM 2008 Base' (FG1: 'AM 2008 Base', Plan 1: 'Staging Plan No. 1')

Stage Sequence Diagram



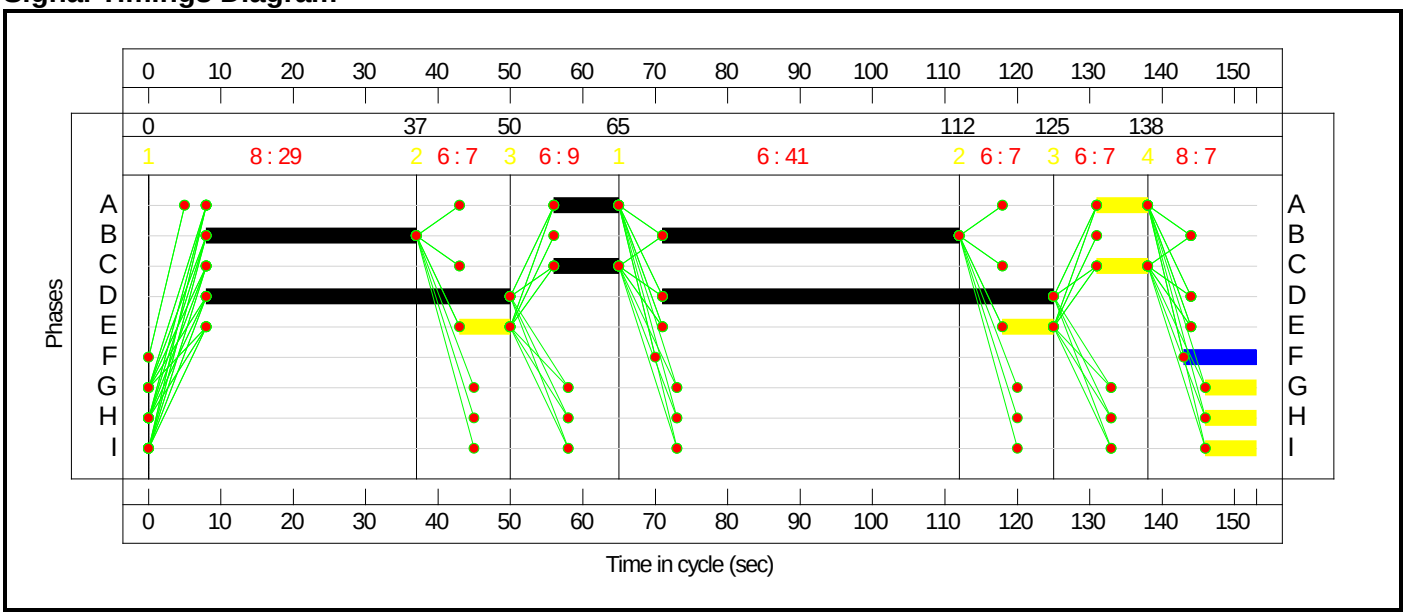
Full Input Data And Results



Stage Timings

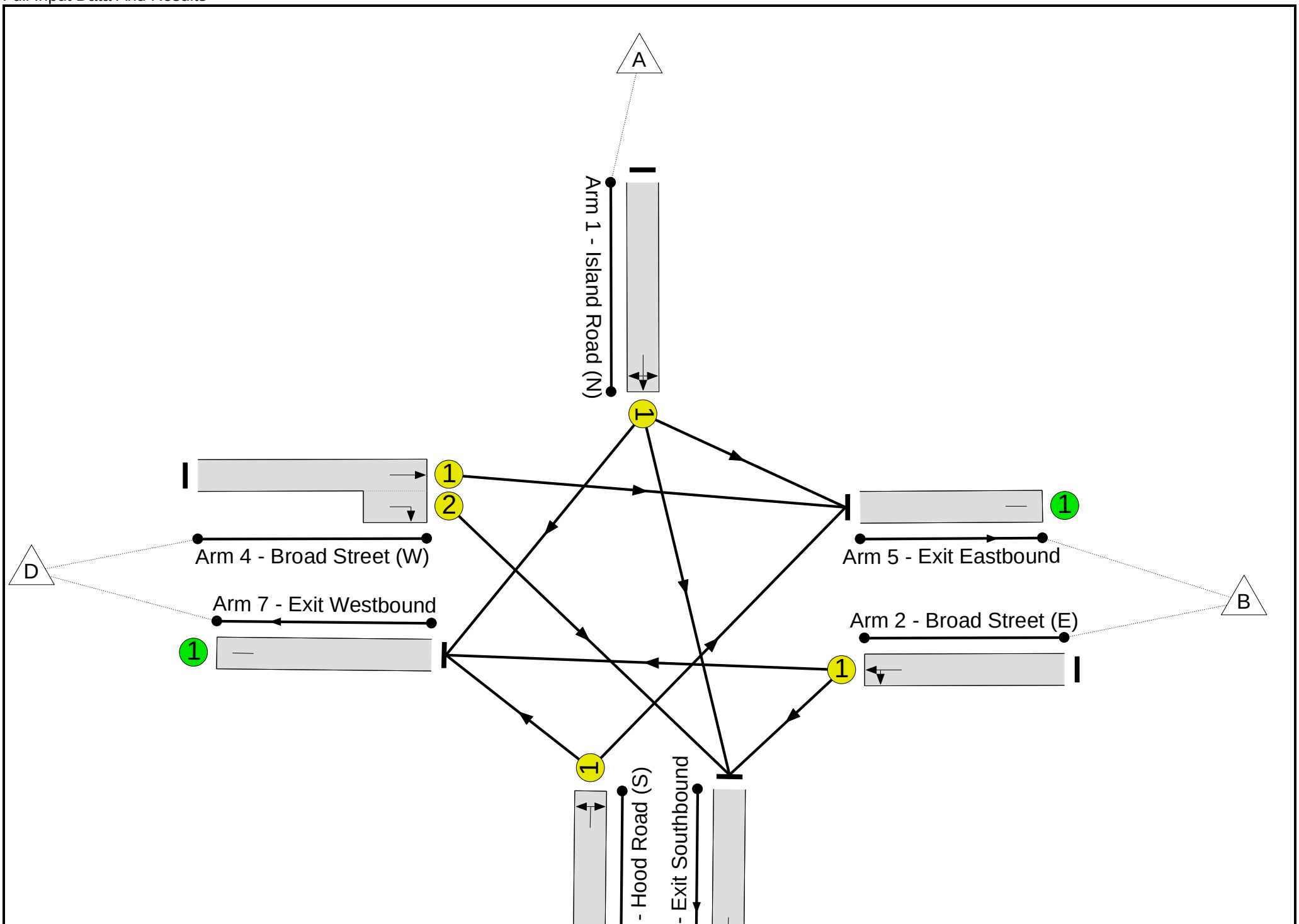
Stage	1	2	3	1	2	3	4
Duration	29	7	9	41	7	7	7
Change Point	0	37	50	65	112	125	138

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A
Arm 1 - Island Road (N)
1
1
2
Arm 4 - Broad Street (W)
D
Arm 7 - Exit Westbound
1
1
Arm 5 - Exit Eastbound
B
Arm 2 - Broad Street (E)
1
1
- Hood Road (S)
- Exit Southbound

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**56.9%**
Unnamed Junction	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**56.9%**
1/1	Island Road (N) Left Ahead Right	U	N/A	N/A	A		2	16	-	68	1816	214	31.8%
2/1	Broad Street (E) Left Ahead	U	N/A	N/A	B		2	70	-	419	2040	960	43.6%
3/1	Hood Road (S) Right Left	U	N/A	N/A	C		2	16	-	107	1685	198	54.0%
4/1+4/2	Broad Street (W) Ahead Right	U	N/A	N/A	D E		2	96:14		697	1920:1734	1224	56.9%
5/1	Exit Eastbound	U	N/A	N/A	-		-	-	-	658	1	Inf	0.0%
6/1	Exit Southbound	U	N/A	N/A	-		-	-	-	93	1	Inf	0.0%
7/1	Exit Westbound	U	N/A	N/A	-		-	-	-	540	1	Inf	0.0%

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**5.2**	**1.9**	**0.0**	**7.0**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**5.2**	**1.9**	**0.0**	**7.0**	**-**	**-**	**-**	**-**
1/1	68	68	-	-	-	0.6	0.2	-	0.8	43.3	1.4	0.2	1.6
2/1	419	419	-	-	-	1.6	0.4	-	2.0	17.3	7.0	0.4	7.4
3/1	107	107	-	-	-	0.9	0.6	-	1.5	51.3	2.2	0.6	2.8
4/1+4/2	697	697	-	-	-	2.0	0.7	-	2.7	13.8	10.2	0.7	10.8
5/1	658	658	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	93	93	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	540	540	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

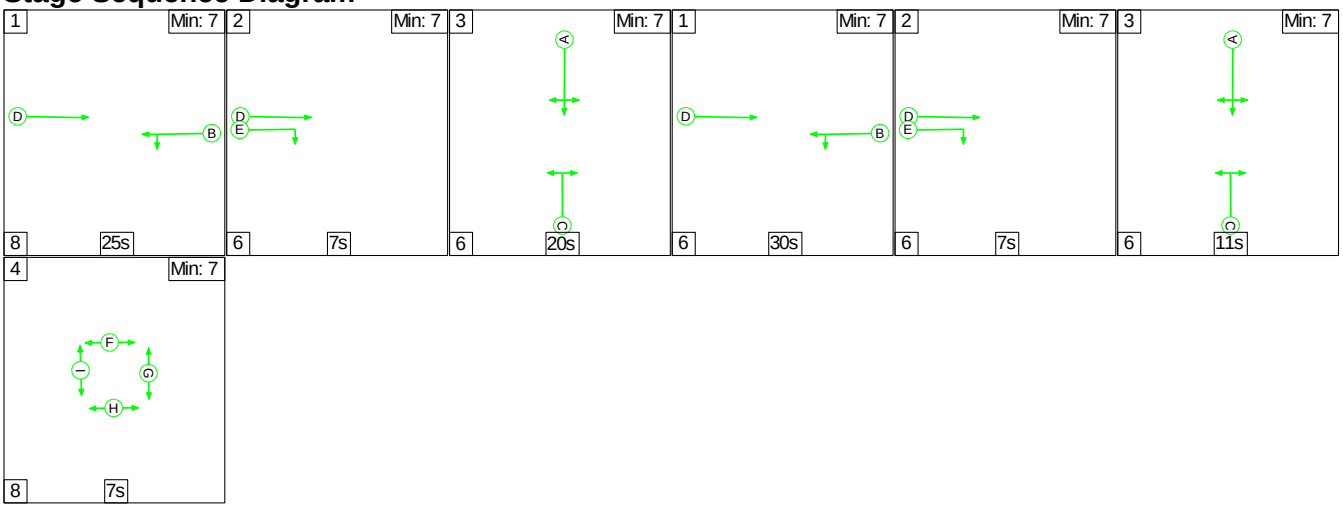
C1 PRC for Signalled Lanes (%): 58.1 Total Delay for Signalled Lanes (pcuHr): 7.03
PRC Over All Lanes (%): 58.1 Total Delay Over All Lanes(pcuHr): 7.03 Cycle Time (s): 153

Full Input Data And Results

Full Input Data And Results

Scenario 2: 'PM 2008 Base' (FG2: 'PM 2008 Base', Plan 1: 'Staging Plan No. 1')

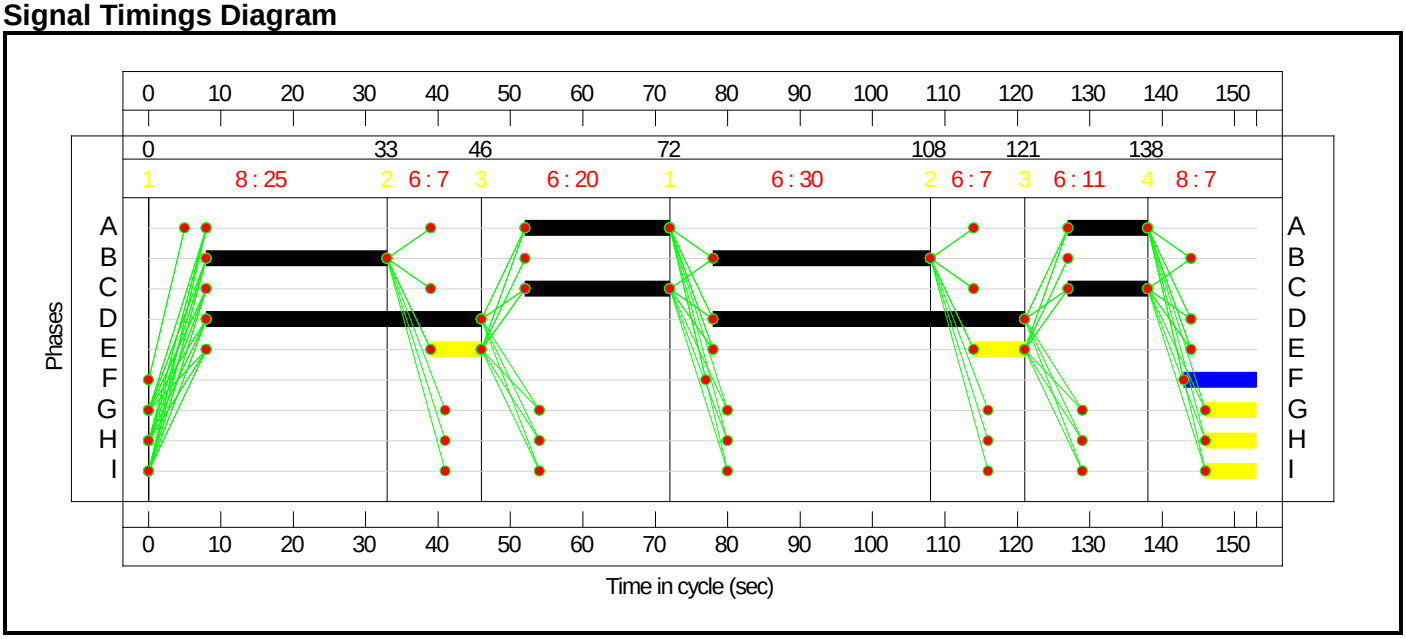
Stage Sequence Diagram



Stage Timings

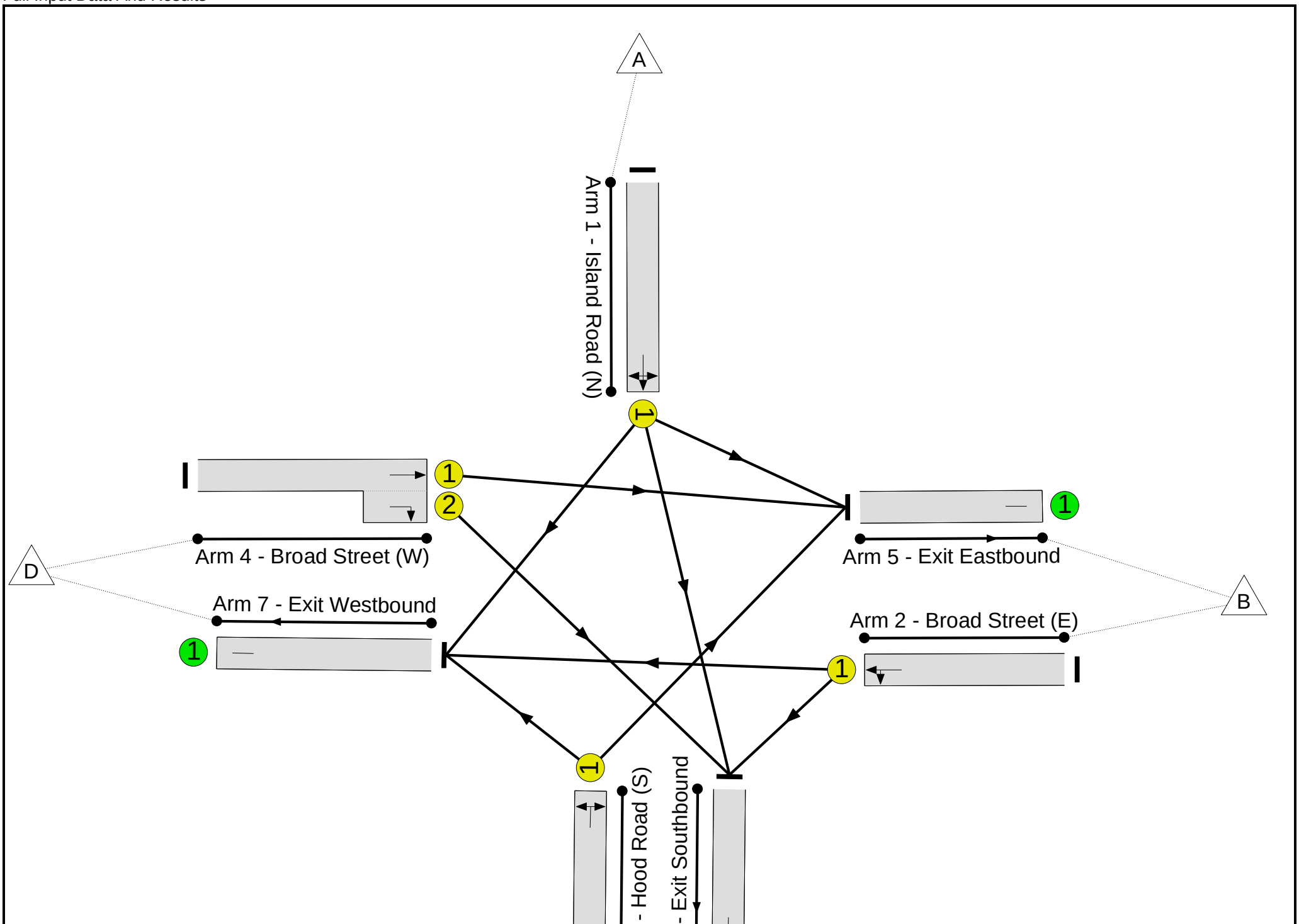
Stage	1	2	3	1	2	3	4
Duration	25	7	20	30	7	11	7
Change Point	0	33	46	72	108	121	138

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A
Arm 1 - Island Road (N)
1
1
2
Arm 4 - Broad Street (W)
D
Arm 7 - Exit Westbound
1
1
Arm 5 - Exit Eastbound
B
Arm 2 - Broad Street (E)
1
1
- Hood Road (S)
- Exit Southbound

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**84.2%**
Unnamed Junction	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**84.2%**
1/1	Island Road (N) Left Ahead Right	U	N/A	N/A	A		2	31	-	75	1778	383	19.6%
2/1	Broad Street (E) Left Ahead	U	N/A	N/A	B		2	55	-	640	2040	760	84.2%
3/1	Hood Road (S) Right Left	U	N/A	N/A	C		2	31	-	305	1682	363	84.1%
4/1+4/2	Broad Street (W) Ahead Right	U	N/A	N/A	D E		2	81:14		585	1920:1734	1038	56.4%
5/1	Exit Eastbound	U	N/A	N/A	-		-	-	-	562	1	Inf	0.0%
6/1	Exit Southbound	U	N/A	N/A	-		-	-	-	82	1	Inf	0.0%
7/1	Exit Westbound	U	N/A	N/A	-		-	-	-	961	1	Inf	0.0%

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**9.1**	**5.8**	**0.0**	**14.9**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**9.1**	**5.8**	**0.0**	**14.9**	**-**	**-**	**-**	**-**
1/1	75	75	-	-	-	0.5	0.1	-	0.6	30.7	1.4	0.1	1.5
2/1	640	640	-	-	-	3.9	2.6	-	6.5	36.5	13.3	2.6	15.9
3/1	305	305	-	-	-	2.5	2.4	-	4.9	57.8	6.8	2.4	9.2
4/1+4/2	585	585	-	-	-	2.2	0.6	-	2.8	17.4	8.6	0.6	9.3
5/1	562	562	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	82	82	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	961	961	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

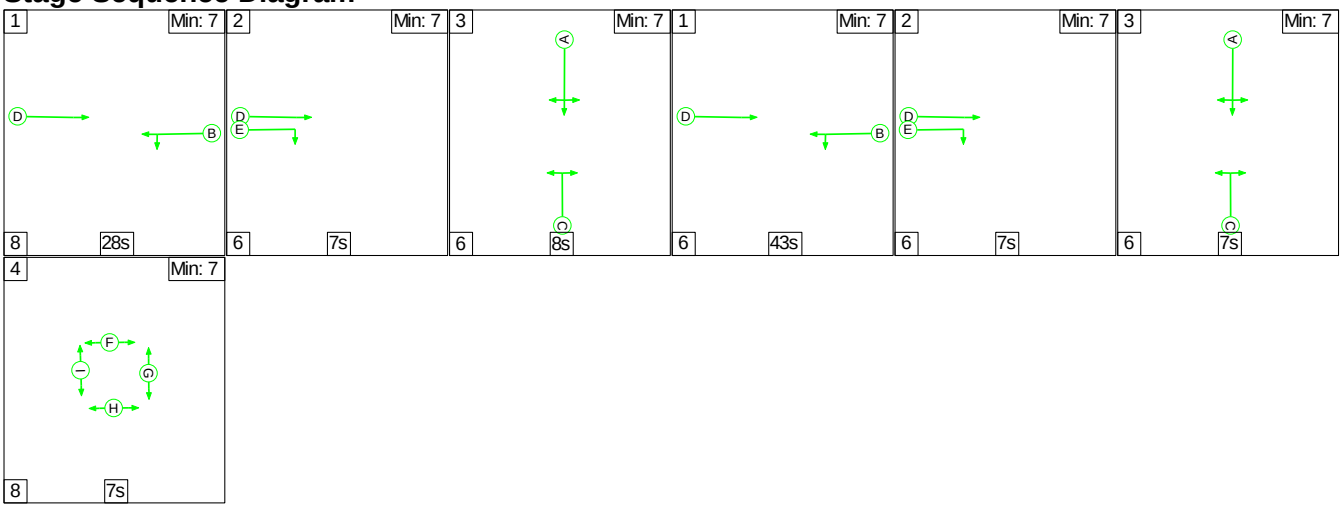
C1 PRC for Signalled Lanes (%): 6.9 Total Delay for Signalled Lanes (pcuHr): 14.85
PRC Over All Lanes (%): 6.9 Total Delay Over All Lanes(pcuHr): 14.85 Cycle Time (s): 153

Full Input Data And Results

Full Input Data And Results

Scenario 3: 'AM 2020 Base' (FG3: 'AM 2020 Base', Plan 1: 'Staging Plan No. 1')

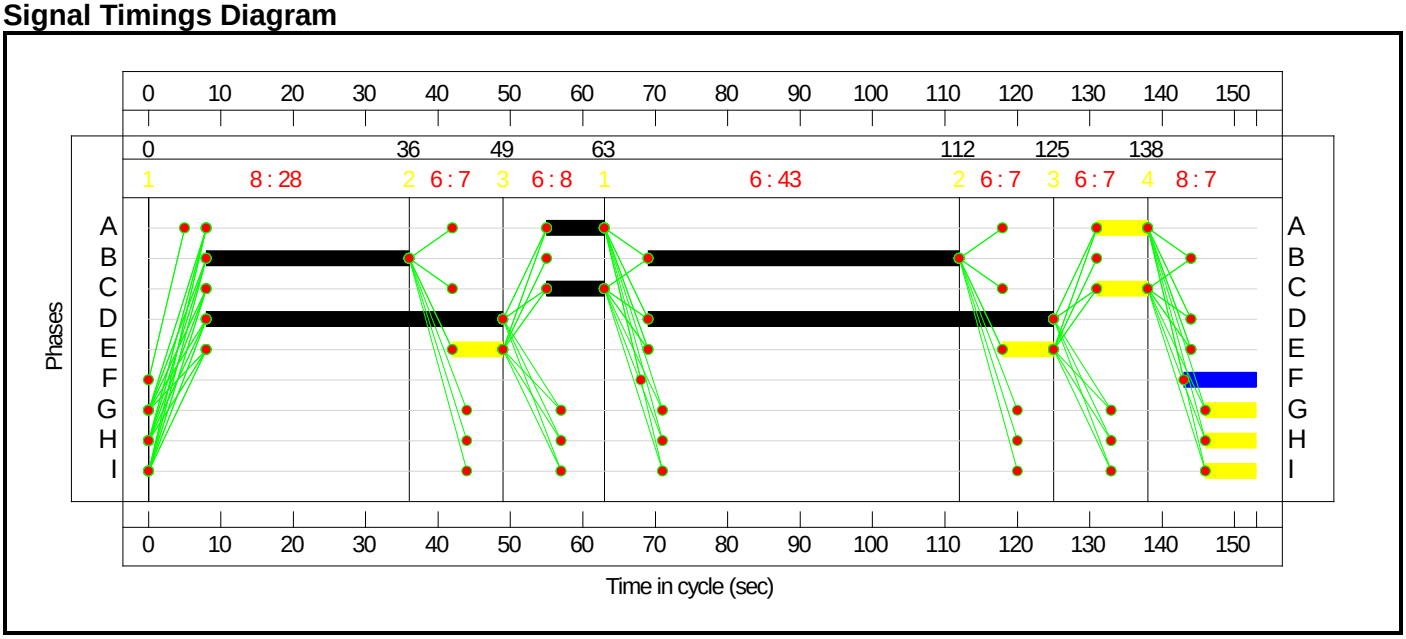
Stage Sequence Diagram



Stage Timings

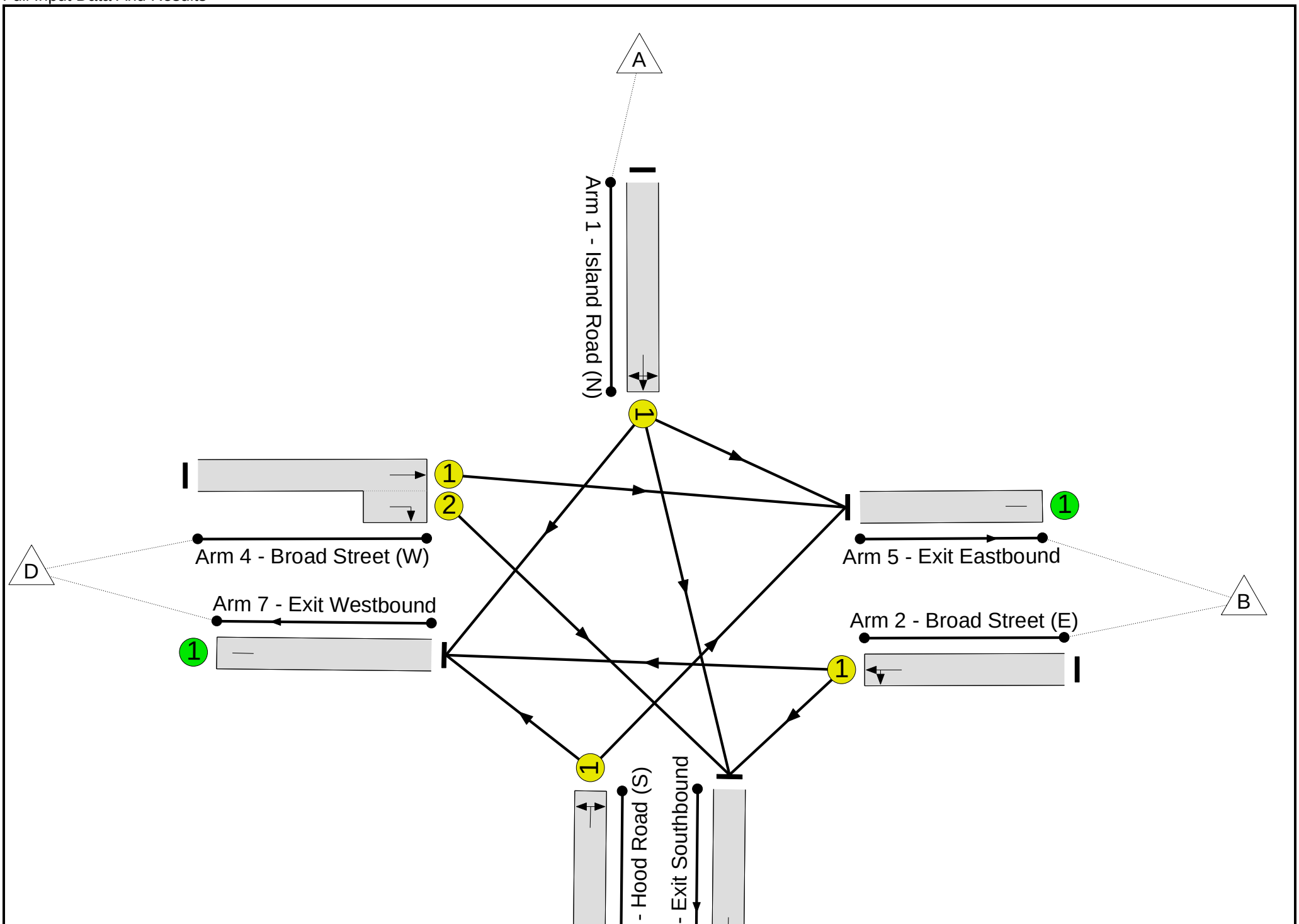
Stage	1	2	3	1	2	3	4
Duration	28	7	8	43	7	7	7
Change Point	0	36	49	63	112	125	138

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A
Arm 1 - Island Road (N)
1
1
2
Arm 4 - Broad Street (W)
D
Arm 7 - Exit Westbound
1
1
Arm 5 - Exit Eastbound
B
Arm 2 - Broad Street (E)
1
1
- Hood Road (S)
- Exit Southbound

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**66.2%**
Unnamed Junction	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**66.2%**
1/1	Island Road (N) Left Ahead Right	U	N/A	N/A	A		2	15	-	79	1816	202	39.2%
2/1	Broad Street (E) Left Ahead	U	N/A	N/A	B		2	71	-	488	2040	973	50.1%
3/1	Hood Road (S) Right Left	U	N/A	N/A	C		2	15	-	124	1685	187	66.2%
4/1+4/2	Broad Street (W) Ahead Right	U	N/A	N/A	D E		2	97:14		811	1920:1734	1236	65.6%
5/1	Exit Eastbound	U	N/A	N/A	-		-	-	-	766	1	Inf	0.0%
6/1	Exit Southbound	U	N/A	N/A	-		-	-	-	108	1	Inf	0.0%
7/1	Exit Westbound	U	N/A	N/A	-		-	-	-	628	1	Inf	0.0%

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**6.2**	**2.7**	**0.0**	**9.0**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**6.2**	**2.7**	**0.0**	**9.0**	**-**	**-**	**-**	**-**
1/1	79	79	-	-	-	0.7	0.3	-	1.0	46.2	1.6	0.3	1.9
2/1	488	488	-	-	-	1.9	0.5	-	2.4	18.0	8.5	0.5	9.0
3/1	124	124	-	-	-	1.1	1.0	-	2.1	60.3	2.5	1.0	3.5
4/1+4/2	811	811	-	-	-	2.5	0.9	-	3.4	15.2	13.2	0.9	14.2
5/1	766	766	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	108	108	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	628	628	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

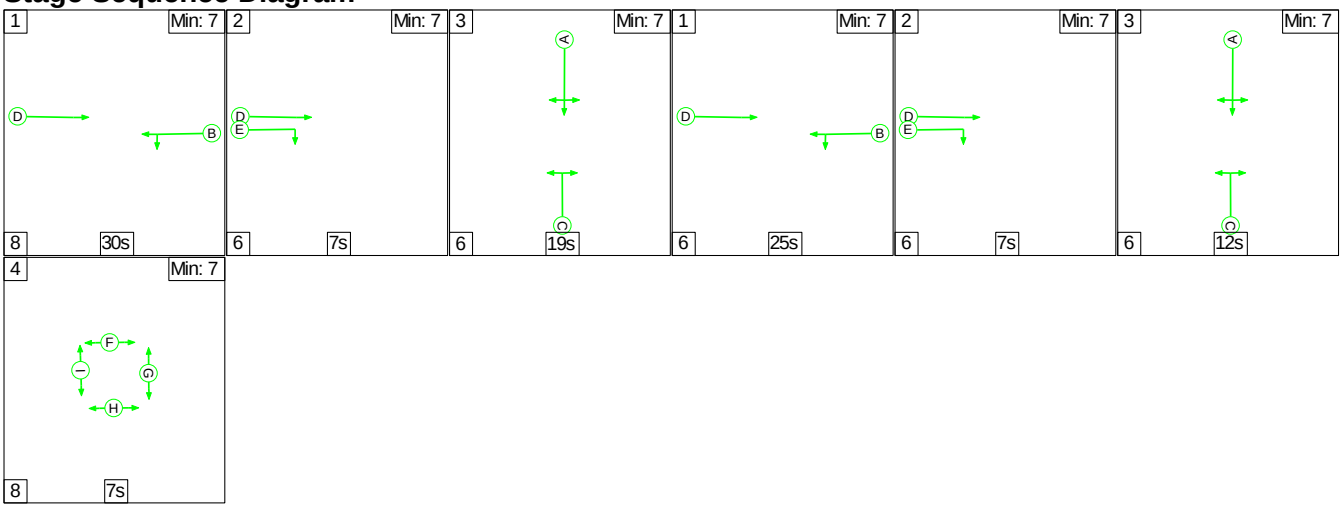
C1 PRC for Signalled Lanes (%): 35.9 Total Delay for Signalled Lanes (pcuHr): 8.96
PRC Over All Lanes (%): 35.9 Total Delay Over All Lanes(pcuHr): 8.96 Cycle Time (s): 153

Full Input Data And Results

Full Input Data And Results

Scenario 4: 'PM 2020 Base' (FG4: 'PM 2020 Base', Plan 1: 'Staging Plan No. 1')

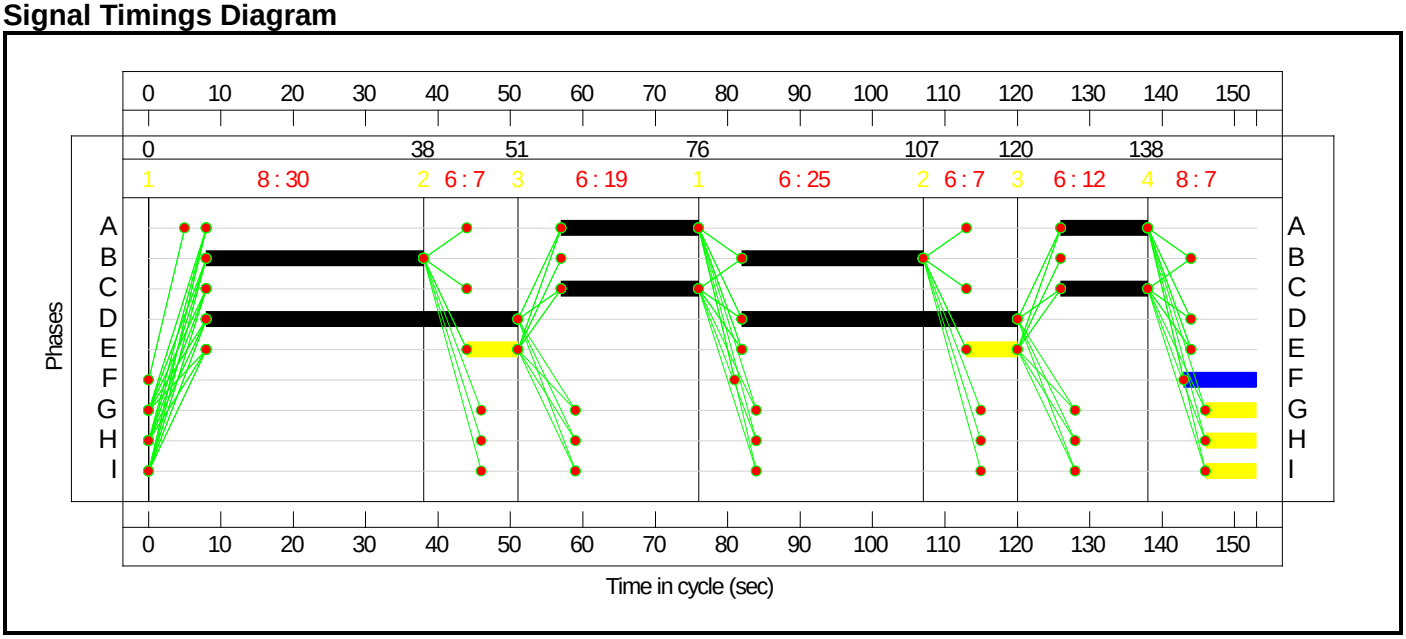
Stage Sequence Diagram



Stage Timings

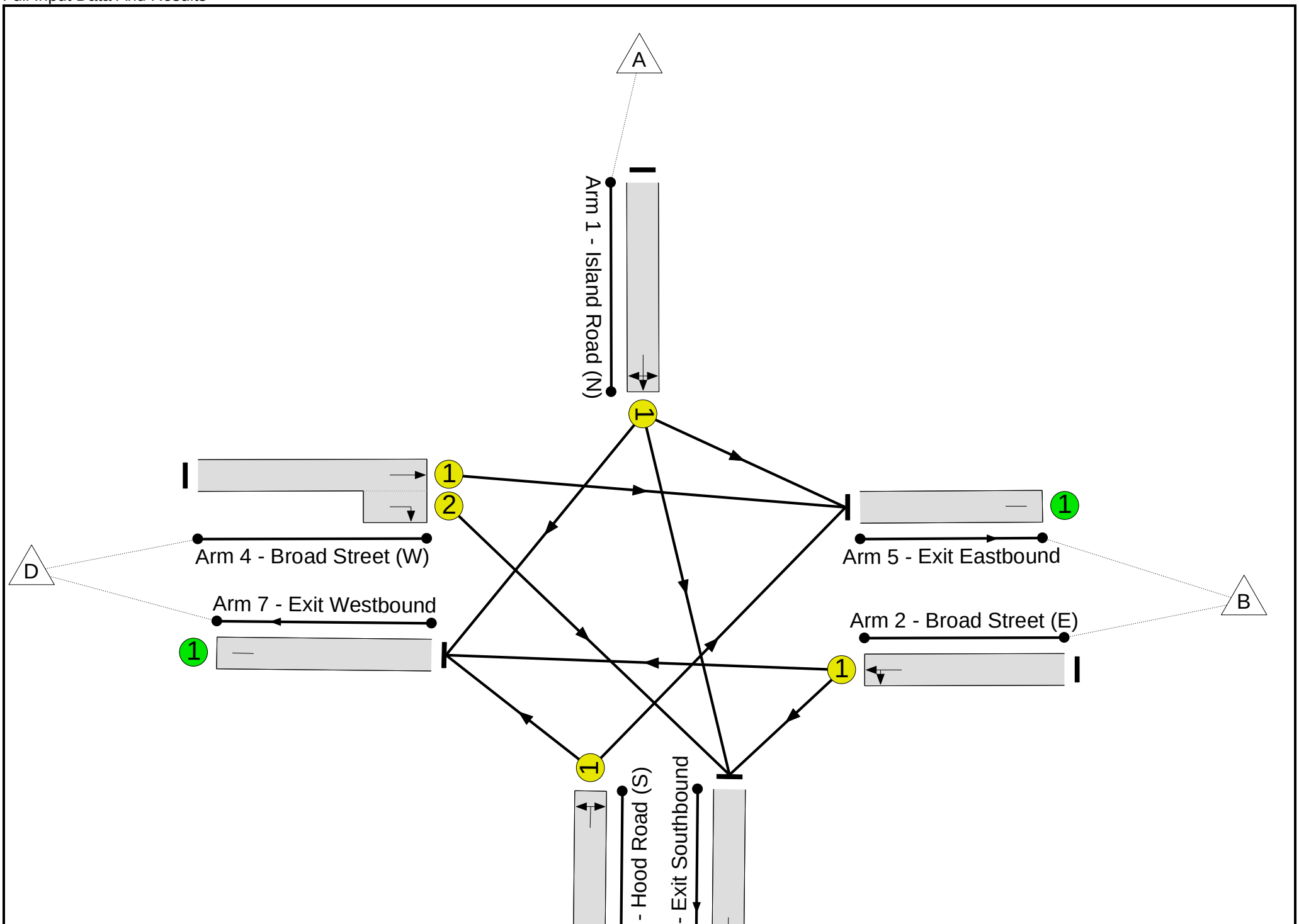
Stage	1	2	3	1	2	3	4
Duration	30	7	19	25	7	12	7
Change Point	0	38	51	76	107	120	138

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A
Arm 1 - Island Road (N)
1
1
2
Arm 4 - Broad Street (W)
D
Arm 7 - Exit Westbound
1
1
Arm 5 - Exit Eastbound
B
Arm 2 - Broad Street (E)
1
1
- Hood Road (S)
- Exit Southbound

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	-	-	-	-	-	-	-	-	-	-	**98.1%**
Unnamed Junction	-	-	-	-	-	-	-	-	-	-	-	-	**98.1%**
1/1	Island Road (N) Left Ahead Right	U	N/A	N/A	A		2	31	-	87	1776	383	22.7%
2/1	Broad Street (E) Left Ahead	U	N/A	N/A	B		2	55	-	745	2039	760	98.1%
3/1	Hood Road (S) Right Left	U	N/A	N/A	C		2	31	-	354	1682	363	97.6%
4/1+4/2	Broad Street (W) Ahead Right	U	N/A	N/A	D E		2	81:14		680	1920:1734	1038	65.5%
5/1	Exit Eastbound	U	N/A	N/A	-		-	-	-	654	1	Inf	0.0%
6/1	Exit Southbound	U	N/A	N/A	-		-	-	-	95	1	Inf	0.0%
7/1	Exit Westbound	U	N/A	N/A	-		-	-	-	1117	1	Inf	0.0%

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	**0**	**0**	**0**	**11.3**	**19.0**	**0.0**	**30.4**	-	-	-	-
Unnamed Junction	-	-	**0**	**0**	**0**	**11.3**	**19.0**	**0.0**	**30.4**	-	-	-	-
1/1	87	87	-	-	-	0.6	0.1	-	0.8	31.7	1.8	0.1	1.9
2/1	745	745	-	-	-	5.0	10.5	-	15.4	74.6	17.2	10.5	27.6
3/1	354	354	-	-	-	3.0	7.5	-	10.5	106.8	8.8	7.5	16.2
4/1+4/2	680	680	-	-	-	2.7	0.9	-	3.7	19.4	11.2	0.9	12.1
5/1	654	654	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	95	95	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	1117	1117	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

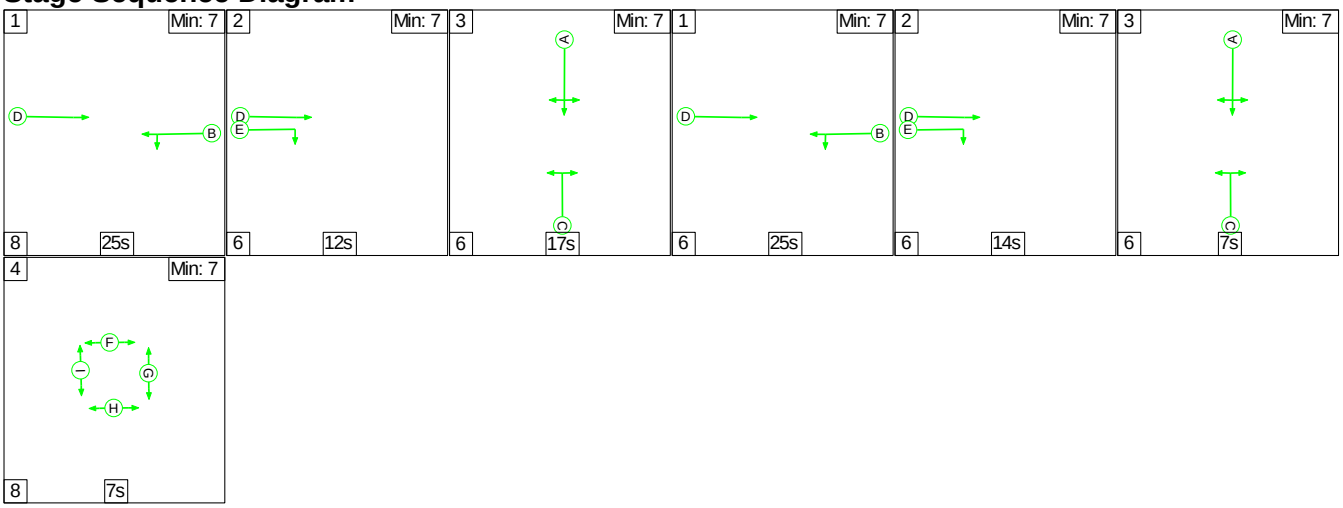
C1 PRC for Signalled Lanes (%): -9.0 Total Delay for Signalled Lanes (pcuHr): 30.37
PRC Over All Lanes (%): -9.0 Total Delay Over All Lanes(pcuHr): 30.37 Cycle Time (s): 153

Full Input Data And Results

Full Input Data And Results

Scenario 5: 'AM 2020 Dev + BI' (FG5: 'AM 2020 Dev + BI', Plan 1: 'Staging Plan No. 1')

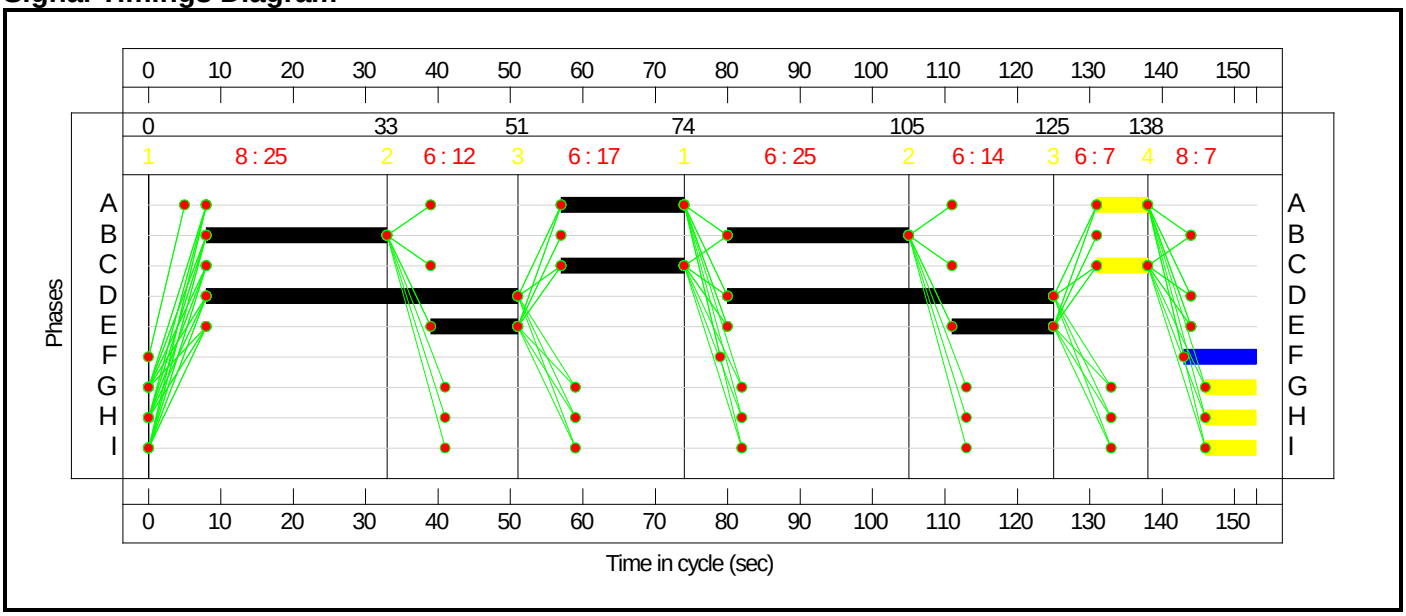
Stage Sequence Diagram



Stage Timings

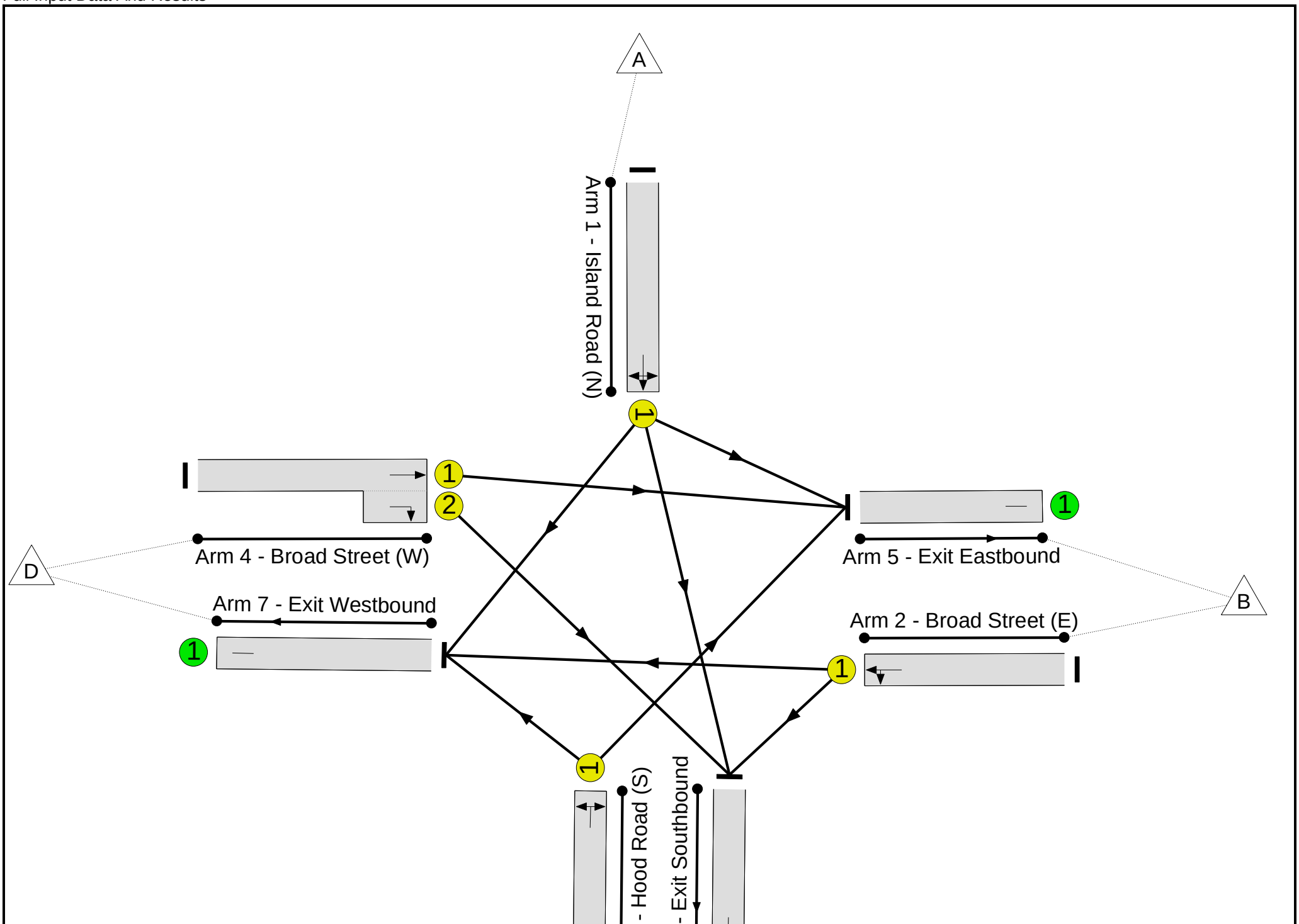
Stage	1	2	3	1	2	3	4
Duration	25	12	17	25	14	7	7
Change Point	0	33	51	74	105	125	138

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A
Arm 1 - Island Road (N)
1
1
2
Arm 4 - Broad Street (W)
D
Arm 7 - Exit Westbound
1
1
Arm 5 - Exit Eastbound
B
Arm 2 - Broad Street (E)
1
1
- Hood Road (S)
- Exit Southbound

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**58.1%**
Unnamed Junction	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**58.1%**
1/1	Island Road (N) Left Ahead Right	U	N/A	N/A	A		2	24	-	79	1816	309	25.6%
2/1	Broad Street (E) Left Ahead	U	N/A	N/A	B		2	50	-	401	2039	693	57.9%
3/1	Hood Road (S) Right Left	U	N/A	N/A	C		2	24	-	161	1684	286	56.3%
4/1+4/2	Broad Street (W) Ahead Right	U	N/A	N/A	D E		2	88:26		646	1920:1734	1112	58.1%
5/1	Exit Eastbound	U	N/A	N/A	-		-	-	-	577	1	Inf	0.0%
6/1	Exit Southbound	U	N/A	N/A	-		-	-	-	132	1	Inf	0.0%
7/1	Exit Westbound	U	N/A	N/A	-		-	-	-	578	1	Inf	0.0%

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**6.5**	**2.2**	**0.0**	**8.6**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**6.5**	**2.2**	**0.0**	**8.6**	**-**	**-**	**-**	**-**
1/1	79	79	-	-	-	0.6	0.2	-	0.8	35.8	1.6	0.2	1.8
2/1	401	401	-	-	-	2.3	0.7	-	3.0	27.1	7.6	0.7	8.3
3/1	161	161	-	-	-	1.3	0.6	-	2.0	43.8	3.5	0.6	4.1
4/1+4/2	646	646	-	-	-	2.2	0.7	-	2.9	16.1	8.8	0.7	9.5
5/1	577	577	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	132	132	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	578	578	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

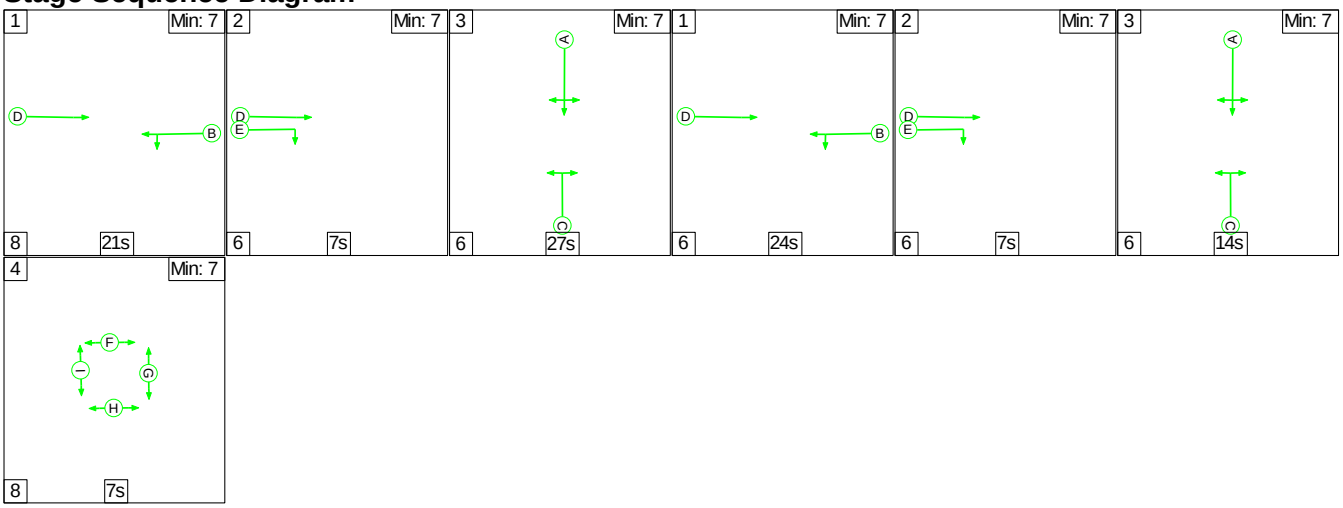
C1 PRC for Signalled Lanes (%): 54.9 Total Delay for Signalled Lanes (pcuHr): 8.65
PRC Over All Lanes (%): 54.9 Total Delay Over All Lanes(pcuHr): 8.65 Cycle Time (s): 153

Full Input Data And Results

Full Input Data And Results

Scenario 6: 'PM 2020 Dev + BI' (FG6: 'PM 2020 Dev + BI', Plan 1: 'Staging Plan No. 1')

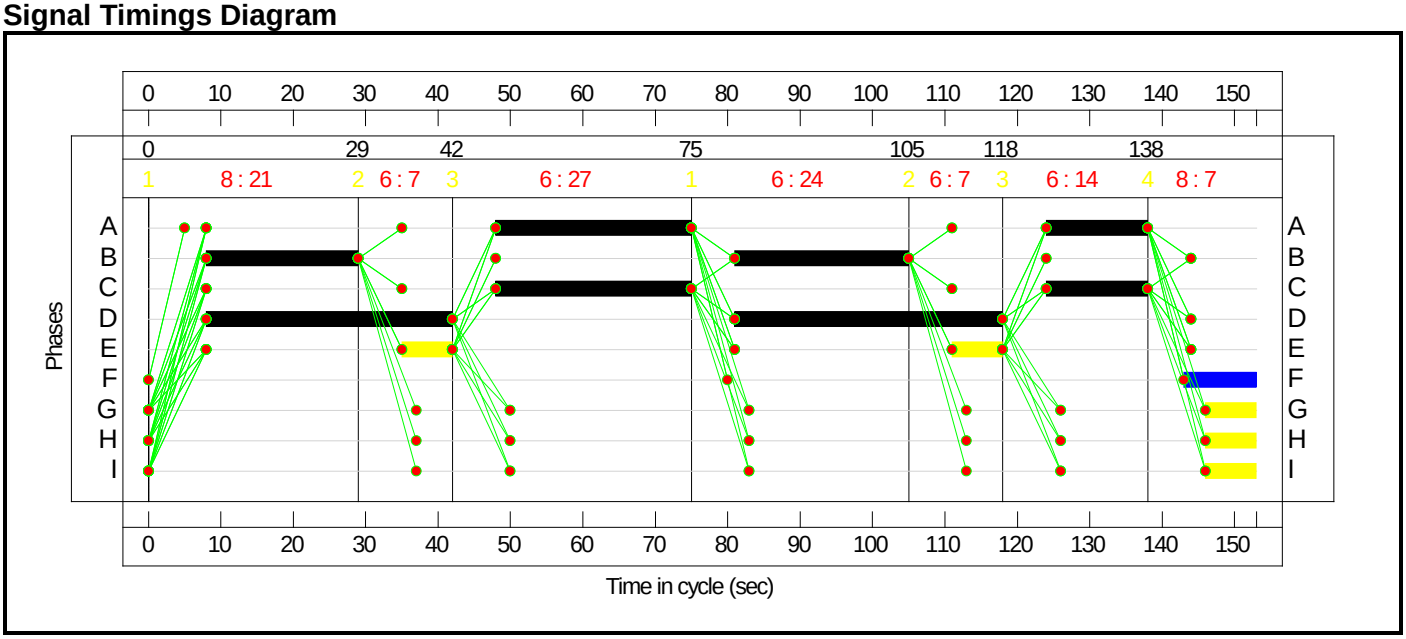
Stage Sequence Diagram



Stage Timings

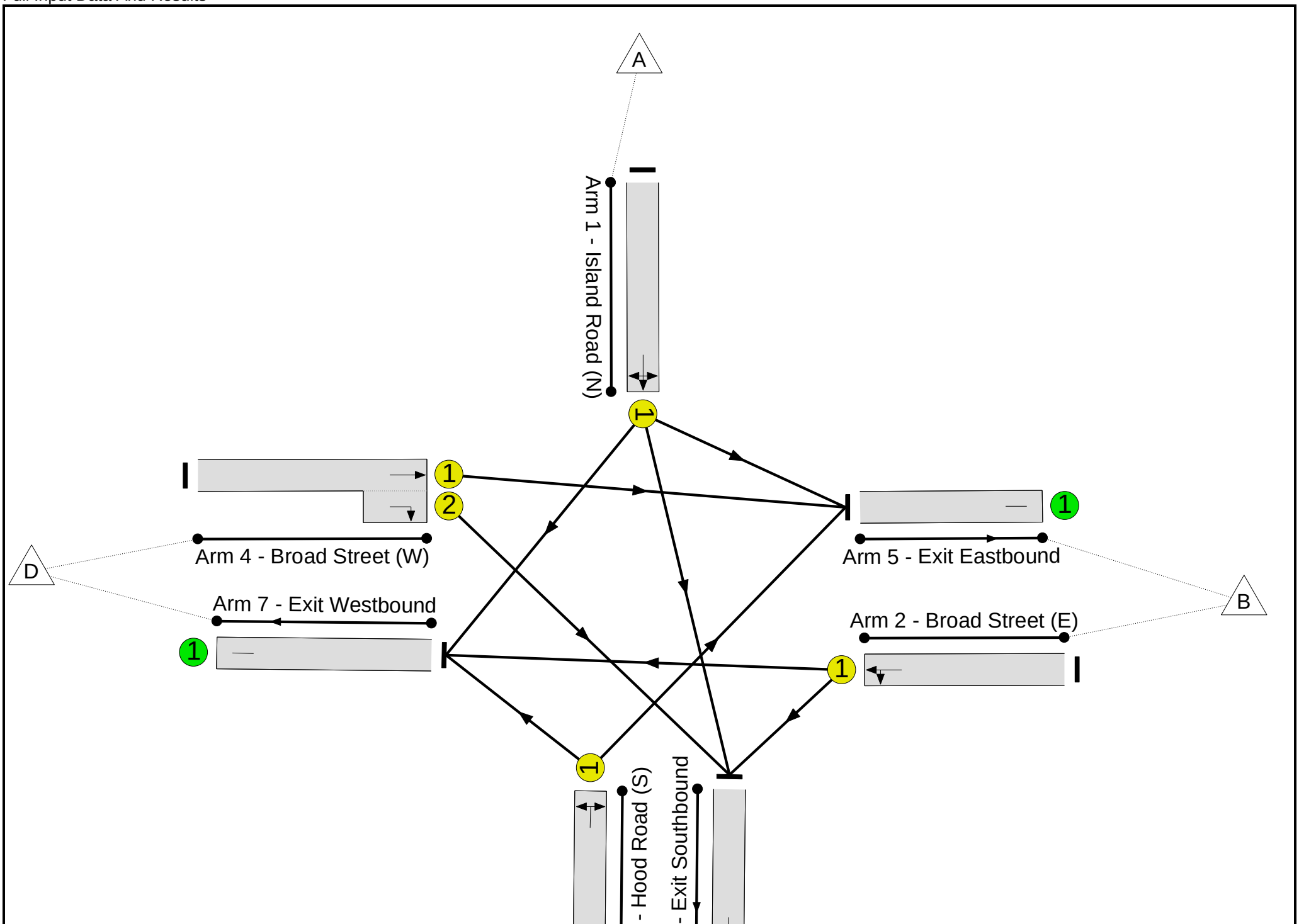
Stage	1	2	3	1	2	3	4
Duration	21	7	27	24	7	14	7
Change Point	0	29	42	75	105	118	138

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A
Arm 1 - Island Road (N)
1
1
2
Arm 4 - Broad Street (W)
D
Arm 7 - Exit Westbound
1
1
Arm 5 - Exit Eastbound
B
Arm 2 - Broad Street (E)
1
1
- Hood Road (S)
- Exit Southbound

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**83.7%**
Unnamed Junction	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**83.7%**
1/1	Island Road (N) Left Ahead Right	U	N/A	N/A	A		2	41	-	87	1776	499	17.4%
2/1	Broad Street (E) Left Ahead	U	N/A	N/A	B		2	45	-	524	2037	626	83.7%
3/1	Hood Road (S) Right Left	U	N/A	N/A	C		2	41	-	387	1682	473	81.9%
4/1+4/2	Broad Street (W) Ahead Right	U	N/A	N/A	D E		2	71:14		598	1920:1734	860	69.5%
5/1	Exit Eastbound	U	N/A	N/A	-		-	-	-	533	1	Inf	0.0%
6/1	Exit Southbound	U	N/A	N/A	-		-	-	-	134	1	Inf	0.0%
7/1	Exit Westbound	U	N/A	N/A	-		-	-	-	929	1	Inf	0.0%

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**9.9**	**5.8**	**0.0**	**15.7**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**9.9**	**5.8**	**0.0**	**15.7**	**-**	**-**	**-**	**-**
1/1	87	87	-	-	-	0.5	0.1	-	0.6	25.5	1.6	0.1	1.7
2/1	524	524	-	-	-	3.6	2.5	-	6.1	41.6	10.8	2.5	13.2
3/1	387	387	-	-	-	2.8	2.1	-	5.0	46.1	8.6	2.1	10.7
4/1+4/2	598	598	-	-	-	3.0	1.1	-	4.1	24.7	9.3	1.1	10.5
5/1	533	533	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	134	134	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	929	929	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

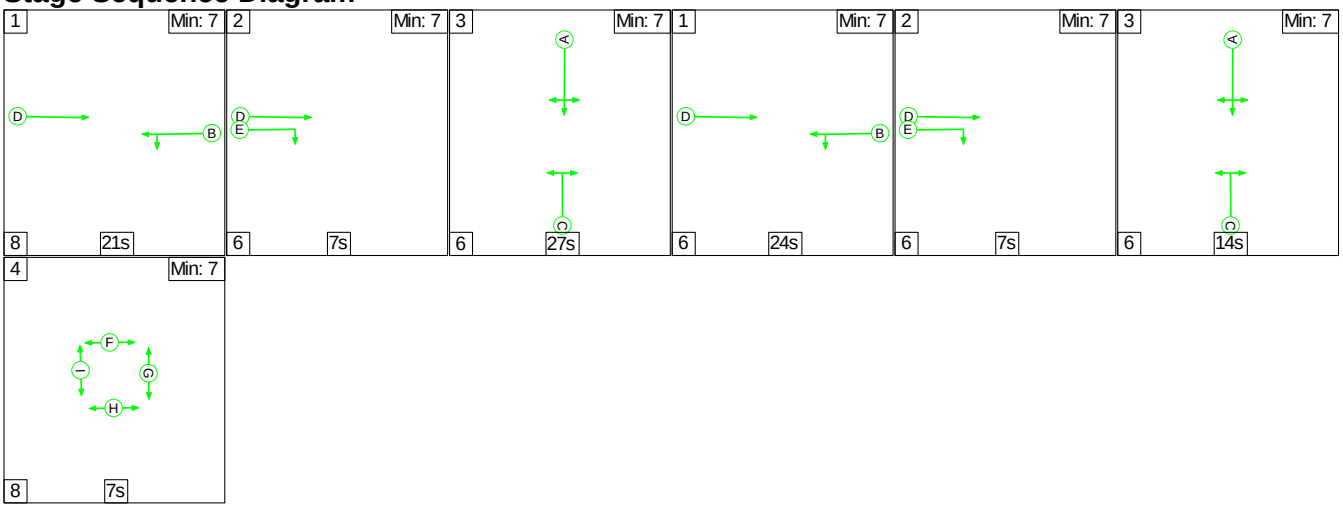
C1 PRC for Signalled Lanes (%): 7.5 Total Delay for Signalled Lanes (pcuHr): 15.73
PRC Over All Lanes (%): 7.5 Total Delay Over All Lanes(pcuHr): 15.73 Cycle Time (s): 153

Full Input Data And Results

Full Input Data And Results

Scenario 7: 'PM 2020 Dev + Tourism' (FG7: '2020 Dev + Tour', Plan 1: 'Staging Plan No. 1')

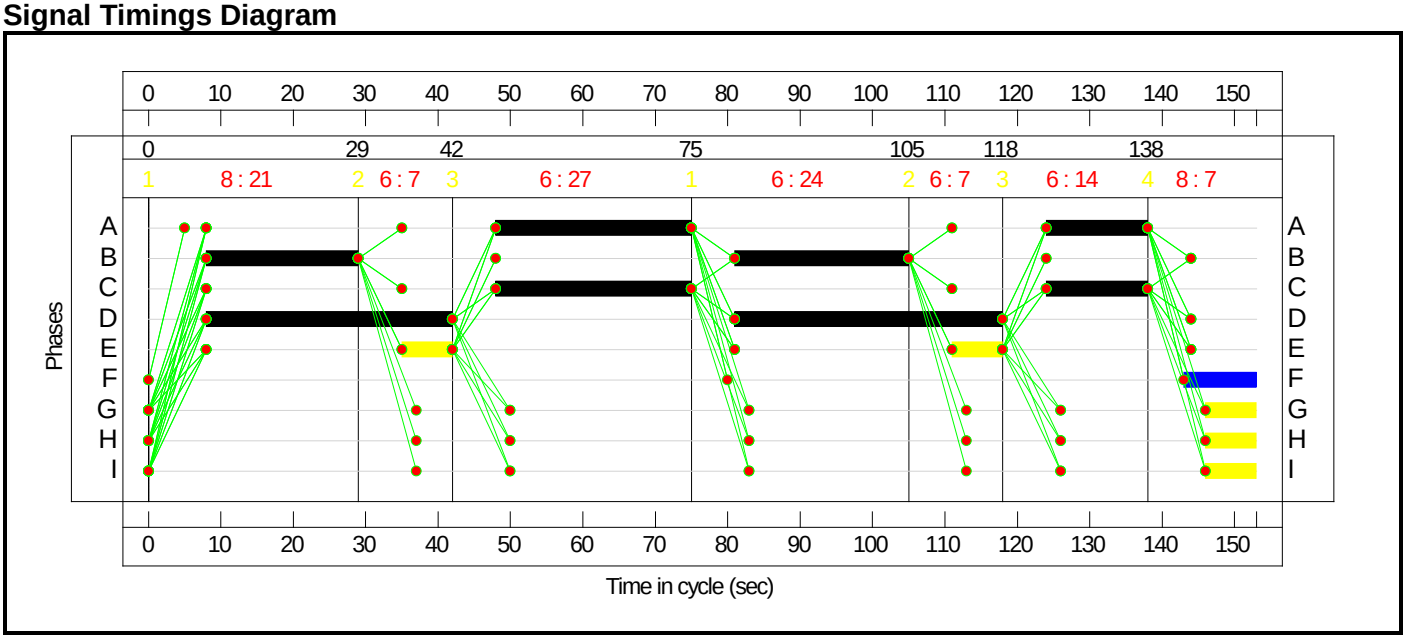
Stage Sequence Diagram



Stage Timings

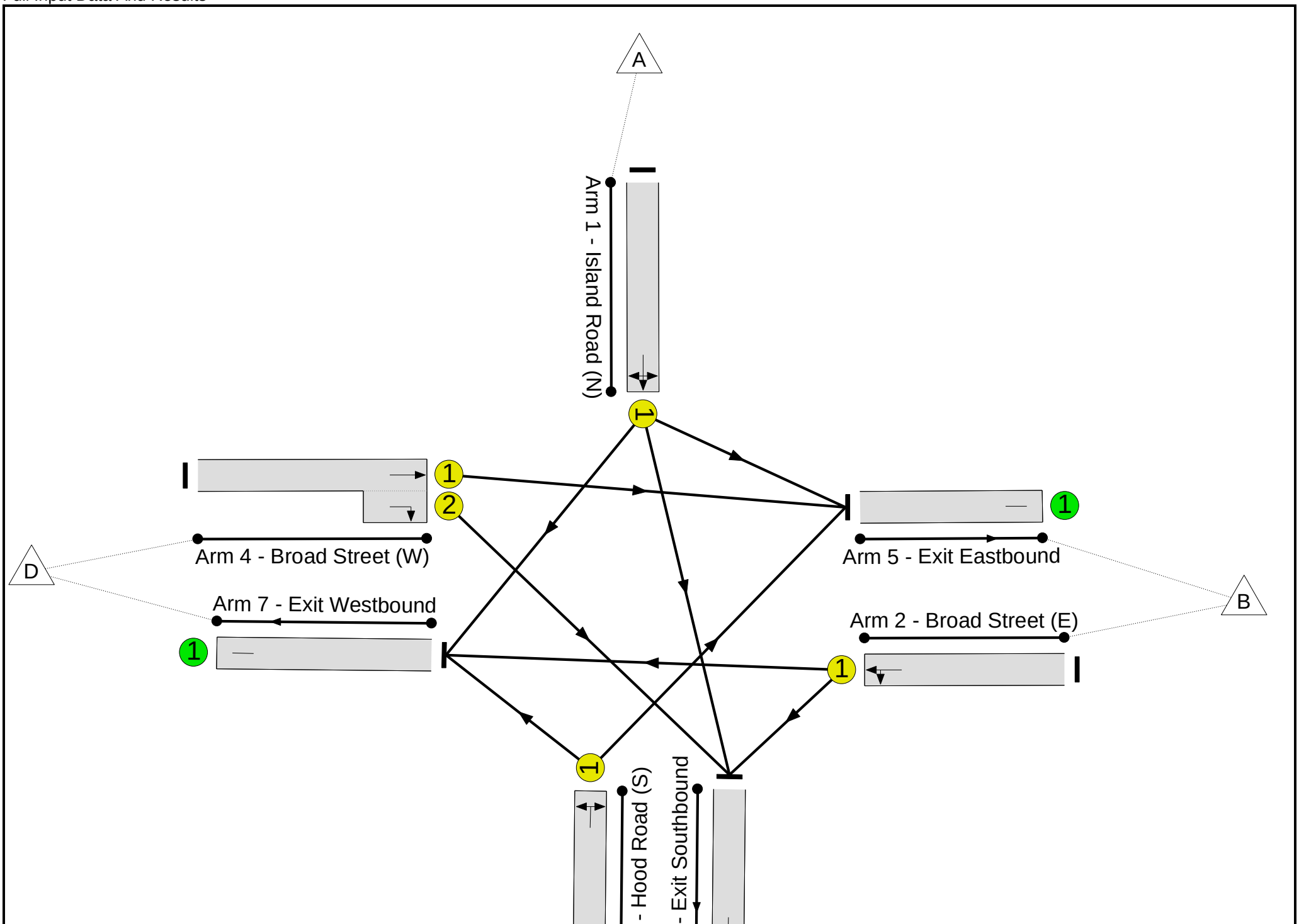
Stage	1	2	3	1	2	3	4
Duration	21	7	27	24	7	14	7
Change Point	0	29	42	75	105	118	138

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A
Arm 1 - Island Road (N)
1
1
2
Arm 4 - Broad Street (W)
D
Arm 7 - Exit Westbound
1
1
Arm 5 - Exit Eastbound
B
Arm 2 - Broad Street (E)
1
1
- Hood Road (S)
- Exit Southbound

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**83.7%**
Unnamed Junction	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**83.7%**
1/1	Island Road (N) Left Ahead Right	U	N/A	N/A	A		2	41	-	87	1776	499	17.4%
2/1	Broad Street (E) Left Ahead	U	N/A	N/A	B		2	45	-	524	2037	626	83.7%
3/1	Hood Road (S) Right Left	U	N/A	N/A	C		2	41	-	387	1682	473	81.9%
4/1+4/2	Broad Street (W) Ahead Right	U	N/A	N/A	D E		2	71:14		598	1920:1734	860	69.5%
5/1	Exit Eastbound	U	N/A	N/A	-		-	-	-	533	1	Inf	0.0%
6/1	Exit Southbound	U	N/A	N/A	-		-	-	-	134	1	Inf	0.0%
7/1	Exit Westbound	U	N/A	N/A	-		-	-	-	929	1	Inf	0.0%

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**9.9**	**5.8**	**0.0**	**15.7**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**9.9**	**5.8**	**0.0**	**15.7**	**-**	**-**	**-**	**-**
1/1	87	87	-	-	-	0.5	0.1	-	0.6	25.5	1.6	0.1	1.7
2/1	524	524	-	-	-	3.6	2.5	-	6.1	41.6	10.8	2.5	13.2
3/1	387	387	-	-	-	2.8	2.1	-	5.0	46.1	8.6	2.1	10.7
4/1+4/2	598	598	-	-	-	3.0	1.1	-	4.1	24.7	9.3	1.1	10.5
5/1	533	533	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	134	134	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	929	929	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 7.5 Total Delay for Signalled Lanes (pcuHr): 15.73
PRC Over All Lanes (%): 7.5 Total Delay Over All Lanes(pcuHr): 15.73 Cycle Time (s): 153

Full Input Data And Results

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.0 ANALYSIS PROGRAM
RELEASE 3.0 (JUNE 2006)

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TRL SOFTWARE BUREAU
TEL: CROWTHORNE (01344) 770758, FAX: 770864
EMAIL: SoftwareBureau@trl.co.uk

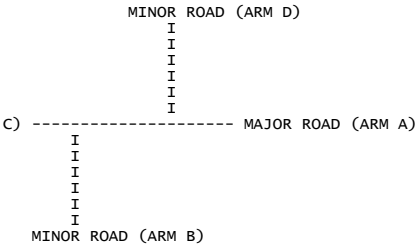
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\
11.Buttrills Rd_Barry Road\Buttrills Rd_Barry Rd Stagger Jnctn.vpi"
(drive-on-the-left) at 13:36:14 on Tuesday, 23 December 2008

.RUN INFORMATION
****

RUN TITLE: Buttrills Rd_Barry Rd Stagger junction
LOCATION:
DATE: 25/03/08
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS Barry Rd (E)
ARM B IS Buttrills Road (S)
ARM C IS Barry Rd (W)
ARM D IS East Walk (N)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 14.00 M.	(W) 7.34 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 4.00 M.	(WA-D) 2.20 M.
- VISIBILITY	(VC-B) 183.0 M.	(VA-D) 200.0 M.
- BLOCKS TRAFFIC	NO	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 20.0 M.	(VD-A) 47.0 M.
- VISIBILITY TO RIGHT	(VB-A) 145.0 M.	(VD-C) 31.0 M.
- LANE 1 WIDTH	(WB-C) -	(WD-A) -
- LANE 2 WIDTH	(WB-A) -	(WD-C) -
- WIDTH AT 0 M FROM JUNC.	10.00 M.	10.00 M.
- WIDTH AT 5 M FROM JUNC.	6.45 M.	6.04 M.
- WIDTH AT 10 M FROM JUNC.	5.07 M.	3.48 M.
- WIDTH AT 15 M FROM JUNC.	5.04 M.	3.33 M.
- WIDTH AT 20 M FROM JUNC.	5.07 M.	3.30 M.
- LENGTH OF FLARED SECTION	DERIVED: 3 PCU	DERIVED: 1 PCU

.SLOPES AND INTERCPET

(NB:Streams may be combined, in which case capacity

will be adjusted)

B-C Stream

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream D-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-B
657.93	0.17	0.17	0.07	0.07

B-AD Stream

Intercept For Stream B-AD	Slope For Opposing Stream A-C	Slope For Opposing Stream D-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-B
510.53	0.15	0.15	0.06	0.06

	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing Stream C-B	Slope For Opposing
	0.10	0.10	0.22	

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream D-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-B
591.92	0.22	0.15	0.09	0.06

D-BC Stream

Intercept For Stream D-BC	Slope For Opposing Stream C-A	Slope For Opposing Stream B-A	Slope For Opposing Stream C-D	Slope For Opposing Stream B-D
467.38	0.20	0.20	0.08	0.08

	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing Stream A-D	Slope For Opposing
	0.13	0.13	0.29	

C-B Stream

Intercept For Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-C	Slope For Opposing Stream D-B
813.14	0.21	0.21	0.21	0.21

A-D Stream

Intercept For Stream A-D	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing Stream B-A	Slope For Opposing Stream B-D
813.14	0.25	0.25	0.25	0.25

.

.TRAFFIC DEMAND DATA

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

Demand set: AM 2008 Base

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 TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	7.66	11.49	7.66
ARM B	15.00	45.00	75.00	3.72	5.59	3.72
ARM C	15.00	45.00	75.00	11.35	17.03	11.35
ARM D	15.00	45.00	75.00	0.38	0.56	0.38

.

TIME	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C	ARM D

08.15 - 09.45					
	ARM A	0.000	0.212	0.763	0.024
		0.0	130.0	468.0	15.0
		(0.0)	(2.0)	(3.0)	(20.0)
	ARM B	0.128	0.000	0.872	0.000
		38.0	0.0	260.0	0.0
		(5.0)	(0.0)	(1.0)	(0.0)
	ARM C	0.567	0.416	0.000	0.017
		515.0	378.0	0.0	15.0
		(2.0)	(2.0)	(0.0)	(0.0)
	ARM D	0.500	0.000	0.500	0.000
		15.0	0.0	15.0	0.0
		(13.0)	(0.0)	(7.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2008 Base
AND FOR TIME PERIOD 1

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									
B-C	3.26	12.03	0.271		0.00	0.37	5.3		0.11
B-AD	0.48	5.15	0.093		0.00	0.10	1.4		0.21
A-B	1.63								
A-C	5.87								
A-D	0.19	8.05	0.023		0.00	0.02	0.3		0.13
D-A	0.19	8.74	0.022		0.00	0.02	0.3		0.12
D-BC	0.19	5.92	0.032		0.00	0.03	0.5		0.17
C-D	0.19								
C-A	6.46								
C-B	4.74	11.69	0.406		0.00	0.67	9.6		0.14

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)
08.30-08.45									
B-C	3.90	11.66	0.334		0.37	0.50	7.2		0.13
B-AD	0.57	4.65	0.122		0.10	0.14	2.0		0.24
A-B	1.95								
A-C	7.01								
A-D	0.22	7.76	0.029		0.02	0.03	0.4		0.13
D-A	0.22	8.40	0.027		0.02	0.03	0.4		0.12
D-BC	0.22	5.37	0.042		0.03	0.04	0.6		0.19
C-D	0.22								
C-A	7.72								
C-B	5.66	11.38	0.498		0.67	0.97	13.9		0.17

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)
08.45-09.00									
B-C	4.77	11.13	0.429		0.50	0.74	10.7		0.16
B-AD	0.70	3.95	0.177		0.14	0.21	3.0		0.31
A-B	2.39								
A-C	8.59								
A-D	0.28	7.35	0.037		0.03	0.04	0.6		0.14
D-A	0.28	7.93	0.035		0.03	0.04	0.5		0.13
D-BC	0.28	4.62	0.060		0.04	0.06	0.9		0.23
C-D	0.28								
C-A	9.45								
C-B	6.94	10.96	0.633		0.97	1.66	23.2		0.24

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)
09.00-09.15									
B-C	4.77	11.12	0.429		0.74	0.74	11.1		0.16
B-AD	0.70	3.94	0.177		0.21	0.21	3.2		0.31
A-B	2.39								
A-C	8.59								
A-D	0.28	7.34	0.037		0.04	0.04	0.6		0.14
D-A	0.28	7.93	0.035		0.04	0.04	0.5		0.13
D-BC	0.28	4.62	0.060		0.06	0.06	0.9		0.23
C-D	0.28								
C-A	9.45								
C-B	6.94	10.96	0.633		1.66	1.69	25.1		0.25

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)
09.15-09.30									
B-C	3.90	11.65	0.334		0.74	0.51	7.9		0.13
B-AD	0.57	4.63	0.123		0.21	0.14	2.2		0.25
A-B	1.95								
A-C	7.01								
A-D	0.22	7.75	0.029		0.04	0.03	0.5		0.13
D-A	0.22	8.40	0.027		0.04	0.03	0.4		0.12
D-BC	0.22	5.37	0.042		0.06	0.04	0.7		0.19
C-D	0.22								
C-A	7.72								
C-B	5.66	11.38	0.498		1.69	1.01	16.0		0.18

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)
09.30-09.45									
B-C	3.26	12.02	0.271		0.51	0.38	5.8		0.11
B-AD	0.48	5.13	0.093		0.14	0.10	1.6		0.22
A-B	1.63								
A-C	5.87								
A-D	0.19	8.05	0.023		0.03	0.02	0.4		0.13
D-A	0.19	8.74	0.022		0.03	0.02	0.3		0.12
D-BC	0.19	5.91	0.032		0.04	0.03	0.5		0.17
C-D	0.19								
C-A	6.46								
C-B	4.74	11.69	0.406		1.01	0.69	10.8		0.14

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.4	
08.45	0.5	
09.00	0.7	*
09.15	0.7	*
09.30	0.5	*
09.45	0.4	

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.2
09.15	0.2
09.30	0.1
09.45	0.1

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.0	
08.45	0.0	
09.00	0.1	
09.15	0.1	
09.30	0.0	
09.45	0.0	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.7	*
08.45	1.0	*
09.00	1.7	**
09.15	1.7	**
09.30	1.0	*
09.45	0.7	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	357.9	238.6	48.0	0.13	48.0	0.13
B-AD	52.3	34.9	13.4	0.26	13.4	0.26
A-B	178.9	119.3				
A-C	644.2	429.4				
A-D	20.6	13.8	2.8	0.13	2.8	0.13
D-A	20.6	13.8	2.5	0.12	2.5	0.12
D-BC	20.6	13.8	4.1	0.20	4.1	0.20
C-D	20.6	13.8				
C-A	708.9	472.6				
C-B	520.3	346.9	98.6	0.19	98.6	0.19
ALL	2545.0	1696.7	169.5	0.07	169.5	0.07

* 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

.SLOPES AND INTERCPET

(NB:Streams may be combined, in which case capacity

will be adjusted)

B-C Stream

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream D-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-B
657.93	0.17	0.17	0.07	0.07

B-AD Stream

Intercept For Stream B-AD	Slope For Opposing Stream A-C	Slope For Opposing Stream D-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-B
510.53	0.15	0.15	0.06	0.06

Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing Stream C-B	Slope For Opposing
0.10	0.10	0.22	

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream D-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-B
591.92	0.22	0.15	0.09	0.06

D-BC Stream

Intercept For Stream D-BC	Slope For Opposing Stream C-A	Slope For Opposing Stream B-A	Slope For Opposing Stream C-D	Slope For Opposing Stream B-D
467.38	0.20	0.20	0.08	0.08

Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing Stream A-D	Slope For Opposing
0.13	0.13	0.29	

C-B Stream

Intercept For Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-C	Slope For Opposing Stream D-B
813.14	0.21	0.21	0.21	0.21

A-D Stream

Intercept For Stream A-D	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing Stream B-A	Slope For Opposing Stream B-D
813.14	0.25	0.25	0.25	0.25

.

.TRAFFIC DEMAND DATA

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

Demand set: PM 2008 Base

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 TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK

ARM A	15.00	45.00	75.00	7.11	10.67	7.11
ARM B	15.00	45.00	75.00	5.06	7.59	5.06
ARM C	15.00	45.00	75.00	8.59	12.88	8.59
ARM D	15.00	45.00	75.00	0.32	0.49	0.32

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.135	0.845	0.019
		0.0	77.0	481.0	11.0
		(0.0)	(1.0)	(0.0)	(18.0)
	ARM B	0.146	0.000	0.854	0.000
		59.0	0.0	346.0	0.0
		(0.0)	(0.0)	(1.0)	(0.0)
	ARM C	0.652	0.322	0.000	0.026
		448.0	221.0	0.0	18.0
		(2.0)	(2.0)	(0.0)	(0.0)
	ARM D	0.577	0.000	0.423	0.000
		15.0	0.0	11.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2008 Base
AND FOR TIME PERIOD 2

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									
B-C	4.34	11.94	0.364		0.00	0.56	8.1		0.13
B-AD	0.74	5.96	0.124		0.00	0.14	2.0		0.19
A-B	0.97								
A-C	6.04								
A-D	0.14	8.31	0.017		0.00	0.02	0.2		0.12
D-A	0.19	9.79	0.019		0.00	0.02	0.3		0.10
D-BC	0.14	6.47	0.021		0.00	0.02	0.3		0.16
C-D	0.23								
C-A	5.62								
C-B	2.77	11.85	0.234		0.00	0.30	4.4		0.11

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									
B-C	5.18	11.58	0.448		0.56	0.80	11.5		0.16
B-AD	0.88	5.51	0.160		0.14	0.19	2.7		0.22
A-B	1.15								
A-C	7.21								
A-D	0.16	8.03	0.021		0.02	0.02	0.3		0.13
D-A	0.22	9.45	0.024		0.02	0.02	0.4		0.11
D-BC	0.16	5.95	0.028		0.02	0.03	0.4		0.17
C-D	0.27								
C-A	6.71								
C-B	3.31	11.57	0.286		0.30	0.40	5.8		0.12

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									
B-C	6.35	11.05	0.575		0.80	1.31	18.5		0.21
B-AD	1.08	4.80	0.226		0.19	0.28	4.1		0.27
A-B	1.41								
A-C	8.83								
A-D	0.20	7.65	0.026		0.02	0.03	0.4		0.13
D-A	0.28	8.99	0.031		0.02	0.03	0.5		0.11
D-BC	0.20	5.23	0.039		0.03	0.04	0.6		0.20
C-D	0.33								
C-A	8.22								
C-B	4.06	11.18	0.363		0.40	0.56	8.2		0.14

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									
B-C	6.35	11.04	0.575		1.31	1.33	19.8		0.21
B-AD	1.08	4.79	0.226		0.28	0.29	4.3		0.27
A-B	1.41								
A-C	8.83								
A-D	0.20	7.65	0.026		0.03	0.03	0.4		0.13
D-A	0.28	8.99	0.031		0.03	0.03	0.5		0.11
D-BC	0.20	5.23	0.039		0.04	0.04	0.6		0.20
C-D	0.33								
C-A	8.22								
C-B	4.06	11.18	0.363		0.56	0.57	8.5		0.14

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									
B-C	5.18	11.57	0.448		1.33	0.83	13.0		0.16
B-AD	0.88	5.50	0.161		0.29	0.19	3.0		0.22
A-B	1.15								
A-C	7.21								
A-D	0.16	8.03	0.021		0.03	0.02	0.3		0.13
D-A	0.22	9.45	0.024		0.03	0.02	0.4		0.11
D-BC	0.16	5.94	0.028		0.04	0.03	0.4		0.17
C-D	0.27								
C-A	6.71								
C-B	3.31	11.57	0.286		0.57	0.41	6.3		0.12

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									
B-C	4.34	11.94	0.364		0.83	0.58	9.0		0.13
B-AD	0.74	5.95	0.124		0.19	0.14	2.2		0.19
A-B	0.97								
A-C	6.04								
A-D	0.14	8.31	0.017		0.02	0.02	0.3		0.12
D-A	0.19	9.79	0.019		0.02	0.02	0.3		0.10
D-BC	0.14	6.46	0.021		0.03	0.02	0.3		0.16
C-D	0.23								
C-A	5.62								
C-B	2.77	11.85	0.234		0.41	0.31	4.7		0.11

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.8	*
17.00	1.3	*
17.15	1.3	*
17.30	0.8	*
17.45	0.6	*

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.1
16.45	0.2
17.00	0.3
17.15	0.3
17.30	0.2
17.45	0.1

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.3	
16.45	0.4	
17.00	0.6	*
17.15	0.6	*
17.30	0.4	
17.45	0.3	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * DELAY *	* INCLUSIVE QUEUEING * DELAY *

	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	476.2	317.5	79.9	0.17	80.0	0.17
B-AD	81.2	54.1	18.4	0.23	18.4	0.23
A-B	106.0	70.7				
A-C	662.1	441.4				
A-D	15.1	10.1	1.9	0.13	1.9	0.13
D-A	20.6	13.8	2.2	0.11	2.2	0.11
D-BC	15.1	10.1	2.7	0.18	2.7	0.18
C-D	24.8	16.5				
C-A	616.6	411.1				
C-B	304.2	202.8	37.8	0.12	37.8	0.12
ALL	2322.0	1548.0	143.0	0.06	143.0	0.06

* 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

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

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TRL SOFTWARE BUREAU
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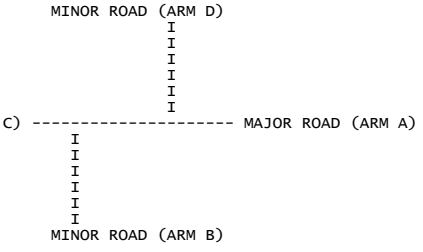
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
11.Buttrills Rd_Barry Road\Buttrills Rd_Barry Rd Stagger Jnctn.vpi"
(drive-on-the-left) at 11:51:53 on Tuesday, 13 April 2010

.RUN INFORMATION

RUN TITLE	: Buttrills Rd_Barry Rd Stagger junction
LOCATION	:
DATE	: 12/04/10
CLIENT	:
ENUMERATOR	: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER	:
STATUS	:
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Barry Rd (E)
ARM B IS Buttrills Road (S)
ARM C IS Barry Rd (W)
ARM D IS East Walk (N)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 14.00 M.	(W) 7.34 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 4.00 M.	(WA-D) 2.20 M.
- VISIBILITY	(VC-B)183.00 M.	(VA-D)200.00 M.
- BLOCKS TRAFFIC	NO	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 20.0 M.	(VD-A) 47.0 M.
- VISIBILITY TO RIGHT	(VB-A) 145.0 M.	(VD-C) 31.0 M.
- LANE 1 WIDTH	(WB-C) -	(WD-A) -
- LANE 2 WIDTH	(WB-A) -	(WD-C) -
WIDTH AT 0 M FROM JUNCTION	10.00 M.	10.00 M.
WIDTH AT 5 M FROM JUNCTION	6.45 M.	6.04 M.
WIDTH AT 10 M FROM JUNCTION	5.07 M.	3.48 M.
WIDTH AT 15 M FROM JUNCTION	5.04 M.	3.33 M.
WIDTH AT 20 M FROM JUNCTION	5.07 M.	3.30 M.
- LENGTH OF FLARED SECTION	DERIVED: 3 PCU	DERIVED: 1 PCU

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

B-C Stream

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

B-AD Stream

Intercept For STREAM B-AD	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

D-A Stream

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

D-BC Stream

Intercept For STREAM D-BC	Slope For Opposing STREAM C-A	Slope For Opposing STREAM B-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-D
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-D
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

C-B Stream

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-C	Slope For Opposing STREAM D-B
813.14	0.21	0.21	0.21	0.21

A-D Stream

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-A	Slope For Opposing STREAM B-D
813.14	0.25	0.25	0.25	0.25

.TRAFFIC DEMAND DATA

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

.Demand set: AM 2020 Base

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	8.91	13.37	8.91
ARM B	15.00	45.00	75.00	4.34	6.51	4.34
ARM C	15.00	45.00	75.00	13.23	19.84	13.23
ARM D	15.00	45.00	75.00	0.43	0.64	0.43

.Demand set: AM 2020 Base

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
08.15 - 08.30	ARM A	0.000	0.212	0.764	0.024
		0.0	151.0	545.0	17.0
		(0.0)	(2.0)	(3.0)	(20.0)
	ARM B	0.127	0.000	0.873	0.000

```
I                  I         I   44.0 I    0.0 I  303.0 I    0.0 I
I                  I         I (  5.0)I (  0.0)I (  1.0)I (  0.0)I
I                  I         I       I       I       I       I
I                  I ARM  C  I  0.567 I  0.417 I  0.000 I  0.016 I
I                  I         I  600.0 I  441.0 I    0.0 I   17.0 I
I                  I         I (  2.0)I (  2.0)I (  0.0)I (  0.0)I
I                  I         I       I       I       I       I
I                  I ARM  D  I  0.500 I  0.000 I  0.500 I  0.000 I
I                  I         I   17.0 I    0.0 I   17.0 I    0.0 I
I                  I         I ( 13.0)I (  0.0)I (  7.0)I (  0.0)I
I                  I         I       I       I       I       I
-------------------------------------------------------------------
TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

             QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
             --------------------------------------------------------

              FOR DEMAND SET         AM 2020 Base
              AND FOR TIME PERIOD       1
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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									
B-C	3.80	11.73	0.324		0.00	0.47	6.8		0.13
B-AD	0.55	4.73	0.117		0.00	0.13	1.8		0.24
A-B	1.89								
A-C	6.84								
A-D	0.21	7.80	0.027		0.00	0.03	0.4		0.13
D-A	0.21	8.46	0.025		0.00	0.03	0.4		0.12
D-BC	0.21	5.46	0.039		0.00	0.04	0.6		0.19
C-D	0.21								
C-A	7.53								
C-B	5.53	11.43	0.484		0.00	0.92	13.0		0.17

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)
08.30-08.45									
B-C	4.54	11.28	0.402		0.47	0.66	9.6		0.15
B-AD	0.66	4.14	0.159		0.13	0.19	2.7		0.29
A-B	2.26								
A-C	8.17								
A-D	0.25	7.46	0.034		0.03	0.04	0.5		0.14
D-A	0.25	8.06	0.032		0.03	0.03	0.5		0.13
D-BC	0.25	4.83	0.053		0.04	0.05	0.8		0.22
C-D	0.25								
C-A	8.99								
C-B	6.61	11.07	0.597		0.92	1.43	20.2		0.22

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)
08.45-09.00									
B-C	5.56	10.61	0.524		0.66	1.07	15.3		0.20
B-AD	0.81	3.30	0.245		0.19	0.31	4.4		0.40
A-B	2.77								
A-C	10.00								
A-D	0.31	6.98	0.045		0.04	0.05	0.7		0.15
D-A	0.31	7.50	0.042		0.03	0.04	0.6		0.14
D-BC	0.31	3.95	0.079		0.05	0.08	1.2		0.27
C-D	0.31								
C-A	11.01								
C-B	8.09	10.58	0.765		1.43	2.96	39.4		0.37

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)
09.00-09.15									
B-C	5.56	10.59	0.525		1.07	1.09	16.2		0.20
B-AD	0.81	3.27	0.247		0.31	0.32	4.8		0.41
A-B	2.77								
A-C	10.00								
A-D	0.31	6.98	0.045		0.05	0.05	0.7		0.15
D-A	0.31	7.50	0.042		0.04	0.04	0.6		0.14
D-BC	0.31	3.95	0.079		0.08	0.08	1.3		0.27
C-D	0.31								
C-A	11.01								
C-B	8.09	10.57	0.765		2.96	3.09	45.6		0.40

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)
09.15-09.30									
B-C	4.54	11.27	0.403		1.09	0.69	10.7		0.15
B-AD	0.66	4.11	0.161		0.32	0.20	3.1		0.29
A-B	2.26								
A-C	8.17								
A-D	0.25	7.45	0.034		0.05	0.04	0.5		0.14
D-A	0.25	8.05	0.032		0.04	0.03	0.5		0.13
D-BC	0.25	4.82	0.053		0.08	0.06	0.9		0.22
C-D	0.25								
C-A	8.99								
C-B	6.61	11.07	0.597		3.09	1.53	24.8		0.23

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)
09.30-09.45									

I B-C	3.80	11.72	0.325	0.69	0.49	7.5	0.13	I
I B-AD	0.55	4.71	0.117	0.20	0.14	2.1	0.24	I
I A-B	1.89							I
I A-C	6.84							I
I A-D	0.21	7.80	0.027	0.04	0.03	0.4	0.13	I
I D-A	0.21	8.45	0.025	0.03	0.03	0.4	0.12	I
I D-BC	0.21	5.46	0.039	0.06	0.04	0.6	0.19	I
I C-D	0.21							I
I C-A	7.53							I
I C-B	5.53	11.43	0.484	1.53	0.96	15.1	0.17	I
I								I

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.5	
08.45	0.7	*
09.00	1.1	*
09.15	1.1	*
09.30	0.7	*
09.45	0.5	

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.2
09.00	0.3
09.15	0.3
09.30	0.2
09.45	0.1

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1
09.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.9	*
08.45	1.4	*
09.00	3.0	***
09.15	3.1	***
09.30	1.5	**
09.45	1.0	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	417.1	278.0	66.2	0.16	66.2	0.16
B-AD	60.6	40.4	18.9	0.31	18.9	0.31
A-B	207.8	138.6				
A-C	750.2	500.1				
A-D	23.4	15.6	3.3	0.14	3.3	0.14
D-A	23.4	15.6	3.0	0.13	3.0	0.13
D-BC	23.4	15.6	5.4	0.23	5.4	0.23
C-D	23.4	15.6				
C-A	825.9	550.6				
C-B	607.0	404.7	158.1	0.26	158.2	0.26
ALL	2962.1	1974.7	255.0	0.09	255.0	0.09

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

B-C Stream

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

B-AD Stream

Intercept For STREAM B-AD	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing
0.00	0.00	0.00	

* Due to the presence of a flare, data is not available

D-A Stream

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

D-BC Stream

Intercept For STREAM D-BC	Slope For Opposing STREAM C-A	Slope For Opposing STREAM B-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-D
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-D	Slope For Opposing
0.00	0.00	0.00	

* Due to the presence of a flare, data is not available

C-B Stream

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-C	Slope For Opposing STREAM D-B
813.14	0.21	0.21	0.21	0.21

A-D Stream

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-A	Slope For Opposing STREAM B-D
813.14	0.25	0.25	0.25	0.25

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 Base

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	8.27	12.41	8.27
ARM B	15.00	45.00	75.00	5.88	8.81	5.88
ARM C	15.00	45.00	75.00	9.73	14.59	9.73
ARM D	15.00	45.00	75.00	0.38	0.56	0.38

Demand set: PM 2020 Base

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 16.30					
	ARM A	0.000	0.136	0.844	0.020
		0.0	90.0	559.0	13.0
		(0.0)	(1.0)	(0.0)	(18.0)
	ARM B	0.145	0.000	0.855	0.000
		68.0	0.0	402.0	0.0
		(0.0)	(0.0)	(1.0)	(0.0)
	ARM C	0.670	0.330	0.000	0.000
		521.0	257.0	0.0	0.0
		(2.0)	(2.0)	(0.0)	(0.0)
	ARM D	0.567	0.000	0.433	0.000
		17.0	0.0	13.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 Base
AND FOR TIME PERIOD 2

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									
B-C	5.04	11.65	0.433		0.00	0.75	10.7		0.15
B-AD	0.85	5.61	0.152		0.00	0.18	2.5		0.21
A-B	1.13								
A-C	7.01								
A-D	0.16	8.14	0.020		0.00	0.02	0.3		0.13
D-A	0.21	9.98	0.021		0.00	0.02	0.3		0.10
D-BC	0.16	6.08	0.027		0.00	0.03	0.4		0.17
C-D	0.00								
C-A	6.54								
C-B	3.22	11.61	0.278		0.00	0.38	5.5		0.12

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									
B-C	6.02	11.21	0.537		0.75	1.13	16.2		0.19
B-AD	1.02	5.04	0.202		0.18	0.25	3.6		0.25
A-B	1.35								
A-C	8.38								
A-D	0.19	7.82	0.025		0.02	0.03	0.4		0.13
D-A	0.25	9.57	0.027		0.02	0.03	0.4		0.11
D-BC	0.19	5.47	0.036		0.03	0.04	0.5		0.19
C-D	0.00								
C-A	7.81								
C-B	3.85	11.29	0.341		0.38	0.51	7.4		0.13

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									
B-C	7.38	10.55	0.699		1.13	2.18	29.8		0.30
B-AD	1.25	4.04	0.309		0.25	0.43	6.1		0.36
A-B	1.65								
A-C	10.26								
A-D	0.24	7.39	0.032		0.03	0.03	0.5		0.14
D-A	0.31	9.01	0.035		0.03	0.04	0.5		0.12
D-BC	0.24	4.65	0.051		0.04	0.05	0.8		0.23
C-D	0.00								
C-A	9.56								
C-B	4.72	10.84	0.435		0.51	0.76	10.9		0.16

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									
B-C	7.38	10.54	0.700		2.18	2.25	33.4		0.31
B-AD	1.25	4.01	0.311		0.43	0.44	6.6		0.36
A-B	1.65								
A-C	10.26								
A-D	0.24	7.39	0.032		0.03	0.03	0.5		0.14
D-A	0.31	9.00	0.035		0.04	0.04	0.5		0.12
D-BC	0.24	4.64	0.051		0.05	0.05	0.8		0.23
C-D	0.00								
C-A	9.56								
C-B	4.72	10.84	0.435		0.76	0.76	11.4		0.16

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									
B-C	6.02	11.20	0.538		2.25	1.20	19.1		0.20
B-AD	1.02	5.02	0.203		0.44	0.26	4.1		0.25
A-B	1.35								
A-C	8.38								

A-D	0.19	7.82	0.025	0.03	0.03	0.4		0.13
D-A	0.25	9.56	0.027	0.04	0.03	0.4		0.11
D-BC	0.19	5.47	0.036	0.05	0.04	0.6		0.19
C-D	0.00							
C-A	7.81							
C-B	3.85	11.29	0.341	0.76	0.52	8.1		0.13

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									
B-C	5.04	11.64	0.433		1.20	0.78	12.2		0.15
B-AD	0.85	5.60	0.152		0.26	0.18	2.8		0.21
A-B	1.13								
A-C	7.01								
A-D	0.16	8.13	0.020		0.03	0.02	0.3		0.13
D-A	0.21	9.97	0.021		0.03	0.02	0.3		0.10
D-BC	0.16	6.07	0.027		0.04	0.03	0.4		0.17
C-D	0.00								
C-A	6.54								
C-B	3.22	11.61	0.278		0.52	0.39	6.0		0.12

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.1	*
17.00	2.2	**
17.15	2.3	**
17.30	1.2	*
17.45	0.8	*

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.2
16.45	0.2
17.00	0.4
17.15	0.4
17.30	0.3
17.45	0.2

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.1
17.15	0.1
17.30	0.0
17.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	*
17.00	0.8	*
17.15	0.8	*
17.30	0.5	*
17.45	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	553.3	368.9	121.3	0.22	121.3	0.22
B-AD	93.6	62.4	25.7	0.28	25.8	0.28
A-B	123.9	82.6				
A-C	769.4	512.9				
A-D	17.9	11.9	2.4	0.13	2.4	0.13
D-A	23.4	15.6	2.5	0.11	2.5	0.11
D-BC	17.9	11.9	3.5	0.20	3.5	0.20

C-D	0.0	0.0						
C-A	717.1	478.1						
C-B	353.7	235.8	49.4	0.14	49.4	0.14		
ALL	2670.3	1780.2	204.8	0.08	204.9	0.08		

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

B-C Stream

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

B-AD Stream

Intercept For STREAM B-AD	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing
0.00	0.00	0.00	

* Due to the presence of a flare, data is not available

D-A Stream

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

D-BC Stream

Intercept For STREAM D-BC	Slope For Opposing STREAM C-A	Slope For Opposing STREAM B-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-D
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-D	Slope For Opposing
0.00	0.00	0.00	

* Due to the presence of a flare, data is not available

C-B Stream

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-C	Slope For Opposing STREAM D-B
813.14	0.21	0.21	0.21	0.21

A-D Stream

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-A	Slope For Opposing STREAM B-D
813.14	0.25	0.25	0.25	0.25

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 Base+tourism

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	8.27	12.41	8.27
ARM B	15.00	45.00	75.00	5.88	8.81	5.88
ARM C	15.00	45.00	75.00	9.73	14.59	9.73
ARM D	15.00	45.00	75.00	0.38	0.56	0.38

.Demand set: PM 2020 Base+tourism

TIME	TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 16.30	ARM A	0.000	0.136	0.844	0.020
		0.0	90.0	559.0	13.0
		(0.0)	(1.0)	(0.0)	(18.0)
	ARM B	0.145	0.000	0.855	0.000
		68.0	0.0	402.0	0.0
		(0.0)	(0.0)	(1.0)	(0.0)
	ARM C	0.670	0.330	0.000	0.000
		521.0	257.0	0.0	0.0
		(2.0)	(2.0)	(0.0)	(0.0)
	ARM D	0.567	0.000	0.433	0.000
		17.0	0.0	13.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 Base+tourism
AND FOR TIME PERIOD 2

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									
B-C	5.04	11.65	0.433		0.00	0.75	10.7		0.15
B-AD	0.85	5.61	0.152		0.00	0.18	2.5		0.21
A-B	1.13								
A-C	7.01								
A-D	0.16	8.14	0.020		0.00	0.02	0.3		0.13
D-A	0.21	9.98	0.021		0.00	0.02	0.3		0.10
D-BC	0.16	6.08	0.027		0.00	0.03	0.4		0.17
C-D	0.00								
C-A	6.54								
C-B	3.22	11.61	0.278		0.00	0.38	5.5		0.12

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									
B-C	6.02	11.21	0.537		0.75	1.13	16.2		0.19
B-AD	1.02	5.04	0.202		0.18	0.25	3.6		0.25
A-B	1.35								
A-C	8.38								
A-D	0.19	7.82	0.025		0.02	0.03	0.4		0.13
D-A	0.25	9.57	0.027		0.02	0.03	0.4		0.11
D-BC	0.19	5.47	0.036		0.03	0.04	0.5		0.19
C-D	0.00								
C-A	7.81								
C-B	3.85	11.29	0.341		0.38	0.51	7.4		0.13

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									
B-C	7.38	10.55	0.699		1.13	2.18	29.8		0.30
B-AD	1.25	4.04	0.309		0.25	0.43	6.1		0.36
A-B	1.65								
A-C	10.26								
A-D	0.24	7.39	0.032		0.03	0.03	0.5		0.14
D-A	0.31	9.01	0.035		0.03	0.04	0.5		0.12
D-BC	0.24	4.65	0.051		0.04	0.05	0.8		0.23
C-D	0.00								
C-A	9.56								
C-B	4.72	10.84	0.435		0.51	0.76	10.9		0.16

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									
B-C	7.38	10.54	0.700		2.18	2.25	33.4		0.31
B-AD	1.25	4.01	0.311		0.43	0.44	6.6		0.36
A-B	1.65								
A-C	10.26								
A-D	0.24	7.39	0.032		0.03	0.03	0.5		0.14
D-A	0.31	9.00	0.035		0.04	0.04	0.5		0.12
D-BC	0.24	4.64	0.051		0.05	0.05	0.8		0.23
C-D	0.00								

C-A	9.56							
C-B	4.72	10.84	0.435	0.76	0.76	11.4	0.16	

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									
B-C	6.02	11.20	0.538		2.25	1.20	19.1		0.20
B-AD	1.02	5.02	0.203		0.44	0.26	4.1		0.25
A-B	1.35								
A-C	8.38								
A-D	0.19	7.82	0.025		0.03	0.03	0.4		0.13
D-A	0.25	9.56	0.027		0.04	0.03	0.4		0.11
D-BC	0.19	5.47	0.036		0.05	0.04	0.6		0.19
C-D	0.00								
C-A	7.81								
C-B	3.85	11.29	0.341		0.76	0.52	8.1		0.13

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									
B-C	5.04	11.64	0.433		1.20	0.78	12.2		0.15
B-AD	0.85	5.60	0.152		0.26	0.18	2.8		0.21
A-B	1.13								
A-C	7.01								
A-D	0.16	8.13	0.020		0.03	0.02	0.3		0.13
D-A	0.21	9.97	0.021		0.03	0.02	0.3		0.10
D-BC	0.16	6.07	0.027		0.04	0.03	0.4		0.17
C-D	0.00								
C-A	6.54								
C-B	3.22	11.61	0.278		0.52	0.39	6.0		0.12

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.1	*
17.00	2.2	**
17.15	2.3	**
17.30	1.2	*
17.45	0.8	*

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.2
16.45	0.2
17.00	0.4
17.15	0.4
17.30	0.3
17.45	0.2

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.1
17.15	0.1
17.30	0.0
17.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	*
17.00	0.8	*
17.15	0.8	*
17.30	0.5	*
17.45	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	553.3	368.9	121.3	0.22	121.3	0.22
B-AD	93.6	62.4	25.7	0.28	25.8	0.28
A-B	123.9	82.6				
A-C	769.4	512.9				
A-D	17.9	11.9	2.4	0.13	2.4	0.13
D-A	23.4	15.6	2.5	0.11	2.5	0.11
D-BC	17.9	11.9	3.5	0.20	3.5	0.20
C-D	0.0	0.0				
C-A	717.1	478.1				
C-B	353.7	235.8	49.4	0.14	49.4	0.14
ALL	2670.3	1780.2	204.8	0.08	204.9	0.08

* 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 RUN*******

TRL LIMITED

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

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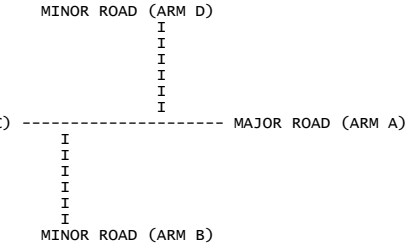
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
11.Buttrills Rd_Barry Road\Buttrills Rd_Barry Rd Stagger Jnctn.vpi"
(drive-on-the-left) at 16:39:05 on Monday, 12 April 2010

.RUN INFORMATION

RUN TITLE	: Buttrills Rd_Barry Rd Stagger junction
LOCATION	:
DATE	: 12/04/10
CLIENT	:
ENUMERATOR	: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER	:
STATUS	:
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Barry Rd (E)
ARM B IS Buttrills Road (S)
ARM C IS Barry Rd (W)
ARM D IS East Walk (N)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 14.00 M.	(W) 7.34 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 4.00 M.	(WA-D) 2.20 M.
- VISIBILITY	(VC-B)183.00 M.	(VA-D)200.00 M.
- BLOCKS TRAFFIC	NO	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 20.0 M.	(VD-A) 47.0 M.
- VISIBILITY TO RIGHT	(VB-A) 145.0 M.	(VD-C) 31.0 M.
- LANE 1 WIDTH	(WB-C) -	(WD-A) -
- LANE 2 WIDTH	(WB-A) -	(WD-C) -
WIDTH AT 0 M FROM JUNCTION	10.00 M.	10.00 M.
WIDTH AT 5 M FROM JUNCTION	6.45 M.	6.04 M.
WIDTH AT 10 M FROM JUNCTION	5.07 M.	3.48 M.
WIDTH AT 15 M FROM JUNCTION	5.04 M.	3.33 M.
WIDTH AT 20 M FROM JUNCTION	5.07 M.	3.30 M.
- LENGTH OF FLARED SECTION	DERIVED: 3 PCU	DERIVED: 1 PCU

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

B-C Stream

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

B-AD Stream

Intercept For STREAM B-AD	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

D-A Stream

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

D-BC Stream

Intercept For STREAM D-BC	Slope For Opposing STREAM C-A	Slope For Opposing STREAM B-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-D
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-D
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

C-B Stream

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-C	Slope For Opposing STREAM D-B
813.14	0.21	0.21	0.21	0.21

A-D Stream

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-A	Slope For Opposing STREAM B-D
813.14	0.25	0.25	0.25	0.25

.TRAFFIC DEMAND DATA

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

.Demand set: AM 2020 With Development

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.31	13.97	9.31
ARM B	15.00	45.00	75.00	5.15	7.73	5.15
ARM C	15.00	45.00	75.00	13.29	19.93	13.29
ARM D	15.00	45.00	75.00	0.43	0.64	0.43

.Demand set: AM 2020 With Development

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
08.15 - 08.30	ARM A	0.000	0.246	0.732	0.023
		0.0	183.0	545.0	17.0
		(0.0)	(2.0)	(3.0)	(20.0)
	ARM B	0.204	0.000	0.796	0.000

```
I                   I         I   84.0 I    0.0 I  328.0 I    0.0 I
I                   I         I (  5.0)I (  0.0)I (  1.0)I (  0.0)I
I                   I         I       I       I       I       I
I                   I ARM  C  I  0.564 I  0.420 I  0.000 I  0.016 I
I                   I         I  600.0 I  446.0 I    0.0 I   17.0 I
I                   I         I (  2.0)I (  2.0)I (  0.0)I (  0.0)I
I                   I         I       I       I       I       I
I                   I ARM  D  I  0.500 I  0.000 I  0.500 I  0.000 I
I                   I         I   17.0 I    0.0 I   17.0 I    0.0 I
I                   I         I ( 13.0)I (  0.0)I (  7.0)I (  0.0)I
I                   I         I       I       I       I       I
-------------------------------------------------------------
TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
              ---------------------------------------------------------

               FOR DEMAND SET         AM 2020 With Development
               AND FOR TIME PERIOD       1
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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									
B-C	4.12	11.15	0.369		0.00	0.58	8.2		0.14
B-AD	1.05	4.82	0.219		0.00	0.27	3.8		0.26
A-B	2.30								
A-C	6.84								
A-D	0.21	7.69	0.028		0.00	0.03	0.4		0.13
D-A	0.21	8.34	0.026		0.00	0.03	0.4		0.12
D-BC	0.21	5.28	0.040		0.00	0.04	0.6		0.20
C-D	0.21								
C-A	7.53								
C-B	5.60	11.35	0.493		0.00	0.95	13.4		0.17

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)
08.30-08.45									
B-C	4.91	10.59	0.464		0.58	0.85	12.2		0.18
B-AD	1.26	4.19	0.300		0.27	0.42	5.9		0.34
A-B	2.74								
A-C	8.17								
A-D	0.25	7.32	0.035		0.03	0.04	0.5		0.14
D-A	0.25	7.91	0.032		0.03	0.03	0.5		0.13
D-BC	0.25	4.61	0.055		0.04	0.06	0.8		0.23
C-D	0.25								
C-A	8.99								
C-B	6.68	10.97	0.609		0.95	1.50	21.2		0.23

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)
08.45-09.00									
B-C	6.02	9.61	0.626		0.85	1.60	22.2		0.27
B-AD	1.54	3.27	0.471		0.42	0.83	11.3		0.56
A-B	3.36								
A-C	10.00								
A-D	0.31	6.81	0.046		0.04	0.05	0.7		0.15
D-A	0.31	7.31	0.043		0.03	0.04	0.6		0.14
D-BC	0.31	3.69	0.085		0.06	0.09	1.3		0.30
C-D	0.31								
C-A	11.01								
C-B	8.18	10.45	0.783		1.50	3.22	42.5		0.40

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)
09.00-09.15									
B-C	6.02	9.56	0.630		1.60	1.65	24.5		0.28
B-AD	1.54	3.24	0.475		0.83	0.87	12.9		0.58
A-B	3.36								
A-C	10.00								
A-D	0.31	6.81	0.046		0.05	0.05	0.7		0.15
D-A	0.31	7.30	0.043		0.04	0.04	0.7		0.14
D-BC	0.31	3.68	0.085		0.09	0.09	1.4		0.30
C-D	0.31								
C-A	11.01								
C-B	8.18	10.45	0.783		3.22	3.39	49.9		0.43

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)
09.15-09.30									
B-C	4.91	10.55	0.466		1.65	0.89	14.1		0.18
B-AD	1.26	4.15	0.303		0.87	0.45	7.2		0.35
A-B	2.74								
A-C	8.17								
A-D	0.25	7.31	0.035		0.05	0.04	0.6		0.14
D-A	0.25	7.90	0.032		0.04	0.03	0.5		0.13
D-BC	0.25	4.60	0.055		0.09	0.06	0.9		0.23
C-D	0.25								
C-A	8.99								
C-B	6.68	10.97	0.609		3.39	1.62	26.4		0.25

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)
09.30-09.45									

I	B-C	4.12	11.13	0.370	0.89	0.60	9.3	0.14	I
I	B-AD	1.05	4.79	0.220	0.45	0.29	4.5	0.27	I
I	A-B	2.30							I
I	A-C	6.84							I
I	A-D	0.21	7.69	0.028	0.04	0.03	0.4	0.13	I
I	D-A	0.21	8.33	0.026	0.03	0.03	0.4	0.12	I
I	D-BC	0.21	5.27	0.040	0.06	0.04	0.7	0.20	I
I	C-D	0.21							I
I	C-A	7.53							I
I	C-B	5.60	11.35	0.493	1.62	0.99	15.7	0.18	I
I									I

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.6	*
08.45	0.8	*
09.00	1.6	**
09.15	1.7	**
09.30	0.9	*
09.45	0.6	*

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.3	
08.45	0.4	
09.00	0.8	*
09.15	0.9	*
09.30	0.4	
09.45	0.3	

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1
09.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	1.0	*
08.45	1.5	**
09.00	3.2	***
09.15	3.4	***
09.30	1.6	**
09.45	1.0	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	451.5	301.0	90.6	0.20	90.6	0.20
B-AD	115.6	77.1	45.8	0.40	45.8	0.40
A-B	251.9	167.9				
A-C	750.2	500.1				
A-D	23.4	15.6	3.3	0.14	3.3	0.14
D-A	23.4	15.6	3.1	0.13	3.1	0.13
D-BC	23.4	15.6	5.7	0.24	5.7	0.24
C-D	23.4	15.6				
C-A	825.9	550.6				
C-B	613.9	409.3	169.0	0.28	169.1	0.28
ALL	3102.5	2068.3	317.5	0.10	317.6	0.10

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

B-C Stream

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

B-AD Stream

Intercept For STREAM B-AD	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing
0.00	0.00	0.00	

* Due to the presence of a flare, data is not available

D-A Stream

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

D-BC Stream

Intercept For STREAM D-BC	Slope For Opposing STREAM C-A	Slope For Opposing STREAM B-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-D
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-D	Slope For Opposing
0.00	0.00	0.00	

* Due to the presence of a flare, data is not available

C-B Stream

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-C	Slope For Opposing STREAM D-B
813.14	0.21	0.21	0.21	0.21

A-D Stream

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-A	Slope For Opposing STREAM B-D
813.14	0.25	0.25	0.25	0.25

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 With Development

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	8.80	13.20	8.80
ARM B	15.00	45.00	75.00	6.45	9.67	6.45
ARM C	15.00	45.00	75.00	10.25	15.38	10.25
ARM D	15.00	45.00	75.00	0.38	0.56	0.38

Demand set: PM 2020 With Development

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 16.30	ARM A	0.000	0.188	0.794	0.018
		0.0	132.0	559.0	13.0
		(0.0)	(2.0)	(3.0)	(20.0)
	ARM B	0.205	0.000	0.795	0.000
		106.0	0.0	410.0	0.0
		(5.0)	(0.0)	(1.0)	(0.0)
	ARM C	0.635	0.339	0.000	0.026
		521.0	278.0	0.0	21.0
		(2.0)	(2.0)	(0.0)	(0.0)
	ARM D	0.567	0.000	0.433	0.000
		17.0	0.0	13.0	0.0
		(13.0)	(0.0)	(7.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 With Development
AND FOR TIME PERIOD 2

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									
B-C	5.14	11.08	0.464		0.00	0.85	12.0		0.17
B-AD	1.33	5.31	0.251		0.00	0.33	4.6		0.25
A-B	1.66								
A-C	7.01								
A-D	0.16	7.83	0.021		0.00	0.02	0.3		0.13
D-A	0.21	8.67	0.025		0.00	0.03	0.4		0.12
D-BC	0.16	5.43	0.030		0.00	0.03	0.4		0.19
C-D	0.26								
C-A	6.54								
C-B	3.49	11.46	0.304		0.00	0.43	6.2		0.12

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									
B-C	6.14	10.51	0.584		0.85	1.36	19.2		0.23
B-AD	1.59	4.70	0.338		0.33	0.50	7.0		0.32
A-B	1.98								
A-C	8.38								
A-D	0.19	7.49	0.026		0.02	0.03	0.4		0.14
D-A	0.25	8.28	0.031		0.03	0.03	0.5		0.12
D-BC	0.19	4.81	0.040		0.03	0.04	0.6		0.22
C-D	0.31								
C-A	7.81								
C-B	4.17	11.10	0.375		0.43	0.59	8.6		0.14

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									
B-C	7.52	9.55	0.788		1.36	3.27	42.5		0.44
B-AD	1.95	3.55	0.548		0.50	1.12	14.9		0.59
A-B	2.42								
A-C	10.26								
A-D	0.24	7.02	0.034		0.03	0.03	0.5		0.15
D-A	0.31	7.73	0.040		0.03	0.04	0.6		0.13
D-BC	0.24	3.97	0.060		0.04	0.06	0.9		0.27
C-D	0.39								
C-A	9.56								
C-B	5.10	10.61	0.481		0.59	0.91	13.0		0.18

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									
B-C	7.52	9.50	0.792		3.27	3.52	51.3		0.49
B-AD	1.95	3.48	0.559		1.12	1.20	17.5		0.64
A-B	2.42								
A-C	10.26								
A-D	0.24	7.01	0.034		0.03	0.04	0.5		0.15
D-A	0.31	7.72	0.040		0.04	0.04	0.6		0.13
D-BC	0.24	3.96	0.060		0.06	0.06	0.9		0.27
C-D	0.39								
C-A	9.56								
C-B	5.10	10.61	0.481		0.91	0.92	13.7		0.18

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									
B-C	6.14	10.47	0.587		3.52	1.47	24.3		0.25
B-AD	1.59	4.66	0.341		1.20	0.53	8.7		0.33
A-B	1.98								
A-C	8.38								

A-D	0.19	7.48	0.026	0.04	0.03	0.4	0.14	
D-A	0.25	8.26	0.031	0.04	0.03	0.5	0.12	
D-BC	0.19	4.80	0.041	0.06	0.04	0.7	0.22	
C-D	0.31							
C-A	7.81							
C-B	4.17	11.10	0.375	0.92	0.61	9.5	0.15	

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									
B-C	5.14	11.06	0.465		1.47	0.89	14.0		0.17
B-AD	1.33	5.29	0.251		0.53	0.34	5.4		0.25
A-B	1.66								
A-C	7.01								
A-D	0.16	7.83	0.021		0.03	0.02	0.3		0.13
D-A	0.21	8.66	0.025		0.03	0.03	0.4		0.12
D-BC	0.16	5.42	0.030		0.04	0.03	0.5		0.19
C-D	0.26								
C-A	6.54								
C-B	3.49	11.46	0.304		0.61	0.44	6.8		0.13

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.4	*
17.00	3.3	***
17.15	3.5	****
17.30	1.5	*
17.45	0.9	*

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.3	
16.45	0.5	
17.00	1.1	*
17.15	1.2	*
17.30	0.5	*
17.45	0.3	

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.1
17.15	0.1
17.30	0.0
17.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.6	*
17.00	0.9	*
17.15	0.9	*
17.30	0.6	*
17.45	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	564.3	376.2	163.3	0.29	163.3	0.29
B-AD	145.9	97.3	58.2	0.40	58.2	0.40
A-B	181.7	121.1				
A-C	769.4	512.9				
A-D	17.9	11.9	2.5	0.14	2.5	0.14
D-A	23.4	15.6	2.9	0.13	2.9	0.13
D-BC	17.9	11.9	4.0	0.23	4.0	0.23

C-D	28.9	19.3						
C-A	717.1	478.1						
C-B	382.6	255.1	57.8	0.15	57.8	0.15		
ALL	2849.2	1899.5	288.8	0.10	288.9	0.10		

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

B-C Stream

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

B-AD Stream

Intercept For STREAM B-AD	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing
0.00	0.00	0.00	

* Due to the presence of a flare, data is not available

D-A Stream

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM D-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

D-BC Stream

Intercept For STREAM D-BC	Slope For Opposing STREAM C-A	Slope For Opposing STREAM B-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-D
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-D	Slope For Opposing
0.00	0.00	0.00	

* Due to the presence of a flare, data is not available

C-B Stream

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-C	Slope For Opposing STREAM D-B
813.14	0.21	0.21	0.21	0.21

A-D Stream

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-A	Slope For Opposing STREAM B-D
813.14	0.25	0.25	0.25	0.25

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 With Development + Tourism

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	8.80	13.20	8.80
ARM B	15.00	45.00	75.00	6.45	9.67	6.45
ARM C	15.00	45.00	75.00	10.25	15.38	10.25
ARM D	15.00	45.00	75.00	0.38	0.56	0.38

.Demand set: PM 2020 With Development + Tourism

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 16.30	ARM A	0.000	0.188	0.794	0.018
		0.0	132.0	559.0	13.0
		(0.0)	(2.0)	(3.0)	(20.0)
	ARM B	0.205	0.000	0.795	0.000
		106.0	0.0	410.0	0.0
		(5.0)	(0.0)	(1.0)	(0.0)
	ARM C	0.635	0.339	0.000	0.026
		521.0	278.0	0.0	21.0
		(2.0)	(2.0)	(0.0)	(0.0)
	ARM D	0.567	0.000	0.433	0.000
		17.0	0.0	13.0	0.0
		(13.0)	(0.0)	(7.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 With Development + Tourism
AND FOR TIME PERIOD 2

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									
B-C	5.14	11.08	0.464		0.00	0.85	12.0		0.17
B-AD	1.33	5.31	0.251		0.00	0.33	4.6		0.25
A-B	1.66								
A-C	7.01								
A-D	0.16	7.83	0.021		0.00	0.02	0.3		0.13
D-A	0.21	8.67	0.025		0.00	0.03	0.4		0.12
D-BC	0.16	5.43	0.030		0.00	0.03	0.4		0.19
C-D	0.26								
C-A	6.54								
C-B	3.49	11.46	0.304		0.00	0.43	6.2		0.12

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									
B-C	6.14	10.51	0.584		0.85	1.36	19.2		0.23
B-AD	1.59	4.70	0.338		0.33	0.50	7.0		0.32
A-B	1.98								
A-C	8.38								
A-D	0.19	7.49	0.026		0.02	0.03	0.4		0.14
D-A	0.25	8.28	0.031		0.03	0.03	0.5		0.12
D-BC	0.19	4.81	0.040		0.03	0.04	0.6		0.22
C-D	0.31								
C-A	7.81								
C-B	4.17	11.10	0.375		0.43	0.59	8.6		0.14

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									
B-C	7.52	9.55	0.788		1.36	3.27	42.5		0.44
B-AD	1.95	3.55	0.548		0.50	1.12	14.9		0.59
A-B	2.42								
A-C	10.26								
A-D	0.24	7.02	0.034		0.03	0.03	0.5		0.15
D-A	0.31	7.73	0.040		0.03	0.04	0.6		0.13
D-BC	0.24	3.97	0.060		0.04	0.06	0.9		0.27
C-D	0.39								
C-A	9.56								
C-B	5.10	10.61	0.481		0.59	0.91	13.0		0.18

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									
B-C	7.52	9.50	0.792		3.27	3.52	51.3		0.49
B-AD	1.95	3.48	0.559		1.12	1.20	17.5		0.64
A-B	2.42								
A-C	10.26								
A-D	0.24	7.01	0.034		0.03	0.04	0.5		0.15
D-A	0.31	7.72	0.040		0.04	0.04	0.6		0.13
D-BC	0.24	3.96	0.060		0.06	0.06	0.9		0.27
C-D	0.39								

I C-A	9.56								I
I C-B	5.10	10.61	0.481		0.91	0.92	13.7	0.18	I
I									I

I 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)	I
I 17.15-17.30										I
I B-C	6.14	10.47	0.587		3.52	1.47	24.3		0.25	I
I B-AD	1.59	4.66	0.341		1.20	0.53	8.7		0.33	I
I A-B	1.98									I
I A-C	8.38									I
I A-D	0.19	7.48	0.026		0.04	0.03	0.4		0.14	I
I D-A	0.25	8.26	0.031		0.04	0.03	0.5		0.12	I
I D-BC	0.19	4.80	0.041		0.06	0.04	0.7		0.22	I
I C-D	0.31									I
I C-A	7.81									I
I C-B	4.17	11.10	0.375		0.92	0.61	9.5		0.15	I
I										I

I 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)	I
I 17.30-17.45										I
I B-C	5.14	11.06	0.465		1.47	0.89	14.0		0.17	I
I B-AD	1.33	5.29	0.251		0.53	0.34	5.4		0.25	I
I A-B	1.66									I
I A-C	7.01									I
I A-D	0.16	7.83	0.021		0.03	0.02	0.3		0.13	I
I D-A	0.21	8.66	0.025		0.03	0.03	0.4		0.12	I
I D-BC	0.16	5.42	0.030		0.04	0.03	0.5		0.19	I
I C-D	0.26									I
I C-A	6.54									I
I C-B	3.49	11.46	0.304		0.61	0.44	6.8		0.13	I
I										I

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.4	*
17.00	3.3	***
17.15	3.5	****
17.30	1.5	*
17.45	0.9	*

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.3	
16.45	0.5	
17.00	1.1	*
17.15	1.2	*
17.30	0.5	*
17.45	0.3	

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.1
17.15	0.1
17.30	0.0
17.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.6	*
17.00	0.9	*
17.15	0.9	*
17.30	0.6	*
17.45	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	564.3	376.2	163.3	0.29	163.3	0.29
B-AD	145.9	97.3	58.2	0.40	58.2	0.40
A-B	181.7	121.1				
A-C	769.4	512.9				
A-D	17.9	11.9	2.5	0.14	2.5	0.14
D-A	23.4	15.6	2.9	0.13	2.9	0.13
D-BC	17.9	11.9	4.0	0.23	4.0	0.23
C-D	28.9	19.3				
C-A	717.1	478.1				
C-B	382.6	255.1	57.8	0.15	57.8	0.15
ALL	2849.2	1899.5	288.8	0.10	288.9	0.10

* 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 RUN*******

_____ 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:

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Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\15.Vere St_Gladstone Rise\Cardiff Rd_Vere St Roundabout\
Cardiff Rd_Vere St Rndbt.vai"
(drive-on-the-left) at 15:45:45 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cardiff Rd / Vere Street Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Vere Street (N)
ARM B - Cardiff Road (S)
ARM C - Gladstone Rd (N)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.48	12.00	21.80	28.00	21.3	0.610	23.465
ARM B	3.46	4.63	15.70	16.40	27.00	50.9	0.537	20.392
ARM C	4.39	4.90	29.20	9.30	27.00	33.7	0.572	22.908

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

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

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 2008 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	1.74	2.61	1.74
ARM B	15.00	45.00	75.00	6.39	9.58	6.39
ARM C	15.00	45.00	75.00	6.32	9.49	6.32

DEMAND SET TITLE: AM 2008 Base
.---------- T33

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45				
	ARM A	0.000	0.468	0.532
		0.0	65.0	74.0
		(0.0)	(5.0)	(5.0)
	ARM B	0.082	0.000	0.918
		42.0	0.0	469.0
		(0.0)	(0.0)	(4.0)
	ARM C	0.154	0.846	0.000
		78.0	428.0	0.0
		(5.0)	(5.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	1.74	19.08	0.091	- - -	0.0	0.1	1.5	-	0.058
ARM B	6.41	19.17	0.335	- - -	0.0	0.5	7.3	-	0.078
ARM C	6.35	21.53	0.295	- - -	0.0	0.4	6.1	-	0.066
08.30-08.45									
ARM A	2.08	18.44	0.113	- - -	0.1	0.1	1.9	-	0.061
ARM B	7.66	19.07	0.402	- - -	0.5	0.7	9.7	-	0.088
ARM C	7.58	21.47	0.353	- - -	0.4	0.5	8.0	-	0.072
08.45-09.00									
ARM A	2.55	17.56	0.145	- - -	0.1	0.2	2.5	-	0.067
ARM B	9.38	18.93	0.495	- - -	0.7	1.0	14.1	-	0.104
ARM C	9.29	21.40	0.434	- - -	0.5	0.8	11.1	-	0.082
09.00-09.15									
ARM A	2.55	17.55	0.145	- - -	0.2	0.2	2.5	-	0.067
ARM B	9.38	18.93	0.495	- - -	1.0	1.0	14.6	-	0.105
ARM C	9.29	21.40	0.434	- - -	0.8	0.8	11.4	-	0.083
09.15-09.30									
ARM A	2.08	18.43	0.113	- - -	0.2	0.1	1.9	-	0.061
ARM B	7.66	19.07	0.402	- - -	1.0	0.7	10.4	-	0.088
ARM C	7.58	21.47	0.353	- - -	0.8	0.5	8.4	-	0.072
09.30-09.45									
ARM A	1.74	19.06	0.091	- - -	0.1	0.1	1.5	-	0.058
ARM B	6.41	19.16	0.335	- - -	0.7	0.5	7.8	-	0.079
ARM C	6.35	21.53	0.295	- - -	0.5	0.4	6.4	-	0.066

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.2
09.15	0.2
09.30	0.1
09.45	0.1

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

08.30	0.5	
08.45	0.7	*
09.00	1.0	*
09.15	1.0	*
09.30	0.7	*
09.45	0.5	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.4	
08.45	0.5	*
09.00	0.8	*
09.15	0.8	*
09.30	0.5	*
09.45	0.4	

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	191.3	127.5	11.9	0.06	11.9	0.06
B	703.4	468.9	63.9	0.09	63.9	0.09
C	696.5	464.3	51.4	0.07	51.5	0.07
ALL	1591.1	1060.8	127.2	0.08	127.2	0.08

T75

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

For sales and distribution information,
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Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\15.Vere St_Gladstone Rise\Cardiff Rd_Vere St Roundabout\
Cardiff Rd_Vere St Rndbt.vai"
(drive-on-the-left) at 15:46:10 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cardiff Rd / Vere Street Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Vere Street (N)
ARM B - Cardiff Road (S)
ARM C - Gladstone Rd (N)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.48	12.00	21.80	28.00	21.3	0.610	23.465
ARM B	3.46	4.63	15.70	16.40	27.00	50.9	0.537	20.392
ARM C	4.39	4.90	29.20	9.30	27.00	33.7	0.572	22.908

V = approach half-width E = 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

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

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 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	2.03	3.04	2.03	
ARM B	15.00	45.00	75.00	7.43	11.14	7.43	
ARM C	15.00	45.00	75.00	7.38	11.06	7.38	

DEMAND SET TITLE: AM 2020 Base
.---------- T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45				
	ARM A	0.000	0.469	0.531
		0.0	76.0	86.0
		(0.0)	(5.0)	(5.0)
	ARM B	0.081	0.000	0.919
		48.0	0.0	546.0
		(0.0)	(0.0)	(4.0)
	ARM C	0.154	0.846	0.000
		91.0	499.0	0.0
		(5.0)	(5.0)	(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	2.03	18.54	0.110	- - -	0.0	0.1	1.8	-	0.061
ARM B	7.45	19.08	0.391	- - -	0.0	0.6	9.2	-	0.085
ARM C	7.40	21.49	0.344	- - -	0.0	0.5	7.6	-	0.071
08.30-08.45									
ARM A	2.43	17.79	0.136	- - -	0.1	0.2	2.3	-	0.065
ARM B	8.90	18.97	0.469	- - -	0.6	0.9	12.7	-	0.099
ARM C	8.84	21.43	0.413	- - -	0.5	0.7	10.2	-	0.079
08.45-09.00									
ARM A	2.97	16.77	0.177	- - -	0.2	0.2	3.2	-	0.072
ARM B	10.90	18.81	0.579	- - -	0.9	1.4	19.5	-	0.125
ARM C	10.83	21.34	0.507	- - -	0.7	1.0	14.8	-	0.095
09.00-09.15									
ARM A	2.97	16.76	0.177	- - -	0.2	0.2	3.2	-	0.072
ARM B	10.90	18.81	0.579	- - -	1.4	1.4	20.4	-	0.126
ARM C	10.83	21.34	0.507	- - -	1.0	1.0	15.3	-	0.095
09.15-09.30									
ARM A	2.43	17.77	0.137	- - -	0.2	0.2	2.4	-	0.065
ARM B	8.90	18.97	0.469	- - -	1.4	0.9	13.9	-	0.100
ARM C	8.84	21.42	0.413	- - -	1.0	0.7	10.9	-	0.080
09.30-09.45									
ARM A	2.03	18.52	0.110	- - -	0.2	0.1	1.9	-	0.061
ARM B	7.45	19.08	0.391	- - -	0.9	0.6	10.0	-	0.086
ARM C	7.40	21.49	0.345	- - -	0.7	0.5	8.1	-	0.071

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.2
09.00	0.2
09.15	0.2
09.30	0.2
09.45	0.1

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

08.30	0.6 *
08.45	0.9 *
09.00	1.4 *
09.15	1.4 *
09.30	0.9 *
09.45	0.6 *

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.5 *
08.45	0.7 *
09.00	1.0 *
09.15	1.0 *
09.30	0.7 *
09.45	0.5 *

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	223.0	148.7	14.8	0.07	14.8	0.07
B	817.6	545.1	85.6	0.10	85.6	0.10
C	812.1	541.4	67.0	0.08	67.0	0.08
ALL	1852.7	1235.1	167.4	0.09	167.4	0.09

T75

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

For sales and distribution information,
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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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
15.Vere St_Gladstone Rise\Cardiff Rd_Vere St Roundabout\Cardiff Rd_Vere St Rndbt.vai"
(drive-on-the-left) at 08:45:37 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cardiff Rd / Vere Street Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Vere Street (N)
ARM B - Cardiff Road (S)
ARM C - Gladstone Rd (N)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.48	12.00	21.80	28.00	21.3	0.610	23.465
ARM B	3.46	4.63	15.70	16.40	27.00	50.9	0.537	20.392
ARM C	4.39	4.90	29.20	9.30	27.00	33.7	0.572	22.908

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	2.74	4.11	2.74
ARM B	15.00	45.00	75.00	7.94	11.91	7.94
ARM C	15.00	45.00	75.00	7.38	11.06	7.38

DEMAND SET TITLE: AM 2020 With Development
.

T33

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45				
	ARM A	0.000	0.607	0.393
		0.0	133.0	86.0
		(0.0)	(5.0)	(5.0)
	ARM B	0.140	0.000	0.860
		89.0	0.0	546.0
		(0.0)	(0.0)	(4.0)
	ARM C	0.154	0.846	0.000
		91.0	499.0	0.0
		(5.0)	(5.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	2.75	18.54	0.148	- - -	0.0	0.2	2.5	-	0.063
ARM B	7.97	19.13	0.417	- - -	0.0	0.7	10.2	-	0.089
ARM C	7.40	21.21	0.349	- - -	0.0	0.5	7.8	-	0.072
08.30-08.45									
ARM A	3.28	17.79	0.184	- - -	0.2	0.2	3.3	-	0.069
ARM B	9.51	19.01	0.500	- - -	0.7	1.0	14.4	-	0.105
ARM C	8.84	21.09	0.419	- - -	0.5	0.7	10.5	-	0.081
08.45-09.00									
ARM A	4.02	16.77	0.240	- - -	0.2	0.3	4.6	-	0.078
ARM B	11.65	18.86	0.618	- - -	1.0	1.6	22.6	-	0.137
ARM C	10.83	20.93	0.517	- - -	0.7	1.1	15.4	-	0.098
09.00-09.15									
ARM A	4.02	16.76	0.240	- - -	0.3	0.3	4.7	-	0.078
ARM B	11.65	18.85	0.618	- - -	1.6	1.6	23.9	-	0.139
ARM C	10.83	20.93	0.517	- - -	1.1	1.1	15.9	-	0.099
09.15-09.30									
ARM A	3.28	17.77	0.185	- - -	0.3	0.2	3.5	-	0.069
ARM B	9.51	19.01	0.500	- - -	1.6	1.0	15.8	-	0.106
ARM C	8.84	21.09	0.419	- - -	1.1	0.7	11.2	-	0.082
09.30-09.45									
ARM A	2.75	18.52	0.148	- - -	0.2	0.2	2.7	-	0.063
ARM B	7.97	19.13	0.417	- - -	1.0	0.7	11.1	-	0.090
ARM C	7.40	21.21	0.349	- - -	0.7	0.5	8.3	-	0.073

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.2
08.45	0.2
09.00	0.3
09.15	0.3
09.30	0.2
09.45	0.2

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

08.30	0.7	*
08.45	1.0	*
09.00	1.6	**
09.15	1.6	**
09.30	1.0	*
09.45	0.7	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.5	*
08.45	0.7	*
09.00	1.1	*
09.15	1.1	*
09.30	0.7	*
09.45	0.5	*

.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	301.4	201.0	21.3	0.07	21.3	0.07
B	874.0	582.7	98.0	0.11	98.0	0.11
C	812.1	541.4	69.0	0.09	69.0	0.09
ALL	1987.6	1325.0	188.4	0.09	188.4	0.09

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\15.Vere St_Gladstone Rise\Cardiff Rd_Vere St Roundabout\
Cardiff Rd_Vere St Rndbt.vai"
(drive-on-the-left) at 15:45:05 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cardiff Rd / Vere Street Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Vere Street (N)
ARM B - Cardiff Road (S)
ARM C - Gladstone Rd (N)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.48	12.00	21.80	28.00	21.3	0.610	23.465
ARM B	3.46	4.63	15.70	16.40	27.00	50.9	0.537	20.392
ARM C	4.39	4.90	29.20	9.30	27.00	33.7	0.572	22.908

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

ARM	FLOW SCALE(%)
A	100
B	100
C	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 2008 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	1.95	2.93	1.95
ARM B	15.00	45.00	75.00	9.75	14.63	9.75
ARM C	15.00	45.00	75.00	6.59	9.88	6.59

DEMAND SET TITLE: PM 2008 Base
.---------- T33

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.442	0.558
		0.0	69.0	87.0
		(0.0)	(6.0)	(2.0)
	ARM B	0.126	0.000	0.874
		98.0	0.0	682.0
		(1.0)	(0.0)	(2.0)
	ARM C	0.154	0.846	0.000
		81.0	446.0	0.0
		(0.0)	(2.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	1.96	19.27	0.102	- -	0.0	0.1	1.7	-	0.058
ARM B	9.79	19.43	0.504	- -	0.0	1.0	14.4	-	0.102
ARM C	6.61	21.83	0.303	- -	0.0	0.4	6.3	-	0.065
16.30-16.45									
ARM A	2.34	18.61	0.126	- -	0.1	0.1	2.1	-	0.061
ARM B	11.69	19.32	0.605	- -	1.0	1.5	21.6	-	0.130
ARM C	7.90	21.69	0.364	- -	0.4	0.6	8.4	-	0.072
16.45-17.00									
ARM A	2.86	17.71	0.162	- -	0.1	0.2	2.8	-	0.067
ARM B	14.31	19.16	0.747	- -	1.5	2.8	38.9	-	0.199
ARM C	9.67	21.51	0.450	- -	0.6	0.8	11.8	-	0.084
17.00-17.15									
ARM A	2.86	17.70	0.162	- -	0.2	0.2	2.9	-	0.067
ARM B	14.31	19.16	0.747	- -	2.8	2.9	42.8	-	0.206
ARM C	9.67	21.51	0.450	- -	0.8	0.8	12.2	-	0.085
17.15-17.30									
ARM A	2.34	18.60	0.126	- -	0.2	0.1	2.2	-	0.062
ARM B	11.69	19.32	0.605	- -	2.9	1.6	24.8	-	0.134
ARM C	7.90	21.69	0.364	- -	0.8	0.6	8.8	-	0.073
17.30-17.45									
ARM A	1.96	19.25	0.102	- -	0.1	0.1	1.7	-	0.058
ARM B	9.79	19.43	0.504	- -	1.6	1.0	16.0	-	0.105
ARM C	6.61	21.83	0.303	- -	0.6	0.4	6.7	-	0.066

QUEUE AT ARM A

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

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

16.30	1.0	*
16.45	1.5	*
17.00	2.8	***
17.15	2.9	***
17.30	1.6	**
17.45	1.0	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.6	*
17.00	0.8	*
17.15	0.8	*
17.30	0.6	*
17.45	0.4	

.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	214.7	143.1	13.4	0.06	13.4	0.06
B	1073.6	715.7	158.4	0.15	158.4	0.15
C	725.4	483.6	54.2	0.07	54.2	0.07
ALL	2013.7	1342.5	226.0	0.11	226.0	0.11

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\15.Vere St_Gladstone Rise\Cardiff Rd_Vere St Roundabout\
Cardiff Rd_Vere St Rndbt.vai"
(drive-on-the-left) at 15:44:40 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cardiff Rd / Vere Street Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Vere Street (N)
ARM B - Cardiff Road (S)
ARM C - Gladstone Rd (N)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.48	12.00	21.80	28.00	21.3	0.610	23.465
ARM B	3.46	4.63	15.70	16.40	27.00	50.9	0.537	20.392
ARM C	4.39	4.90	29.20	9.30	27.00	33.7	0.572	22.908

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

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

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	2.26	3.39	2.26
ARM B	15.00	45.00	75.00	11.34	17.01	11.34
ARM C	15.00	45.00	75.00	7.66	11.49	7.66

DEMAND SET TITLE: PM 2020 Base
.---------- T33

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.442	0.558
		0.0	80.0	101.0
		(0.0)	(6.0)	(2.0)
	ARM B	0.126	0.000	0.874
		114.0	0.0	793.0
		(1.0)	(0.0)	(2.0)
	ARM C	0.153	0.847	0.000
		94.0	519.0	0.0
		(0.0)	(2.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	2.27	18.72	0.121	- -	0.0	0.1	2.0	-	0.061
ARM B	11.38	19.34	0.588	- -	0.0	1.4	19.9	-	0.123
ARM C	7.69	21.72	0.354	- -	0.0	0.5	7.9	-	0.071
16.30-16.45									
ARM A	2.71	17.95	0.151	- -	0.1	0.2	2.6	-	0.066
ARM B	13.59	19.20	0.708	- -	1.4	2.3	32.8	-	0.174
ARM C	9.18	21.56	0.426	- -	0.5	0.7	10.8	-	0.081
16.45-17.00									
ARM A	3.32	16.91	0.196	- -	0.2	0.2	3.6	-	0.074
ARM B	16.64	19.02	0.875	- -	2.3	5.9	75.1	-	0.353
ARM C	11.25	21.36	0.527	- -	0.7	1.1	15.9	-	0.098
17.00-17.15									
ARM A	3.32	16.90	0.197	- -	0.2	0.2	3.7	-	0.074
ARM B	16.64	19.02	0.875	- -	5.9	6.4	92.6	-	0.403
ARM C	11.25	21.34	0.527	- -	1.1	1.1	16.6	-	0.099
17.15-17.30									
ARM A	2.71	17.93	0.151	- -	0.2	0.2	2.7	-	0.066
ARM B	13.59	19.20	0.708	- -	6.4	2.5	42.2	-	0.195
ARM C	9.18	21.54	0.426	- -	1.1	0.8	11.6	-	0.081
17.30-17.45									
ARM A	2.27	18.70	0.121	- -	0.2	0.1	2.1	-	0.061
ARM B	11.38	19.33	0.589	- -	2.5	1.5	23.0	-	0.128
ARM C	7.69	21.71	0.354	- -	0.8	0.6	8.5	-	0.071

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 IN QUEUE

16.30	1.4	*
16.45	2.3	**
17.00	5.9	******
17.15	6.4	******
17.30	2.5	***
17.45	1.5	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	*
16.45	0.7	*
17.00	1.1	*
17.15	1.1	*
17.30	0.8	*
17.45	0.6	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	249.1	166.1	16.7	0.07	16.7	0.07	
B	1248.4	832.3	285.6	0.23	285.6	0.23	
C	843.7	562.5	71.2	0.08	71.3	0.08	
ALL	2341.3	1560.9	373.5	0.16	373.6	0.16	

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
15.Vere St_Gladstone Rise\Cardiff Rd_Vere St Roundabout\Cardiff Rd_Vere St Rndbt.vai"
(drive-on-the-left) at 08:47:39 on Tuesday, 13 April 2010

.FILE PROPERTIES

RUN TITLE: Cardiff Rd / Vere Street Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA

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

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.48	12.00	21.80	28.00	21.3	0.610	23.465
ARM B	3.46	4.63	15.70	16.40	27.00	50.9	0.537	20.392
ARM C	4.39	4.90	29.20	9.30	27.00	33.7	0.572	22.908

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

IARM	FLOW SCALE(%)
A	100
B	100
C	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 Base +tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	2.26	3.39	2.26
ARM B	15.00	45.00	75.00	11.34	17.01	11.34
ARM C	15.00	45.00	75.00	7.66	11.49	7.66

DEMAND SET TITLE: PM 2020 Base +tourism
.-- T33

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.442	0.558
		0.0	80.0	101.0
		(0.0)	(6.0)	(2.0)
	ARM B	0.126	0.000	0.874
		114.0	0.0	793.0
		(1.0)	(0.0)	(2.0)
	ARM C	0.153	0.847	0.000
		94.0	519.0	0.0
		(0.0)	(2.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	2.27	18.72	0.121	- - -	0.0	0.1	2.0	-	0.061
ARM B	11.38	19.34	0.588	- - -	0.0	1.4	19.9	-	0.123
ARM C	7.69	21.72	0.354	- - -	0.0	0.5	7.9	-	0.071
16.30-16.45									
ARM A	2.71	17.95	0.151	- - -	0.1	0.2	2.6	-	0.066
ARM B	13.59	19.20	0.708	- - -	1.4	2.3	32.8	-	0.174
ARM C	9.18	21.56	0.426	- - -	0.5	0.7	10.8	-	0.081
16.45-17.00									
ARM A	3.32	16.91	0.196	- - -	0.2	0.2	3.6	-	0.074
ARM B	16.64	19.02	0.875	- - -	2.3	5.9	75.1	-	0.353
ARM C	11.25	21.36	0.527	- - -	0.7	1.1	15.9	-	0.098
17.00-17.15									
ARM A	3.32	16.90	0.197	- - -	0.2	0.2	3.7	-	0.074
ARM B	16.64	19.02	0.875	- - -	5.9	6.4	92.6	-	0.403
ARM C	11.25	21.34	0.527	- - -	1.1	1.1	16.6	-	0.099
17.15-17.30									
ARM A	2.71	17.93	0.151	- - -	0.2	0.2	2.7	-	0.066
ARM B	13.59	19.20	0.708	- - -	6.4	2.5	42.2	-	0.195
ARM C	9.18	21.54	0.426	- - -	1.1	0.8	11.6	-	0.081
17.30-17.45									
ARM A	2.27	18.70	0.121	- - -	0.2	0.1	2.1	-	0.061
ARM B	11.38	19.33	0.589	- - -	2.5	1.5	23.0	-	0.128
ARM C	7.69	21.71	0.354	- - -	0.8	0.6	8.5	-	0.071

T70

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 IN QUEUE

16.30	1.4	*
16.45	2.3	**
17.00	5.9	******
17.15	6.4	******
17.30	2.5	***
17.45	1.5	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	*
16.45	0.7	*
17.00	1.1	*
17.15	1.1	*
17.30	0.8	*
17.45	0.6	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	249.1	166.1	16.7	0.07	16.7	0.07	
B	1248.4	832.3	285.6	0.23	285.6	0.23	
C	843.7	562.5	71.2	0.08	71.3	0.08	
ALL	2341.3	1560.9	373.5	0.16	373.6	0.16	

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
15.Vere St_Gladstone Rise\Cardiff Rd_Vere St Roundabout\Cardiff Rd_Vere St Rndbt.vai"
(drive-on-the-left) at 08:46:40 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cardiff Rd / Vere Street Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Vere Street (N)
ARM B - Cardiff Road (S)
ARM C - Gladstone Rd (N)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.48	12.00	21.80	28.00	21.3	0.610	23.465
ARM B	3.46	4.63	15.70	16.40	27.00	50.9	0.537	20.392
ARM C	4.39	4.90	29.20	9.30	27.00	33.7	0.572	22.908

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

IARM	FLOW SCALE(%)
A	100
B	100
C	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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	2.80	4.20	2.80
ARM B	15.00	45.00	75.00	12.32	18.49	12.32
ARM C	15.00	45.00	75.00	7.66	11.49	7.66

DEMAND SET TITLE: PM 2020 With Development
.-- T33

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.549	0.451
		0.0	123.0	101.0
		(0.0)	(6.0)	(2.0)
	ARM B	0.196	0.000	0.804
		193.0	0.0	793.0
		(1.0)	(0.0)	(2.0)
	ARM C	0.153	0.847	0.000
		94.0	519.0	0.0
		(0.0)	(2.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	2.81	18.65	0.151	- -	0.0	0.2	2.6	-	0.063
ARM B	12.37	19.35	0.639	- -	0.0	1.7	24.2	-	0.139
ARM C	7.69	21.16	0.363	- -	0.0	0.6	8.3	-	0.074
16.30-16.45									
ARM A	3.36	17.88	0.188	- -	0.2	0.2	3.4	-	0.069
ARM B	14.77	19.22	0.769	- -	1.7	3.1	43.2	-	0.216
ARM C	9.18	20.89	0.440	- -	0.6	0.8	11.4	-	0.085
16.45-17.00									
ARM A	4.11	16.84	0.244	- -	0.2	0.3	4.7	-	0.078
ARM B	18.09	19.04	0.951	- -	3.1	10.8	122.7	-	0.556
ARM C	11.25	20.57	0.547	- -	0.8	1.2	17.2	-	0.107
17.00-17.15									
ARM A	4.11	16.83	0.244	- -	0.3	0.3	4.8	-	0.079
ARM B	18.09	19.03	0.951	- -	10.8	13.0	179.9	-	0.767
ARM C	11.25	20.53	0.548	- -	1.2	1.2	17.9	-	0.108
17.15-17.30									
ARM A	3.36	17.86	0.188	- -	0.3	0.2	3.6	-	0.069
ARM B	14.77	19.22	0.769	- -	13.0	3.5	70.8	-	0.299
ARM C	9.18	20.81	0.441	- -	1.2	0.8	12.3	-	0.086
17.30-17.45									
ARM A	2.81	18.62	0.151	- -	0.2	0.2	2.7	-	0.063
ARM B	12.37	19.35	0.639	- -	3.5	1.8	29.0	-	0.148
ARM C	7.69	21.14	0.364	- -	0.8	0.6	8.8	-	0.075

QUEUE AT ARM A

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

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

16.30	1.7	**
16.45	3.1	***
17.00	10.8	**********
17.15	13.0	**********
17.30	3.5	****
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

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	308.3	205.5	21.8	0.07	21.8	0.07
B	1357.2	904.8	469.9	0.35	470.0	0.35
C	843.7	562.5	75.9	0.09	75.9	0.09
ALL	2509.2	1672.8	567.6	0.23	567.7	0.23

T75

* 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.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
15.Vere St_Gladstone Rise\Cardiff Rd_Vere St Roundabout\Cardiff Rd_Vere St Rndbt.vai"
(drive-on-the-left) at 08:47:04 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cardiff Rd / Vere Street Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Vere Street (N)
ARM B - Cardiff Road (S)
ARM C - Gladstone Rd (N)

.GEOMETRIC DATA

T5

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	3.00	I	5.48	I	12.00	I	21.80	I	28.00	I	21.3	I	0.610	I	23.465	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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	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 + Tourism

T15

I ARM	I	NUMBER OF MINUTES FROM START WHEN I FLOW STARTS TO RISE	I	I TOP OF PEAK IS REACHED	I	I FLOW STOPS I FALLING	I	RATE OF FLOW (VEH/MIN) I BEFORE I PEAK	I	I AT TOP I OF PEAK	I	I AFTER I PEAK	I
I ARM A	I	15.00	I	45.00	I	75.00	I	2.80	I	4.20	I	2.80	I
I ARM B	I	15.00	I	45.00	I	75.00	I	12.32	I	18.49	I	12.32	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 + Tourism

T33

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.549	0.451
		0.0	123.0	101.0
		(0.0)	(6.0)	(2.0)
	ARM B	0.196	0.000	0.804
		193.0	0.0	793.0
		(1.0)	(0.0)	(2.0)
	ARM C	0.153	0.847	0.000
		94.0	519.0	0.0
		(0.0)	(2.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	2.81	18.65	0.151	- -	0.0	0.2	2.6	-	0.063
ARM B	12.37	19.35	0.639	- -	0.0	1.7	24.2	-	0.139
ARM C	7.69	21.16	0.363	- -	0.0	0.6	8.3	-	0.074
16.30-16.45									
ARM A	3.36	17.88	0.188	- -	0.2	0.2	3.4	-	0.069
ARM B	14.77	19.22	0.769	- -	1.7	3.1	43.2	-	0.216
ARM C	9.18	20.89	0.440	- -	0.6	0.8	11.4	-	0.085
16.45-17.00									
ARM A	4.11	16.84	0.244	- -	0.2	0.3	4.7	-	0.078
ARM B	18.09	19.04	0.951	- -	3.1	10.8	122.7	-	0.556
ARM C	11.25	20.57	0.547	- -	0.8	1.2	17.2	-	0.107
17.00-17.15									
ARM A	4.11	16.83	0.244	- -	0.3	0.3	4.8	-	0.079
ARM B	18.09	19.03	0.951	- -	10.8	13.0	179.9	-	0.767
ARM C	11.25	20.53	0.548	- -	1.2	1.2	17.9	-	0.108
17.15-17.30									
ARM A	3.36	17.86	0.188	- -	0.3	0.2	3.6	-	0.069
ARM B	14.77	19.22	0.769	- -	13.0	3.5	70.8	-	0.299
ARM C	9.18	20.81	0.441	- -	1.2	0.8	12.3	-	0.086
17.30-17.45									
ARM A	2.81	18.62	0.151	- -	0.2	0.2	2.7	-	0.063
ARM B	12.37	19.35	0.639	- -	3.5	1.8	29.0	-	0.148
ARM C	7.69	21.14	0.364	- -	0.8	0.6	8.8	-	0.075

T70

QUEUE AT ARM A

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

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

16.30	1.7	**
16.45	3.1	***
17.00	10.8	**********
17.15	13.0	**********
17.30	3.5	****
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

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	308.3	205.5	21.8	0.07	21.8	0.07
B	1357.2	904.8	469.9	0.35	470.0	0.35
C	843.7	562.5	75.9	0.09	75.9	0.09
ALL	2509.2	1672.8	567.6	0.23	567.7	0.23

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

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

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\17.Cory Way_Ffordd y Mileniwm\Cory Way_Ffordd y Mileniwm Roundabout.vai"
(drive-on-the-left) at 14:48:47 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cory Way / Ffordd y Mileniwm Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
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

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	4.00	6.80	73.00	40.00	12.0	0.595	21.904
ARM B	3.77	5.40	14.50	17.60	40.00	26.0	0.607	25.273
ARM C	3.63	6.44	13.50	60.00	40.00	6.0	0.696	29.960
ARM D	3.42	4.54	9.20	15.00	40.00	21.0	0.566	21.660

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

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 2008 base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	7.57	11.36	7.57
ARM B	15.00	45.00	75.00	0.70	1.05	0.70
ARM C	15.00	45.00	75.00	8.98	13.46	8.98
ARM D	15.00	45.00	75.00	0.13	0.19	0.13

DEMAND SET TITLE: AM 2008 base

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
08.15 - 09.45		TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S)			
	ARM A	0.000	0.086	0.785	0.129
		0.0	52.0	476.0	78.0
		(0.0)	(41.0)	(3.0)	(1.0)
	ARM B	0.607	0.000	0.304	0.089
		34.0	0.0	17.0	5.0
		(33.0)	(0.0)	(6.0)	(0.0)
	ARM C	0.905	0.081	0.000	0.014
		650.0	58.0	0.0	10.0
		(4.0)	(13.0)	(0.0)	(0.0)
	ARM D	0.700	0.000	0.300	0.000
		7.0	0.0	3.0	0.0
		(0.0)	(0.0)	(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	7.60	20.18	0.377	- -	0.0	0.6	8.7	-	0.079
ARM B	0.70	17.18	0.041	- -	0.0	0.0	0.6	-	0.061
ARM C	9.01	27.55	0.327	- -	0.0	0.5	7.1	-	0.054
ARM D	0.13	16.09	0.008	- -	0.0	0.0	0.1	-	0.063
08.30-08.45									
ARM A	9.08	20.09	0.452	- -	0.6	0.8	11.9	-	0.091
ARM B	0.84	16.47	0.051	- -	0.0	0.1	0.8	-	0.064
ARM C	10.76	27.34	0.394	- -	0.5	0.6	9.5	-	0.060
ARM D	0.15	14.99	0.010	- -	0.0	0.0	0.1	-	0.067
08.45-09.00									
ARM A	11.12	19.96	0.557	- -	0.8	1.2	17.9	-	0.112
ARM B	1.03	15.52	0.066	- -	0.1	0.1	1.0	-	0.069
ARM C	13.18	27.05	0.487	- -	0.6	0.9	13.8	-	0.072
ARM D	0.18	13.49	0.014	- -	0.0	0.0	0.2	-	0.075
09.00-09.15									
ARM A	11.12	19.96	0.557	- -	1.2	1.2	18.7	-	0.113
ARM B	1.03	15.51	0.066	- -	0.1	0.1	1.1	-	0.069
ARM C	13.18	27.05	0.487	- -	0.9	0.9	14.2	-	0.072
ARM D	0.18	13.48	0.014	- -	0.0	0.0	0.2	-	0.075
09.15-09.30									
ARM A	9.08	20.09	0.452	- -	1.2	0.8	12.9	-	0.091
ARM B	0.84	16.45	0.051	- -	0.1	0.1	0.8	-	0.064
ARM C	10.76	27.33	0.394	- -	0.9	0.7	10.0	-	0.060
ARM D	0.15	14.97	0.010	- -	0.0	0.0	0.2	-	0.067
09.30-09.45									
ARM A	7.60	20.18	0.377	- -	0.8	0.6	9.4	-	0.080
ARM B	0.70	17.16	0.041	- -	0.1	0.0	0.7	-	0.061
ARM C	9.01	27.54	0.327	- -	0.7	0.5	7.5	-	0.054
ARM D	0.13	16.06	0.008	- -	0.0	0.0	0.1	-	0.063

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.6	*
08.45	0.8	*
09.00	1.2	*
09.15	1.2	*

09.30	0.8	*
09.45	0.6	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.0	
08.45	0.1	
09.00	0.1	
09.15	0.1	
09.30	0.1	
09.45	0.0	

.QUEUE AT ARM C

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	0.7	*
09.45	0.5	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	834.1	556.1	79.4	0.10	79.5	0.10	
B	77.1	51.4	5.0	0.06	5.0	0.06	
C	988.3	658.8	62.0	0.06	62.0	0.06	
D	13.8	9.2	0.9	0.07	0.9	0.07	
ALL	1913.2	1275.5	147.4	0.08	147.4	0.08	

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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\17.Cory Way_Ffordd y Mileniwm\Cory Way_Ffordd y Mileniwm Roundabout.vai"
(drive-on-the-left) at 14:48:19 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cory Way / Ffordd y Mileniwm Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
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

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	4.00	6.80	73.00	40.00	12.0	0.595	21.904
ARM B	3.77	5.40	14.50	17.60	40.00	26.0	0.607	25.273
ARM C	3.63	6.44	13.50	60.00	40.00	6.0	0.696	29.960
ARM D	3.42	4.54	9.20	15.00	40.00	21.0	0.566	21.660

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

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 base

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	8.84	13.26	8.84
ARM B	15.00	45.00	75.00	0.82	1.24	0.82
ARM C	15.00	45.00	75.00	10.45	15.67	10.45
ARM D	15.00	45.00	75.00	0.15	0.23	0.15

DEMAND SET TITLE: AM 2020 base

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
08.15 - 09.45					
	ARM A	0.000	0.086	0.785	0.129
		0.0	61.0	555.0	91.0
		(0.0)	(41.0)	(3.0)	(1.0)
	ARM B	0.606	0.000	0.091	0.303
		40.0	0.0	6.0	20.0
		(33.0)	(0.0)	(6.0)	(0.0)
	ARM C	0.906	0.080	0.000	0.014
		757.0	67.0	0.0	12.0
		(4.0)	(13.0)	(0.0)	(0.0)
	ARM D	0.667	0.000	0.333	0.000
		8.0	0.0	4.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	8.87	20.10	0.441	- - -	0.0	0.8	11.3	-	0.088
ARM B	0.83	16.77	0.049	- - -	0.0	0.1	0.8	-	0.063
ARM C	10.49	27.25	0.385	- - -	0.0	0.6	9.1	-	0.059
ARM D	0.15	15.17	0.010	- - -	0.0	0.0	0.1	-	0.067
08.30-08.45									
ARM A	10.59	19.99	0.530	- - -	0.8	1.1	16.1	-	0.106
ARM B	0.99	15.94	0.062	- - -	0.1	0.1	1.0	-	0.067
ARM C	12.53	26.98	0.464	- - -	0.6	0.9	12.6	-	0.069
ARM D	0.18	13.89	0.013	- - -	0.0	0.0	0.2	-	0.073
08.45-09.00									
ARM A	12.97	19.84	0.654	- - -	1.1	1.8	26.2	-	0.144
ARM B	1.21	14.82	0.082	- - -	0.1	0.1	1.3	-	0.074
ARM C	15.34	26.61	0.576	- - -	0.9	1.3	19.5	-	0.088
ARM D	0.22	12.16	0.018	- - -	0.0	0.0	0.3	-	0.084
09.00-09.15									
ARM A	12.97	19.84	0.654	- - -	1.8	1.9	27.8	-	0.145
ARM B	1.21	14.79	0.082	- - -	0.1	0.1	1.3	-	0.074
ARM C	15.34	26.61	0.577	- - -	1.3	1.4	20.2	-	0.089
ARM D	0.22	12.14	0.018	- - -	0.0	0.0	0.3	-	0.084
09.15-09.30									
ARM A	10.59	19.99	0.530	- - -	1.9	1.1	17.9	-	0.108
ARM B	0.99	15.90	0.062	- - -	0.1	0.1	1.0	-	0.067
ARM C	12.53	26.97	0.464	- - -	1.4	0.9	13.5	-	0.070
ARM D	0.18	13.86	0.013	- - -	0.0	0.0	0.2	-	0.073
09.30-09.45									
ARM A	8.87	20.10	0.441	- - -	1.1	0.8	12.3	-	0.089
ARM B	0.83	16.73	0.049	- - -	0.1	0.1	0.8	-	0.063
ARM C	10.49	27.24	0.385	- - -	0.9	0.6	9.6	-	0.060
ARM D	0.15	15.14	0.010	- - -	0.0	0.0	0.2	-	0.067

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.8	*
08.45	1.1	*
09.00	1.8	**
09.15	1.9	**

09.30	1.1	*
09.45	0.8	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.1	
08.45	0.1	
09.00	0.1	
09.15	0.1	
09.30	0.1	
09.45	0.1	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.6	*
08.45	0.9	*
09.00	1.3	*
09.15	1.4	*
09.30	0.9	*
09.45	0.6	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	973.1	648.8	111.6	0.11	111.6	0.11	
B	90.8	60.6	6.2	0.07	6.2	0.07	
C	1150.7	767.1	84.5	0.07	84.5	0.07	
D	16.5	11.0	1.2	0.08	1.2	0.08	
ALL	2231.2	1487.5	203.5	0.09	203.6	0.09	

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
17.Cory Way_Ffordd y Mileniwm\Cory Way_Ffordd y Mileniwm Roundabout.vai"
(drive-on-the-left) at 09:58:25 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cory Way / Ffordd y Mileniwm Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
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

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	4.00	6.80	73.00	40.00	12.0	0.595	21.904
ARM B	3.77	5.40	14.50	17.60	40.00	26.0	0.607	25.273
ARM C	3.63	6.44	13.50	60.00	40.00	6.0	0.696	29.960
ARM D	3.42	4.54	9.20	15.00	40.00	21.0	0.566	21.660

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK	NUMBER OF MINUTES FROM START WHEN FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
	TO RISE	IS REACHED	FALLING			
ARM A	15.00	45.00	75.00	10.54	15.81	10.54
ARM B	15.00	45.00	75.00	1.95	2.93	1.95
ARM C	15.00	45.00	75.00	14.66	21.99	14.66
ARM D	15.00	45.00	75.00	0.15	0.23	0.15

DEMAND SET TITLE: AM 2020 With Development

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
08.15 - 09.45					
	ARM A	0.000	0.012	0.880	0.108
		0.0	10.0	742.0	91.0
		(0.0)	(41.0)	(3.0)	(1.0)
	ARM B	0.455	0.000	0.506	0.038
		71.0	0.0	79.0	6.0
		(33.0)	(0.0)	(6.0)	(0.0)
	ARM C	0.916	0.074	0.000	0.010
		1074.0	87.0	0.0	12.0
		(4.0)	(13.0)	(0.0)	(0.0)
	ARM D	0.667	0.000	0.333	0.000
		8.0	0.0	4.0	0.0
		(0.0)	(0.0)	(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	10.58	20.48	0.516	- - -	0.0	1.1	15.1	-	0.099
ARM B	1.96	15.89	0.123	- - -	0.0	0.1	2.0	-	0.072
ARM C	14.72	27.04	0.544	- - -	0.0	1.2	17.0	-	0.080
ARM D	0.15	12.40	0.012	- - -	0.0	0.0	0.2	-	0.082
08.30-08.45									
ARM A	12.63	20.34	0.621	- - -	1.1	1.6	23.0	-	0.129
ARM B	2.34	14.80	0.158	- - -	0.1	0.2	2.7	-	0.080
ARM C	17.58	26.72	0.658	- - -	1.2	1.9	27.0	-	0.108
ARM D	0.18	10.57	0.017	- - -	0.0	0.0	0.3	-	0.096
08.45-09.00									
ARM A	15.47	20.14	0.768	- - -	1.6	3.1	43.1	-	0.205
ARM B	2.86	13.34	0.215	- - -	0.2	0.3	4.0	-	0.095
ARM C	21.52	26.30	0.819	- - -	1.9	4.2	57.0	-	0.197
ARM D	0.22	8.14	0.027	- - -	0.0	0.0	0.4	-	0.126
09.00-09.15									
ARM A	15.47	20.14	0.768	- - -	3.1	3.2	47.7	-	0.213
ARM B	2.86	13.29	0.215	- - -	0.3	0.3	4.1	-	0.096
ARM C	21.52	26.29	0.819	- - -	4.2	4.4	64.5	-	0.209
ARM D	0.22	8.05	0.027	- - -	0.0	0.0	0.4	-	0.128
09.15-09.30									
ARM A	12.63	20.33	0.621	- - -	3.2	1.7	26.6	-	0.133
ARM B	2.34	14.72	0.159	- - -	0.3	0.2	2.9	-	0.081
ARM C	17.58	26.71	0.658	- - -	4.4	2.0	31.3	-	0.113
ARM D	0.18	10.45	0.017	- - -	0.0	0.0	0.3	-	0.097
09.30-09.45									
ARM A	10.58	20.48	0.517	- - -	1.7	1.1	16.8	-	0.102
ARM B	1.96	15.83	0.124	- - -	0.2	0.1	2.2	-	0.072
ARM C	14.72	27.02	0.545	- - -	2.0	1.2	18.8	-	0.082
ARM D	0.15	12.32	0.012	- - -	0.0	0.0	0.2	-	0.082

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	1.1 *

08.45	1.6	**
09.00	3.1	***
09.15	3.2	***
09.30	1.7	**
09.45	1.1	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.1	
08.45	0.2	
09.00	0.3	
09.15	0.3	
09.30	0.2	
09.45	0.1	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	1.2	*
08.45	1.9	**
09.00	4.2	****
09.15	4.4	****
09.30	2.0	**
09.45	1.2	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

.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	1160.3	773.6	172.4	0.15	172.4	0.15
B	214.7	143.1	17.9	0.08	17.9	0.08
C	1614.5	1076.4	215.7	0.13	215.7	0.13
D	16.5	11.0	1.7	0.10	1.7	0.10
ALL	3006.1	2004.1	407.7	0.14	407.8	0.14

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

TRL Limited Tel: +44 (0) 1344 770758
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Nine Mile Ride Email: software@trl.co.uk
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RG40 3GA,UK

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\17.Cory Way_Ffordd y Mileniwm\Cory Way_Ffordd y Mileniwm Roundabout.vai"
(drive-on-the-left) at 14:51:32 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cory Way / Ffordd y Mileniwm Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
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

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	4.00	6.80	73.00	40.00	12.0	0.595	21.904
ARM B	3.77	5.40	14.50	17.60	40.00	26.0	0.607	25.273
ARM C	3.63	6.44	13.50	60.00	40.00	6.0	0.696	29.960
ARM D	3.42	4.54	9.20	15.00	40.00	21.0	0.566	21.660

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 2008 base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
	TO RISE	IS REACHED	FALLING			
ARM A	15.00	45.00	75.00	11.46	17.19	11.46
ARM B	15.00	45.00	75.00	1.38	2.06	1.38
ARM C	15.00	45.00	75.00	7.96	11.94	7.96
ARM D	15.00	45.00	75.00	0.81	1.22	0.81

DEMAND SET TITLE: PM 2008 base

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45					
	ARM A	0.000	0.029	0.917	0.053
		0.0	27.0	841.0	49.0
		(0.0)	(62.0)	(1.0)	(0.0)
	ARM B	0.573	0.000	0.382	0.045
		63.0	0.0	42.0	5.0
		(21.0)	(0.0)	(0.0)	(20.0)
	ARM C	0.887	0.108	0.000	0.005
		565.0	69.0	0.0	3.0
		(1.0)	(24.0)	(0.0)	(0.0)
	ARM D	0.862	0.000	0.138	0.000
		56.0	0.0	9.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	11.51	20.64	0.558	- -	-	0.0	1.2	17.7	-	0.108
ARM B	1.38	16.30	0.085	- -	-	0.0	0.1	1.4	-	0.067
ARM C	7.99	27.85	0.287	- -	-	0.0	0.4	5.9	-	0.050
ARM D	0.82	16.47	0.050	- -	-	0.0	0.1	0.8	-	0.064
16.30-16.45									
ARM A	13.74	20.50	0.670	- -	-	1.2	2.0	28.1	-	0.146
ARM B	1.65	15.09	0.109	- -	-	0.1	0.1	1.8	-	0.074
ARM C	9.54	27.63	0.345	- -	-	0.4	0.5	7.7	-	0.055
ARM D	0.97	15.45	0.063	- -	-	0.1	0.1	1.0	-	0.069
16.45-17.00									
ARM A	16.83	20.32	0.828	- -	-	2.0	4.4	58.3	-	0.263
ARM B	2.02	13.51	0.149	- -	-	0.1	0.2	2.6	-	0.087
ARM C	11.69	27.34	0.428	- -	-	0.5	0.7	10.9	-	0.064
ARM D	1.19	14.06	0.085	- -	-	0.1	0.1	1.4	-	0.078
17.00-17.15									
ARM A	16.83	20.32	0.828	- -	-	4.4	4.6	67.6	-	0.282
ARM B	2.02	13.43	0.150	- -	-	0.2	0.2	2.6	-	0.088
ARM C	11.69	27.33	0.428	- -	-	0.7	0.7	11.2	-	0.064
ARM D	1.19	14.05	0.085	- -	-	0.1	0.1	1.4	-	0.078
17.15-17.30									
ARM A	13.74	20.50	0.670	- -	-	4.6	2.1	33.8	-	0.155
ARM B	1.65	14.98	0.110	- -	-	0.2	0.1	1.9	-	0.075
ARM C	9.54	27.62	0.346	- -	-	0.7	0.5	8.1	-	0.055
ARM D	0.97	15.43	0.063	- -	-	0.1	0.1	1.0	-	0.069
17.30-17.45									
ARM A	11.51	20.63	0.558	- -	-	2.1	1.3	20.0	-	0.111
ARM B	1.38	16.23	0.085	- -	-	0.1	0.1	1.4	-	0.067
ARM C	7.99	27.84	0.287	- -	-	0.5	0.4	6.2	-	0.050
ARM D	0.82	16.45	0.050	- -	-	0.1	0.1	0.8	-	0.064

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.2	*
16.45	2.0	**
17.00	4.4	****

17.15	4.6	*****
17.30	2.1	**
17.45	1.3	*

.QUEUE AT ARM B

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	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	*
17.00	0.7	*
17.15	0.7	*
17.30	0.5	*
17.45	0.4	

.QUEUE AT ARM D

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	

.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	1262.2	841.5	225.6	0.18	225.6	0.18
B	151.4	100.9	11.7	0.08	11.7	0.08
C	876.8	584.5	50.0	0.06	50.0	0.06
D	89.5	59.6	6.3	0.07	6.3	0.07
ALL	2379.8	1586.6	293.5	0.12	293.6	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\17.Cory Way_Ffordd y Mileniwm\Cory Way_Ffordd y Mileniwm Roundabout.vai"
(drive-on-the-left) at 14:55:38 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cory Way / Ffordd y Mileniwm Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
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

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	4.00	6.80	73.00	40.00	12.0	0.595	21.904
ARM B	3.77	5.40	14.50	17.60	40.00	26.0	0.607	25.273
ARM C	3.63	6.44	13.50	60.00	40.00	6.0	0.696	29.960
ARM D	3.42	4.54	9.20	15.00	40.00	21.0	0.566	21.660

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	13.32	19.99	13.32
ARM B	15.00	45.00	75.00	1.60	2.40	1.60
ARM C	15.00	45.00	75.00	9.25	13.88	9.25
ARM D	15.00	45.00	75.00	0.95	1.42	0.95

DEMAND SET TITLE: PM 2020 base

T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
16.15 - 17.45					
	ARM A	0.000	0.029	0.917	0.053
		0.0	31.0	978.0	57.0
		(0.0)	(62.0)	(1.0)	(0.0)
	ARM B	0.570	0.000	0.383	0.047
		73.0	0.0	49.0	6.0
		(21.0)	(0.0)	(0.0)	(20.0)
	ARM C	0.886	0.108	0.000	0.005
		656.0	80.0	0.0	4.0
		(1.0)	(24.0)	(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)

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	13.38	20.53	0.652	- -	0.0	1.8	25.5	-	0.135
ARM B	1.61	15.32	0.105	- -	0.0	0.1	1.7	-	0.073
ARM C	9.29	27.67	0.336	- -	0.0	0.5	7.4	-	0.054
ARM D	0.95	15.64	0.061	- -	0.0	0.1	0.9	-	0.068
16.30-16.45									
ARM A	15.97	20.37	0.784	- -	1.8	3.4	46.8	-	0.217
ARM B	1.92	13.93	0.138	- -	0.1	0.2	2.3	-	0.083
ARM C	11.09	27.42	0.404	- -	0.5	0.7	9.9	-	0.061
ARM D	1.14	14.45	0.079	- -	0.1	0.1	1.3	-	0.075
16.45-17.00									
ARM A	19.56	20.16	0.971	- -	3.4	13.2	144.6	-	0.610
ARM B	2.35	12.30	0.191	- -	0.2	0.2	3.4	-	0.100
ARM C	13.58	27.09	0.501	- -	0.7	1.0	14.5	-	0.074
ARM D	1.39	12.84	0.109	- -	0.1	0.1	1.8	-	0.087
17.00-17.15									
ARM A	19.56	20.15	0.971	- -	13.2	16.7	226.8	-	0.900
ARM B	2.35	12.08	0.194	- -	0.2	0.2	3.6	-	0.103
ARM C	13.58	27.08	0.501	- -	1.0	1.0	15.0	-	0.074
ARM D	1.39	12.82	0.109	- -	0.1	0.1	1.8	-	0.088
17.15-17.30									
ARM A	15.97	20.37	0.784	- -	16.7	3.9	87.3	-	0.338
ARM B	1.92	13.42	0.143	- -	0.2	0.2	2.6	-	0.087
ARM C	11.09	27.38	0.405	- -	1.0	0.7	10.5	-	0.062
ARM D	1.14	14.43	0.079	- -	0.1	0.1	1.3	-	0.075
17.30-17.45									
ARM A	13.38	20.52	0.652	- -	3.9	1.9	30.7	-	0.145
ARM B	1.61	15.19	0.106	- -	0.2	0.1	1.8	-	0.074
ARM C	9.29	27.66	0.336	- -	0.7	0.5	7.8	-	0.055
ARM D	0.95	15.61	0.061	- -	0.1	0.1	1.0	-	0.068

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.8	**
16.45	3.4	***

17.00	13.2	*************
17.15	16.7	*****************
17.30	3.9	****
17.45	1.9	**

.QUEUE AT ARM B

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 C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	*
16.45	0.7	*
17.00	1.0	*
17.15	1.0	*
17.30	0.7	*
17.45	0.5	*

.QUEUE AT ARM D

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

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	1467.3	978.2	561.7	0.38	561.8	0.38
B	176.2	117.5	15.4	0.09	15.4	0.09
C	1018.6	679.0	65.1	0.06	65.1	0.06
D	104.6	69.7	8.1	0.08	8.1	0.08
ALL	2766.6	1844.4	650.3	0.24	650.4	0.24

T75

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
17.Cory Way_Ffordd y Mileniwm\Cory Way_Ffordd y Mileniwm Roundabout.vai"
(drive-on-the-left) at 09:59:58 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cory Way / Ffordd y Mileniwm Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
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

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	4.00	6.80	73.00	40.00	12.0	0.595	21.904
ARM B	3.77	5.40	14.50	17.60	40.00	26.0	0.607	25.273
ARM C	3.63	6.44	13.50	60.00	40.00	6.0	0.696	29.960
ARM D	3.42	4.54	9.20	15.00	40.00	21.0	0.566	21.660

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 base +tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS TO RISE	RATE OF FLOW (VEH/MIN) BEFORE IS REACHED	AT TOP FALLING	AFTER OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	14.56	21.84	14.56	
ARM B	15.00	45.00	75.00	1.60	2.40	1.60	
ARM C	15.00	45.00	75.00	10.63	15.94	10.63	
ARM D	15.00	45.00	75.00	0.95	1.42	0.95	

DEMAND SET TITLE: PM 2020 base +tourism

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45					
	ARM A	0.000	0.027	0.924	0.049
		0.0	31.0	1077.0	57.0
		(0.0)	(62.0)	(1.0)	(0.0)
	ARM B	0.570	0.000	0.383	0.047
		73.0	0.0	49.0	6.0
		(21.0)	(0.0)	(0.0)	(20.0)
	ARM C	0.901	0.094	0.000	0.005
		766.0	80.0	0.0	4.0
		(1.0)	(24.0)	(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)

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	14.62	20.56	0.711	- - -	0.0	2.4	32.7	-	0.160
ARM B	1.61	14.67	0.110	- - -	0.0	0.1	1.8	-	0.076
ARM C	10.67	27.76	0.384	- - -	0.0	0.6	9.1	-	0.058
ARM D	0.95	14.86	0.064	- - -	0.0	0.1	1.0	-	0.072
16.30-16.45									
ARM A	17.46	20.40	0.856	- - -	2.4	5.2	68.3	-	0.302
ARM B	1.92	13.17	0.146	- - -	0.1	0.2	2.5	-	0.089
ARM C	12.74	27.51	0.463	- - -	0.6	0.9	12.5	-	0.068
ARM D	1.14	13.51	0.084	- - -	0.1	0.1	1.3	-	0.081
16.45-17.00									
ARM A	21.38	20.18	1.059	- - -	5.2	29.9	279.9	-	1.091
ARM B	2.35	11.84	0.198	- - -	0.2	0.2	3.6	-	0.105
ARM C	15.60	27.21	0.573	- - -	0.9	1.3	19.3	-	0.086
ARM D	1.39	11.69	0.119	- - -	0.1	0.1	2.0	-	0.097
17.00-17.15									
ARM A	21.38	20.18	1.059	- - -	29.9	49.7	598.3	-	2.144
ARM B	2.35	11.67	0.201	- - -	0.2	0.3	3.7	-	0.107
ARM C	15.60	27.20	0.574	- - -	1.3	1.3	20.0	-	0.086
ARM D	1.39	11.67	0.120	- - -	0.1	0.1	2.0	-	0.097
17.15-17.30									
ARM A	17.46	20.40	0.856	- - -	49.7	11.0	459.4	-	1.631
ARM B	1.92	11.71	0.164	- - -	0.3	0.2	3.0	-	0.102
ARM C	12.74	27.41	0.465	- - -	1.3	0.9	13.5	-	0.068
ARM D	1.14	13.48	0.084	- - -	0.1	0.1	1.4	-	0.081
17.30-17.45									
ARM A	14.62	20.55	0.711	- - -	11.0	2.6	49.0	-	0.204
ARM B	1.61	14.28	0.112	- - -	0.2	0.1	2.0	-	0.079
ARM C	10.67	27.73	0.385	- - -	0.9	0.6	9.6	-	0.059
ARM D	0.95	14.82	0.064	- - -	0.1	0.1	1.1	-	0.072

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	2.4	**

16.45	5.2	*****
17.00	29.9	******************************
17.15	49.7	**
17.30	11.0	***********
17.45	2.6	***

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.1	
16.45	0.2	
17.00	0.2	
17.15	0.3	
17.30	0.2	
17.45	0.1	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.3	*
17.15	1.3	*
17.30	0.9	*
17.45	0.6	*

.QUEUE AT ARM D

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

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	1603.5	1069.0	1487.7	0.93	1487.8	0.93	
B	176.2	117.5	16.6	0.09	16.6	0.09	
C	1170.0	780.0	83.9	0.07	83.9	0.07	
D	104.6	69.7	8.8	0.08	8.8	0.08	
ALL	3054.3	2036.2	1597.0	0.52	1597.2	0.52	

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
17.Cory Way_Ffordd y Mileniwm\Cory Way_Ffordd y Mileniwm Roundabout.vai"
(drive-on-the-left) at 09:59:04 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cory Way / Ffordd y Mileniwm Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
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

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	4.00	6.80	73.00	40.00	12.0	0.595	21.904
ARM B	3.77	5.40	14.50	17.60	40.00	26.0	0.607	25.273
ARM C	3.63	6.44	13.50	60.00	40.00	6.0	0.696	29.960
ARM D	3.42	4.54	9.20	15.00	40.00	21.0	0.566	21.660

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	17.51	26.27	17.51
ARM B	15.00	45.00	75.00	2.17	3.26	2.17
ARM C	15.00	45.00	75.00	13.06	19.59	13.06
ARM D	15.00	45.00	75.00	0.95	1.42	0.95

DEMAND SET TITLE: PM 2020 With Development

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45					
	ARM A	0.000	0.019	0.940	0.041
		0.0	27.0	1317.0	57.0
		(0.0)	(62.0)	(1.0)	(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)
	ARM C	0.872	0.124	0.000	0.004
		911.0	130.0	0.0	4.0
		(1.0)	(24.0)	(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)

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	17.58	20.19	0.870	- - -	0.0	5.7	71.2	-	0.303
ARM B	2.18	13.34	0.164	- - -	0.0	0.2	2.8	-	0.089
ARM C	13.11	27.43	0.478	- - -	0.0	0.9	13.2	-	0.069
ARM D	0.95	13.26	0.072	- - -	0.0	0.1	1.1	-	0.081
16.30-16.45									
ARM A	20.99	19.95	1.052	- - -	5.7	28.3	271.0	-	1.077
ARM B	2.61	12.09	0.216	- - -	0.2	0.3	4.0	-	0.105
ARM C	15.66	27.18	0.576	- - -	0.9	1.3	19.5	-	0.086
ARM D	1.14	11.60	0.098	- - -	0.1	0.1	1.6	-	0.096
16.45-17.00									
ARM A	25.71	19.61	1.311	- - -	28.3	120.1	1113.9	-	3.924
ARM B	3.19	12.01	0.266	- - -	0.3	0.4	5.3	-	0.113
ARM C	19.18	26.92	0.712	- - -	1.3	2.4	34.1	-	0.127
ARM D	1.39	9.36	0.149	- - -	0.1	0.2	2.5	-	0.125
17.00-17.15									
ARM A	25.71	19.61	1.311	- - -	120.1	211.6	2487.7	-	8.503
ARM B	3.19	12.00	0.266	- - -	0.4	0.4	5.4	-	0.114
ARM C	19.18	26.91	0.713	- - -	2.4	2.4	36.4	-	0.129
ARM D	1.39	9.31	0.150	- - -	0.2	0.2	2.6	-	0.126
17.15-17.30									
ARM A	20.99	19.94	1.053	- - -	211.6	227.5	3293.7	-	11.042
ARM B	2.61	11.85	0.220	- - -	0.4	0.3	4.4	-	0.108
ARM C	15.66	27.16	0.576	- - -	2.4	1.4	21.5	-	0.088
ARM D	1.14	11.54	0.099	- - -	0.2	0.1	1.7	-	0.096
17.30-17.45									
ARM A	17.58	20.19	0.871	- - -	227.5	189.7	3129.6	-	10.386
ARM B	2.18	11.77	0.185	- - -	0.3	0.2	3.5	-	0.104
ARM C	13.11	27.34	0.480	- - -	1.4	0.9	14.3	-	0.071
ARM D	0.95	13.20	0.072	- - -	0.1	0.1	1.2	-	0.082

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	5.7	******

16.45	28.3	**********
17.00	120.1	**********
17.15	211.6	**********
17.30	227.5	**********
17.45	189.7	**********

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.2	
16.45	0.3	
17.00	0.4	
17.15	0.4	
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	2.4	**
17.15	2.4	**
17.30	1.4	*
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

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	1928.4	1285.6	10366.9	5.38	11258.8	5.84
B	239.5	159.7	25.4	0.11	25.4	0.11
C	1438.4	958.9	139.1	0.10	139.1	0.10
D	104.6	69.7	10.8	0.10	10.8	0.10
ALL	3710.8	2473.9	10542.1	2.84	11434.0	3.08

* 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.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\17.Cory Way_Ffordd y Mileniwm\Cory Way_Ffordd y Mileniwm Roundabout.vai"
(drive-on-the-left) at 09:59:31 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Cory Way / Ffordd y Mileniwm Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
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

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	4.00	6.80	73.00	40.00	12.0	0.595	21.904
ARM B	3.77	5.40	14.50	17.60	40.00	26.0	0.607	25.273
ARM C	3.63	6.44	13.50	60.00	40.00	6.0	0.696	29.960
ARM D	3.42	4.54	9.20	15.00	40.00	21.0	0.566	21.660

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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+Tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	18.76	28.14	18.76
ARM B	15.00	45.00	75.00	2.17	3.26	2.17
ARM C	15.00	45.00	75.00	14.44	21.66	14.44
ARM D	15.00	45.00	75.00	0.95	1.42	0.95

DEMAND SET TITLE: PM 2020 With Development+Tourism

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45		TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S)			
	ARM A	0.000 0.0 (0.0)	0.018 27.0 (62.0)	0.944 1417.0 (1.0)	0.038 57.0 (0.0)
	ARM B	0.506 88.0 (21.0)	0.000 0.0 (0.0)	0.460 80.0 (0.0)	0.034 6.0 (20.0)
	ARM C	0.884 1021.0 (1.0)	0.113 130.0 (24.0)	0.000 0.0 (0.0)	0.003 4.0 (0.0)
	ARM D	0.855 65.0 (0.0)	0.000 0.0 (0.0)	0.145 11.0 (0.0)	0.000 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	18.83	20.21	0.932	- - -	0.0	9.2	104.0	-	0.421
ARM B	2.18	12.77	0.171	- - -	0.0	0.2	3.0	-	0.094
ARM C	14.49	27.51	0.527	- - -	0.0	1.1	15.9	-	0.076
ARM D	0.95	12.48	0.076	- - -	0.0	0.1	1.2	-	0.087
16.30-16.45									
ARM A	22.49	19.96	1.127	- - -	9.2	49.8	450.1	-	1.690
ARM B	2.61	11.91	0.219	- - -	0.2	0.3	4.1	-	0.107
ARM C	17.31	27.28	0.634	- - -	1.1	1.7	24.6	-	0.099
ARM D	1.14	10.66	0.107	- - -	0.1	0.1	1.7	-	0.105
16.45-17.00									
ARM A	27.54	19.63	1.403	- - -	49.8	168.6	1637.7	-	5.679
ARM B	3.19	11.98	0.267	- - -	0.3	0.4	5.3	-	0.114
ARM C	21.19	27.02	0.784	- - -	1.7	3.5	47.9	-	0.165
ARM D	1.39	8.23	0.169	- - -	0.1	0.2	2.9	-	0.146
17.00-17.15									
ARM A	27.54	19.62	1.404	- - -	168.6	287.4	3419.7	-	11.622
ARM B	3.19	11.98	0.267	- - -	0.4	0.4	5.4	-	0.114
ARM C	21.19	27.02	0.784	- - -	3.5	3.5	52.7	-	0.171
ARM D	1.39	8.16	0.171	- - -	0.2	0.2	3.1	-	0.148
17.15-17.30									
ARM A	22.49	19.95	1.127	- - -	287.4	325.5	4596.9	-	15.335
ARM B	2.61	11.82	0.221	- - -	0.4	0.3	4.4	-	0.109
ARM C	17.31	27.27	0.635	- - -	3.5	1.8	27.9	-	0.103
ARM D	1.14	10.56	0.108	- - -	0.2	0.1	1.9	-	0.106
17.30-17.45									
ARM A	18.83	20.20	0.932	- - -	325.5	306.0	4736.1	-	15.677
ARM B	2.18	11.73	0.186	- - -	0.3	0.2	3.5	-	0.105
ARM C	14.49	27.45	0.528	- - -	1.8	1.1	17.5	-	0.078
ARM D	0.95	12.40	0.077	- - -	0.1	0.1	1.3	-	0.087

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	9.2	*********

16.45	49.8	**********
17.00	168.6	**********
17.15	287.4	**********
17.30	325.5	**********
17.45	306.0	**********

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.2	
16.45	0.3	
17.00	0.4	
17.15	0.4	
17.30	0.3	
17.45	0.2	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.1	*
16.45	1.7	**
17.00	3.5	***
17.15	3.5	****
17.30	1.8	**
17.45	1.1	*

.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

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	2066.0	1377.3	14944.5	7.23	17261.6	8.36
B	239.5	159.7	25.6	0.11	25.6	0.11
C	1589.8	1059.8	186.5	0.12	186.5	0.12
D	104.6	69.7	12.1	0.12	12.1	0.12
ALL	3999.9	2666.6	15168.7	3.79	17485.8	4.37

* 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.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

For sales and distribution information,
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Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\10.Broad St_Gladstone Rd\Dock View Road Gyratory\Holton Rd_Dock View Rd.vai"
(drive-on-the-left) at 16:51:59 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Holton Road / Dock View Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Gladstone rndbt (W)
ARM B - Holton Road (E)
ARM C - Dock View Rd (S)

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.68	7.93	0.10	999.00	29.50	19.0	0.856	42.275
ARM B	3.00	3.00	0.10	14.00	29.50	16.5	0.509	15.542
ARM C	3.70	3.70	0.00	14.00	29.50	15.0	0.557	19.266

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100

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 2008

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	6.10	9.15	6.10
ARM B	15.00	45.00	75.00	5.16	7.74	5.16
ARM C	15.00	45.00	75.00	2.63	3.94	2.63

DEMAND SET TITLE: AM 2008

	TURNING PROPORTIONS

TIME	FROM/TO	TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
08.15 - 09.45	ARM A	0.000	0.068	0.932
		0.0	33.0	455.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.881	0.000	0.119
		364.0	0.0	49.0
		(6.0)	(0.0)	(2.0)
	ARM C	1.000	0.000	0.000
		210.0	0.0	0.0
		(2.0)	(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)
08.15-08.30										
	ARM A	6.12	41.88	0.146	- -	0.0	0.2	2.5	-	0.028
	ARM B	5.18	11.95	0.434	- -	0.0	0.8	10.7	-	0.146
	ARM C	2.63	16.27	0.162	- -	0.0	0.2	2.8	-	0.073
08.30-08.45										
	ARM A	7.31	41.88	0.175	- -	0.2	0.2	3.1	-	0.029
	ARM B	6.19	11.41	0.542	- -	0.8	1.2	16.5	-	0.190
	ARM C	3.15	15.75	0.200	- -	0.2	0.2	3.7	-	0.079
08.45-09.00										
	ARM A	8.95	41.88	0.214	- -	0.2	0.3	4.0	-	0.030
	ARM B	7.58	10.66	0.711	- -	1.2	2.3	31.3	-	0.310
	ARM C	3.85	15.06	0.256	- -	0.2	0.3	5.0	-	0.089
09.00-09.15										
	ARM A	8.95	41.88	0.214	- -	0.3	0.3	4.1	-	0.030
	ARM B	7.58	10.66	0.711	- -	2.3	2.4	35.2	-	0.323
	ARM C	3.85	15.03	0.256	- -	0.3	0.3	5.1	-	0.089
09.15-09.30										
	ARM A	7.31	41.88	0.175	- -	0.3	0.2	3.2	-	0.029
	ARM B	6.19	11.40	0.543	- -	2.4	1.2	19.5	-	0.198
	ARM C	3.15	15.69	0.200	- -	0.3	0.3	3.9	-	0.080
09.30-09.45										
	ARM A	6.12	41.88	0.146	- -	0.2	0.2	2.6	-	0.028
	ARM B	5.18	11.94	0.434	- -	1.2	0.8	12.2	-	0.149
	ARM C	2.63	16.23	0.162	- -	0.3	0.2	3.0	-	0.074

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.2
08.45	0.2
09.00	0.3
09.15	0.3
09.30	0.2
09.45	0.2

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.8 *

08.45	1.2	*
09.00	2.3	**
09.15	2.4	**
09.30	1.2	*
09.45	0.8	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.2
08.45	0.2
09.00	0.3
09.15	0.3
09.30	0.3
09.45	0.2

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	671.7	447.8	19.6	0.03	19.6	0.03	
B	568.5	379.0	125.4	0.22	125.4	0.22	
C	289.0	192.7	23.5	0.08	23.5	0.08	
ALL	1529.2	1019.5	168.4	0.11	168.4	0.11	

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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\10.Broad St_Gladstone Rd\Dock View Road Gyratory\Holton Rd_Dock View Rd.vai"
(drive-on-the-left) at 16:52:53 on Tuesday, 6 April 2010

.FILE PROPERTIES
****

RUN TITLE: Holton Road / Dock View Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Gladstone rndbt (W)
ARM B - Holton Road (E)
ARM C - Dock View Rd (S)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.68	7.93	0.10	999.00	29.50	19.0	0.856	42.275
ARM B	3.00	3.00	0.10	14.00	29.50	16.5	0.509	15.542
ARM C	3.70	3.70	0.00	14.00	29.50	15.0	0.557	19.266

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100

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 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	7.10	10.65	7.10
ARM B	15.00	45.00	75.00	6.01	9.02	6.01
ARM C	15.00	45.00	75.00	3.06	4.59	3.06

DEMAND SET TITLE: AM 2020 Base
.

T33

	TURNING PROPORTIONS

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45		TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000	0.067	0.933
		0.0	38.0	530.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.881	0.000	0.119
		424.0	0.0	57.0
		(6.0)	(0.0)	(2.0)
	ARM C	1.000	0.000	0.000
		245.0	0.0	0.0
		(2.0)	(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)
08.15-08.30									
ARM A	7.13	41.88	0.170	- -	-	0.0	0.2	3.0	-	0.029
ARM B	6.04	11.49	0.525	- -	-	0.0	1.1	15.1	-	0.179
ARM C	3.07	15.85	0.194	- -	-	0.0	0.2	3.5	-	0.078
08.30-08.45									
ARM A	8.51	41.88	0.203	- -	-	0.2	0.3	3.8	-	0.030
ARM B	7.21	10.86	0.664	- -	-	1.1	1.9	26.1	-	0.266
ARM C	3.67	15.24	0.241	- -	-	0.2	0.3	4.6	-	0.086
08.45-09.00									
ARM A	10.42	41.88	0.249	- -	-	0.3	0.3	4.9	-	0.032
ARM B	8.83	9.99	0.884	- -	-	1.9	5.6	67.4	-	0.624
ARM C	4.50	14.51	0.310	- -	-	0.3	0.4	6.5	-	0.100
09.00-09.15									
ARM A	10.42	41.88	0.249	- -	-	0.3	0.3	5.0	-	0.032
ARM B	8.83	9.99	0.884	- -	-	5.6	6.3	90.0	-	0.768
ARM C	4.50	14.41	0.312	- -	-	0.4	0.5	6.7	-	0.101
09.15-09.30									
ARM A	8.51	41.88	0.203	- -	-	0.3	0.3	3.9	-	0.030
ARM B	7.21	10.86	0.664	- -	-	6.3	2.1	37.2	-	0.319
ARM C	3.67	15.07	0.244	- -	-	0.5	0.3	5.0	-	0.088
09.30-09.45									
ARM A	7.13	41.88	0.170	- -	-	0.3	0.2	3.1	-	0.029
ARM B	6.04	11.49	0.525	- -	-	2.1	1.1	18.1	-	0.188
ARM C	3.07	15.78	0.195	- -	-	0.3	0.2	3.7	-	0.079

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.2
08.45	0.3
09.00	0.3
09.15	0.3
09.30	0.3
09.45	0.2

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	1.1 *

08.45	1.9	**
09.00	5.6	******
09.15	6.3	******
09.30	2.1	**
09.45	1.1	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.2
08.45	0.3
09.00	0.4
09.15	0.5
09.30	0.3
09.45	0.2

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	781.8	521.2	23.7	0.03	23.7	0.03	
B	662.1	441.4	253.9	0.38	254.0	0.38	
C	337.2	224.8	30.1	0.09	30.1	0.09	
ALL	1781.1	1187.4	307.6	0.17	307.7	0.17	

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

_____ A R C A D Y 6 _____

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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
10.Broad St_Gladstone Rd\Dock View Road Gyratory\Holton Rd_Dock View Rd.vai"
(drive-on-the-left) at 15:51:13 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Holton Road / Dock View Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Gladstone rndbt (W)
ARM B - Holton Road (E)
ARM C - Dock View Rd (S)

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.68	7.93	0.10	999.00	29.50	19.0	0.856	42.275
ARM B	3.00	3.00	0.10	14.00	29.50	16.5	0.509	15.542
ARM C	3.70	3.70	0.00	14.00	29.50	15.0	0.557	19.266

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	7.61	11.42	7.61
ARM B	15.00	45.00	75.00	6.07	9.11	6.07
ARM C	15.00	45.00	75.00	3.11	4.67	3.11

DEMAND SET TITLE: AM 2020 With Development
.

	TURNING PROPORTIONS

TIME	FROM/TO	TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
08.15 - 09.45				
	ARM A	0.000	0.097	0.903
		0.0	59.0	550.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.883	0.000	0.117
		429.0	0.0	57.0
		(6.0)	(0.0)	(2.0)
	ARM C	1.000	0.000	0.000
		249.0	0.0	0.0
		(2.0)	(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)
08.15-08.30									
ARM A	7.64	41.90	0.182	- -	-	0.0	0.2	3.3	-	0.029
ARM B	6.10	11.37	0.536	- -	-	0.0	1.1	15.8	-	0.184
ARM C	3.12	15.81	0.198	- -	-	0.0	0.2	3.6	-	0.079
08.30-08.45									
ARM A	9.12	41.90	0.218	- -	-	0.2	0.3	4.1	-	0.031
ARM B	7.28	10.71	0.680	- -	-	1.1	2.0	27.8	-	0.282
ARM C	3.73	15.20	0.245	- -	-	0.2	0.3	4.7	-	0.087
08.45-09.00									
ARM A	11.18	41.90	0.267	- -	-	0.3	0.4	5.4	-	0.033
ARM B	8.92	9.81	0.909	- -	-	2.0	6.5	76.3	-	0.706
ARM C	4.57	14.49	0.315	- -	-	0.3	0.5	6.7	-	0.101
09.00-09.15									
ARM A	11.18	41.90	0.267	- -	-	0.4	0.4	5.4	-	0.033
ARM B	8.92	9.81	0.909	- -	-	6.5	7.6	107.2	-	0.916
ARM C	4.57	14.37	0.318	- -	-	0.5	0.5	6.9	-	0.102
09.15-09.30									
ARM A	9.12	41.90	0.218	- -	-	0.4	0.3	4.2	-	0.031
ARM B	7.28	10.71	0.680	- -	-	7.6	2.3	42.5	-	0.358
ARM C	3.73	14.99	0.249	- -	-	0.5	0.3	5.1	-	0.089
09.30-09.45									
ARM A	7.64	41.90	0.182	- -	-	0.3	0.2	3.4	-	0.029
ARM B	6.10	11.36	0.537	- -	-	2.3	1.2	19.0	-	0.195
ARM C	3.12	15.74	0.199	- -	-	0.3	0.2	3.8	-	0.079

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.2
08.45	0.3
09.00	0.4
09.15	0.4
09.30	0.3
09.45	0.2

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	1.1 *

08.45	2.0	**
09.00	6.5	*******
09.15	7.6	********
09.30	2.3	**
09.45	1.2	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.2
08.45	0.3
09.00	0.5
09.15	0.5
09.30	0.3
09.45	0.2

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	838.2	558.8	25.9	0.03	25.9	0.03	
B	668.9	446.0	288.4	0.43	288.5	0.43	
C	342.7	228.5	30.8	0.09	30.8	0.09	
ALL	1849.9	1233.3	345.2	0.19	345.2	0.19	

* 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

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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

TRL Limited
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Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\10.Broad St_Gladstone Rd\Dock View Road Gyratory\Holton Rd_Dock View Rd.vai"
(drive-on-the-left) at 16:53:58 on Tuesday, 6 April 2010

FILE PROPERTIES

RUN TITLE: Holton Road / Dock View Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Gladstone rndbt (W)
ARM B - Holton Road (E)
ARM C - Dock View Rd (S)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.68	7.93	0.10	999.00	29.50	19.0	0.856	42.275
ARM B	3.00	3.00	0.10	14.00	29.50	16.5	0.509	15.542
ARM C	3.70	3.70	0.00	14.00	29.50	15.0	0.557	19.266

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

ARM	FLOW SCALE(%)
A	100
B	100
C	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 2008

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
	TO RISE	IS REACHED	FALLING			
ARM A	15.00	45.00	75.00	3.65	5.48	3.65
ARM B	15.00	45.00	75.00	7.21	10.82	7.21
ARM C	15.00	45.00	75.00	4.89	7.33	4.89

DEMAND SET TITLE: PM 2008

TURNING PROPORTIONS

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.055	0.945
		0.0	16.0	276.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.905	0.000	0.095
		522.0	0.0	55.0
		(4.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		391.0	0.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	3.66	41.88	0.087	- -	-	0.0	0.1	1.4	-	0.026
ARM B	7.24	13.28	0.545	- -	-	0.0	1.2	16.5	-	0.161
ARM C	4.91	15.52	0.316	- -	-	0.0	0.5	6.6	-	0.094
16.30-16.45									
ARM A	4.38	41.88	0.104	- -	-	0.1	0.1	1.7	-	0.027
ARM B	8.65	12.95	0.668	- -	-	1.2	1.9	27.0	-	0.227
ARM C	5.86	14.76	0.397	- -	-	0.5	0.6	9.5	-	0.112
16.45-17.00									
ARM A	5.36	41.88	0.128	- -	-	0.1	0.1	2.2	-	0.027
ARM B	10.59	12.49	0.848	- -	-	1.9	4.7	59.7	-	0.444
ARM C	7.17	13.82	0.519	- -	-	0.6	1.1	15.2	-	0.149
17.00-17.15									
ARM A	5.36	41.88	0.128	- -	-	0.1	0.1	2.2	-	0.027
ARM B	10.59	12.49	0.848	- -	-	4.7	5.1	73.6	-	0.505
ARM C	7.17	13.73	0.522	- -	-	1.1	1.1	16.1	-	0.152
17.15-17.30									
ARM A	4.38	41.88	0.104	- -	-	0.1	0.1	1.8	-	0.027
ARM B	8.65	12.95	0.668	- -	-	5.1	2.1	35.3	-	0.255
ARM C	5.86	14.64	0.400	- -	-	1.1	0.7	10.5	-	0.115
17.30-17.45									
ARM A	3.66	41.88	0.087	- -	-	0.1	0.1	1.5	-	0.026
ARM B	7.24	13.28	0.545	- -	-	2.1	1.2	19.4	-	0.169
ARM C	4.91	15.44	0.318	- -	-	0.7	0.5	7.2	-	0.095

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	1.2 *

16.45	1.9	**
17.00	4.7	*****
17.15	5.1	*****
17.30	2.1	**
17.45	1.2	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	
16.45	0.6	*
17.00	1.1	*
17.15	1.1	*
17.30	0.7	*
17.45	0.5	

.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	401.9	267.9	10.8	0.03	10.8	0.03
B	794.2	529.5	231.4	0.29	231.4	0.29
C	538.2	358.8	65.1	0.12	65.1	0.12
ALL	1734.3	1156.2	307.3	0.18	307.3	0.18

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Web: www.trlsoftware.co.uk

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\10.Broad St_Gladstone Rd\Dock View Road Gyratory\Holton Rd_Dock View Rd.vai"
(drive-on-the-left) at 16:54:21 on Tuesday, 6 April 2010

FILE PROPERTIES

RUN TITLE: Holton Road / Dock View Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Gladstone rndbt (W)
ARM B - Holton Road (E)
ARM C - Dock View Rd (S)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.68	7.93	0.10	999.00	29.50	19.0	0.856	42.275
ARM B	3.00	3.00	0.10	14.00	29.50	16.5	0.509	15.542
ARM C	3.70	3.70	0.00	14.00	29.50	15.0	0.557	19.266

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

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK	NUMBER OF MINUTES FROM START WHEN FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
	TO RISE	IS REACHED	FALLING			
ARM A	15.00	45.00	75.00	4.25	6.38	4.25
ARM B	15.00	45.00	75.00	8.39	12.58	8.39
ARM C	15.00	45.00	75.00	5.69	8.53	5.69

DEMAND SET TITLE: PM 2020 Base

TURNING PROPORTIONS

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.056	0.944
		0.0	19.0	321.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.905	0.000	0.095
		607.0	0.0	64.0
		(4.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		455.0	0.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	4.27	41.88	0.102	- -	-	0.0	0.1	1.7	-	0.027
ARM B	8.42	13.00	0.647	- -	-	0.0	1.8	24.2	-	0.208
ARM C	5.71	14.92	0.383	- -	-	0.0	0.6	8.8	-	0.108
16.30-16.45									
ARM A	5.09	41.88	0.122	- -	-	0.1	0.1	2.1	-	0.027
ARM B	10.05	12.61	0.797	- -	-	1.8	3.5	46.9	-	0.359
ARM C	6.82	14.06	0.485	- -	-	0.6	0.9	13.4	-	0.137
16.45-17.00									
ARM A	6.24	41.88	0.149	- -	-	0.1	0.2	2.6	-	0.028
ARM B	12.31	12.08	1.020	- -	-	3.5	15.6	157.9	-	1.091
ARM C	8.35	13.24	0.631	- -	-	0.9	1.6	23.2	-	0.201
17.00-17.15									
ARM A	6.24	41.88	0.149	- -	-	0.2	0.2	2.6	-	0.028
ARM B	12.31	12.08	1.020	- -	-	15.6	23.1	292.3	-	1.852
ARM C	8.35	13.08	0.638	- -	-	1.6	1.7	25.5	-	0.210
17.15-17.30									
ARM A	5.09	41.88	0.122	- -	-	0.2	0.1	2.1	-	0.027
ARM B	10.05	12.61	0.797	- -	-	23.1	4.6	155.3	-	0.990
ARM C	6.82	13.36	0.510	- -	-	1.7	1.1	16.7	-	0.155
17.30-17.45									
ARM A	4.27	41.88	0.102	- -	-	0.1	0.1	1.7	-	0.027
ARM B	8.42	13.00	0.648	- -	-	4.6	1.9	31.9	-	0.236
ARM C	5.71	14.76	0.387	- -	-	1.1	0.6	9.9	-	0.111

QUEUE AT ARM A

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

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	1.8 **

16.45	3.5	****
17.00	15.6	**********
17.15	23.1	***********
17.30	4.6	*****
17.45	1.9	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.6	**
17.15	1.7	**
17.30	1.1	*
17.45	0.6	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	468.0	312.0	12.8	0.03	12.8	0.03
B	923.6	615.7	708.5	0.77	708.7	0.77
C	626.3	417.5	97.5	0.16	97.5	0.16
ALL	2017.8	1345.2	818.8	0.41	819.0	0.41

T75

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
10.Broad St_Gladstone Rd\Dock View Road Gyratory\Holton Rd_Dock View Rd.vai"
(drive-on-the-left) at 11:40:20 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Holton Road / Dock View Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Gladstone rndbt (W)
ARM B - Holton Road (E)
ARM C - Dock View Rd (S)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.68	7.93	0.10	999.00	29.50	19.0	0.856	42.275
ARM B	3.00	3.00	0.10	14.00	29.50	16.5	0.509	15.542
ARM C	3.70	3.70	0.00	14.00	29.50	15.0	0.557	19.266

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

IARM	FLOW SCALE(%)
A	100
B	100
C	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 Base+tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	4.25	6.38	4.25
ARM B	15.00	45.00	75.00	8.39	12.58	8.39
ARM C	15.00	45.00	75.00	5.69	8.53	5.69

DEMAND SET TITLE: PM 2020 Base+tourism
.-- T33

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.056	0.944
		0.0	19.0	321.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.905	0.000	0.095
		607.0	0.0	64.0
		(4.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		455.0	0.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	4.27	41.88	0.102	- -	-	0.0	0.1	1.7	-	0.027
ARM B	8.42	13.00	0.647	- -	-	0.0	1.8	24.2	-	0.208
ARM C	5.71	14.92	0.383	- -	-	0.0	0.6	8.8	-	0.108
16.30-16.45									
ARM A	5.09	41.88	0.122	- -	-	0.1	0.1	2.1	-	0.027
ARM B	10.05	12.61	0.797	- -	-	1.8	3.5	46.9	-	0.359
ARM C	6.82	14.06	0.485	- -	-	0.6	0.9	13.4	-	0.137
16.45-17.00									
ARM A	6.24	41.88	0.149	- -	-	0.1	0.2	2.6	-	0.028
ARM B	12.31	12.08	1.020	- -	-	3.5	15.6	157.9	-	1.091
ARM C	8.35	13.24	0.631	- -	-	0.9	1.6	23.2	-	0.201
17.00-17.15									
ARM A	6.24	41.88	0.149	- -	-	0.2	0.2	2.6	-	0.028
ARM B	12.31	12.08	1.020	- -	-	15.6	23.1	292.3	-	1.852
ARM C	8.35	13.08	0.638	- -	-	1.6	1.7	25.5	-	0.210
17.15-17.30									
ARM A	5.09	41.88	0.122	- -	-	0.2	0.1	2.1	-	0.027
ARM B	10.05	12.61	0.797	- -	-	23.1	4.6	155.3	-	0.990
ARM C	6.82	13.36	0.510	- -	-	1.7	1.1	16.7	-	0.155
17.30-17.45									
ARM A	4.27	41.88	0.102	- -	-	0.1	0.1	1.7	-	0.027
ARM B	8.42	13.00	0.648	- -	-	4.6	1.9	31.9	-	0.236
ARM C	5.71	14.76	0.387	- -	-	1.1	0.6	9.9	-	0.111

QUEUE AT ARM A

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

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

16.30	1.8	**
16.45	3.5	****
17.00	15.6	**********
17.15	23.1	**********
17.30	4.6	*****
17.45	1.9	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.6	**
17.15	1.7	**
17.30	1.1	*
17.45	0.6	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	468.0	312.0	12.8	0.03	12.8	0.03	
B	923.6	615.7	708.5	0.77	708.7	0.77	
C	626.3	417.5	97.5	0.16	97.5	0.16	
ALL	2017.8	1345.2	818.8	0.41	819.0	0.41	

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
10.Broad St_Gladstone Rd\Dock View Road Gyratory\Holton Rd_Dock View Rd.vai"
(drive-on-the-left) at 15:53:54 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Holton Road / Dock View Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Gladstone rndbt (W)
ARM B - Holton Road (E)
ARM C - Dock View Rd (S)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.68	7.93	0.10	999.00	29.50	19.0	0.856	42.275
ARM B	3.00	3.00	0.10	14.00	29.50	16.5	0.509	15.542
ARM C	3.70	3.70	0.00	14.00	29.50	15.0	0.557	19.266

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	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 + Tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	4.71	7.07	4.71
ARM B	15.00	45.00	75.00	8.65	12.97	8.65
ARM C	15.00	45.00	75.00	5.95	8.92	5.95

DEMAND SET TITLE: PM 2020 With Development + Tourism
.

T33

TURNING PROPORTIONS

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.098	0.902
		0.0	37.0	340.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.908	0.000	0.092
		628.0	0.0	64.0
		(4.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		476.0	0.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	4.73	41.90	0.113	- -	-	0.0	0.1	1.9	-	0.027
	ARM B	8.68	12.88	0.674	- -	-	0.0	2.0	26.8	-	0.225
	ARM C	5.97	14.77	0.404	- -	-	0.0	0.7	9.6	-	0.112
16.30-16.45										
	ARM A	5.65	41.90	0.135	- -	-	0.1	0.2	2.3	-	0.028
	ARM B	10.37	12.47	0.831	- -	-	2.0	4.3	55.3	-	0.417
	ARM C	7.13	13.90	0.513	- -	-	0.7	1.0	14.9	-	0.147
16.45-17.00										
	ARM A	6.92	41.90	0.165	- -	-	0.2	0.2	2.9	-	0.029
	ARM B	12.70	11.90	1.067	- -	-	4.3	21.7	206.6	-	1.399
	ARM C	8.73	13.20	0.662	- -	-	1.0	1.9	26.2	-	0.218
17.00-17.15										
	ARM A	6.92	41.90	0.165	- -	-	0.2	0.2	3.0	-	0.029
	ARM B	12.70	11.90	1.067	- -	-	21.7	35.3	428.7	-	2.633
	ARM C	8.73	13.07	0.668	- -	-	1.9	2.0	28.9	-	0.230
17.15-17.30										
	ARM A	5.65	41.90	0.135	- -	-	0.2	0.2	2.4	-	0.028
	ARM B	10.37	12.47	0.832	- -	-	35.3	8.4	331.7	-	1.957
	ARM C	7.13	12.88	0.554	- -	-	2.0	1.3	20.1	-	0.177
17.30-17.45										
	ARM A	4.73	41.90	0.113	- -	-	0.2	0.1	1.9	-	0.027
	ARM B	8.68	12.88	0.674	- -	-	8.4	2.2	41.3	-	0.290
	ARM C	5.97	14.49	0.412	- -	-	1.3	0.7	11.1	-	0.118

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 IN QUEUE
16.30	2.0 **

16.45	4.3	****
17.00	21.7	**********
17.15	35.3	**********
17.30	8.4	********
17.45	2.2	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.0	*
17.00	1.9	**
17.15	2.0	**
17.30	1.3	*
17.45	0.7	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	518.9	345.9	14.4	0.03	14.4	0.03	
B	952.5	635.0	1090.5	1.14	1090.7	1.15	
C	655.2	436.8	110.9	0.17	110.9	0.17	
ALL	2126.6	1417.7	1215.8	0.57	1216.0	0.57	

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
10.Broad St_Gladstone Rd\Dock View Road Gyratory\Holton Rd_Dock View Rd.vai"
(drive-on-the-left) at 15:53:24 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Holton Road / Dock View Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Gladstone rndbt (W)
ARM B - Holton Road (E)
ARM C - Dock View Rd (S)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.68	7.93	0.10	999.00	29.50	19.0	0.856	42.275
ARM B	3.00	3.00	0.10	14.00	29.50	16.5	0.509	15.542
ARM C	3.70	3.70	0.00	14.00	29.50	15.0	0.557	19.266

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

ARM	FLOW SCALE(%)
A	100
B	100
C	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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO RISE	IS REACHED	FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP	AFTER PEAK
ARM A		15.00	45.00	75.00	4.71	7.07	4.71
ARM B		15.00	45.00	75.00	8.65	12.97	8.65
ARM C		15.00	45.00	75.00	5.95	8.92	5.95

DEMAND SET TITLE: PM 2020 With Development

T33

TURNING PROPORTIONS

TIME	FROM/TO	TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.098	0.902
		0.0	37.0	340.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.908	0.000	0.092
		628.0	0.0	64.0
		(4.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		476.0	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	4.73	41.90	0.113	- - -	0.0	0.1	1.9	-	0.027
	ARM B	8.68	12.88	0.674	- - -	0.0	2.0	26.8	-	0.225
	ARM C	5.97	14.77	0.404	- - -	0.0	0.7	9.6	-	0.112
16.30-16.45										
	ARM A	5.65	41.90	0.135	- - -	0.1	0.2	2.3	-	0.028
	ARM B	10.37	12.47	0.831	- - -	2.0	4.3	55.3	-	0.417
	ARM C	7.13	13.90	0.513	- - -	0.7	1.0	14.9	-	0.147
16.45-17.00										
	ARM A	6.92	41.90	0.165	- - -	0.2	0.2	2.9	-	0.029
	ARM B	12.70	11.90	1.067	- - -	4.3	21.7	206.6	-	1.399
	ARM C	8.73	13.20	0.662	- - -	1.0	1.9	26.2	-	0.218
17.00-17.15										
	ARM A	6.92	41.90	0.165	- - -	0.2	0.2	3.0	-	0.029
	ARM B	12.70	11.90	1.067	- - -	21.7	35.3	428.7	-	2.633
	ARM C	8.73	13.07	0.668	- - -	1.9	2.0	28.9	-	0.230
17.15-17.30										
	ARM A	5.65	41.90	0.135	- - -	0.2	0.2	2.4	-	0.028
	ARM B	10.37	12.47	0.832	- - -	35.3	8.4	331.7	-	1.957
	ARM C	7.13	12.88	0.554	- - -	2.0	1.3	20.1	-	0.177
17.30-17.45										
	ARM A	4.73	41.90	0.113	- - -	0.2	0.1	1.9	-	0.027
	ARM B	8.68	12.88	0.674	- - -	8.4	2.2	41.3	-	0.290
	ARM C	5.97	14.49	0.412	- - -	1.3	0.7	11.1	-	0.118

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 IN QUEUE
16.30	2.0 **

16.45	4.3	****
17.00	21.7	**********
17.15	35.3	**********
17.30	8.4	********
17.45	2.2	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.0	*
17.00	1.9	**
17.15	2.0	**
17.30	1.3	*
17.45	0.7	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	518.9	345.9	14.4	0.03	14.4	0.03
B	952.5	635.0	1090.5	1.14	1090.7	1.15
C	655.2	436.8	110.9	0.17	110.9	0.17
ALL	2126.6	1417.7	1215.8	0.57	1216.0	0.57

T75

* 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

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE BUREAU
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: Software@trl.co.uk

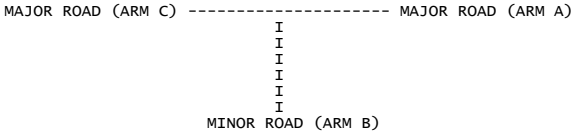
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
8.Harbour Rd_Paget Rd\Earl Cr_Harbour Rd Priority\Harbour_PadgetN_Priority.vpi"
(drive-on-the-left) at 11:47:35 on Wednesday, 7 April 2010

.RUN INFORMATION

RUN TITLE : HarbourRd_PadgetRd (N)
LOCATION :
DATE : 06/04/10
CLIENT :
ENUMERATOR : Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER :
STATUS :
DESCRIPTION :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Harbour Rd (W)
ARM B IS Padget Rd (N)
ARM C IS Harbour Rd (E)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 13.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)200.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 40.0 M.
- VISIBILITY TO RIGHT	(VB-A) 100.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	6.00 M.
WIDTH AT 5 M FROM JUNCTION	6.00 M.
WIDTH AT 10 M FROM JUNCTION	6.00 M.
WIDTH AT 15 M FROM JUNCTION	6.00 M.
WIDTH AT 20 M FROM JUNCTION	6.00 M.
- LENGTH OF FLARED SECTION	10 VEHS

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.19	0.19

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: AM Base 2008

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	2.21	3.32	2.21
ARM B	15.00	45.00	75.00	1.49	2.23	1.49
ARM C	15.00	45.00	75.00	2.75	4.13	2.75

.Demand set: AM Base 2008

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 08.30				
	ARM A	0.000	0.480	0.520
		0.0	85.0	92.0
		(0.0)	(8.0)	(3.0)
	ARM B	0.000	0.000	1.000
		0.0	0.0	119.0
		(0.0)	(0.0)	(4.0)
	ARM C	0.986	0.014	0.000
		217.0	3.0	0.0
		(4.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM Base 2008
AND FOR TIME PERIOD 1

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									
B-C	1.49	12.86	0.116		0.00	0.13	1.9		0.09
B-A	0.00	6.11	0.000		0.00	0.00	0.0		0.00
C-A	2.72								
C-B	0.04	11.06	0.003		0.00	0.00	0.0		0.09
A-B	1.07								
A-C	1.15								

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)
08.30-08.45									
B-C	1.78	12.79	0.139		0.13	0.16	2.4		0.09
B-A	0.00	6.02	0.000		0.00	0.00	0.0		0.00
C-A	3.25								
C-B	0.04	10.98	0.004		0.00	0.00	0.1		0.09
A-B	1.27								
A-C	1.38								

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)
08.45-09.00									
B-C	2.18	12.70	0.172		0.16	0.21	3.0		0.10
B-A	0.00	5.90	0.000		0.00	0.00	0.0		0.00
C-A	3.98								
C-B	0.06	10.86	0.005		0.00	0.01	0.1		0.09
A-B	1.56								
A-C	1.69								

TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY

	(VEH/MIN)	(VEH/MIN)	CAPACITY (RFC)	FLOW (PEDS/MIN)	QUEUE (VEHS)	QUEUE (VEHS)	(VEH.MIN/ TIME SEGMENT)	(VEH.MIN/ TIME SEGMENT)	PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	2.18	12.70	0.172		0.21	0.21	3.1		0.10
B-A	0.00	5.90	0.000		0.00	0.00	0.0		0.00
C-A	3.98								
C-B	0.06	10.86	0.005		0.01	0.01	0.1		0.09
A-B	1.56								
A-C	1.69								

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)
09.15-09.30									
B-C	1.78	12.79	0.139		0.21	0.16	2.5		0.09
B-A	0.00	6.02	0.000		0.00	0.00	0.0		0.00
C-A	3.25								
C-B	0.04	10.98	0.004		0.01	0.00	0.1		0.09
A-B	1.27								
A-C	1.38								

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)
09.30-09.45									
B-C	1.49	12.86	0.116		0.16	0.13	2.0		0.09
B-A	0.00	6.11	0.000		0.00	0.00	0.0		0.00
C-A	2.72								
C-B	0.04	11.06	0.003		0.00	0.00	0.1		0.09
A-B	1.07								
A-C	1.15								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.2
09.00	0.2
09.15	0.2
09.30	0.2
09.45	0.1

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	163.8	109.2	14.9	0.09	14.9	0.09
B-A	0.0	0.0	0.0	0.00	0.0	0.00
C-A	298.7	199.1				
C-B	4.1	2.8	0.4	0.09	0.4	0.09
A-B	117.0	78.0				
A-C	126.6	84.4				
ALL	710.2	473.5	15.3	0.02	15.3	0.02

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.19	0.19

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM Base 2008

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	4.40	6.60	4.40
ARM B	15.00	45.00	75.00	2.26	3.39	2.26
ARM C	15.00	45.00	75.00	5.05	7.58	5.05

.Demand set: PM Base 2008

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.389	0.611
		0.0	137.0	215.0
		(0.0)	(3.0)	(0.0)
	ARM B	0.000	0.000	1.000
		0.0	0.0	181.0
		(0.0)	(0.0)	(2.0)
	ARM C	1.000	0.000	0.000
		404.0	0.0	0.0
		(2.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM Base 2008
AND FOR TIME PERIOD 2

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									
B-C	2.27	12.73	0.178		0.00	0.22	3.1		0.10
B-A	0.00	5.71	0.000		0.00	0.00	0.0		0.00
C-A	5.07								
C-B	0.00	9.70	0.000		0.00	0.00	0.0		0.00
A-B	1.72								
A-C	2.70								

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									
B-C	2.71	12.59	0.215		0.22	0.27	4.0		0.10
B-A	0.00	5.54	0.000		0.00	0.00	0.0		0.00
C-A	6.05								
C-B	0.00	9.55	0.000		0.00	0.00	0.0		0.00
A-B	2.05								
A-C	3.22								

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									
B-C	3.32	12.39	0.268		0.27	0.36	5.3		0.11
B-A	0.00	5.32	0.000		0.00	0.00	0.0		0.00

I	C-A	7.41							I
I	C-B	0.00	9.35	0.000	0.00	0.00	0.0	0.00	I
I	A-B	2.51							I
I	A-C	3.95							I
I									I

I 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) I
I 17.00-17.15									I
I B-C	3.32	12.39	0.268		0.36	0.36	5.5		0.11 I
I B-A	0.00	5.32	0.000		0.00	0.00	0.0		0.00 I
I C-A	7.41								I
I C-B	0.00	9.35	0.000		0.00	0.00	0.0		0.00 I
I A-B	2.51								I
I A-C	3.95								I
I									I

I 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) I
I 17.15-17.30									I
I B-C	2.71	12.59	0.215		0.36	0.28	4.2		0.10 I
I B-A	0.00	5.54	0.000		0.00	0.00	0.0		0.00 I
I C-A	6.05								I
I C-B	0.00	9.55	0.000		0.00	0.00	0.0		0.00 I
I A-B	2.05								I
I A-C	3.22								I
I									I

I 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) I
I 17.30-17.45									I
I B-C	2.27	12.73	0.178		0.28	0.22	3.3		0.10 I
I B-A	0.00	5.71	0.000		0.00	0.00	0.0		0.00 I
I C-A	5.07								I
I C-B	0.00	9.70	0.000		0.00	0.00	0.0		0.00 I
I A-B	1.72								I
I A-C	2.70								I
I									I

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.2
16.45	0.3
17.00	0.4
17.15	0.4
17.30	0.3
17.45	0.2

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM I	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		I
I	I (VEH)	(VEH/H) I	(MIN)	(MIN/VEH) I	(MIN)	(MIN/VEH) I	
I B-C	I 249.1 I	166.1 I	25.5 I	0.10 I	25.5 I	0.10 I	
I B-A	I 0.0 I	0.0 I	0.0 I	0.00 I	0.0 I	0.00 I	
I C-A	I 556.1 I	370.7 I	I	I	I	I	
I C-B	I 0.0 I	0.0 I	0.0 I	0.00 I	0.0 I	0.00 I	
I A-B	I 188.6 I	125.7 I	I	I	I	I	
I A-C	I 295.9 I	197.3 I	I	I	I	I	
I ALL	I 1289.7 I	859.8 I	25.5 I	0.02 I	25.5 I	0.02 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 RUN*******

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE BUREAU
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: Software@trl.co.uk

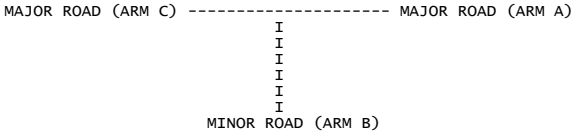
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
8.Harbour Rd_Paget Rd\Earl Cr_Harbour Rd Priority\Harbour_PadgetN_Priority.vpi"
(drive-on-the-left) at 15:35:07 on Tuesday, 13 April 2010

.RUN INFORMATION

RUN TITLE	: HarbourRd_PadgetRd (N)
LOCATION	:
DATE	: 06/04/10
CLIENT	:
ENUMERATOR	: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER	:
STATUS	:
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Harbour Rd (W)
ARM B IS Padget Rd (N)
ARM C IS Harbour Rd (E)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 13.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)200.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 40.0 M.
- VISIBILITY TO RIGHT	(VB-A) 100.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	6.00 M.
WIDTH AT 5 M FROM JUNCTION	6.00 M.
WIDTH AT 10 M FROM JUNCTION	6.00 M.
WIDTH AT 15 M FROM JUNCTION	6.00 M.
WIDTH AT 20 M FROM JUNCTION	6.00 M.
- LENGTH OF FLARED SECTION	10 VEHS

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.19	0.19

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: AM Base 2020

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	2.58	3.86	2.58
ARM B	15.00	45.00	75.00	1.74	2.61	1.74
ARM C	15.00	45.00	75.00	3.21	4.82	3.21

.Demand set: AM Base 2020

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 08.30				
	ARM A	0.000	0.481	0.519
		0.0	99.0	107.0
		(0.0)	(8.0)	(3.0)
	ARM B	0.000	0.000	1.000
		0.0	0.0	139.0
		(0.0)	(0.0)	(4.0)
	ARM C	0.984	0.016	0.000
		253.0	4.0	0.0
		(4.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM Base 2020
AND FOR TIME PERIOD 1

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									
B-C	1.74	12.80	0.136		0.00	0.16	2.3		0.09
B-A	0.00	6.03	0.000		0.00	0.00	0.0		0.00
C-A	3.17								
C-B	0.05	10.99	0.005		0.00	0.00	0.1		0.09
A-B	1.24								
A-C	1.34								

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)
08.30-08.45									
B-C	2.08	12.72	0.164		0.16	0.19	2.9		0.09
B-A	0.00	5.93	0.000		0.00	0.00	0.0		0.00
C-A	3.79								
C-B	0.06	10.89	0.006		0.00	0.01	0.1		0.09
A-B	1.48								
A-C	1.60								

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)
08.45-09.00									
B-C	2.55	12.61	0.202		0.19	0.25	3.7		0.10
B-A	0.00	5.80	0.000		0.00	0.00	0.0		0.00
C-A	4.64								
C-B	0.07	10.76	0.007		0.01	0.01	0.1		0.09
A-B	1.82								
A-C	1.96								

TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY

	(VEH/MIN)	(VEH/MIN)	CAPACITY (RFC)	FLOW (PEDS/MIN)	QUEUE (VEHS)	QUEUE (VEHS)	(VEH.MIN/ TIME SEGMENT)	(VEH.MIN/ TIME SEGMENT)	PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	2.55	12.61	0.202		0.25	0.25	3.8		0.10
B-A	0.00	5.80	0.000		0.00	0.00	0.0		0.00
C-A	4.64								
C-B	0.07	10.76	0.007		0.01	0.01	0.1		0.09
A-B	1.82								
A-C	1.96								

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)
09.15-09.30									
B-C	2.08	12.72	0.164		0.25	0.20	3.0		0.09
B-A	0.00	5.93	0.000		0.00	0.00	0.0		0.00
C-A	3.79								
C-B	0.06	10.89	0.006		0.01	0.01	0.1		0.09
A-B	1.48								
A-C	1.60								

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)
09.30-09.45									
B-C	1.74	12.80	0.136		0.20	0.16	2.4		0.09
B-A	0.00	6.03	0.000		0.00	0.00	0.0		0.00
C-A	3.17								
C-B	0.05	10.99	0.005		0.01	0.00	0.1		0.09
A-B	1.24								
A-C	1.34								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.2
08.45	0.2
09.00	0.3
09.15	0.3
09.30	0.2
09.45	0.2

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	191.3	127.5	18.1	0.09	18.1	0.09
B-A	0.0	0.0	0.0	0.00	0.0	0.00
C-A	348.2	232.2				
C-B	5.5	3.7	0.5	0.09	0.5	0.09
A-B	136.3	90.8				
A-C	147.3	98.2				
ALL	828.6	552.4	18.6	0.02	18.6	0.02

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.19	0.19

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM Base 2020

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	5.13	7.69	5.13
ARM B	15.00	45.00	75.00	2.64	3.96	2.64
ARM C	15.00	45.00	75.00	5.88	8.81	5.88

.Demand set: PM Base 2020

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.388	0.612
		0.0	159.0	251.0
		(0.0)	(3.0)	(0.0)
	ARM B	0.000	0.000	1.000
		0.0	0.0	211.0
		(0.0)	(0.0)	(2.0)
	ARM C	1.000	0.000	0.000
		470.0	0.0	0.0
		(2.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM Base 2020
AND FOR TIME PERIOD 2

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									
B-C	2.65	12.61	0.210		0.00	0.26	3.8		0.10
B-A	0.00	5.57	0.000		0.00	0.00	0.0		0.00
C-A	5.90								
C-B	0.00	9.57	0.000		0.00	0.00	0.0		0.00
A-B	2.00								
A-C	3.15								

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									
B-C	3.16	12.44	0.254		0.26	0.34	5.0		0.11
B-A	0.00	5.38	0.000		0.00	0.00	0.0		0.00
C-A	7.04								
C-B	0.00	9.40	0.000		0.00	0.00	0.0		0.00
A-B	2.38								
A-C	3.76								

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									
B-C	3.87	12.21	0.317		0.34	0.46	6.7		0.12
B-A	0.00	5.12	0.000		0.00	0.00	0.0		0.00

I C-A	8.62								I
I C-B	0.00	9.17	0.000		0.00	0.00	0.0	0.00	I
I A-B	2.92								I
I A-C	4.61								I
I									I

I 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) I
I 17.00-17.15									I
I B-C	3.87	12.21	0.317		0.46	0.46	6.9	0.12	I
I B-A	0.00	5.12	0.000		0.00	0.00	0.0	0.00	I
I C-A	8.62								I
I C-B	0.00	9.17	0.000		0.00	0.00	0.0	0.00	I
I A-B	2.92								I
I A-C	4.61								I
I									I

I 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) I
I 17.15-17.30									I
I B-C	3.16	12.44	0.254		0.46	0.34	5.3	0.11	I
I B-A	0.00	5.38	0.000		0.00	0.00	0.0	0.00	I
I C-A	7.04								I
I C-B	0.00	9.40	0.000		0.00	0.00	0.0	0.00	I
I A-B	2.38								I
I A-C	3.76								I
I									I

I 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) I
I 17.30-17.45									I
I B-C	2.65	12.61	0.210		0.34	0.27	4.1	0.10	I
I B-A	0.00	5.57	0.000		0.00	0.00	0.0	0.00	I
I C-A	5.90								I
I C-B	0.00	9.57	0.000		0.00	0.00	0.0	0.00	I
I A-B	2.00								I
I A-C	3.15								I
I									I

QUEUE FOR STREAM B-C

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

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM I	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
I	I (VEH)	(VEH/H) I	(MIN)	(MIN/VEH) I	(MIN)	(MIN/VEH) I
I B-C	I 290.4	I 193.6 I	31.8 I	0.11 I	31.8 I	0.11 I
I B-A	I 0.0	I 0.0 I	0.0 I	0.00 I	0.0 I	0.00 I
I C-A	I 646.9	I 431.3 I	I	I	I	I
I C-B	I 0.0	I 0.0 I	0.0 I	0.00 I	0.0 I	0.00 I
I A-B	I 218.9	I 145.9 I	I	I	I	I
I A-C	I 345.5	I 230.3 I	I	I	I	I
I ALL	I 1501.7	I 1001.1 I	31.8 I	0.02 I	31.8 I	0.02 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.19	0.19

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM Base 2020+tourism

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	7.70	11.55	7.70
ARM B	15.00	45.00	75.00	3.81	5.72	3.81
ARM C	15.00	45.00	75.00	8.81	13.22	8.81

.Demand set: PM Base 2020+tourism

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.398	0.602
		0.0	245.0	371.0
		(0.0)	(3.0)	(0.0)
	ARM B	0.000	0.000	1.000
		0.0	0.0	305.0
		(0.0)	(0.0)	(2.0)
	ARM C	1.000	0.000	0.000
		705.0	0.0	0.0
		(2.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM Base 2020+tourism
AND FOR TIME PERIOD 2

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									
B-C	3.83	12.18	0.314		0.00	0.45	6.5		0.12
B-A	0.00	5.09	0.000		0.00	0.00	0.0		0.00
C-A	8.85								
C-B	0.00	9.13	0.000		0.00	0.00	0.0		0.00
A-B	3.07								
A-C	4.66								

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									
B-C	4.57	11.93	0.383		0.45	0.61	8.9		0.14
B-A	0.00	4.80	0.000		0.00	0.00	0.0		0.00
C-A	10.56								
C-B	0.00	8.87	0.000		0.00	0.00	0.0		0.00
A-B	3.67								
A-C	5.56								

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									
B-C	5.60	11.59	0.483		0.61	0.92	13.2		0.17
B-A	0.00	4.41	0.000		0.00	0.00	0.0		0.00
C-A	12.94								
C-B	0.00	8.52	0.000		0.00	0.00	0.0		0.00
A-B	4.50								
A-C	6.81								

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									
B-C	5.60	11.59	0.483		0.92	0.92	13.8		0.17
B-A	0.00	4.41	0.000		0.00	0.00	0.0		0.00
C-A	12.94								
C-B	0.00	8.52	0.000		0.00	0.00	0.0		0.00
A-B	4.50								
A-C	6.81								

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									
B-C	4.57	11.93	0.383		0.92	0.63	9.8		0.14
B-A	0.00	4.80	0.000		0.00	0.00	0.0		0.00
C-A	10.56								
C-B	0.00	8.87	0.000		0.00	0.00	0.0		0.00
A-B	3.67								
A-C	5.56								

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									
B-C	3.83	12.18	0.314		0.63	0.46	7.1		0.12
B-A	0.00	5.09	0.000		0.00	0.00	0.0		0.00
C-A	8.85								
C-B	0.00	9.13	0.000		0.00	0.00	0.0		0.00
A-B	3.07								
A-C	4.66								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	
16.45	0.6	*
17.00	0.9	*
17.15	0.9	*
17.30	0.6	*
17.45	0.5	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	419.8	279.9	59.3	0.14	59.3	0.14
B-A	0.0	0.0	0.0	0.00	0.0	0.00
C-A	970.4	646.9				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	337.2	224.8				
A-C	510.7	340.4				
ALL	2238.1	1492.0	59.3	0.03	59.3	0.03

* 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 RUN*******

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE BUREAU
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: Software@trl.co.uk

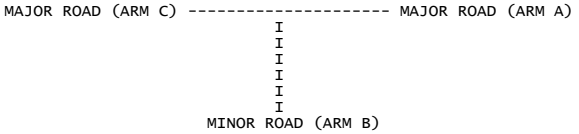
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
8.Harbour Rd_Paget Rd\Earl Cr_Harbour Rd Priority\Harbour_PadgetN_Priority.vpi"
(drive-on-the-left) at 15:35:49 on Tuesday, 13 April 2010

.RUN INFORMATION

RUN TITLE : HarbourRd_PadgetRd (N)
LOCATION :
DATE : 06/04/10
CLIENT :
ENUMERATOR : Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER :
STATUS :
DESCRIPTION :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Harbour Rd (W)
ARM B IS Padget Rd (N)
ARM C IS Harbour Rd (E)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 13.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)200.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 40.0 M.
- VISIBILITY TO RIGHT	(VB-A) 100.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	6.00 M.
WIDTH AT 5 M FROM JUNCTION	6.00 M.
WIDTH AT 10 M FROM JUNCTION	6.00 M.
WIDTH AT 15 M FROM JUNCTION	6.00 M.
WIDTH AT 20 M FROM JUNCTION	6.00 M.
- LENGTH OF FLARED SECTION	10 VEHS

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.19	0.19

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: AM 2020 with Dev

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	3.88	5.81	3.88
ARM B	15.00	45.00	75.00	5.54	8.31	5.54
ARM C	15.00	45.00	75.00	6.25	9.38	6.25

.Demand set: AM 2020 with Dev

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 08.30				
	ARM A	0.000	0.832	0.168
		0.0	258.0	52.0
		(0.0)	(8.0)	(3.0)
	ARM B	0.000	0.000	1.000
		0.0	0.0	443.0
		(0.0)	(0.0)	(4.0)
	ARM C	0.782	0.218	0.000
		391.0	109.0	0.0
		(4.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2020 with Dev
AND FOR TIME PERIOD 1

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									
B-C	5.56	12.77	0.435		0.00	0.76	10.8		0.14
B-A	0.00	5.64	0.000		0.00	0.00	0.0		0.00
C-A	4.91								
C-B	1.37	10.72	0.128		0.00	0.15	2.1		0.11
A-B	3.24								
A-C	0.65								

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)
08.30-08.45									
B-C	6.64	12.69	0.523		0.76	1.07	15.5		0.16
B-A	0.00	5.46	0.000		0.00	0.00	0.0		0.00
C-A	5.86								
C-B	1.63	10.57	0.154		0.15	0.18	2.7		0.11
A-B	3.87								
A-C	0.78								

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)
08.45-09.00									
B-C	8.13	12.57	0.647		1.07	1.76	24.7		0.22
B-A	0.00	5.21	0.000		0.00	0.00	0.0		0.00
C-A	7.17								
C-B	2.00	10.36	0.193		0.18	0.24	3.5		0.12
A-B	4.73								
A-C	0.95								

TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY

	(VEH/MIN)	(VEH/MIN)	CAPACITY (RFC)	FLOW (PEDS/MIN)	QUEUE (VEHS)	QUEUE (VEHS)	(VEH.MIN/ TIME SEGMENT)	(VEH.MIN/ TIME SEGMENT)	PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	8.13	12.57	0.647		1.76	1.79	26.7		0.22
B-A	0.00	5.21	0.000		0.00	0.00	0.0		0.00
C-A	7.17								
C-B	2.00	10.36	0.193		0.24	0.24	3.6		0.12
A-B	4.73								
A-C	0.95								

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)
09.15-09.30									
B-C	6.64	12.69	0.523		1.79	1.12	17.7		0.17
B-A	0.00	5.46	0.000		0.00	0.00	0.0		0.00
C-A	5.86								
C-B	1.63	10.57	0.154		0.24	0.18	2.8		0.11
A-B	3.87								
A-C	0.78								

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)
09.30-09.45									
B-C	5.56	12.77	0.435		1.12	0.78	12.2		0.14
B-A	0.00	5.63	0.000		0.00	0.00	0.0		0.00
C-A	4.91								
C-B	1.37	10.72	0.128		0.18	0.15	2.3		0.11
A-B	3.24								
A-C	0.65								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.8	*
08.45	1.1	*
09.00	1.8	**
09.15	1.8	**
09.30	1.1	*
09.45	0.8	*

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.2
09.00	0.2
09.15	0.2
09.30	0.2
09.45	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	609.8	406.5	107.6	0.18	107.6	0.18
B-A	0.0	0.0	0.0	0.00	0.0	0.00
C-A	538.2	358.8				
C-B	150.0	100.0	16.9	0.11	16.9	0.11
A-B	355.1	236.7				
A-C	71.6	47.7				
ALL	1724.7	1149.8	124.5	0.07	124.5	0.07

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.19	0.19

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 with Dev

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	6.66	9.99	6.66
ARM B	15.00	45.00	75.00	7.45	11.17	7.45
ARM C	15.00	45.00	75.00	9.09	13.63	9.09

.Demand set: PM 2020 with Dev

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.771	0.229
		0.0	411.0	122.0
		(0.0)	(3.0)	(0.0)
	ARM B	0.000	0.000	1.000
		0.0	0.0	596.0
		(0.0)	(0.0)	(2.0)
	ARM C	0.854	0.146	0.000
		621.0	106.0	0.0
		(2.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 with Dev
AND FOR TIME PERIOD 2

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									
B-C	7.48	12.68	0.590		0.00	1.39	19.4		0.19
B-A	0.00	5.22	0.000		0.00	0.00	0.0		0.00
C-A	7.79								
C-B	1.33	10.22	0.130		0.00	0.15	2.2		0.11
A-B	5.16								
A-C	1.53								

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									
B-C	8.93	12.53	0.713		1.39	2.35	32.4		0.27
B-A	0.00	4.96	0.000		0.00	0.00	0.0		0.00
C-A	9.30								
C-B	1.59	9.98	0.159		0.15	0.19	2.8		0.12
A-B	6.16								
A-C	1.83								

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									
B-C	10.94	12.31	0.888		2.35	6.02	73.9		0.55
B-A	0.00	4.60	0.000		0.00	0.00	0.0		0.00

I C-A	11.40								I
I C-B	1.95	9.64	0.202		0.19	0.25	3.7	0.13	I
I A-B	7.54								I
I A-C	2.24								I
I									I

I 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) I
I 17.00-17.15									I
I B-C	10.94	12.31	0.888		6.02	6.72	96.4	0.66	I
I B-A	0.00	4.60	0.000		0.00	0.00	0.0	0.00	I
I C-A	11.40								I
I C-B	1.95	9.64	0.202		0.25	0.25	3.8	0.13	I
I A-B	7.54								I
I A-C	2.24								I
I									I

I 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) I
I 17.15-17.30									I
I B-C	8.93	12.53	0.713		6.72	2.64	46.1	0.32	I
I B-A	0.00	4.96	0.000		0.00	0.00	0.0	0.00	I
I C-A	9.30								I
I C-B	1.59	9.98	0.159		0.25	0.19	2.9	0.12	I
I A-B	6.16								I
I A-C	1.83								I
I									I

I 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) I
I 17.30-17.45									I
I B-C	7.48	12.68	0.590		2.64	1.48	23.7	0.20	I
I B-A	0.00	5.22	0.000		0.00	0.00	0.0	0.00	I
I C-A	7.79								I
I C-B	1.33	10.22	0.130		0.19	0.15	2.3	0.11	I
I A-B	5.16								I
I A-C	1.53								I
I									I

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.4	*
16.45	2.3	**
17.00	6.0	******
17.15	6.7	*******
17.30	2.6	***
17.45	1.5	*

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.1
16.45	0.2
17.00	0.3
17.15	0.3
17.30	0.2
17.45	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM I	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
I B-C	820.3	546.9	292.0	0.36	292.0	0.36
I B-A	0.0	0.0	0.0	0.00	0.0	0.00
I C-A	854.8	569.8				
I C-B	145.9	97.3	17.6	0.12	17.6	0.12
I A-B	565.7	377.1				
I A-C	167.9	111.9				
I ALL	2554.6	1703.1	309.5	0.12	309.6	0.12

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
689.79	0.19	0.19

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 with Dev + tour

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS IS REACHED	BEFORE FALLING	RATE OF FLOW (VEH/MIN) AT TOP PEAK	AFTER OF PEAK	BEFORE PEAK
ARM A	15.00	45.00	75.00	7.97	11.96	7.97	
ARM B	15.00	45.00	75.00	8.77	13.16	8.77	
ARM C	15.00	45.00	75.00	11.48	17.21	11.48	

.Demand set: PM 2020 with Dev + tour

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.708	0.292
		0.0	452.0	186.0
		(0.0)	(3.0)	(0.0)
	ARM B	0.000	0.000	1.000
		0.0	0.0	702.0
		(0.0)	(0.0)	(2.0)
	ARM C	0.813	0.187	0.000
		746.0	172.0	0.0
		(2.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 with Dev + tour
AND FOR TIME PERIOD 2

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									
B-C	8.81	12.46	0.707		0.00	2.28	30.5		0.25
B-A	0.00	4.82	0.000		0.00	0.00	0.0		0.00
C-A	9.36								
C-B	2.16	9.98	0.216		0.00	0.27	3.9		0.13
A-B	5.67								
A-C	2.33								

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									
B-C	10.52	12.26	0.858		2.28	4.97	63.3		0.48
B-A	0.00	4.48	0.000		0.00	0.00	0.0		0.00
C-A	11.18								
C-B	2.58	9.68	0.266		0.27	0.36	5.2		0.14
A-B	6.77								
A-C	2.79								

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									
B-C	12.88	11.99	1.074		4.97	23.17	221.9		1.48
B-A	0.00	4.01	0.000		0.00	0.00	0.0		0.00
C-A	13.69								
C-B	3.16	9.27	0.340		0.36	0.51	7.4		0.16
A-B	8.29								
A-C	3.41								

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									
B-C	12.88	11.99	1.074		23.17	37.99	460.1		2.79
B-A	0.00	4.01	0.000		0.00	0.00	0.0		0.00
C-A	13.69								
C-B	3.16	9.27	0.340		0.51	0.51	7.7		0.16
A-B	8.29								
A-C	3.41								

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									
B-C	10.52	12.26	0.858		37.99	16.53	408.9		2.37
B-A	0.00	4.48	0.000		0.00	0.00	0.0		0.00
C-A	11.18								
C-B	2.58	9.68	0.266		0.51	0.37	5.7		0.14
A-B	6.77								
A-C	2.79								

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									
B-C	8.81	12.46	0.707		16.53	2.59	74.2		0.48
B-A	0.00	4.81	0.000		0.00	0.00	0.0		0.00
C-A	9.36								
C-B	2.16	9.98	0.216		0.37	0.28	4.3		0.13
A-B	5.67								
A-C	2.33								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	2.3	**
16.45	5.0	*****
17.00	23.2	**********
17.15	38.0	**********
17.30	16.5	**********
17.45	2.6	***

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.3	
16.45	0.4	
17.00	0.5	*
17.15	0.5	*
17.30	0.4	
17.45	0.3	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	966.3	644.2	1258.9	1.30	1259.1	1.30
B-A	0.0	0.0	0.0	0.00	0.0	0.00
C-A	1026.8	684.5				
C-B	236.7	157.8	34.2	0.14	34.2	0.14
A-B	622.1	414.8				
A-C	256.0	170.7				
ALL	3108.0	2072.0	1293.0	0.42	1293.3	0.42

* 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 RUN*******

_____ 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

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\10.Broad St_Gladstone Rd\Gladstone Bridge Roundabout\Broad St_Gladstone Rd.vai"
(drive-on-the-left) at 09:55:30 on Wednesday, 7 April 2010

.FILE PROPERTIES

RUN TITLE: Broad St / Gladstone Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA

ARM A - Gladstone Rd (N)
ARM B - Holton Rd_Loop (E)
ARM C - Gladstone Bridge (S)
ARM D - Broad St (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	3.00	I	5.80	I	40.00	I	25.40	I	43.00	I	30.0	I	0.621	I	26.980	I
I ARM B	I	6.80	I	6.80	I	0.00	I	20.00	I	42.00	I	27.0	I	0.716	I	34.697	I
I ARM C	I	3.65	I	6.63	I	7.60	I	23.00	I	43.00	I	28.0	I	0.604	I	25.441	I
I ARM D	I	3.00	I	6.10	I	50.00	I	40.00	I	43.00	I	13.0	I	0.685	I	30.567	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 Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM D Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

IARM	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(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 2008

I	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I		I		I
I ARM	I	FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	BEFORE I	AT TOP	I	AFTER	I
I	I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK	I
I ARM A	I	15.00	I	45.00	I	75.00	I	7.14	I	10.71	I	7.14	I
I ARM B	I	15.00	I	45.00	I	75.00	I	5.94	I	8.91	I	5.94	I
I ARM C	I	15.00	I	45.00	I	75.00	I	4.68	I	7.01	I	4.68	I
I ARM D	I	15.00	I	45.00	I	75.00	I	9.15	I	13.72	I	9.15	I

DEMAND SET TITLE: AM 2008

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
08.15 - 09.45					
	ARM A	0.000	0.396	0.398	0.207
		0.0	226.0	227.0	118.0
		(0.0)	(2.0)	(4.0)	(1.0)
	ARM B	0.187	0.000	0.328	0.484
		89.0	0.0	156.0	230.0
		(7.0)	(0.0)	(7.0)	(4.0)
	ARM C	0.345	0.155	0.000	0.500
		129.0	58.0	0.0	187.0
		(5.0)	(20.0)	(0.0)	(7.0)
	ARM D	0.253	0.246	0.501	0.000
		185.0	180.0	367.0	0.0
		(3.0)	(3.0)	(5.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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)
08.15-08.30									
ARM A	7.16	21.45	0.334	- -	-	0.0	0.5	7.3	-	0.070
ARM B	5.96	26.60	0.224	- -	-	0.0	0.3	4.2	-	0.048
ARM C	4.69	20.32	0.231	- -	-	0.0	0.3	4.4	-	0.064
ARM D	9.18	26.92	0.341	- -	-	0.0	0.5	7.5	-	0.056
08.30-08.45									
ARM A	8.56	20.50	0.417	- -	-	0.5	0.7	10.4	-	0.083
ARM B	7.12	25.36	0.281	- -	-	0.3	0.4	5.7	-	0.055
ARM C	5.60	19.70	0.284	- -	-	0.3	0.4	5.8	-	0.071
ARM D	10.97	26.43	0.415	- -	-	0.5	0.7	10.4	-	0.065
08.45-09.00									
ARM A	10.48	19.20	0.546	- -	-	0.7	1.2	17.1	-	0.114
ARM B	8.72	23.68	0.368	- -	-	0.4	0.6	8.5	-	0.067
ARM C	6.86	18.85	0.364	- -	-	0.4	0.6	8.3	-	0.083
ARM D	13.43	25.77	0.521	- -	-	0.7	1.1	15.7	-	0.081
09.00-09.15									
ARM A	10.48	19.18	0.546	- -	-	1.2	1.2	17.8	-	0.115
ARM B	8.72	23.66	0.368	- -	-	0.6	0.6	8.7	-	0.067
ARM C	6.86	18.85	0.364	- -	-	0.6	0.6	8.5	-	0.083
ARM D	13.43	25.76	0.521	- -	-	1.1	1.1	16.2	-	0.081
09.15-09.30									
ARM A	8.56	20.48	0.418	- -	-	1.2	0.7	11.2	-	0.084
ARM B	7.12	25.33	0.281	- -	-	0.6	0.4	6.0	-	0.055
ARM C	5.60	19.69	0.285	- -	-	0.6	0.4	6.1	-	0.071
ARM D	10.97	26.42	0.415	- -	-	1.1	0.7	11.0	-	0.065
09.30-09.45									
ARM A	7.16	21.43	0.334	- -	-	0.7	0.5	7.8	-	0.070
ARM B	5.96	26.56	0.224	- -	-	0.4	0.3	4.4	-	0.049
ARM C	4.69	20.31	0.231	- -	-	0.4	0.3	4.6	-	0.064
ARM D	9.18	26.90	0.341	- -	-	0.7	0.5	8.0	-	0.056

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.5	
08.45	0.7	*
09.00	1.2	*
09.15	1.2	*
09.30	0.7	*
09.45	0.5	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.3	
08.45	0.4	
09.00	0.6	*
09.15	0.6	*
09.30	0.4	
09.45	0.3	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.3	
08.45	0.4	
09.00	0.6	*
09.15	0.6	*
09.30	0.4	
09.45	0.3	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.5	*
08.45	0.7	*
09.00	1.1	*
09.15	1.1	*
09.30	0.7	*
09.45	0.5	*

.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	785.9	524.0	71.5	0.09	71.5	0.09
B	653.8	435.9	37.6	0.06	37.6	0.06
C	514.8	343.2	37.8	0.07	37.8	0.07
D	1007.5	671.7	68.8	0.07	68.8	0.07
ALL	2962.1	1974.7	215.6	0.07	215.6	0.07

* 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

_____ 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:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\10.Broad St_Gladstone Rd\Gladstone Bridge Roundabout\Broad St_Gladstone Rd.vai"
(drive-on-the-left) at 09:55:57 on Wednesday, 7 April 2010

.FILE PROPERTIES
****

RUN TITLE: Broad St / Gladstone Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Gladstone Rd (N)
ARM B - Holton Rd_Loop (E)
ARM C - Gladstone Bridge (S)
ARM D - Broad St (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.80	40.00	25.40	43.00	30.0	0.621	26.980
ARM B	6.80	6.80	0.00	20.00	42.00	27.0	0.716	34.697
ARM C	3.65	6.63	7.60	23.00	43.00	28.0	0.604	25.441
ARM D	3.00	6.10	50.00	40.00	43.00	13.0	0.685	30.567

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM D Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

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 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	TO RISE	FLOW STOPS IS REACHED	FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	8.34	12.51	8.34		
ARM B	15.00	45.00	75.00	6.93	10.39	6.93		
ARM C	15.00	45.00	75.00	5.44	8.16	5.44		
ARM D	15.00	45.00	75.00	10.68	16.01	10.68		

DEMAND SET TITLE: AM 2020 Base

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
08.15 - 09.45		TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S)			
	ARM A	0.000 0.0 (0.0)	0.396 264.0 (2.0)	0.397 265.0 (4.0)	0.207 138.0 (1.0)
	ARM B	0.188 104.0 (7.0)	0.000 0.0 (0.0)	0.329 182.0 (7.0)	0.484 268.0 (4.0)
	ARM C	0.345 150.0 (5.0)	0.154 67.0 (20.0)	0.000 0.0 (0.0)	0.501 218.0 (7.0)
	ARM D	0.253 216.0 (3.0)	0.246 210.0 (3.0)	0.501 428.0 (5.0)	0.000 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)
08.15-08.30									
ARM A	8.37	20.66	0.405	- - -	0.0	0.7	9.8	-	0.081
ARM B	6.95	25.55	0.272	- - -	0.0	0.4	5.5	-	0.054
ARM C	5.46	19.80	0.276	- - -	0.0	0.4	5.5	-	0.070
ARM D	10.72	26.52	0.404	- - -	0.0	0.7	9.8	-	0.063
08.30-08.45									
ARM A	9.99	19.54	0.511	- - -	0.7	1.0	15.0	-	0.104
ARM B	8.30	24.11	0.344	- - -	0.4	0.5	7.7	-	0.063
ARM C	6.52	19.07	0.342	- - -	0.4	0.5	7.6	-	0.080
ARM D	12.80	25.95	0.493	- - -	0.7	1.0	14.1	-	0.076
08.45-09.00									
ARM A	12.24	18.03	0.679	- - -	1.0	2.0	28.7	-	0.169
ARM B	10.17	22.16	0.459	- - -	0.5	0.8	12.2	-	0.083
ARM C	7.98	18.09	0.441	- - -	0.5	0.8	11.4	-	0.099
ARM D	15.67	25.18	0.622	- - -	1.0	1.6	23.3	-	0.104
09.00-09.15									
ARM A	12.24	18.01	0.680	- - -	2.0	2.1	31.0	-	0.173
ARM B	10.17	22.12	0.460	- - -	0.8	0.8	12.6	-	0.084
ARM C	7.98	18.07	0.442	- - -	0.8	0.8	11.8	-	0.099
ARM D	15.67	25.17	0.623	- - -	1.6	1.6	24.4	-	0.105
09.15-09.30									
ARM A	9.99	19.51	0.512	- - -	2.1	1.1	16.7	-	0.107
ARM B	8.30	24.05	0.345	- - -	0.8	0.5	8.1	-	0.064
ARM C	6.52	19.05	0.342	- - -	0.8	0.5	8.1	-	0.080
ARM D	12.80	25.93	0.493	- - -	1.6	1.0	15.2	-	0.077
09.30-09.45									
ARM A	8.37	20.62	0.406	- - -	1.1	0.7	10.6	-	0.082
ARM B	6.95	25.50	0.273	- - -	0.5	0.4	5.7	-	0.054
ARM C	5.46	19.78	0.276	- - -	0.5	0.4	5.9	-	0.070
ARM D	10.72	26.50	0.404	- - -	1.0	0.7	10.5	-	0.063

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.7	*
08.45	1.0	*
09.00	2.0	**
09.15	2.1	**
09.30	1.1	*
09.45	0.7	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.4	
08.45	0.5	*
09.00	0.8	*
09.15	0.8	*
09.30	0.5	*
09.45	0.4	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.4	
08.45	0.5	*
09.00	0.8	*
09.15	0.8	*
09.30	0.5	*
09.45	0.4	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.7	*
08.45	1.0	*
09.00	1.6	**
09.15	1.6	**
09.30	1.0	*
09.45	0.7	*

.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	918.1	612.1	111.8	0.12	111.8	0.12
B	762.5	508.4	51.9	0.07	51.9	0.07
C	598.7	399.2	50.2	0.08	50.2	0.08
D	1175.5	783.6	97.3	0.08	97.4	0.08
ALL	3454.8	2303.2	311.2	0.09	311.2	0.09

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
10.Broad St_Gladstone Rd\Gladstone Bridge Roundabout\Broad St_Gladstone Rd.vai"
(drive-on-the-left) at 16:01:30 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Broad St / Gladstone Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Gladstone Rd (N)
ARM B - Holton Rd_Loop (E)
ARM C - Gladstone Bridge (S)
ARM D - Broad St (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.80	40.00	25.40	43.00	30.0	0.621	26.980
ARM B	6.80	6.80	0.00	20.00	42.00	27.0	0.716	34.697
ARM C	3.65	6.63	7.60	23.00	43.00	28.0	0.604	25.441
ARM D	3.00	6.10	50.00	40.00	43.00	13.0	0.685	30.567

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM D Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE TO RISE	AT TOP IS REACHED	AFTER FALLING	PEAK	BEFORE PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	10.00	15.00	10.00			
ARM B	15.00	45.00	75.00	7.04	10.56	7.04			

ARM C	15.00	45.00	75.00	7.66	11.49	7.66
ARM D	15.00	45.00	75.00	8.43	12.64	8.43

DEMAND SET TITLE: AM 2020 With Development

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
08.15 - 09.45		TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S)			
	ARM A	0.000	0.330	0.512	0.157
		0.0	264.0	410.0	126.0
		(0.0)	(2.0)	(4.0)	(1.0)
	ARM B	0.185	0.000	0.345	0.471
		104.0	0.0	194.0	265.0
		(7.0)	(0.0)	(7.0)	(4.0)
	ARM C	0.573	0.181	0.000	0.246
		351.0	111.0	0.0	151.0
		(5.0)	(20.0)	(0.0)	(7.0)
	ARM D	0.298	0.306	0.396	0.000
		201.0	206.0	267.0	0.0
		(3.0)	(3.0)	(5.0)	(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	10.04	21.51	0.467	- - -	0.0	0.9	12.5	-	0.086
ARM B	7.06	25.81	0.274	- - -	0.0	0.4	5.5	-	0.053
ARM C	7.69	19.93	0.386	- - -	0.0	0.6	9.0	-	0.081
ARM D	8.46	24.40	0.347	- - -	0.0	0.5	7.7	-	0.062
08.30-08.45									
ARM A	11.99	20.58	0.583	- - -	0.9	1.4	19.8	-	0.116
ARM B	8.44	24.41	0.346	- - -	0.4	0.5	7.7	-	0.063
ARM C	9.18	19.22	0.478	- - -	0.6	0.9	13.2	-	0.099
ARM D	10.10	23.40	0.432	- - -	0.5	0.8	11.0	-	0.075
08.45-09.00									
ARM A	14.68	19.32	0.760	- - -	1.4	3.0	41.1	-	0.206
ARM B	10.33	22.55	0.458	- - -	0.5	0.8	12.2	-	0.082
ARM C	11.25	18.26	0.616	- - -	0.9	1.6	22.3	-	0.141
ARM D	12.37	22.05	0.561	- - -	0.8	1.3	18.2	-	0.103
09.00-09.15									
ARM A	14.68	19.30	0.761	- - -	3.0	3.1	45.8	-	0.216
ARM B	10.33	22.49	0.459	- - -	0.8	0.8	12.6	-	0.082
ARM C	11.25	18.25	0.616	- - -	1.6	1.6	23.7	-	0.143
ARM D	12.37	22.02	0.562	- - -	1.3	1.3	19.0	-	0.104
09.15-09.30									
ARM A	11.99	20.55	0.583	- - -	3.1	1.4	22.6	-	0.120
ARM B	8.44	24.33	0.347	- - -	0.8	0.5	8.2	-	0.063
ARM C	9.18	19.20	0.478	- - -	1.6	0.9	14.5	-	0.101
ARM D	10.10	23.36	0.432	- - -	1.3	0.8	11.9	-	0.076
09.30-09.45									
ARM A	10.04	21.48	0.467	- - -	1.4	0.9	13.7	-	0.088
ARM B	7.06	25.75	0.274	- - -	0.5	0.4	5.8	-	0.054
ARM C	7.69	19.90	0.386	- - -	0.9	0.6	9.8	-	0.082
ARM D	8.46	24.36	0.347	- - -	0.8	0.5	8.2	-	0.063

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.9	*
08.45	1.4	*
09.00	3.0	***
09.15	3.1	***
09.30	1.4	*
09.45	0.9	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.4	
08.45	0.5	*
09.00	0.8	*
09.15	0.8	*
09.30	0.5	*
09.45	0.4	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.6	*
08.45	0.9	*
09.00	1.6	**
09.15	1.6	**
09.30	0.9	*
09.45	0.6	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.5	*
08.45	0.8	*
09.00	1.3	*
09.15	1.3	*
09.30	0.8	*
09.45	0.5	*

.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	1101.1	734.1	155.5	0.14	155.5	0.14
B	774.9	516.6	52.1	0.07	52.1	0.07
C	843.7	562.5	92.5	0.11	92.5	0.11
D	927.7	618.5	76.0	0.08	76.0	0.08
ALL	3647.5	2431.7	376.0	0.10	376.0	0.10

* 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

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\10.Broad St_Gladstone Rd\Gladstone Bridge Roundabout\Broad St_Gladstone Rd.vai"
(drive-on-the-left) at 09:57:13 on Wednesday, 7 April 2010

FILE PROPERTIES

RUN TITLE: Broad St / Gladstone Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Gladstone Rd (N)
ARM B - Holton Rd_Loop (E)
ARM C - Gladstone Bridge (S)
ARM D - Broad St (W)

GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.80	40.00	25.40	43.00	30.0	0.621	26.980
ARM B	6.80	6.80	0.00	20.00	42.00	27.0	0.716	34.697
ARM C	3.65	6.63	7.60	23.00	43.00	28.0	0.604	25.441
ARM D	3.00	6.10	50.00	40.00	43.00	13.0	0.685	30.567

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM D Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 2008

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	4.96	7.44	4.96
ARM B	15.00	45.00	75.00	8.52	12.79	8.52
ARM C	15.00	45.00	75.00	8.39	12.58	8.39
ARM D	15.00	45.00	75.00	8.36	12.54	8.36

DEMAND SET TITLE: PM 2008

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45		TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S)			
	ARM A	0.000	0.209	0.519	0.272
		0.0	83.0	206.0	108.0
		(0.0)	(0.0)	(7.0)	(2.0)
	ARM B	0.251	0.000	0.302	0.447
		171.0	0.0	206.0	305.0
		(1.0)	(0.0)	(5.0)	(2.0)
	ARM C	0.358	0.064	0.000	0.578
		240.0	43.0	0.0	388.0
		(2.0)	(12.0)	(0.0)	(1.0)
	ARM D	0.318	0.260	0.422	0.000
		213.0	174.0	282.0	0.0
		(4.0)	(5.0)	(3.0)	(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	4.98	22.01	0.226	- -	-	0.0	0.3	4.3	-	0.059
ARM B	8.56	28.39	0.301	- -	-	0.0	0.4	6.3	-	0.050
ARM C	8.42	20.53	0.410	- -	-	0.0	0.7	10.0	-	0.082
ARM D	8.39	25.60	0.328	- -	-	0.0	0.5	7.1	-	0.058
16.30-16.45									
ARM A	5.95	21.25	0.280	- -	-	0.3	0.4	5.7	-	0.065
ARM B	10.22	27.32	0.374	- -	-	0.4	0.6	8.7	-	0.058
ARM C	10.05	19.67	0.511	- -	-	0.7	1.0	15.0	-	0.103
ARM D	10.02	24.84	0.404	- -	-	0.5	0.7	9.9	-	0.067
16.45-17.00									
ARM A	7.29	20.21	0.361	- -	-	0.4	0.6	8.2	-	0.077
ARM B	12.51	25.87	0.484	- -	-	0.6	0.9	13.6	-	0.075
ARM C	12.31	18.49	0.666	- -	-	1.0	1.9	27.3	-	0.159
ARM D	12.28	23.82	0.515	- -	-	0.7	1.1	15.3	-	0.086
17.00-17.15									
ARM A	7.29	20.19	0.361	- -	-	0.6	0.6	8.4	-	0.078
ARM B	12.51	25.86	0.484	- -	-	0.9	0.9	14.0	-	0.075
ARM C	12.31	18.48	0.666	- -	-	1.9	2.0	29.3	-	0.162
ARM D	12.28	23.80	0.516	- -	-	1.1	1.1	15.8	-	0.087
17.15-17.30									
ARM A	5.95	21.23	0.280	- -	-	0.6	0.4	6.0	-	0.066
ARM B	10.22	27.30	0.374	- -	-	0.9	0.6	9.2	-	0.059
ARM C	10.05	19.65	0.512	- -	-	2.0	1.1	16.6	-	0.106
ARM D	10.02	24.81	0.404	- -	-	1.1	0.7	10.5	-	0.068
17.30-17.45									
ARM A	4.98	21.99	0.227	- -	-	0.4	0.3	4.5	-	0.059
ARM B	8.56	28.36	0.302	- -	-	0.6	0.4	6.6	-	0.051
ARM C	8.42	20.51	0.410	- -	-	1.1	0.7	10.8	-	0.083
ARM D	8.39	25.57	0.328	- -	-	0.7	0.5	7.5	-	0.058

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.3	
16.45	0.4	
17.00	0.6	*
17.15	0.6	*
17.30	0.4	
17.45	0.3	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.6	*
17.00	0.9	*
17.15	0.9	*
17.30	0.6	*
17.45	0.4	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.0	*
17.00	1.9	**
17.15	2.0	**
17.30	1.1	*
17.45	0.7	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES 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	

.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	546.4	364.3	37.1	0.07	37.1	0.07
B	938.7	625.8	58.4	0.06	58.4	0.06
C	923.6	615.7	109.0	0.12	109.0	0.12
D	920.8	613.9	66.1	0.07	66.1	0.07
ALL	3329.6	2219.7	270.6	0.08	270.6	0.08

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

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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

Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\10.Broad St_Gladstone Rd\Gladstone Bridge Roundabout\Broad St_Gladstone Rd.vai"
(drive-on-the-left) at 09:57:36 on Wednesday, 7 April 2010

.FILE PROPERTIES

RUN TITLE: Broad St / Gladstone Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA

ARM A - Gladstone Rd (N)
ARM B - Holton Rd_Loop (E)
ARM C - Gladstone Bridge (S)
ARM D - Broad St (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	3.00	I	5.80	I	40.00	I	25.40	I	43.00	I	30.0	I	0.621	I	26.980	I
I ARM B	I	6.80	I	6.80	I	0.00	I	20.00	I	42.00	I	27.0	I	0.716	I	34.697	I
I ARM C	I	3.65	I	6.63	I	7.60	I	23.00	I	43.00	I	28.0	I	0.604	I	25.441	I
I ARM D	I	3.00	I	6.10	I	50.00	I	40.00	I	43.00	I	13.0	I	0.685	I	30.567	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 Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM D Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

IARM	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 Base

I	I	NUMBER OF MINUTES FROM START WHEN			I	RATE OF FLOW (VEH/MIN) I			
I ARM	I	FLOW STARTS I	TOP OF PEAK I	FLOW STOPS I	BEFORE I	AT TOP I	AFTER I		
I	I	TO RISE I	IS REACHED I	FALLING I	PEAK I	OF PEAK I	PEAK I		
I ARM A	I	15.00	I 45.00	I 75.00	I 5.78	I 8.66	I 5.78	I	
I ARM B	I	15.00	I 45.00	I 75.00	I 9.90	I 14.85	I 9.90	I	
I ARM C	I	15.00	I 45.00	I 75.00	I 9.75	I 14.63	I 9.75	I	

ARM	D	15.00	45.00	75.00	9.73	14.59	9.73

DEMAND SET TITLE: PM 2020 Base

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45					
	ARM A	0.000	0.210	0.517	0.273
		0.0	97.0	239.0	126.0
		(0.0)	(0.0)	(7.0)	(2.0)
	ARM B	0.250	0.000	0.302	0.448
		198.0	0.0	239.0	355.0
		(1.0)	(0.0)	(5.0)	(2.0)
	ARM C	0.358	0.064	0.000	0.578
		279.0	50.0	0.0	451.0
		(2.0)	(12.0)	(0.0)	(1.0)
	ARM D	0.319	0.260	0.422	0.000
		248.0	202.0	328.0	0.0
		(4.0)	(5.0)	(3.0)	(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	5.80	21.39	0.271	- - -	0.0	0.4	5.4	-	0.064
ARM B	9.94	27.51	0.361	- - -	0.0	0.6	8.2	-	0.057
ARM C	9.79	19.82	0.494	- - -	0.0	1.0	13.8	-	0.098
ARM D	9.76	24.99	0.391	- - -	0.0	0.6	9.3	-	0.065
16.30-16.45									
ARM A	6.92	20.50	0.338	- - -	0.4	0.5	7.4	-	0.074
ARM B	11.87	26.27	0.452	- - -	0.6	0.8	12.0	-	0.069
ARM C	11.69	18.81	0.621	- - -	1.0	1.6	22.9	-	0.139
ARM D	11.66	24.11	0.484	- - -	0.6	0.9	13.5	-	0.080
16.45-17.00									
ARM A	8.48	19.30	0.439	- - -	0.5	0.8	11.3	-	0.092
ARM B	14.53	24.59	0.591	- - -	0.8	1.4	20.5	-	0.099
ARM C	14.31	17.45	0.820	- - -	1.6	4.1	54.3	-	0.289
ARM D	14.28	22.95	0.622	- - -	0.9	1.6	23.2	-	0.114
17.00-17.15									
ARM A	8.48	19.27	0.440	- - -	0.8	0.8	11.7	-	0.093
ARM B	14.53	24.56	0.592	- - -	1.4	1.4	21.5	-	0.100
ARM C	14.31	17.43	0.821	- - -	4.1	4.3	63.8	-	0.315
ARM D	14.28	22.90	0.624	- - -	1.6	1.6	24.4	-	0.116
17.15-17.30									
ARM A	6.92	20.46	0.338	- - -	0.8	0.5	7.9	-	0.074
ARM B	11.87	26.23	0.452	- - -	1.4	0.8	12.8	-	0.070
ARM C	11.69	18.79	0.622	- - -	4.3	1.7	27.4	-	0.148
ARM D	11.66	24.03	0.485	- - -	1.6	1.0	14.7	-	0.081
17.30-17.45									
ARM A	5.80	21.36	0.271	- - -	0.5	0.4	5.7	-	0.064
ARM B	9.94	27.47	0.362	- - -	0.8	0.6	8.7	-	0.057
ARM C	9.79	19.79	0.495	- - -	1.7	1.0	15.4	-	0.101
ARM D	9.76	24.94	0.391	- - -	1.0	0.6	9.9	-	0.066

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	*
17.00	0.8	*
17.15	0.8	*
17.30	0.5	*
17.45	0.4	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.8	*
17.00	1.4	*
17.15	1.4	*
17.30	0.8	*
17.45	0.6	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.6	**
17.00	4.1	****
17.15	4.3	****
17.30	1.7	**
17.45	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.6	**
17.15	1.6	**
17.30	1.0	*
17.45	0.6	*

.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	635.9	423.9	49.5	0.08	49.5	0.08
B	1090.1	726.8	83.8	0.08	83.8	0.08
C	1073.6	715.7	197.7	0.18	197.7	0.18
D	1070.9	713.9	95.1	0.09	95.1	0.09
ALL	3870.5	2580.3	426.1	0.11	426.1	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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
10.Broad St_Gladstone Rd\Gladstone Bridge Roundabout\Broad St_Gladstone Rd.vai"
(drive-on-the-left) at 11:46:01 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Broad St / Gladstone Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Gladstone Rd (N)
ARM B - Holton Rd_Loop (E)
ARM C - Gladstone Bridge (S)
ARM D - Broad St (W)

.GEOMETRIC DATA

T5

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	3.00	I	5.80	I	40.00	I	25.40	I	43.00	I	30.0	I	0.621	I	26.980	I
I ARM B	I	6.80	I	6.80	I	0.00	I	20.00	I	42.00	I	27.0	I	0.716	I	34.697	I
I ARM C	I	3.65	I	6.63	I	7.60	I	23.00	I	43.00	I	28.0	I	0.604	I	25.441	I
I ARM D	I	3.00	I	6.10	I	50.00	I	40.00	I	43.00	I	13.0	I	0.685	I	30.567	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 Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM D Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	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 Base +tourism

T15

I	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN) I
I ARM	I FLOW STARTS I	TOP OF PEAK I	FLOW STOPS I	BEFORE I AT TOP I AFTER I
I	I TO RISE I	IS REACHED I	FALLING I	PEAK I OF PEAK I PEAK I

ARM A	15.00	45.00	75.00	5.78	8.66	5.78
ARM B	15.00	45.00	75.00	9.90	14.85	9.90
ARM C	15.00	45.00	75.00	10.99	16.48	10.99
ARM D	15.00	45.00	75.00	11.09	16.63	11.09

DEMAND SET TITLE: PM 2020 Base +tourism

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45		TURNING PROPORTIONS			
		TURNING COUNTS			
		(PERCENTAGE OF H.V.S)			
	ARM A	0.000	0.210	0.517	0.273
		0.0	97.0	239.0	126.0
		(0.0)	(0.0)	(7.0)	(2.0)
	ARM B	0.250	0.000	0.302	0.448
		198.0	0.0	239.0	355.0
		(1.0)	(0.0)	(5.0)	(2.0)
	ARM C	0.317	0.057	0.000	0.626
		279.0	50.0	0.0	550.0
		(2.0)	(12.0)	(0.0)	(1.0)
	ARM D	0.280	0.228	0.493	0.000
		248.0	202.0	437.0	0.0
		(4.0)	(5.0)	(3.0)	(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	5.80	20.55	0.282	- -	0.0	0.4	5.7	-	0.068
ARM B	9.94	26.54	0.375	- -	0.0	0.6	8.7	-	0.060
ARM C	11.03	19.84	0.556	- -	0.0	1.2	17.5	-	0.111
ARM D	11.13	25.01	0.445	- -	0.0	0.8	11.6	-	0.072
16.30-16.45									
ARM A	6.92	19.50	0.355	- -	0.4	0.5	8.0	-	0.079
ARM B	11.87	25.10	0.473	- -	0.6	0.9	13.0	-	0.075
ARM C	13.17	18.84	0.699	- -	1.2	2.2	31.4	-	0.172
ARM D	13.29	24.14	0.551	- -	0.8	1.2	17.6	-	0.092
16.45-17.00									
ARM A	8.48	18.09	0.469	- -	0.5	0.9	12.6	-	0.104
ARM B	14.53	23.17	0.627	- -	0.9	1.7	23.6	-	0.114
ARM C	16.13	17.48	0.923	- -	2.2	8.3	97.6	-	0.487
ARM D	16.28	23.03	0.707	- -	1.2	2.3	32.9	-	0.145
17.00-17.15									
ARM A	8.48	18.05	0.470	- -	0.9	0.9	13.1	-	0.105
ARM B	14.53	23.13	0.628	- -	1.7	1.7	25.0	-	0.116
ARM C	16.13	17.45	0.924	- -	8.3	9.6	135.9	-	0.637
ARM D	16.28	22.94	0.710	- -	2.3	2.4	35.6	-	0.150
17.15-17.30									
ARM A	6.92	19.43	0.356	- -	0.9	0.6	8.6	-	0.080
ARM B	11.87	25.05	0.474	- -	1.7	0.9	14.1	-	0.077
ARM C	13.17	18.80	0.700	- -	9.6	2.4	45.2	-	0.210
ARM D	13.29	23.98	0.554	- -	2.4	1.3	19.7	-	0.095
17.30-17.45									
ARM A	5.80	20.51	0.283	- -	0.6	0.4	6.1	-	0.068
ARM B	9.94	26.49	0.375	- -	0.9	0.6	9.3	-	0.061
ARM C	11.03	19.81	0.557	- -	2.4	1.3	20.1	-	0.116
ARM D	11.13	24.96	0.446	- -	1.3	0.8	12.5	-	0.073

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	*
17.00	0.9	*
17.15	0.9	*
17.30	0.6	*
17.45	0.4	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.7	**
17.15	1.7	**
17.30	0.9	*
17.45	0.6	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.2	*
16.45	2.2	**
17.00	8.3	********
17.15	9.6	**********
17.30	2.4	**
17.45	1.3	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.2	*
17.00	2.3	**
17.15	2.4	**
17.30	1.3	*
17.45	0.8	*

.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	635.9	423.9	54.2	0.09	54.2	0.09
B	1090.1	726.8	93.6	0.09	93.6	0.09
C	1209.9	806.6	347.7	0.29	347.7	0.29
D	1220.9	813.9	129.8	0.11	129.8	0.11
ALL	4156.8	2771.2	625.3	0.15	625.3	0.15

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

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Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
10.Broad St_Gladstone Rd\Gladstone Bridge Roundabout\Broad St_Gladstone Rd.vai"
(drive-on-the-left) at 16:02:34 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Broad St / Gladstone Road
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Gladstone Rd (N)
ARM B - Holton Rd_Loop (E)
ARM C - Gladstone Bridge (S)
ARM D - Broad St (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.80	40.00	25.40	43.00	30.0	0.621	26.980
ARM B	6.80	6.80	0.00	20.00	42.00	27.0	0.716	34.697
ARM C	3.65	6.63	7.60	23.00	43.00	28.0	0.604	25.441
ARM D	3.00	6.10	50.00	40.00	43.00	13.0	0.685	30.567

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM D Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 + Tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE TO RISE	AT TOP IS REACHED	AFTER FALLING
					PEAK	OF PEAK

ARM A	15.00	45.00	75.00	8.16	12.24	8.16
ARM B	15.00	45.00	75.00	10.44	15.66	10.44
ARM C	15.00	45.00	75.00	10.04	15.06	10.04
ARM D	15.00	45.00	75.00	8.26	12.39	8.26

DEMAND SET TITLE: PM 2020 With Development + Tourism

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	TURNING PROPORTIONS				
	ARM A	0.000	0.149	0.686	0.165
		0.0	97.0	448.0	108.0
		(0.0)	(0.0)	(7.0)	(2.0)
	ARM B	0.237	0.000	0.343	0.420
		198.0	0.0	286.0	351.0
		(1.0)	(0.0)	(5.0)	(2.0)
	ARM C	0.563	0.115	0.000	0.323
		452.0	92.0	0.0	259.0
		(2.0)	(12.0)	(0.0)	(1.0)
	ARM D	0.351	0.300	0.349	0.000
		232.0	198.0	231.0	0.0
		(4.0)	(5.0)	(3.0)	(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	8.19	21.61	0.379	- -	0.0	0.6	8.8	-	0.074
ARM B	10.48	26.56	0.394	- -	0.0	0.6	9.4	-	0.062
ARM C	10.08	19.84	0.508	- -	0.0	1.0	14.6	-	0.101
ARM D	8.29	23.12	0.359	- -	0.0	0.6	8.1	-	0.067
16.30-16.45									
ARM A	9.78	20.81	0.470	- -	0.6	0.9	12.8	-	0.090
ARM B	12.51	25.14	0.498	- -	0.6	1.0	14.3	-	0.079
ARM C	12.03	18.87	0.637	- -	1.0	1.7	24.4	-	0.144
ARM D	9.90	21.88	0.453	- -	0.6	0.8	12.0	-	0.083
16.45-17.00									
ARM A	11.98	19.74	0.607	- -	0.9	1.5	21.6	-	0.128
ARM B	15.32	23.22	0.660	- -	1.0	1.9	27.0	-	0.125
ARM C	14.74	17.57	0.839	- -	1.7	4.6	59.8	-	0.312
ARM D	12.13	20.26	0.599	- -	0.8	1.5	21.0	-	0.122
17.00-17.15									
ARM A	11.98	19.72	0.608	- -	1.5	1.5	22.9	-	0.129
ARM B	15.32	23.19	0.661	- -	1.9	1.9	28.7	-	0.127
ARM C	14.74	17.54	0.840	- -	4.6	4.9	71.7	-	0.348
ARM D	12.13	20.17	0.601	- -	1.5	1.5	22.2	-	0.124
17.15-17.30									
ARM A	9.78	20.77	0.471	- -	1.5	0.9	14.0	-	0.092
ARM B	12.51	25.09	0.499	- -	1.9	1.0	15.6	-	0.080
ARM C	12.03	18.84	0.639	- -	4.9	1.8	29.8	-	0.156
ARM D	9.90	21.75	0.455	- -	1.5	0.8	13.1	-	0.085
17.30-17.45									
ARM A	8.19	21.58	0.380	- -	0.9	0.6	9.5	-	0.075
ARM B	10.48	26.51	0.395	- -	1.0	0.7	10.1	-	0.063
ARM C	10.08	19.81	0.509	- -	1.8	1.0	16.4	-	0.104
ARM D	8.29	23.06	0.360	- -	0.8	0.6	8.7	-	0.068

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.5	**
17.15	1.5	**
17.30	0.9	*
17.45	0.6	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	1.0	*
17.00	1.9	**
17.15	1.9	**
17.30	1.0	*
17.45	0.7	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.7	**
17.00	4.6	*****
17.15	4.9	*****
17.30	1.8	**
17.45	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.8	*
17.00	1.5	*
17.15	1.5	*
17.30	0.8	*
17.45	0.6	*

.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	898.8	599.2	89.6	0.10	89.6	0.10
B	1149.3	766.2	105.1	0.09	105.1	0.09
C	1105.3	736.8	216.8	0.20	216.8	0.20
D	909.8	606.5	85.0	0.09	85.0	0.09
ALL	4063.2	2708.8	496.4	0.12	496.5	0.12

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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
10.Broad St_Gladstone Rd\Gladstone Bridge Roundabout\Broad St_Gladstone Rd.vai"
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ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER: 122374
STATUS:
DESCRIPTION:

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ARM B - Holton Rd_Loop (E)
ARM C - Gladstone Bridge (S)
ARM D - Broad St (W)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	5.80	40.00	25.40	43.00	30.0	0.621	26.980
ARM B	6.80	6.80	0.00	20.00	42.00	27.0	0.716	34.697
ARM C	3.65	6.63	7.60	23.00	43.00	28.0	0.604	25.441
ARM D	3.00	6.10	50.00	40.00	43.00	13.0	0.685	30.567

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM D Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

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

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

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.DEMAND SET TITLE: PM 2020 With Development

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE TO RISE	AT TOP IS REACHED	AFTER FALLING	PEAK
ARM A	15.00	45.00	75.00	8.16	12.24	8.16	

I ARM B I	15.00	I	45.00	I	75.00	I 10.44	I 15.66	I 10.44 I
I ARM C I	15.00	I	45.00	I	75.00	I 10.04	I 15.06	I 10.04 I
I ARM D I	15.00	I	45.00	I	75.00	I 8.26	I 12.39	I 8.26 I

DEMAND SET TITLE: PM 2020 With Development

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45		TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S)			
	ARM A	0.000	0.149	0.686	0.165
		0.0	97.0	448.0	108.0
		(0.0)	(0.0)	(7.0)	(2.0)
	ARM B	0.237	0.000	0.343	0.420
		198.0	0.0	286.0	351.0
		(1.0)	(0.0)	(5.0)	(2.0)
	ARM C	0.563	0.115	0.000	0.323
		452.0	92.0	0.0	259.0
		(2.0)	(12.0)	(0.0)	(1.0)
	ARM D	0.351	0.300	0.349	0.000
		232.0	198.0	231.0	0.0
		(4.0)	(5.0)	(3.0)	(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	8.19	21.61	0.379	- -	0.0	0.6	8.8	-	0.074
ARM B	10.48	26.56	0.394	- -	0.0	0.6	9.4	-	0.062
ARM C	10.08	19.84	0.508	- -	0.0	1.0	14.6	-	0.101
ARM D	8.29	23.12	0.359	- -	0.0	0.6	8.1	-	0.067
16.30-16.45									
ARM A	9.78	20.81	0.470	- -	0.6	0.9	12.8	-	0.090
ARM B	12.51	25.14	0.498	- -	0.6	1.0	14.3	-	0.079
ARM C	12.03	18.87	0.637	- -	1.0	1.7	24.4	-	0.144
ARM D	9.90	21.88	0.453	- -	0.6	0.8	12.0	-	0.083
16.45-17.00									
ARM A	11.98	19.74	0.607	- -	0.9	1.5	21.6	-	0.128
ARM B	15.32	23.22	0.660	- -	1.0	1.9	27.0	-	0.125
ARM C	14.74	17.57	0.839	- -	1.7	4.6	59.8	-	0.312
ARM D	12.13	20.26	0.599	- -	0.8	1.5	21.0	-	0.122
17.00-17.15									
ARM A	11.98	19.72	0.608	- -	1.5	1.5	22.9	-	0.129
ARM B	15.32	23.19	0.661	- -	1.9	1.9	28.7	-	0.127
ARM C	14.74	17.54	0.840	- -	4.6	4.9	71.7	-	0.348
ARM D	12.13	20.17	0.601	- -	1.5	1.5	22.2	-	0.124
17.15-17.30									
ARM A	9.78	20.77	0.471	- -	1.5	0.9	14.0	-	0.092
ARM B	12.51	25.09	0.499	- -	1.9	1.0	15.6	-	0.080
ARM C	12.03	18.84	0.639	- -	4.9	1.8	29.8	-	0.156
ARM D	9.90	21.75	0.455	- -	1.5	0.8	13.1	-	0.085
17.30-17.45									
ARM A	8.19	21.58	0.380	- -	0.9	0.6	9.5	-	0.075
ARM B	10.48	26.51	0.395	- -	1.0	0.7	10.1	-	0.063
ARM C	10.08	19.81	0.509	- -	1.8	1.0	16.4	-	0.104
ARM D	8.29	23.06	0.360	- -	0.8	0.6	8.7	-	0.068

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.5	**
17.15	1.5	**
17.30	0.9	*
17.45	0.6	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	1.0	*
17.00	1.9	**
17.15	1.9	**
17.30	1.0	*
17.45	0.7	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.7	**
17.00	4.6	*****
17.15	4.9	*****
17.30	1.8	**
17.45	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.8	*
17.00	1.5	*
17.15	1.5	*
17.30	0.8	*
17.45	0.6	*

.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	898.8	599.2	89.6	0.10	89.6	0.10
B	1149.3	766.2	105.1	0.09	105.1	0.09
C	1105.3	736.8	216.8	0.20	216.8	0.20
D	909.8	606.5	85.0	0.09	85.0	0.09
ALL	4063.2	2708.8	496.4	0.12	496.5	0.12

* 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

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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

TRL Limited Tel: +44 (0) 1344 770018
Crowthorne House Fax: +44 (0) 1344 770864
Nine Mile Ride Email: softwarebureau@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"j:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\
21.Gladstone Bridge_Ffordd y Millenium\Gladstone Bridge_Ffordd Mileniwm.vai"
(drive-on-the-left) at 15:11:12 on Tuesday, 1 April 2008

FILE PROPERTIES

RUN TITLE: 21. Gladstone Bridge_Ffordd Y Mileniwm
LOCATION:
DATE: 12/03/08
CLIENT:
ENUMERATOR: Roddy.Beynon [WACPC145]
JOB NUMBER: 122374
STATUS: On-going
DESCRIPTION:

INPUT DATA

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

GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
I ARM A	3.62	7.03	9.60	32.00	37.10	4.0	0.692	29.200
I ARM B	3.69	6.29	18.00	50.80	37.10	11.0	0.700	30.253
I ARM C	3.84	6.98	10.20	30.10	37.10	15.0	0.680	29.254

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)

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

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 TURNING COUNT DATA

DEMAND SET TITLE: AM 2008 Base

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS IF NOT REACHED	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	6.82	10.24	6.82
ARM B	15.00	45.00	75.00	1.92	2.89	1.92
ARM C	15.00	45.00	75.00	9.80	14.70	9.80

DEMAND SET TITLE: AM 2008 Base

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45	ARM A	0.000	0.211	0.789
		0.0	115.0	431.0
		(0.0)	(2.0)	(8.0)
	ARM B	0.682	0.000	0.318
		105.0	0.0	49.0
		(1.0)	(0.0)	(0.0)
	ARM C	0.946	0.054	0.000
		742.0	42.0	0.0
		(5.0)	(0.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME / ARM	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	6.82	27.02	0.253		0.0	0.3	5.0		0.05
ARM B	1.92	26.01	0.074		0.0	0.1	1.2		0.04
ARM C	9.80	27.07	0.362		0.0	0.6	8.3		0.06
08.30-08.45									
ARM A	8.15	26.95	0.302		0.3	0.4	6.4		0.05
ARM B	2.30	25.22	0.091		0.1	0.1	1.5		0.04
ARM C	11.70	26.91	0.435		0.6	0.8	11.2		0.07
08.45-09.00									
ARM A	9.98	26.86	0.372		0.4	0.6	8.7		0.06
ARM B	2.82	24.14	0.117		0.1	0.1	2.0		0.05
ARM C	14.33	26.67	0.537		0.8	1.1	16.7		0.08

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)
09.00-09.15									
ARM A	9.98	26.86	0.372		0.6	0.6	8.8		0.06
ARM B	2.82	24.13	0.117		0.1	0.1	2.0		0.05
ARM C	14.33	26.67	0.537		1.1	1.2	17.3		0.08

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)
09.15-09.30									
ARM A	8.15	26.95	0.302		0.6	0.4	6.6		0.05
ARM B	2.30	25.21	0.091		0.1	0.1	1.5		0.04
ARM C	11.70	26.90	0.435		1.2	0.8	11.9		0.07

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)
09.30-09.45									
ARM A	6.82	27.02	0.253		0.4	0.3	5.2		0.05
ARM B	1.92	26.00	0.074		0.1	0.1	1.2		0.04
ARM C	9.80	27.07	0.362		0.8	0.6	8.7		0.06

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.3	
08.45	0.4	
09.00	0.6	*
09.15	0.6	*
09.30	0.4	
09.45	0.3	

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.1	
08.45	0.1	
09.00	0.1	
09.15	0.1	
09.30	0.1	
09.45	0.1	

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.6	*
08.45	0.8	*
09.00	1.1	*
09.15	1.2	*
09.30	0.8	*
09.45	0.6	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	748.7	499.1	40.6	0.05	40.6	0.05
B	211.2	140.8	9.3	0.04	9.3	0.04
C	1075.0	716.7	74.1	0.07	74.1	0.07
ALL	2034.9	1356.6	124.1	0.06	124.1	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

========== end of file ==========

Printed at 15:01:35 on 14/04/2010]

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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

TRL Limited Tel: +44 (0) 1344 770018
Crowthorne House Fax: +44 (0) 1344 770864
Nine Mile Ride Email: softwarebureau@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"j:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\
21.Gladstone Bridge_Ffordd y Mileniwm\Gladstone Bridge_Ffordd Mileniwm.vai"
(drive-on-the-left) at 16:21:26 on Thursday, 5 June 2008

FILE PROPERTIES

RUN TITLE: 21. Gladstone Bridge_Ffordd Y Mileniwm
LOCATION:
DATE: 12/03/08
CLIENT:
ENUMERATOR: Roddy.Beynon [WACPC145]
JOB NUMBER: 122374
STATUS: On-going
DESCRIPTION:

INPUT DATA

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

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	3.62	I	7.03	I	9.60	I	32.00	I	37.10	I	4.0	I	0.692	I	29.200	I
I ARM B	I	3.69	I	6.29	I	18.00	I	50.80	I	37.10	I	11.0	I	0.700	I	30.253	I
I ARM C	I	3.84	I	6.98	I	10.20	I	30.10	I	37.10	I	15.0	I	0.680	I	29.254	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)

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 TURNING COUNT DATA

DEMAND SET TITLE: AM 2020 Base

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS IFALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.95	11.92	7.95
ARM B	15.00	45.00	75.00	2.25	3.38	2.25
ARM C	15.00	45.00	75.00	11.40	17.10	11.40

DEMAND SET TITLE: AM 2020 Base

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45				
	ARM A	0.000	0.211	0.789
		0.0	134.0	502.0
		(0.0)	(2.0)	(8.0)
	ARM B	0.683	0.000	0.317
		123.0	0.0	57.0
		(1.0)	(0.0)	(0.0)
	ARM C	0.947	0.053	0.000
		864.0	48.0	0.0
		(5.0)	(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)
08.15-08.30									
ARM A	7.95	26.97	0.295		0.0	0.4	6.1		0.05
ARM B	2.25	25.35	0.089		0.0	0.1	1.4		0.04
ARM C	11.40	26.93	0.423		0.0	0.7	10.6		0.06

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)
08.30-08.45									
ARM A	9.49	26.89	0.353		0.4	0.5	8.0		0.06
ARM B	2.69	24.42	0.110		0.1	0.1	1.8		0.05
ARM C	13.61	26.73	0.509		0.7	1.0	15.0		0.08

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)
08.45-09.00									
ARM A	11.63	26.79	0.434		0.5	0.8	11.2		0.07
ARM B	3.29	23.16	0.142		0.1	0.2	2.4		0.05
ARM C	16.67	26.46	0.630		1.0	1.7	24.1		0.10

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)
09.00-09.15									
ARM A	11.63	26.79	0.434		0.8	0.8	11.4		0.07
ARM B	3.29	23.15	0.142		0.2	0.2	2.5		0.05
ARM C	16.67	26.46	0.630		1.7	1.7	25.2		0.10

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)
09.15-09.30									
ARM A	9.49	26.89	0.353		0.8	0.5	8.4		0.06
ARM B	2.69	24.41	0.110		0.2	0.1	1.9		0.05
ARM C	13.61	26.73	0.509		1.7	1.0	16.2		0.08

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)
09.30-09.45									
ARM A	7.95	26.97	0.295		0.5	0.4	6.4		0.05
ARM B	2.25	25.33	0.089		0.1	0.1	1.5		0.04
ARM C	11.40	26.92	0.423		1.0	0.7	11.3		0.06

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.4	
08.45	0.5	*
09.00	0.8	*
09.15	0.8	*
09.30	0.5	*
09.45	0.4	

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.2
09.15	0.2
09.30	0.1
09.45	0.1

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.7	*
08.45	1.0	*
09.00	1.7	**
09.15	1.7	**
09.30	1.0	*
09.45	0.7	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	872.1	581.4	51.5	0.06	51.5	0.06
B	246.8	164.5	11.6	0.05	11.6	0.05
C	1250.5	833.7	102.6	0.08	102.6	0.08
ALL	2369.5	1579.6	165.6	0.07	165.7	0.07

* 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

========== end of file ==========

Printed at 15:01:57 on 14/04/2010]

_____ 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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
21.Gladstone Bridge_Ffordd y Mileniwm\Gladstone Bridge_Ffordd Mileniwm.vai"
(drive-on-the-left) at 13:38:46 on Tuesday, 13 April 2010

FILE PROPERTIES
****

RUN TITLE: Gladstone Bridge_Ffordd Y Mileniwm
LOCATION:
DATE: 14/07/09
CLIENT:
ENUMERATOR: Roddy.Beynon [WACPC145]
JOB NUMBER: 122374
STATUS: On-going
DESCRIPTION:

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

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	3.62	I	7.03	I	9.60	I	32.00	I	37.10	I	4.0	I	0.692	I	29.200	I
I ARM B	I	3.69	I	6.29	I	18.00	I	50.80	I	37.10	I	11.0	I	0.700	I	30.253	I
I ARM C	I	3.84	I	6.98	I	10.20	I	30.10	I	37.10	I	15.0	I	0.680	I	29.254	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

ARM	FLOW SCALE(%)
A	100
B	100
C	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: AM 2020 With Development

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	11.24	16.86	11.24
ARM B	15.00	45.00	75.00	10.68	16.01	10.68
ARM C	15.00	45.00	75.00	11.36	17.04	11.36

DEMAND SET TITLE: AM 2020 With Development

T33

TIME	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.459	0.541
		0.0	413.0	486.0
		(0.0)	(2.0)	(8.0)
	ARM B	0.705	0.000	0.295
		602.0	0.0	252.0
		(1.0)	(0.0)	(0.0)
	ARM C	0.789	0.211	0.000
		717.0	192.0	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)
16.15-16.30									
ARM A	11.28	26.17	0.431	- - -	0.0	0.8	10.9	-	0.067
ARM B	10.72	25.48	0.421	- - -	0.0	0.7	10.5	-	0.067
ARM C	11.41	23.18	0.492	- - -	0.0	1.0	13.8	-	0.084

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	13.47	25.86	0.521	- - -	0.8	1.1	15.7	-	0.080
ARM B	12.80	24.58	0.521	- - -	0.7	1.1	15.6	-	0.085
ARM C	13.62	22.20	0.614	- - -	1.0	1.6	22.4	-	0.116

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	16.50	25.45	0.648	- - -	1.1	1.8	25.9	-	0.110
ARM B	15.67	23.36	0.671	- - -	1.1	2.0	28.2	-	0.128
ARM C	16.68	20.87	0.799	- - -	1.6	3.7	50.0	-	0.224

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	16.50	25.43	0.649	- - -	1.8	1.8	27.3	-	0.112
ARM B	15.67	23.34	0.671	- - -	2.0	2.0	30.1	-	0.130
ARM C	16.68	20.85	0.800	- - -	3.7	3.9	56.9	-	0.238

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	13.47	25.83	0.521	- - -	1.8	1.1	17.1	-	0.081
ARM B	12.80	24.55	0.521	- - -	2.0	1.1	17.1	-	0.086
ARM C	13.62	22.16	0.615	- - -	3.9	1.6	26.0	-	0.121

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	11.28	26.16	0.431	- - -	1.1	0.8	11.7	-	0.067
ARM B	10.72	25.45	0.421	- - -	1.1	0.7	11.3	-	0.068
ARM C	11.41	23.14	0.493	- - -	1.6	1.0	15.2	-	0.086

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.1	*
17.00	1.8	**
17.15	1.8	**
17.30	1.1	*
17.45	0.8	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.1	*
17.00	2.0	**
17.15	2.0	**
17.30	1.1	*
17.45	0.7	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.6	**
17.00	3.7	****
17.15	3.9	****
17.30	1.6	**
17.45	1.0	*

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	1237.4	824.9	108.6	0.09	108.6	0.09
B	1175.5	783.6	112.8	0.10	112.8	0.10
C	1251.2	834.1	184.4	0.15	184.4	0.15
ALL	3664.0	2442.7	405.8	0.11	405.9	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

========== end of file ==========

Printed at 13:55:05 on 14/04/2010]

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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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 Millenium\Gladstone Bridge_Ffordd Mileniwm.vai"
(drive-on-the-left) at 15:11:34 on Tuesday, 1 April 2008

FILE PROPERTIES

RUN TITLE: 21. Gladstone Bridge_Ffordd Y Mileniwm
LOCATION:
DATE: 12/03/08
CLIENT:
ENUMERATOR: Roddy.Beynon [WACPC145]
JOB NUMBER: 122374
STATUS: On-going
DESCRIPTION:

INPUT DATA

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

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.62	7.03	9.60	32.00	37.10	4.0	0.692	29.200
ARM B	3.69	6.29	18.00	50.80	37.10	11.0	0.700	30.253
ARM C	3.84	6.98	10.20	30.10	37.10	15.0	0.680	29.254

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)

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

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 TURNING COUNT DATA

DEMAND SET TITLE: PM 2008 Base

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	13.04	19.56	13.04
ARM B	15.00	45.00	75.00	1.76	2.64	1.76
ARM C	15.00	45.00	75.00	8.85	13.28	8.85

DEMAND SET TITLE: PM 2008 Base

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45		TURNING PROPORTIONS		
	ARM A	0.000	0.303	0.697
		TURNING COUNTS (VEH/HR)		
		0.0	316.0	727.0
		(PERCENTAGE OF H.V.S)		
		(0.0)	(0.0)	(4.0)
	ARM B	0.738	0.000	0.262
		104.0	0.0	37.0
		(1.0)	(0.0)	(0.0)
	ARM C	0.936	0.064	0.000
		663.0	45.0	0.0
		(6.0)	(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)
08.15-08.30										
	ARM A	13.04	28.03	0.465		0.0	0.9	12.5		0.07
	ARM B	1.76	23.49	0.075		0.0	0.1	1.2		0.05
	ARM C	8.85	26.86	0.330		0.0	0.5	7.2		0.06
08.30-08.45										
	ARM A	15.57	27.96	0.557		0.9	1.2	18.1		0.08
	ARM B	2.10	22.20	0.095		0.1	0.1	1.5		0.05
	ARM C	10.57	26.69	0.396		0.5	0.7	9.6		0.06
08.45-09.00										
	ARM A	19.07	27.86	0.684		1.2	2.1	30.3		0.11
	ARM B	2.58	20.45	0.126		0.1	0.1	2.1		0.06
	ARM C	12.94	26.46	0.489		0.7	0.9	13.9		0.07

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)
09.00-09.15									
ARM A	19.07	27.85	0.685		2.1	2.1	32.0		0.11
ARM B	2.58	20.42	0.126		0.1	0.1	2.2		0.06
ARM C	12.94	26.46	0.489		0.9	1.0	14.3		0.07

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)
09.15-09.30									
ARM A	15.57	27.96	0.557		2.1	1.3	19.8		0.08
ARM B	2.10	22.16	0.095		0.1	0.1	1.6		0.05
ARM C	10.57	26.69	0.396		1.0	0.7	10.1		0.06

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)
09.30-09.45									
ARM A	13.04	28.03	0.465		1.3	0.9	13.5		0.07
ARM B	1.76	23.45	0.075		0.1	0.1	1.2		0.05
ARM C	8.85	26.85	0.330		0.7	0.5	7.5		0.06

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.9	*
08.45	1.2	*
09.00	2.1	**
09.15	2.1	**
09.30	1.3	*
09.45	0.9	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1
09.45	0.1

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.5	
08.45	0.7	*
09.00	0.9	*
09.15	1.0	*
09.30	0.7	*
09.45	0.5	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1430.2	953.4	126.2	0.09	126.2	0.09
B	193.3	128.9	9.9	0.05	9.9	0.05
C	970.8	647.2	62.6	0.06	62.6	0.06
ALL	2594.3	1729.6	198.6	0.08	198.6	0.08

* 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

========== end of file ==========

Printed at 15:02:13 on 14/04/2010]

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 4.0 (FEBRUARY 2006)

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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\Gladstone Bridge_Ffordd Mileniwm.vai"
(drive-on-the-left) at 16:24:11 on Thursday, 5 June 2008

FILE PROPERTIES
****

RUN TITLE: 21. Gladstone Bridge_Ffordd Y Mileniwm
LOCATION:
DATE: 12/03/08
CLIENT:
ENUMERATOR: Roddy.Beynon [WACPC145]
JOB NUMBER: 122374
STATUS: On-going
DESCRIPTION:

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

GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
I ARM A	3.62	7.03	9.60	32.00	37.10	4.0	0.692	29.200
I ARM B	3.69	6.29	18.00	50.80	37.10	11.0	0.700	30.253
I ARM C	3.84	6.98	10.20	30.10	37.10	15.0	0.680	29.254

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)

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

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 TURNING COUNT DATA

DEMAND SET TITLE: PM 2020 Base

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	15.18	22.76	15.18
ARM B	15.00	45.00	75.00	2.04	3.06	2.04
ARM C	15.00	45.00	75.00	10.29	15.43	10.29

DEMAND SET TITLE: PM 2020 Base

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (VEH/HR) (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
08.15 - 09.45	ARM A	0.000	0.303	0.697
		0.0	368.0	846.0
		(0.0)	(0.0)	(4.0)
	ARM B	0.742	0.000	0.258
		121.0	0.0	42.0
		(1.0)	(0.0)	(0.0)
	ARM C	0.937	0.063	0.000
		771.0	52.0	0.0
		(6.0)	(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)
08.15-08.30									
ARM A	15.18	27.97	0.542		0.0	1.2	16.9		0.08
ARM B	2.04	22.42	0.091		0.0	0.1	1.5		0.05
ARM C	10.29	26.72	0.385		0.0	0.6	9.1		0.06

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)
08.30-08.45									
ARM A	18.12	27.89	0.650		1.2	1.8	26.2		0.10
ARM B	2.43	20.92	0.116		0.1	0.1	1.9		0.05
ARM C	12.28	26.52	0.463		0.6	0.9	12.5		0.07

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)
08.45-09.00									
ARM A	22.19	27.77	0.799		1.8	3.8	51.8		0.17
ARM B	2.98	18.91	0.158		0.1	0.2	2.7		0.06
ARM C	15.05	26.26	0.573		0.9	1.3	19.2		0.09

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)
09.00-09.15									
ARM A	22.19	27.77	0.799		3.8	3.9	57.5		0.18
ARM B	2.98	18.85	0.158		0.2	0.2	2.8		0.06
ARM C	15.05	26.26	0.573		1.3	1.3	19.9		0.09

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)
09.15-09.30									
ARM A	18.12	27.88	0.650		3.9	1.9	29.9		0.11
ARM B	2.43	20.83	0.117		0.2	0.1	2.0		0.05
ARM C	12.28	26.52	0.463		1.3	0.9	13.4		0.07

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)
09.30-09.45									
ARM A	15.18	27.97	0.543		1.9	1.2	18.6		0.08
ARM B	2.04	22.36	0.091		0.1	0.1	1.5		0.05
ARM C	10.29	26.71	0.385		0.9	0.6	9.6		0.06

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	1.2	*
08.45	1.8	**
09.00	3.8	****
09.15	3.9	****
09.30	1.9	**
09.45	1.2	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.2
09.15	0.2
09.30	0.1
09.45	0.1

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.6	*
08.45	0.9	*
09.00	1.3	*
09.15	1.3	*
09.30	0.9	*
09.45	0.6	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1664.7	1109.8	200.9	0.12	200.9	0.12
B	223.5	149.0	12.5	0.06	12.5	0.06
C	1128.5	752.3	83.8	0.07	83.8	0.07
ALL	3016.7	2011.1	297.2	0.10	297.3	0.10

* 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

========== end of file ==========

Printed at 15:02:27 on 14/04/2010]

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ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

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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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
21.Gladstone Bridge_Ffordd y Mileniwm\Gladstone Bridge_Ffordd Mileniwm.vai"
(drive-on-the-left) at 13:40:00 on Tuesday, 13 April 2010

FILE PROPERTIES

RUN TITLE: Gladstone Bridge_Ffordd Y Mileniwm
LOCATION:
DATE: 14/07/09
CLIENT:
ENUMERATOR: Roddy.Beynon [WACPC145]
JOB NUMBER: 122374
STATUS: On-going
DESCRIPTION:

INPUT DATA

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

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	3.62	I	7.03	I	9.60	I	32.00	I	37.10	I	4.0	I	0.692	I	29.200	I
I ARM B	I	3.69	I	6.29	I	18.00	I	50.80	I	37.10	I	11.0	I	0.700	I	30.253	I
I ARM C	I	3.84	I	6.98	I	10.20	I	30.10	I	37.10	I	15.0	I	0.680	I	29.254	I

T5

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

ARM	FLOW SCALE(%)
A	100
B	100
C	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 Base + Tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	16.41	24.62	16.41
ARM B	15.00	45.00	75.00	2.04	3.06	2.04
ARM C	15.00	45.00	75.00	11.66	17.49	11.66

DEMAND SET TITLE: PM 2020 Base + Tourism

T33

TIME	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.280	0.720
		0.0	368.0	945.0
		(0.0)	(0.0)	(4.0)
	ARM B	0.742	0.000	0.258
		121.0	0.0	42.0
		(1.0)	(0.0)	(0.0)
	ARM C	0.944	0.056	0.000
		881.0	52.0	0.0
		(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	16.47	27.95	0.590	- - -	0.0	1.4	20.3	-	0.086
	ARM B	2.05	21.51	0.095	- - -	0.0	0.1	1.5	-	0.051
	ARM C	11.71	26.70	0.438	- - -	0.0	0.8	11.3	-	0.066

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	19.67	27.86	0.706	- - -	1.4	2.3	33.3	-	0.120
ARM B	2.44	19.83	0.123	- - -	0.1	0.1	2.1	-	0.057
ARM C	13.98	26.51	0.527	- - -	0.8	1.1	16.1	-	0.079

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	24.09	27.74	0.868	- - -	2.3	5.9	76.9	-	0.243
ARM B	2.99	17.62	0.170	- - -	0.1	0.2	3.0	-	0.068
ARM C	17.12	26.24	0.652	- - -	1.1	1.8	26.4	-	0.108

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	24.09	27.74	0.869	- - -	5.9	6.2	91.1	-	0.269
ARM B	2.99	17.50	0.171	- - -	0.2	0.2	3.1	-	0.069
ARM C	17.12	26.24	0.652	- - -	1.8	1.9	27.8	-	0.109

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	19.67	27.86	0.706	- - -	6.2	2.5	40.3	-	0.130
ARM B	2.44	19.66	0.124	- - -	0.2	0.1	2.2	-	0.058
ARM C	13.98	26.51	0.527	- - -	1.9	1.1	17.5	-	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)
17.30-17.45									
ARM A	16.47	27.94	0.590	- - -	2.5	1.5	22.7	-	0.088
ARM B	2.05	21.42	0.095	- - -	0.1	0.1	1.6	-	0.052
ARM C	11.71	26.70	0.438	- - -	1.1	0.8	12.1	-	0.067

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.4	*
16.45	2.3	**
17.00	5.9	******
17.15	6.2	******
17.30	2.5	**
17.45	1.5	*

QUEUE AT ARM B

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	

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.1	*
17.00	1.8	**
17.15	1.9	**
17.30	1.1	*
17.45	0.8	*

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	1807.2	1204.8	284.7	0.16	284.8	0.16
B	224.4	149.6	13.5	0.06	13.5	0.06
C	1284.2	856.1	111.1	0.09	111.1	0.09
ALL	3315.8	2210.5	409.3	0.12	409.4	0.12

* 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

========== end of file ==========

Printed at 13:56:36 on 14/04/2010]

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
21.Gladstone Bridge_Ffordd y Mileniwm\Gladstone Bridge_Ffordd Mileniwm.vai"
(drive-on-the-left) at 13:39:14 on Tuesday, 13 April 2010

FILE PROPERTIES

RUN TITLE: Gladstone Bridge_Ffordd Y Mileniwm
LOCATION:
DATE: 14/07/09
CLIENT:
ENUMERATOR: Roddy.Beynon [WACPC145]
JOB NUMBER: 122374
STATUS: On-going
DESCRIPTION:

INPUT DATA

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

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	3.62	I	7.03	I	9.60	I	32.00	I	37.10	I	4.0	I	0.692	I	29.200	I
I ARM B	I	3.69	I	6.29	I	18.00	I	50.80	I	37.10	I	11.0	I	0.700	I	30.253	I
I ARM C	I	3.84	I	6.98	I	10.20	I	30.10	I	37.10	I	15.0	I	0.680	I	29.254	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

ARM	FLOW SCALE(%)
A	100
B	100
C	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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK TO RISE	FLOW STOPS IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00		19.81	29.72	19.81
ARM B	15.00	45.00	75.00		9.10	13.65	9.10
ARM C	15.00	45.00	75.00		12.29	18.43	12.29

DEMAND SET TITLE: PM 2020 With Development

T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.574	0.426
		0.0	910.0	675.0
		(0.0)	(0.0)	(4.0)
	ARM B	0.676	0.000	0.324
		492.0	0.0	236.0
		(1.0)	(0.0)	(0.0)
	ARM C	0.729	0.271	0.000
		717.0	266.0	0.0
		(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	19.89	26.45	0.752	- - -	0.0	2.9	40.1	-	0.144
ARM B	9.13	23.98	0.381	- - -	0.0	0.6	8.9	-	0.067
ARM C	12.33	23.98	0.514	- - -	0.0	1.0	15.1	-	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)
16.30-16.45									
ARM A	23.75	26.01	0.913	- - -	2.9	8.3	102.8	-	0.342
ARM B	10.91	22.85	0.477	- - -	0.6	0.9	13.2	-	0.083
ARM C	14.73	23.19	0.635	- - -	1.0	1.7	24.5	-	0.117
16.45-17.00									
ARM A	29.09	25.42	1.144	- - -	8.3	65.9	566.5	-	1.627
ARM B	13.36	22.27	0.600	- - -	0.9	1.5	21.2	-	0.111
ARM C	18.04	22.10	0.816	- - -	1.7	4.1	55.0	-	0.228
17.00-17.15									
ARM A	29.09	25.39	1.145	- - -	65.9	121.6	1406.8	-	3.785
ARM B	13.36	22.23	0.601	- - -	1.5	1.5	22.3	-	0.113
ARM C	18.04	22.09	0.817	- - -	4.1	4.3	63.0	-	0.245
17.15-17.30									
ARM A	23.75	25.97	0.914	- - -	121.6	91.4	1597.8	-	4.138
ARM B	10.91	22.11	0.493	- - -	1.5	1.0	15.2	-	0.090
ARM C	14.73	23.16	0.636	- - -	4.3	1.8	28.6	-	0.123
17.30-17.45									
ARM A	19.89	26.43	0.752	- - -	91.4	3.8	671.0	-	1.794
ARM B	9.13	22.12	0.413	- - -	1.0	0.7	10.9	-	0.077
ARM C	12.33	23.96	0.515	- - -	1.8	1.1	16.7	-	0.087

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	2.9	***
16.45	8.3	********
17.00	65.9	**********
17.15	121.6	**********
17.30	91.4	**********
17.45	3.8	****

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.5	*
17.15	1.5	*
17.30	1.0	*
17.45	0.7	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.7	**
17.00	4.1	****
17.15	4.3	****
17.30	1.8	**
17.45	1.1	*

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	2181.6	1454.4	4385.0	2.01	4385.3	2.01
B	1002.0	668.0	91.7	0.09	91.7	0.09
C	1353.0	902.0	202.9	0.15	202.9	0.15
ALL	4536.7	3024.5	4679.6	1.03	4679.9	1.03

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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

========== end of file ==========

Printed at 13:56:16 on 14/04/2010]

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\IssueRevA\21.Gladstone Bridge_Ffordd y Mileniwm\Gladstone Bridge_Ffordd Mileniwm.vai"
(drive-on-the-left) at 13:39:33 on Tuesday, 13 April 2010

FILE PROPERTIES

RUN TITLE: Gladstone Bridge_Ffordd Y Mileniwm
LOCATION:
DATE: 14/07/09
CLIENT:
ENUMERATOR: Roddy.Beynon [WACPC145]
JOB NUMBER: 122374
STATUS: On-going
DESCRIPTION:

INPUT DATA

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

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	3.62	I	7.03	I	9.60	I	32.00	I	37.10	I	4.0	I	0.692	I	29.200	I
I ARM B	I	3.69	I	6.29	I	18.00	I	50.80	I	37.10	I	11.0	I	0.700	I	30.253	I
I ARM C	I	3.84	I	6.98	I	10.20	I	30.10	I	37.10	I	15.0	I	0.680	I	29.254	I

T5

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

ARM	FLOW SCALE(%)
A	100
B	100
C	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+Tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK	NUMBER OF MINUTES FROM START WHEN FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
	TO RISE	IS REACHED	FALLING			
ARM A	15.00	45.00	75.00	21.05	31.57	21.05
ARM B	15.00	45.00	75.00	10.48	15.71	10.48
ARM C	15.00	45.00	75.00	12.29	18.43	12.29

DEMAND SET TITLE: PM 2020 With Development+Tourism

T33

TIME	FROM/TO	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.599	0.401
		0.0	1009.0	675.0
		(0.0)	(0.0)	(4.0)
	ARM B	0.718	0.000	0.282
		602.0	0.0	236.0
		(1.0)	(0.0)	(0.0)
	ARM C	0.729	0.271	0.000
		717.0	266.0	0.0
		(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	21.13	26.48	0.798	- - -	0.0	3.7	50.1	-	0.172
	ARM B	10.51	23.98	0.438	- - -	0.0	0.8	11.2	-	0.074
	ARM C	12.33	23.08	0.534	- - -	0.0	1.1	16.3	-	0.092

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	25.23	26.04	0.969	- - -	3.7	14.2	158.3	-	0.511
ARM B	12.56	22.93	0.548	- - -	0.8	1.2	17.3	-	0.096
ARM C	14.73	22.11	0.666	- - -	1.1	1.9	27.7	-	0.133

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	30.90	25.46	1.214	- - -	14.2	96.9	837.7	-	2.329
ARM B	15.38	22.68	0.678	- - -	1.2	2.1	29.2	-	0.135
ARM C	18.04	20.79	0.868	- - -	1.9	5.7	72.5	-	0.311

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	30.90	25.42	1.216	- - -	96.9	179.2	2070.9	-	5.495
ARM B	15.38	22.67	0.678	- - -	2.1	2.1	31.0	-	0.137
ARM C	18.04	20.76	0.869	- - -	5.7	6.1	88.8	-	0.356

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	25.23	25.98	0.971	- - -	179.2	170.2	2620.3	-	6.735
ARM B	12.56	22.55	0.557	- - -	2.1	1.3	19.9	-	0.101
ARM C	14.73	22.07	0.667	- - -	6.1	2.1	34.3	-	0.146

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	21.13	26.46	0.799	- - -	170.2	92.6	1970.8	-	5.019
ARM B	10.51	22.41	0.469	- - -	1.3	0.9	13.8	-	0.084
ARM C	12.33	23.05	0.535	- - -	2.1	1.2	18.2	-	0.094

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	3.7	****
16.45	14.2	**********
17.00	96.9	**********
17.15	179.2	**********
17.30	170.2	**********
17.45	92.6	**********

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.2	*
17.00	2.1	**
17.15	2.1	**
17.30	1.3	*
17.45	0.9	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.1	*
16.45	1.9	**
17.00	5.7	******
17.15	6.1	******
17.30	2.1	**
17.45	1.2	*

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	2317.9	1545.3	7708.2	3.33	7870.2	3.40
B	1153.4	769.0	122.4	0.11	122.4	0.11
C	1353.0	902.0	257.8	0.19	257.8	0.19
ALL	4824.4	3216.2	8088.4	1.68	8250.5	1.71

* 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

========== end of file ==========

Printed at 13:57:21 on 14/04/2010]

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
21.Gladstone Bridge_Ffordd y Mileniwm\With Improvements\Gladstone Bridge_Ffordd Mileniwm.vai"
(drive-on-the-left) at 13:42:48 on Tuesday, 13 April 2010

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

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

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.70	8.66	30.00	30.00	45.00	11.0	0.765	37.950
ARM B	3.64	7.50	44.00	20.00	45.00	40.0	0.666	32.436
ARM C	3.58	6.57	19.60	20.00	45.00	8.0	0.674	30.380

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

Only sets included in the current run are shown

SCALING FACTORS

T13

ARM	FLOW SCALE(%)
A	100
B	100
C	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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK	NUMBER OF MINUTES FROM START WHEN FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
	TO RISE	IS REACHED	FALLING			
ARM A	15.00	45.00	75.00	19.81	29.72	19.81
ARM B	15.00	45.00	75.00	9.10	13.65	9.10
ARM C	15.00	45.00	75.00	12.29	18.43	12.29

DEMAND SET TITLE: PM 2020 With Development

T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.574	0.426
		0.0	910.0	675.0
		(0.0)	(0.0)	(4.0)
	ARM B	0.676	0.000	0.324
		492.0	0.0	236.0
		(1.0)	(0.0)	(0.0)
	ARM C	0.729	0.271	0.000
		717.0	266.0	0.0
		(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	19.89	34.82	0.571	- -	-	0.0	1.3	19.1	- 0.066
	ARM B	9.13	26.42	0.346	- -	-	0.0	0.5	7.7	- 0.058
	ARM C	12.33	25.09	0.492	- -	-	0.0	1.0	13.9	- 0.078

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	23.75	34.32	0.692	- - -	1.3	2.2	31.6	-	0.094
ARM B	10.91	25.28	0.431	- - -	0.5	0.8	11.0	-	0.069
ARM C	14.73	24.30	0.606	- - -	1.0	1.5	21.8	-	0.104

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	29.09	33.67	0.864	- - -	2.2	5.8	76.6	-	0.198
ARM B	13.36	23.77	0.562	- - -	0.8	1.3	18.3	-	0.095
ARM C	18.04	23.23	0.777	- - -	1.5	3.3	45.3	-	0.185

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	29.09	33.64	0.864	- - -	5.8	6.1	89.3	-	0.216
ARM B	13.36	23.71	0.563	- - -	1.3	1.3	19.1	-	0.097
ARM C	18.04	23.22	0.777	- - -	3.3	3.4	50.3	-	0.192

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	23.75	34.29	0.693	- - -	6.1	2.3	37.1	-	0.100
ARM B	10.91	25.19	0.433	- - -	1.3	0.8	11.9	-	0.070
ARM C	14.73	24.28	0.607	- - -	3.4	1.6	24.8	-	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)
17.30-17.45									
ARM A	19.89	34.80	0.572	- - -	2.3	1.3	20.9	-	0.068
ARM B	9.13	26.38	0.346	- - -	0.8	0.5	8.1	-	0.058
ARM C	12.33	25.07	0.492	- - -	1.6	1.0	15.1	-	0.079

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.3	*
16.45	2.2	**
17.00	5.8	******
17.15	6.1	******
17.30	2.3	**
17.45	1.3	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	*
16.45	0.8	*
17.00	1.3	*
17.15	1.3	*
17.30	0.8	*
17.45	0.5	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.5	**
17.00	3.3	***
17.15	3.4	***
17.30	1.6	**
17.45	1.0	*

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	2181.6	1454.4	274.6	0.13	274.6	0.13
B	1002.0	668.0	76.2	0.08	76.2	0.08
C	1353.0	902.0	171.2	0.13	171.2	0.13
ALL	4536.7	3024.5	521.9	0.12	522.0	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

========== end of file ==========

Printed at 13:58:45 on 14/04/2010]

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
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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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
21.Gladstone Bridge_Ffordd y Mileniwm\With Improvements\Gladstone Bridge_Ffordd Mileniwm.vai"
(drive-on-the-left) at 13:42:23 on Tuesday, 13 April 2010

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

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

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.70	8.66	30.00	30.00	45.00	11.0	0.765	37.950
ARM B	3.64	7.50	44.00	20.00	45.00	40.0	0.666	32.436
ARM C	3.58	6.57	19.60	20.00	45.00	8.0	0.674	30.380

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

Only sets included in the current run are shown

SCALING FACTORS

T13

ARM	FLOW SCALE(%)
A	100
B	100
C	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+Tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK	NUMBER OF MINUTES FROM START WHEN FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
	TO RISE	IS REACHED	FALLING			
ARM A	15.00	45.00	75.00	21.05	31.57	21.05
ARM B	15.00	45.00	75.00	10.48	15.71	10.48
ARM C	15.00	45.00	75.00	12.29	18.43	12.29

DEMAND SET TITLE: PM 2020 With Development+Tourism

T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.599	0.401
		0.0	1009.0	675.0
		(0.0)	(0.0)	(4.0)
	ARM B	0.718	0.000	0.282
		602.0	0.0	236.0
		(1.0)	(0.0)	(0.0)
	ARM C	0.729	0.271	0.000
		717.0	266.0	0.0
		(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	21.13	34.85	0.606	- -	0.0	1.5	21.9	-	0.072
ARM B	10.51	26.41	0.398	- -	0.0	0.7	9.6	-	0.063
ARM C	12.33	24.20	0.510	- -	0.0	1.0	14.8	-	0.083

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	25.23	34.36	0.734	- - -	1.5	2.7	38.3	-	0.108
ARM B	12.56	25.28	0.497	- - -	0.7	1.0	14.3	-	0.078
ARM C	14.73	23.23	0.634	- - -	1.0	1.7	24.3	-	0.116

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	30.90	33.71	0.917	- - -	2.7	8.9	110.8	-	0.280
ARM B	15.38	23.81	0.646	- - -	1.0	1.8	25.5	-	0.117
ARM C	18.04	21.92	0.823	- - -	1.7	4.3	56.9	-	0.237

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	30.90	33.68	0.918	- - -	8.9	9.8	142.0	-	0.338
ARM B	15.38	23.71	0.649	- - -	1.8	1.8	27.1	-	0.120
ARM C	18.04	21.90	0.824	- - -	4.3	4.5	65.7	-	0.257

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	25.23	34.31	0.735	- - -	9.8	2.9	48.9	-	0.122
ARM B	12.56	25.13	0.500	- - -	1.8	1.0	15.7	-	0.080
ARM C	14.73	23.20	0.635	- - -	4.5	1.8	28.6	-	0.123

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	21.13	34.83	0.607	- - -	2.9	1.6	24.3	-	0.074
ARM B	10.51	26.36	0.399	- - -	1.0	0.7	10.3	-	0.063
ARM C	12.33	24.17	0.510	- - -	1.8	1.1	16.4	-	0.085

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.5	**
16.45	2.7	***
17.00	8.9	*********
17.15	9.8	**********
17.30	2.9	***
17.45	1.6	**

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.0	*
17.00	1.8	**
17.15	1.8	**
17.30	1.0	*
17.45	0.7	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.7	**
17.00	4.3	****
17.15	4.5	****
17.30	1.8	**
17.45	1.1	*

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	2317.9	1545.3	386.3	0.17	386.3	0.17
B	1153.4	769.0	102.4	0.09	102.4	0.09
C	1353.0	902.0	206.7	0.15	206.7	0.15
ALL	4824.4	3216.2	695.4	0.14	695.5	0.14

* 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

========== end of file ==========

Printed at 14:00:11 on 14/04/2010]

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
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Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
21.Gladstone Bridge_Ffordd y Mileniwm\With Improvements\Gladstone Bridge_Ffordd Mileniwm.vai"
(drive-on-the-left) at 13:43:07 on Tuesday, 13 April 2010

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

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

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	3.70	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

T5

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

Only sets included in the current run are shown

SCALING FACTORS

T13

ARM	FLOW SCALE(%)
A	100
B	100
C	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: AM 2020 With Development

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	11.24	16.86	11.24
ARM B	15.00	45.00	75.00	10.68	16.01	10.68
ARM C	15.00	45.00	75.00	11.36	17.04	11.36

DEMAND SET TITLE: AM 2020 With Development

T33

TIME	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.459	0.541
		0.0	413.0	486.0
		(0.0)	(2.0)	(8.0)
	ARM B	0.705	0.000	0.295
		602.0	0.0	252.0
		(1.0)	(0.0)	(0.0)
	ARM C	0.789	0.211	0.000
		717.0	192.0	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)
16.15-16.30									
ARM A	11.28	34.32	0.329	- - -	0.0	0.5	7.2	-	0.043
ARM B	10.72	27.87	0.385	- - -	0.0	0.6	9.1	-	0.058
ARM C	11.41	24.30	0.469	- - -	0.0	0.9	12.7	-	0.077

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	13.47	33.97	0.396	- -	0.5	0.7	9.6	-	0.049
ARM B	12.80	27.02	0.474	- -	0.6	0.9	13.1	-	0.070
ARM C	13.62	23.33	0.584	- -	0.9	1.4	20.0	-	0.102

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	16.50	33.52	0.492	- -	0.7	1.0	14.1	-	0.059
ARM B	15.67	25.85	0.606	- -	0.9	1.5	21.9	-	0.097
ARM C	16.68	22.01	0.758	- -	1.4	3.0	41.2	-	0.181

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	16.50	33.50	0.492	- -	1.0	1.0	14.5	-	0.059
ARM B	15.67	25.84	0.606	- -	1.5	1.5	22.8	-	0.098
ARM C	16.68	21.99	0.759	- -	3.0	3.1	45.5	-	0.188

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	13.47	33.95	0.397	- -	1.0	0.7	10.1	-	0.049
ARM B	12.80	27.00	0.474	- -	1.5	0.9	14.0	-	0.071
ARM C	13.62	23.30	0.585	- -	3.1	1.4	22.5	-	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)
17.30-17.45									
ARM A	11.28	34.30	0.329	- -	0.7	0.5	7.5	-	0.044
ARM B	10.72	27.85	0.385	- -	0.9	0.6	9.6	-	0.059
ARM C	11.41	24.27	0.470	- -	1.4	0.9	13.8	-	0.078

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.5	
16.45	0.7	*
17.00	1.0	*
17.15	1.0	*
17.30	0.7	*
17.45	0.5	

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.5	**
17.15	1.5	**
17.30	0.9	*
17.45	0.6	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.9	*
16.45	1.4	*
17.00	3.0	***
17.15	3.1	***
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	1237.4	824.9	63.0	0.05	63.0	0.05
B	1175.5	783.6	90.5	0.08	90.5	0.08
C	1251.2	834.1	155.7	0.12	155.8	0.12
ALL	3664.0	2442.7	309.2	0.08	309.3	0.08

* 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

========== end of file ==========

Printed at 13:58:28 on 14/04/2010]

_____ 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,
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Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
13.Gladstone Rd_Ffordd y Mileniwm\GladstoneRd_Ffordd y Mileniwm Rndbt.vai"
(drive-on-the-left) at 14:34:56 on Wednesday, 7 April 2010

.FILE PROPERTIES
****

RUN TITLE: Gladstone Rd_Ffordd Mileniwm Road Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cardiff Rd (E)
ARM B - Ffordd Mileniwm Rd (W)
ARM C - Cardiff 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	3.65	I	7.30	I	17.10	I	70.60	I	41.00	I	31.3	I	0.672	I	30.282	I
I ARM B	I	3.78	I	7.31	I	23.40	I	10.80	I	41.00	I	37.3	I	0.628	I	29.028	I
I ARM C	I	3.63	I	5.07	I	5.40	I	44.50	I	41.00	I	33.2	I	0.576	I	22.607	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

IARM	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 2008 Base

I		I	NUMBER OF MINUTES FROM START WHEN			I	RATE OF FLOW (VEH/MIN)			I
I	ARM	I	FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	BEFORE I	AT TOP	I	AFTER	I
I		I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I OF PEAK	I	PEAK	I
I ARM	A	I	15.00	I	45.00	I	75.00	I	12.60	I 18.90	I	12.60	I
I ARM	B	I	15.00	I	45.00	I	75.00	I	7.60	I 11.40	I	7.60	I
I ARM	C	I	15.00	I	45.00	I	75.00	I	6.54	I 9.81	I	6.54	I

DEMAND SET TITLE: AM 2008 Base

I	I	TURNING PROPORTIONS	I
I	I	TURNING COUNTS	I
I	I	(PERCENTAGE OF H.V.S)	I

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45				
	ARM A	0.000	0.519	0.481
		0.0	523.0	485.0
		(0.0)	(9.0)	(5.0)
	ARM B	0.831	0.000	0.169
		505.0	0.0	103.0
		(9.0)	(0.0)	(7.0)
	ARM C	0.730	0.270	0.000
		382.0	141.0	0.0
		(4.0)	(9.0)	(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)
08.15-08.30									
ARM A	12.65	27.08	0.467	- -	-	0.0	0.9	12.6	-	0.069
ARM B	7.63	23.04	0.331	- -	-	0.0	0.5	7.2	-	0.065
ARM C	6.56	17.70	0.371	- -	-	0.0	0.6	8.5	-	0.089
08.30-08.45									
ARM A	15.10	26.84	0.563	- -	-	0.9	1.3	18.5	-	0.085
ARM B	9.11	22.31	0.408	- -	-	0.5	0.7	10.0	-	0.076
ARM C	7.84	16.96	0.462	- -	-	0.6	0.8	12.3	-	0.109
08.45-09.00									
ARM A	18.50	26.52	0.698	- -	-	1.3	2.2	31.9	-	0.123
ARM B	11.16	21.34	0.523	- -	-	0.7	1.1	15.7	-	0.098
ARM C	9.60	15.95	0.602	- -	-	0.8	1.5	21.0	-	0.155
09.00-09.15									
ARM A	18.50	26.51	0.698	- -	-	2.2	2.3	34.0	-	0.125
ARM B	11.16	21.32	0.523	- -	-	1.1	1.1	16.3	-	0.098
ARM C	9.60	15.94	0.602	- -	-	1.5	1.5	22.3	-	0.158
09.15-09.30									
ARM A	15.10	26.83	0.563	- -	-	2.3	1.3	20.3	-	0.086
ARM B	9.11	22.29	0.409	- -	-	1.1	0.7	10.7	-	0.076
ARM C	7.84	16.94	0.463	- -	-	1.5	0.9	13.6	-	0.111
09.30-09.45									
ARM A	12.65	27.07	0.467	- -	-	1.3	0.9	13.6	-	0.070
ARM B	7.63	23.02	0.331	- -	-	0.7	0.5	7.6	-	0.065
ARM C	6.56	17.68	0.371	- -	-	0.9	0.6	9.2	-	0.090

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.9	*
08.45	1.3	*
09.00	2.2	**
09.15	2.3	**
09.30	1.3	*
09.45	0.9	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.5	
08.45	0.7	*
09.00	1.1	*
09.15	1.1	*

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
09.30	0.7	*
09.45	0.5	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.6	*
08.45	0.8	*
09.00	1.5	*
09.15	1.5	*
09.30	0.9	*
09.45	0.6	*

.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	1387.4	925.0	131.0	0.09	131.0	0.09
B	836.9	557.9	67.6	0.08	67.6	0.08
C	719.9	479.9	86.8	0.12	86.8	0.12
ALL	2944.2	1962.8	285.4	0.10	285.4	0.10

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
13.Gladstone Rd_Ffordd y Mileniwm\GladstoneRd_Ffordd y Mileniwm Rndbt.vai"
(drive-on-the-left) at 14:35:23 on Wednesday, 7 April 2010

.FILE PROPERTIES
****

RUN TITLE: Gladstone Rd_Ffordd Mileniwm Road Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cardiff Rd (E)
ARM B - Ffordd Mileniwm Rd (W)
ARM C - Cardiff Rd (N)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.30	17.10	70.60	41.00	31.3	0.672	30.282
ARM B	3.78	7.31	23.40	10.80	41.00	37.3	0.628	29.028
ARM C	3.63	5.07	5.40	44.50	41.00	33.2	0.576	22.607

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100

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 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	14.69	22.03	14.69
ARM B	15.00	45.00	75.00	8.88	13.31	8.88
ARM C	15.00	45.00	75.00	7.63	11.44	7.63

DEMAND SET TITLE: AM 2020 Base

T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45				
	ARM A	0.000	0.519	0.481
		0.0	610.0	565.0
		(0.0)	(9.0)	(5.0)
	ARM B	0.830	0.000	0.170
		589.0	0.0	121.0
		(9.0)	(0.0)	(7.0)
	ARM C	0.731	0.269	0.000
		446.0	164.0	0.0
		(4.0)	(9.0)	(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	14.74	26.88	0.548	- -	0.0	1.2	17.3	-	0.081
ARM B	8.91	22.44	0.397	- -	0.0	0.7	9.5	-	0.073
ARM C	7.65	17.08	0.448	- -	0.0	0.8	11.5	-	0.105
08.30-08.45									
ARM A	17.61	26.61	0.662	- -	1.2	1.9	27.5	-	0.110
ARM B	10.64	21.59	0.493	- -	0.7	1.0	14.0	-	0.091
ARM C	9.14	16.21	0.564	- -	0.8	1.3	18.2	-	0.140
08.45-09.00									
ARM A	21.56	26.24	0.822	- -	1.9	4.3	58.0	-	0.201
ARM B	13.03	20.47	0.636	- -	1.0	1.7	24.4	-	0.133
ARM C	11.19	15.05	0.744	- -	1.3	2.7	37.3	-	0.247
09.00-09.15									
ARM A	21.56	26.22	0.822	- -	4.3	4.5	65.8	-	0.213
ARM B	13.03	20.43	0.638	- -	1.7	1.7	25.9	-	0.135
ARM C	11.19	15.02	0.745	- -	2.7	2.8	41.9	-	0.259
09.15-09.30									
ARM A	17.61	26.58	0.662	- -	4.5	2.0	32.0	-	0.115
ARM B	10.64	21.53	0.494	- -	1.7	1.0	15.4	-	0.093
ARM C	9.14	16.18	0.565	- -	2.8	1.3	21.1	-	0.146
09.30-09.45									
ARM A	14.74	26.87	0.549	- -	2.0	1.2	19.1	-	0.083
ARM B	8.91	22.40	0.398	- -	1.0	0.7	10.2	-	0.074
ARM C	7.65	17.05	0.449	- -	1.3	0.8	12.8	-	0.107

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	1.2	*
08.45	1.9	**
09.00	4.3	****
09.15	4.5	****
09.30	2.0	**
09.45	1.2	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.7	*
08.45	1.0	*
09.00	1.7	**
09.15	1.7	**

09.30	1.0	*
09.45	0.7	*

.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	2.8	***
09.30	1.3	*
09.45	0.8	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	1617.3	1078.2	219.7	0.14	219.8	0.14	
B	977.3	651.5	99.4	0.10	99.4	0.10	
C	839.6	559.7	142.8	0.17	142.8	0.17	
ALL	3434.2	2289.5	461.9	0.13	461.9	0.13	

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

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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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
13.Gladstone Rd_Ffordd y Mileniwm\GladstoneRd_Ffordd y Mileniwm Rndbt.vai"
(drive-on-the-left) at 17:47:37 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Gladstone Rd_Ffordd Mileniwm Road Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cardiff Rd (E)
ARM B - Ffordd Mileniwm Rd (W)
ARM C - Cardiff Rd (N)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.30	17.10	70.60	41.00	31.3	0.672	30.282
ARM B	3.78	7.31	23.40	10.80	41.00	37.3	0.628	29.028
ARM C	3.63	5.07	5.40	44.50	41.00	33.2	0.576	22.607

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	16.44	24.66	16.44
ARM B	15.00	45.00	75.00	13.23	19.84	13.23
ARM C	15.00	45.00	75.00	8.35	12.53	8.35

DEMAND SET TITLE: AM 2020 with development

T33

	TURNING PROPORTIONS

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45		TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000	0.570	0.430
		0.0	750.0	565.0
		(0.0)	(9.0)	(5.0)
	ARM B	0.848	0.000	0.152
		897.0	0.0	161.0
		(9.0)	(0.0)	(7.0)
	ARM C	0.668	0.332	0.000
		446.0	222.0	0.0
		(4.0)	(9.0)	(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)
08.15-08.30									
ARM A	16.50	26.34	0.626	- -	-	0.0	1.6	23.4	-	0.099
ARM B	13.28	22.44	0.592	- -	-	0.0	1.4	20.3	-	0.107
ARM C	8.38	14.76	0.568	- -	-	0.0	1.3	18.1	-	0.153
08.30-08.45									
ARM A	19.70	25.98	0.758	- -	-	1.6	3.0	42.1	-	0.154
ARM B	15.85	21.60	0.734	- -	-	1.4	2.7	37.0	-	0.169
ARM C	10.01	13.45	0.744	- -	-	1.3	2.7	36.9	-	0.275
08.45-09.00									
ARM A	24.13	25.66	0.940	- -	-	3.0	10.6	124.6	-	0.413
ARM B	19.41	20.55	0.945	- -	-	2.7	10.4	119.0	-	0.499
ARM C	12.26	11.88	1.032	- -	-	2.7	16.6	161.8	-	1.118
09.00-09.15									
ARM A	24.13	25.61	0.942	- -	-	10.6	12.5	175.1	-	0.550
ARM B	19.41	20.45	0.949	- -	-	10.4	12.8	176.1	-	0.699
ARM C	12.26	11.70	1.048	- -	-	16.6	27.7	334.5	-	2.138
09.15-09.30									
ARM A	19.70	25.60	0.770	- -	-	12.5	3.5	65.6	-	0.208
ARM B	15.85	21.42	0.740	- -	-	12.8	3.0	59.3	-	0.228
ARM C	10.01	13.08	0.765	- -	-	27.7	3.7	167.5	-	1.003
09.30-09.45									
ARM A	16.50	26.29	0.628	- -	-	3.5	1.7	27.1	-	0.105
ARM B	13.28	22.38	0.593	- -	-	3.0	1.5	23.4	-	0.112
ARM C	8.38	14.66	0.572	- -	-	3.7	1.4	22.4	-	0.167

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	1.6	**
08.45	3.0	***
09.00	10.6	**********
09.15	12.5	**********
09.30	3.5	****
09.45	1.7	**

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	1.4	*

08.45	2.7	***
09.00	10.4	**********
09.15	12.8	**********
09.30	3.0	***
09.45	1.5	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	1.3	*
08.45	2.7	***
09.00	16.6	**********
09.15	27.7	**********
09.30	3.7	****
09.45	1.4	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	1810.0	1206.7	458.0	0.25	458.0	0.25	
B	1456.3	970.8	435.0	0.30	435.0	0.30	
C	919.5	613.0	741.0	0.81	741.1	0.81	
ALL	4185.7	2790.5	1634.0	0.39	1634.1	0.39	

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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

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Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
13.Gladstone Rd_Ffordd y Mileniwm\GladstoneRd_Ffordd y Mileniwm Rndbt.vai"
(drive-on-the-left) at 14:35:53 on Wednesday, 7 April 2010

.FILE PROPERTIES
****

RUN TITLE: Gladstone Rd_Ffordd Mileniwm Road Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cardiff Rd (E)
ARM B - Ffordd Mileniwm Rd (W)
ARM C - Cardiff Rd (N)

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.30	17.10	70.60	41.00	31.3	0.672	30.282
ARM B	3.78	7.31	23.40	10.80	41.00	37.3	0.628	29.028
ARM C	3.63	5.07	5.40	44.50	41.00	33.2	0.576	22.607

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

IARM	FLOW SCALE(%)
A	100
B	100
C	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 2008 Base

	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
ARM	FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	14.90	22.35	14.90
ARM B	15.00	45.00	75.00	9.74	14.61	9.74
ARM C	15.00	45.00	75.00	6.44	9.66	6.44

DEMAND SET TITLE: PM 2008 Base
.
TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.553	0.447
		0.0	659.0	533.0
		(0.0)	(5.0)	(1.0)
	ARM B	0.742	0.000	0.258
		578.0	0.0	201.0
		(2.0)	(0.0)	(2.0)
	ARM C	0.792	0.208	0.000
		408.0	107.0	0.0
		(2.0)	(9.0)	(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	14.96	28.39	0.527	- -	-	0.0	1.1	15.9	-	0.074
ARM B	9.77	24.32	0.402	- -	-	0.0	0.7	9.7	-	0.068
ARM C	6.46	17.75	0.364	- -	-	0.0	0.6	8.2	-	0.088
16.30-16.45									
ARM A	17.86	28.20	0.633	- -	-	1.1	1.7	24.5	-	0.096
ARM B	11.67	23.51	0.497	- -	-	0.7	1.0	14.2	-	0.084
ARM C	7.72	16.94	0.455	- -	-	0.6	0.8	12.0	-	0.108
16.45-17.00									
ARM A	21.87	27.95	0.783	- -	-	1.7	3.4	47.6	-	0.159
ARM B	14.29	22.41	0.638	- -	-	1.0	1.7	24.6	-	0.122
ARM C	9.45	15.85	0.596	- -	-	0.8	1.4	20.5	-	0.154
17.00-17.15									
ARM A	21.87	27.95	0.783	- -	-	3.4	3.5	52.3	-	0.164
ARM B	14.29	22.38	0.639	- -	-	1.7	1.7	26.1	-	0.124
ARM C	9.45	15.83	0.597	- -	-	1.4	1.5	21.8	-	0.156
17.15-17.30									
ARM A	17.86	28.20	0.633	- -	-	3.5	1.8	27.7	-	0.099
ARM B	11.67	23.46	0.497	- -	-	1.7	1.0	15.5	-	0.085
ARM C	7.72	16.91	0.456	- -	-	1.5	0.8	13.2	-	0.110
17.30-17.45									
ARM A	14.96	28.38	0.527	- -	-	1.8	1.1	17.4	-	0.075
ARM B	9.77	24.29	0.402	- -	-	1.0	0.7	10.4	-	0.069
ARM C	6.46	17.73	0.365	- -	-	0.8	0.6	8.9	-	0.089

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.1	*
16.45	1.7	**
17.00	3.4	***
17.15	3.5	****
17.30	1.8	**
17.45	1.1	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.0	*
17.00	1.7	**
17.15	1.7	**

17.30	1.0 *
17.45	0.7 *

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.6 *
16.45	0.8 *
17.00	1.4 *
17.15	1.5 *
17.30	0.8 *
17.45	0.6 *

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1640.7	1093.8	185.4	0.11	185.4	0.11
B	1072.2	714.8	100.6	0.09	100.6	0.09
C	708.9	472.6	84.7	0.12	84.7	0.12
ALL	3421.8	2281.2	370.7	0.11	370.7	0.11

T75

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(drive-on-the-left) at 14:36:17 on Wednesday, 7 April 2010

.FILE PROPERTIES
****

RUN TITLE: Gladstone Rd_Ffordd Mileniwm Road Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cardiff Rd (E)
ARM B - Ffordd Mileniwm Rd (W)
ARM C - Cardiff Rd (N)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.30	17.10	70.60	41.00	31.3	0.672	30.282
ARM B	3.78	7.31	23.40	10.80	41.00	37.3	0.628	29.028
ARM C	3.63	5.07	5.40	44.50	41.00	33.2	0.576	22.607

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

IARM	FLOW SCALE(%)
A	100
B	100
C	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 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS IS REACHED	TO RISE	FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00			17.33	25.99	17.33
ARM B	15.00	45.00	75.00			11.32	16.99	11.32
ARM C	15.00	45.00	75.00			7.47	11.21	7.47

DEMAND SET TITLE: PM 2020 Base

T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.553	0.447
		0.0	767.0	619.0
		(0.0)	(5.0)	(1.0)
	ARM B	0.742	0.000	0.258
		672.0	0.0	234.0
		(2.0)	(0.0)	(2.0)
	ARM C	0.793	0.207	0.000
		474.0	124.0	0.0
		(2.0)	(9.0)	(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	17.39	28.24	0.616	- -	-	0.0	1.6	22.6	-	0.090
ARM B	11.37	23.66	0.480	- -	-	0.0	0.9	13.2	-	0.080
ARM C	7.50	17.09	0.439	- -	-	0.0	0.8	11.1	-	0.103
16.30-16.45									
ARM A	20.77	28.02	0.741	- -	-	1.6	2.8	39.0	-	0.135
ARM B	13.57	22.72	0.598	- -	-	0.9	1.5	21.0	-	0.109
ARM C	8.96	16.15	0.555	- -	-	0.8	1.2	17.6	-	0.138
16.45-17.00									
ARM A	25.43	27.74	0.917	- -	-	2.8	8.7	106.6	-	0.331
ARM B	16.63	21.51	0.773	- -	-	1.5	3.2	44.2	-	0.196
ARM C	10.97	14.90	0.736	- -	-	1.2	2.6	36.0	-	0.243
17.00-17.15									
ARM A	25.43	27.73	0.917	- -	-	8.7	9.6	138.5	-	0.401
ARM B	16.63	21.42	0.776	- -	-	3.2	3.4	49.6	-	0.207
ARM C	10.97	14.86	0.739	- -	-	2.6	2.7	40.4	-	0.256
17.15-17.30									
ARM A	20.77	28.01	0.741	- -	-	9.6	3.0	51.6	-	0.156
ARM B	13.57	22.57	0.601	- -	-	3.4	1.5	24.3	-	0.114
ARM C	8.96	16.09	0.557	- -	-	2.7	1.3	20.4	-	0.144
17.30-17.45									
ARM A	17.39	28.23	0.616	- -	-	3.0	1.6	25.5	-	0.094
ARM B	11.37	23.61	0.482	- -	-	1.5	0.9	14.5	-	0.082
ARM C	7.50	17.05	0.440	- -	-	1.3	0.8	12.4	-	0.105

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.6	**
16.45	2.8	***
17.00	8.7	*********
17.15	9.6	**********
17.30	3.0	***
17.45	1.6	**

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.9	*
16.45	1.5	*
17.00	3.2	***
17.15	3.4	***

17.30	1.5	**
17.45	0.9	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.2	*
17.00	2.6	***
17.15	2.7	***
17.30	1.3	*
17.45	0.8	*

.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	1907.7	1271.8	383.9	0.20	383.9	0.20
B	1247.0	831.4	166.9	0.13	166.9	0.13
C	823.1	548.7	137.9	0.17	137.9	0.17
ALL	3977.9	2651.9	688.6	0.17	688.7	0.17

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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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Nine Mile Ride Email: software@trl.co.uk
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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
13.Gladstone Rd_Ffordd y Mileniwm\GladstoneRd_Ffordd y Mileniwm Rndbt.vai"
(drive-on-the-left) at 17:48:05 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Gladstone Rd_Ffordd Mileniwm Road Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cardiff Rd (E)
ARM B - Ffordd Mileniwm Rd (W)
ARM C - Cardiff Rd (N)

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.30	17.10	70.60	41.00	31.3	0.672	30.282
ARM B	3.78	7.31	23.40	10.80	41.00	37.3	0.628	29.028
ARM C	3.63	5.07	5.40	44.50	41.00	33.2	0.576	22.607

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

IARM	FLOW SCALE(%)
A	100
B	100
C	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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK	NUMBER OF MINUTES FROM START WHEN FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
	TO RISE	IS REACHED	FALLING			
ARM A	15.00	45.00	75.00	21.36	32.04	21.36
ARM B	15.00	45.00	75.00	14.70	22.05	14.70
ARM C	15.00	45.00	75.00	8.01	12.02	8.01

DEMAND SET TITLE: PM 2020 with development

	TURNING PROPORTIONS

TIME	FROM/TO	TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.638	0.362
		0.0	1090.0	619.0
		(0.0)%	(5.0)%	(1.0)%
	ARM B	0.735	0.000	0.265
		864.0	0.0	312.0
		(2.0)%	(0.0)%	(2.0)%
	ARM C	0.739	0.261	0.000
		474.0	167.0	0.0
		(2.0)%	(9.0)%	(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	21.44	27.77	0.772	- -	-	0.0	3.2	44.3	-	0.148
ARM B	14.76	23.68	0.623	- -	-	0.0	1.6	23.0	-	0.109
ARM C	8.04	15.69	0.513	- -	-	0.0	1.0	14.7	-	0.129
16.30-16.45									
ARM A	25.61	27.48	0.932	- -	-	3.2	9.9	119.6	-	0.374
ARM B	17.62	22.80	0.773	- -	-	1.6	3.2	44.6	-	0.185
ARM C	9.60	14.50	0.662	- -	-	1.0	1.9	26.5	-	0.199
16.45-17.00									
ARM A	31.36	27.13	1.156	- -	-	9.9	75.5	649.1	-	1.732
ARM B	21.58	22.38	0.964	- -	-	3.2	12.8	142.6	-	0.539
ARM C	11.76	13.07	0.900	- -	-	1.9	6.6	78.3	-	0.538
17.00-17.15									
ARM A	31.36	27.09	1.158	- -	-	75.5	139.8	1615.2	-	4.068
ARM B	21.58	22.36	0.965	- -	-	12.8	16.0	219.0	-	0.783
ARM C	11.76	12.89	0.912	- -	-	6.6	8.0	111.0	-	0.728
17.15-17.30									
ARM A	25.61	27.40	0.934	- -	-	139.8	115.7	1916.5	-	4.694
ARM B	17.62	22.33	0.789	- -	-	16.0	4.0	84.7	-	0.300
ARM C	9.60	14.12	0.680	- -	-	8.0	2.2	41.0	-	0.262
17.30-17.45									
ARM A	21.44	27.75	0.773	- -	-	115.7	24.8	1053.8	-	2.607
ARM B	14.76	22.27	0.663	- -	-	4.0	2.0	32.1	-	0.138
ARM C	8.04	15.59	0.516	- -	-	2.2	1.1	17.1	-	0.135

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	3.2	***
16.45	9.9	**********
17.00	75.5	**********
17.15	139.8	**********
17.30	115.7	**********
17.45	24.8	**********

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.6	**

16.45	3.2	***
17.00	12.8	*************
17.15	16.0	****************
17.30	4.0	****
17.45	2.0	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.9	**
17.00	6.6	*******
17.15	8.0	********
17.30	2.2	**
17.45	1.1	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	2352.3	1568.2	5398.6	2.30	5409.6	2.30	
B	1618.7	1079.1	546.0	0.34	546.1	0.34	
C	882.3	588.2	288.7	0.33	288.7	0.33	
ALL	4853.3	3235.5	6233.3	1.28	6244.5	1.29	

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\13.Gladstone Rd_Ffordd y Mileniwm\GladstoneRd_Ffordd y Mileniwm Rndbt.vai"
(drive-on-the-left) at 17:48:29 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Gladstone Rd_Ffordd Mileniwm Road Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cardiff Rd (E)
ARM B - Ffordd Mileniwm Rd (W)
ARM C - Cardiff Rd (N)

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.30	17.10	70.60	41.00	31.3	0.672	30.282
ARM B	3.78	7.31	23.40	10.80	41.00	37.3	0.628	29.028
ARM C	3.63	5.07	5.40	44.50	41.00	33.2	0.576	22.607

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

IARM	FLOW SCALE(%)
A	100
B	100
C	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 + tourism

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	22.61	33.92	22.61
ARM B	15.00	45.00	75.00	16.06	24.09	16.06
ARM C	15.00	45.00	75.00	8.01	12.02	8.01

DEMAND SET TITLE: PM 2020 with development + tourism

TURNING PROPORTIONS

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.658	0.342
		0.0	1190.0	619.0
		(0.0)	(5.0)	(1.0)
	ARM B	0.757	0.000	0.243
		973.0	0.0	312.0
		(2.0)	(0.0)	(2.0)
	ARM C	0.739	0.261	0.000
		474.0	167.0	0.0
		(2.0)	(9.0)	(0.0)

TURNING COUNTS (PERCENTAGE OF H.V.S)

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	22.70	27.75	0.818	- -	-	0.0	4.2	55.9	-	0.179
ARM B	16.12	23.69	0.681	- -	-	0.0	2.1	29.1	-	0.128
ARM C	8.04	14.93	0.539	- -	-	0.0	1.1	16.2	-	0.142
16.30-16.45									
ARM A	27.10	27.47	0.987	- -	-	4.2	17.6	188.3	-	0.570
ARM B	19.25	22.89	0.841	- -	-	2.1	4.8	63.6	-	0.251
ARM C	9.60	13.61	0.706	- -	-	1.1	2.3	31.4	-	0.241
16.45-17.00									
ARM A	33.20	27.14	1.223	- -	-	17.6	109.2	954.7	-	2.470
ARM B	23.58	22.70	1.039	- -	-	4.8	27.1	259.0	-	0.911
ARM C	11.76	12.31	0.956	- -	-	2.3	9.6	105.9	-	0.750
17.00-17.15									
ARM A	33.20	27.10	1.225	- -	-	109.2	200.8	2325.3	-	5.788
ARM B	23.58	22.70	1.039	- -	-	27.1	43.3	529.7	-	1.723
ARM C	11.76	12.14	0.969	- -	-	9.6	13.2	174.0	-	1.168
17.15-17.30									
ARM A	27.10	27.34	0.992	- -	-	200.8	197.6	2987.2	-	7.335
ARM B	19.25	22.65	0.850	- -	-	43.3	7.2	334.2	-	1.125
ARM C	9.60	12.50	0.768	- -	-	13.2	3.7	80.7	-	0.529
17.30-17.45									
ARM A	22.70	27.71	0.819	- -	-	197.6	124.5	2415.7	-	5.856
ARM B	16.12	22.60	0.714	- -	-	7.2	2.6	43.6	-	0.170
ARM C	8.04	14.73	0.546	- -	-	3.7	1.2	20.1	-	0.157

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	4.2	****
16.45	17.6	******************
17.00	109.2	**********
17.15	200.8	**********
17.30	197.6	**********
17.45	124.5	**********

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	2.1	**

16.45	4.8	*****
17.00	27.1	**************************
17.15	43.3	**
17.30	7.2	*******
17.45	2.6	***

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.1	*
16.45	2.3	**
17.00	9.6	**********
17.15	13.2	**************
17.30	3.7	****
17.45	1.2	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	2490.0	1660.0	8927.1	3.59	9206.8	3.70	
B	1768.7	1179.1	1259.1	0.71	1259.3	0.71	
C	882.3	588.2	428.3	0.49	428.3	0.49	
ALL	5141.0	3427.3	10614.5	2.06	10894.4	2.12	

* 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.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
13.Gladstone Rd_Ffordd y Mileniwm\GladstoneRd_Ffordd y Mileniwm Rndbt.vai"
(drive-on-the-left) at 11:59:35 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Gladstone Rd_Ffordd Mileniwm Road Roundabout
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Cardiff Rd (E)
ARM B - Ffordd Mileniwm Rd (W)
ARM C - Cardiff Rd (N)

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.65	7.30	17.10	70.60	41.00	31.3	0.672	30.282
ARM B	3.78	7.31	23.40	10.80	41.00	37.3	0.628	29.028
ARM C	3.63	5.07	5.40	44.50	41.00	33.2	0.576	22.607

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

IARM	FLOW SCALE(%)
A	100
B	100
C	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 Base +tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	18.56	27.84	18.56
ARM B	15.00	45.00	75.00	12.70	19.05	12.70
ARM C	15.00	45.00	75.00	7.47	11.21	7.47

DEMAND SET TITLE: PM 2020 Base +tourism
.---------- T33

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.583	0.417
		0.0	866.0	619.0
		(0.0)	(5.0)	(1.0)
	ARM B	0.770	0.000	0.230
		782.0	0.0	234.0
		(2.0)	(0.0)	(2.0)
	ARM C	0.793	0.207	0.000
		474.0	124.0	0.0
		(2.0)	(9.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	18.63	28.21	0.661	- -	0.0	1.9	27.0	-	0.102
ARM B	12.75	23.66	0.539	- -	0.0	1.2	16.6	-	0.090
ARM C	7.50	16.32	0.460	- -	0.0	0.8	12.0	-	0.112
16.30-16.45									
ARM A	22.25	27.99	0.795	- -	1.9	3.7	50.8	-	0.167
ARM B	15.22	22.73	0.670	- -	1.2	2.0	28.2	-	0.131
ARM C	8.96	15.22	0.589	- -	0.8	1.4	19.9	-	0.158
16.45-17.00									
ARM A	27.25	27.71	0.983	- -	3.7	16.9	181.2	-	0.542
ARM B	18.64	21.63	0.862	- -	2.0	5.5	70.7	-	0.292
ARM C	10.97	13.81	0.795	- -	1.4	3.5	46.3	-	0.322
17.00-17.15									
ARM A	27.25	27.69	0.984	- -	16.9	22.4	298.7	-	0.846
ARM B	18.64	21.49	0.867	- -	5.5	6.0	86.8	-	0.338
ARM C	10.97	13.72	0.800	- -	3.5	3.8	54.9	-	0.357
17.15-17.30									
ARM A	22.25	27.97	0.796	- -	22.4	4.1	102.5	-	0.276
ARM B	15.22	22.38	0.680	- -	6.0	2.2	36.2	-	0.150
ARM C	8.96	15.09	0.594	- -	3.8	1.5	24.4	-	0.171
17.30-17.45									
ARM A	18.63	28.20	0.661	- -	4.1	2.0	31.5	-	0.108
ARM B	12.75	23.59	0.540	- -	2.2	1.2	18.6	-	0.093
ARM C	7.50	16.25	0.462	- -	1.5	0.9	13.6	-	0.115

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.9	**
16.45	3.7	****
17.00	16.9	******************
17.15	22.4	**********************
17.30	4.1	****
17.45	2.0	**

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

16.30	1.2	*
16.45	2.0	**
17.00	5.5	*****
17.15	6.0	******
17.30	2.2	**
17.45	1.2	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.4	*
17.00	3.5	****
17.15	3.8	****
17.30	1.5	*
17.45	0.9	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	2044.0	1362.7	691.8	0.34	691.8	0.34	
B	1398.4	932.3	257.0	0.18	257.0	0.18	
C	823.1	548.7	171.2	0.21	171.2	0.21	
ALL	4265.5	2843.7	1120.0	0.26	1120.1	0.26	

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

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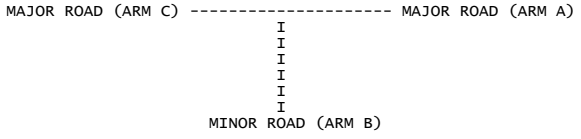
Run with file:-
"\\Global\Europe\Cardiff\Jobs\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\
Junction Assessments\IssueRevA\15.Vere St_Gladstone Rise\Gladstone Rd_Holton Rd Priority\
Gladstone_Holton Road Priority.vpi"
(drive-on-the-left) at 16:02:32 on Tuesday, 6 April 2010

.RUN INFORMATION

RUN TITLE	: Gladstone Road / Holton Road Priority
LOCATION	:
DATE	: 06/04/10
CLIENT	:
ENUMERATOR	: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER	:
STATUS	:
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Roundabout (E)
ARM B IS Holton Rd (W)
ARM C IS Gladstone Road (N)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 3.36 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 25.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 30.0 M.
- VISIBILITY TO RIGHT	(VB-A) 28.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	9.29 M.
WIDTH AT 5 M FROM JUNCTION	4.70 M.
WIDTH AT 10 M FROM JUNCTION	3.80 M.
WIDTH AT 15 M FROM JUNCTION	4.00 M.
WIDTH AT 20 M FROM JUNCTION	4.80 M.
- LENGTH OF FLARED SECTION	1 VEHS

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For Slope For Opposing STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
588.44	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: AM 2008 Base

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.29	10.93	7.29
ARM B	15.00	45.00	75.00	2.13	3.19	2.13
ARM C	15.00	45.00	75.00	5.45	8.17	5.45

.Demand set: AM 2008 Base

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 08.30	ARM A	0.000	0.432	0.568
		0.0	252.0	331.0
		(0.0)	(4.0)	(4.0)
	ARM B	0.924	0.000	0.076
		157.0	0.0	13.0
		(3.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		436.0	0.0	0.0
		(5.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2008 Base
AND FOR TIME PERIOD 1

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									
B-C	0.16	8.05	0.020		0.00	0.02	0.3		0.13
B-A	1.97	7.70	0.256		0.00	0.34	4.8		0.17
C-A	5.47								
C-B	0.00	7.43	0.000		0.00	0.00	0.0		0.00
A-B	3.16								
A-C	4.15								

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)
08.30-08.45									
B-C	0.19	7.55	0.026		0.02	0.03	0.4		0.14
B-A	2.35	7.27	0.324		0.34	0.47	6.8		0.20
C-A	6.53								
C-B	0.00	7.14	0.000		0.00	0.00	0.0		0.00
A-B	3.78								
A-C	4.96								

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)
08.45-09.00									
B-C	0.24	6.71	0.036		0.03	0.04	0.5		0.15
B-A	2.88	6.67	0.432		0.47	0.74	10.5		0.26
C-A	8.00								
C-B	0.00	6.74	0.000		0.00	0.00	0.0		0.00
A-B	4.62								
A-C	6.07								

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)
09.00-09.15									
B-C	0.24	6.70	0.036		0.04	0.04	0.5		0.15
B-A	2.88	6.67	0.432		0.74	0.75	11.2		0.26
C-A	8.00								
C-B	0.00	6.74	0.000		0.00	0.00	0.0		0.00
A-B	4.62								
A-C	6.07								

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)
09.15-09.30									
B-C	0.19	7.54	0.026		0.04	0.03	0.4		0.14
B-A	2.35	7.27	0.324		0.75	0.49	7.7		0.20
C-A	6.53								
C-B	0.00	7.14	0.000		0.00	0.00	0.0		0.00
A-B	3.78								
A-C	4.96								

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)
09.30-09.45									
B-C	0.16	8.04	0.020		0.03	0.02	0.3		0.13
B-A	1.97	7.70	0.256		0.49	0.35	5.4		0.18
C-A	5.47								
C-B	0.00	7.43	0.000		0.00	0.00	0.0		0.00
A-B	3.16								
A-C	4.15								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.0	
08.45	0.0	
09.00	0.0	
09.15	0.0	
09.30	0.0	
09.45	0.0	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.3	
08.45	0.5	
09.00	0.7	*
09.15	0.7	*
09.30	0.5	
09.45	0.3	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	17.9	11.9	2.5	0.14	2.5	0.14
B-A	216.1	144.1	46.4	0.21	46.4	0.21
C-A	600.1	400.1				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	346.9	231.2				
A-C	455.6	303.7				
ALL	1636.6	1091.0	48.9	0.03	48.9	0.03

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
588.44	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2008 Base

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	9.14	13.71	9.14
ARM B	15.00	45.00	75.00	2.47	3.71	2.47
ARM C	15.00	45.00	75.00	4.44	6.66	4.44

.Demand set: PM 2008 Base

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30				
	ARM A	0.000	0.398	0.602
		0.0	291.0	440.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.919	0.000	0.081
		182.0	0.0	16.0
		(1.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		355.0	0.0	0.0
		(2.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2008 Base
AND FOR TIME PERIOD 2

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									
B-C	0.20	7.63	0.026		0.00	0.03	0.4		0.13
B-A	2.28	7.69	0.297		0.00	0.42	5.9		0.18
C-A	4.45								
C-B	0.00	7.11	0.000		0.00	0.00	0.0		0.00
A-B	3.65								
A-C	5.52								

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									
B-C	0.24	6.99	0.034		0.03	0.04	0.5		0.15
B-A	2.73	7.22	0.378		0.42	0.59	8.5		0.22
C-A	5.32								
C-B	0.00	6.76	0.000		0.00	0.00	0.0		0.00
A-B	4.36								
A-C	6.59								

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									
B-C	0.29	5.88	0.050		0.04	0.05	0.8		0.18

I B-A	3.34	6.56	0.509	0.59	1.00	14.0	0.31	I
I C-A	6.51							I
I C-B	0.00	6.28	0.000	0.00	0.00	0.0	0.00	I
I A-B	5.34							I
I A-C	8.07							I
I								I

I 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)	I
I 17.00-17.15										I
I B-C	0.29	5.86	0.050		0.05	0.05	0.8		0.18	I
I B-A	3.34	6.56	0.509		1.00	1.02	15.1		0.31	I
I C-A	6.51									I
I C-B	0.00	6.28	0.000		0.00	0.00	0.0		0.00	I
I A-B	5.34									I
I A-C	8.07									I
I										I

I 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)	I
I 17.15-17.30										I
I B-C	0.24	6.96	0.034		0.05	0.04	0.6		0.15	I
I B-A	2.73	7.22	0.378		1.02	0.62	9.8		0.23	I
I C-A	5.32									I
I C-B	0.00	6.76	0.000		0.00	0.00	0.0		0.00	I
I A-B	4.36									I
I A-C	6.59									I
I										I

I 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)	I
I 17.30-17.45										I
I B-C	0.20	7.60	0.026		0.04	0.03	0.4		0.14	I
I B-A	2.28	7.69	0.297		0.62	0.43	6.7		0.19	I
I C-A	4.45									I
I C-B	0.00	7.11	0.000		0.00	0.00	0.0		0.00	I
I A-B	3.65									I
I A-C	5.52									I
I										I

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.0	
16.45	0.0	
17.00	0.1	
17.15	0.1	
17.30	0.0	
17.45	0.0	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.6	*
17.00	1.0	*
17.15	1.0	*
17.30	0.6	*
17.45	0.4	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM I	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)	I
I B-C	22.0	14.7	3.4	0.16	3.4	0.16	I
I B-A	250.5	167.0	60.1	0.24	60.1	0.24	I
I C-A	488.6	325.8					I
I C-B	0.0	0.0	0.0	0.00	0.0	0.00	I
I A-B	400.5	267.0					I
I A-C	605.6	403.8					I
I ALL	1767.3	1178.2	63.5	0.04	63.5	0.04	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 RUN*******

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE BUREAU
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: Software@trl.co.uk

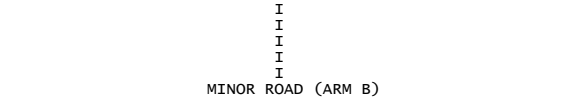
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
15.Vere St_Gladstone Rise\Gladstone Rd_Holton Rd Priority\Gladstone_Holton Road Priority.vpi"
(drive-on-the-left) at 09:05:45 on Tuesday, 13 April 2010

.RUN INFORMATION

RUN TITLE : Gladstone Road / Holton Road Priority
LOCATION :
DATE : 06/04/10
CLIENT :
ENUMERATOR : Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER :
STATUS :
DESCRIPTION :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Roundabout (E)
ARM B IS Holton Rd (W)
ARM C IS Gladstone Road (N)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 3.36 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 25.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 30.0 M.
- VISIBILITY TO RIGHT	(VB-A) 28.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	9.29 M.
WIDTH AT 5 M FROM JUNCTION	4.70 M.
WIDTH AT 10 M FROM JUNCTION	3.80 M.
WIDTH AT 15 M FROM JUNCTION	4.00 M.
WIDTH AT 20 M FROM JUNCTION	4.80 M.
- LENGTH OF FLARED SECTION	1 VEHS

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
588.44	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: AM 2020 Base

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	8.48	12.71	8.48
ARM B	15.00	45.00	75.00	2.47	3.71	2.47
ARM C	15.00	45.00	75.00	6.35	9.52	6.35

.Demand set: AM 2020 Base

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 08.30				
	ARM A	0.000	0.432	0.568
		0.0	293.0	385.0
		(0.0)	(4.0)	(4.0)
	ARM B	0.924	0.000	0.076
		183.0	0.0	15.0
		(3.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		508.0	0.0	0.0
		(5.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2020 Base
AND FOR TIME PERIOD 1

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									
B-C	0.19	7.64	0.025		0.00	0.03	0.4		0.13
B-A	2.30	7.34	0.313		0.00	0.45	6.3		0.20
C-A	6.37								
C-B	0.00	7.19	0.000		0.00	0.00	0.0		0.00
A-B	3.68								
A-C	4.83								

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)
08.30-08.45									
B-C	0.22	6.96	0.032		0.03	0.03	0.5		0.15
B-A	2.74	6.83	0.401		0.45	0.65	9.4		0.24
C-A	7.61								
C-B	0.00	6.85	0.000		0.00	0.00	0.0		0.00
A-B	4.39								
A-C	5.77								

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)
08.45-09.00									
B-C	0.28	5.70	0.048		0.03	0.05	0.7		0.18
B-A	3.36	6.14	0.547		0.65	1.15	16.0		0.35
C-A	9.32								
C-B	0.00	6.39	0.000		0.00	0.00	0.0		0.00
A-B	5.38								
A-C	7.06								

TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY

	(VEH/MIN)	(VEH/MIN)	CAPACITY (RFC)	FLOW (PEDS/MIN)	QUEUE (VEHS)	QUEUE (VEHS)	(VEH.MIN/ TIME SEGMENT)	(VEH.MIN/ TIME SEGMENT)	PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.28	5.66	0.049		0.05	0.05	0.8		0.19
B-A	3.36	6.14	0.547		1.15	1.18	17.5		0.36
C-A	9.32								
C-B	0.00	6.39	0.000		0.00	0.00	0.0		0.00
A-B	5.38								
A-C	7.06								

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)
09.15-09.30									
B-C	0.22	6.92	0.032		0.05	0.03	0.5		0.15
B-A	2.74	6.83	0.401		1.18	0.69	10.9		0.25
C-A	7.61								
C-B	0.00	6.85	0.000		0.00	0.00	0.0		0.00
A-B	4.39								
A-C	5.77								

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)
09.30-09.45									
B-C	0.19	7.62	0.025		0.03	0.03	0.4		0.13
B-A	2.30	7.34	0.313		0.69	0.46	7.3		0.20
C-A	6.37								
C-B	0.00	7.19	0.000		0.00	0.00	0.0		0.00
A-B	3.68								
A-C	4.83								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.0	
08.45	0.0	
09.00	0.1	
09.15	0.1	
09.30	0.0	
09.45	0.0	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.4	
08.45	0.7	*
09.00	1.2	*
09.15	1.2	*
09.30	0.7	*
09.45	0.5	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	20.6	13.8	3.2	0.16	3.2	0.16
B-A	251.9	167.9	67.4	0.27	67.4	0.27
C-A	699.2	466.1				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	403.3	268.9				
A-C	529.9	353.3				
ALL	1905.0	1270.0	70.7	0.04	70.7	0.04

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
588.44	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 Base

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	10.64	15.96	10.64
ARM B	15.00	45.00	75.00	2.88	4.31	2.88
ARM C	15.00	45.00	75.00	5.16	7.74	5.16

.Demand set: PM 2020 Base

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.398	0.602
		0.0	339.0	512.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.917	0.000	0.083
		211.0	0.0	19.0
		(1.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		413.0	0.0	0.0
		(2.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 Base
AND FOR TIME PERIOD 2

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									
B-C	0.24	7.12	0.033		0.00	0.03	0.5		0.15
B-A	2.65	7.29	0.363		0.00	0.56	7.9		0.21
C-A	5.18								
C-B	0.00	6.82	0.000		0.00	0.00	0.0		0.00
A-B	4.25								
A-C	6.42								

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									
B-C	0.28	6.23	0.046		0.03	0.05	0.7		0.17
B-A	3.16	6.74	0.469		0.56	0.86	12.1		0.28
C-A	6.19								
C-B	0.00	6.41	0.000		0.00	0.00	0.0		0.00
A-B	5.08								
A-C	7.67								

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									
B-C	0.35	4.54	0.077		0.05	0.08	1.2		0.24
B-A	3.87	5.98	0.648		0.86	1.70	23.0		0.45

I C-A	7.58								I
I C-B	0.00	5.84	0.000		0.00	0.00	0.0	0.00	I
I A-B	6.22								I
I A-C	9.40								I
I									I

I 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) I
I 17.00-17.15									I
I B-C	0.35	4.45	0.078		0.08	0.08	1.2		0.24 I
I B-A	3.87	5.98	0.648		1.70	1.76	26.1		0.47 I
I C-A	7.58								I
I C-B	0.00	5.84	0.000		0.00	0.00	0.0		0.00 I
I A-B	6.22								I
I A-C	9.40								I
I									I

I 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) I
I 17.15-17.30									I
I B-C	0.28	6.16	0.046		0.08	0.05	0.8		0.17 I
I B-A	3.16	6.74	0.469		1.76	0.91	14.7		0.29 I
I C-A	6.19								I
I C-B	0.00	6.41	0.000		0.00	0.00	0.0		0.00 I
I A-B	5.08								I
I A-C	7.67								I
I									I

I 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) I
I 17.30-17.45									I
I B-C	0.24	7.08	0.034		0.05	0.04	0.5		0.15 I
I B-A	2.65	7.29	0.363		0.91	0.58	9.2		0.22 I
I C-A	5.18								I
I C-B	0.00	6.82	0.000		0.00	0.00	0.0		0.00 I
I A-B	4.25								I
I A-C	6.42								I
I									I

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.0	
16.45	0.0	
17.00	0.1	
17.15	0.1	
17.30	0.0	
17.45	0.0	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.7	**
17.15	1.8	**
17.30	0.9	*
17.45	0.6	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM I	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		I
I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	I
I B-C	26.2	17.4	4.9	0.19	4.9	0.19	I
I B-A	290.4	193.6	92.9	0.32	93.0	0.32	I
I C-A	568.5	379.0					I
I C-B	0.0	0.0	0.0	0.00	0.0	0.00	I
I A-B	466.6	311.1					I
I A-C	704.7	469.8					I
I ALL	2056.4	1370.9	97.9	0.05	97.9	0.05	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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
588.44	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 Base+tourism

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	10.64	15.96	10.64
ARM B	15.00	45.00	75.00	2.88	4.31	2.88
ARM C	15.00	45.00	75.00	5.16	7.74	5.16

.Demand set: PM 2020 Base+tourism

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30				
	ARM A	0.000	0.398	0.602
		0.0	339.0	512.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.917	0.000	0.083
		211.0	0.0	19.0
		(1.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		413.0	0.0	0.0
		(2.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 Base+tourism
AND FOR TIME PERIOD 2

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									
B-C	0.24	7.12	0.033		0.00	0.03	0.5		0.15
B-A	2.65	7.29	0.363		0.00	0.56	7.9		0.21
C-A	5.18								
C-B	0.00	6.82	0.000		0.00	0.00	0.0		0.00
A-B	4.25								
A-C	6.42								

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									
B-C	0.28	6.23	0.046		0.03	0.05	0.7		0.17
B-A	3.16	6.74	0.469		0.56	0.86	12.1		0.28
C-A	6.19								
C-B	0.00	6.41	0.000		0.00	0.00	0.0		0.00
A-B	5.08								
A-C	7.67								

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									
B-C	0.35	4.54	0.077		0.05	0.08	1.2		0.24
B-A	3.87	5.98	0.648		0.86	1.70	23.0		0.45
C-A	7.58								
C-B	0.00	5.84	0.000		0.00	0.00	0.0		0.00
A-B	6.22								
A-C	9.40								

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									
B-C	0.35	4.45	0.078		0.08	0.08	1.2		0.24
B-A	3.87	5.98	0.648		1.70	1.76	26.1		0.47
C-A	7.58								
C-B	0.00	5.84	0.000		0.00	0.00	0.0		0.00
A-B	6.22								
A-C	9.40								

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									
B-C	0.28	6.16	0.046		0.08	0.05	0.8		0.17
B-A	3.16	6.74	0.469		1.76	0.91	14.7		0.29
C-A	6.19								
C-B	0.00	6.41	0.000		0.00	0.00	0.0		0.00
A-B	5.08								
A-C	7.67								

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									
B-C	0.24	7.08	0.034		0.05	0.04	0.5		0.15
B-A	2.65	7.29	0.363		0.91	0.58	9.2		0.22
C-A	5.18								
C-B	0.00	6.82	0.000		0.00	0.00	0.0		0.00
A-B	4.25								
A-C	6.42								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.0	
16.45	0.0	
17.00	0.1	
17.15	0.1	
17.30	0.0	
17.45	0.0	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.7	**
17.15	1.8	**
17.30	0.9	*
17.45	0.6	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	26.2	17.4	4.9	0.19	4.9	0.19
B-A	290.4	193.6	92.9	0.32	93.0	0.32
C-A	568.5	379.0				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	466.6	311.1				
A-C	704.7	469.8				
ALL	2056.4	1370.9	97.9	0.05	97.9	0.05

* 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 RUN*******

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

FOR SALES AND DISTRIBUTION INFORMATION,
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TRL SOFTWARE BUREAU
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: Software@trl.co.uk

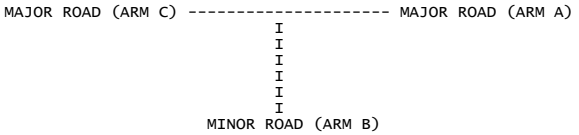
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
15.Vere St_Gladstone Rise\Gladstone Rd_Holton Rd Priority\Gladstone_Holton Road Priority.vpi"
(drive-on-the-left) at 09:03:34 on Tuesday, 13 April 2010

.RUN INFORMATION

RUN TITLE : Gladstone Road / Holton Road Priority
LOCATION :
DATE : 06/04/10
CLIENT :
ENUMERATOR : Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER :
STATUS :
DESCRIPTION :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Roundabout (E)
ARM B IS Holton Rd (W)
ARM C IS Gladstone Road (N)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 3.36 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 25.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 30.0 M.
- VISIBILITY TO RIGHT	(VB-A) 28.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	9.29 M.
WIDTH AT 5 M FROM JUNCTION	4.70 M.
WIDTH AT 10 M FROM JUNCTION	3.80 M.
WIDTH AT 15 M FROM JUNCTION	4.00 M.
WIDTH AT 20 M FROM JUNCTION	4.80 M.
- LENGTH OF FLARED SECTION	1 VEHS

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
588.44	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: AM 2020 With Development

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	8.48	12.71	8.48
ARM B	15.00	45.00	75.00	2.47	3.71	2.47
ARM C	15.00	45.00	75.00	6.35	9.52	6.35

.Demand set: AM 2020 With Development

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 08.30				
	ARM A	0.000	0.432	0.568
		0.0	293.0	385.0
		(0.0)	(4.0)	(4.0)
	ARM B	0.924	0.000	0.076
		183.0	0.0	15.0
		(3.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		508.0	0.0	0.0
		(5.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2020 With Development
AND FOR TIME PERIOD 1

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									
B-C	0.19	7.64	0.025		0.00	0.03	0.4		0.13
B-A	2.30	7.34	0.313		0.00	0.45	6.3		0.20
C-A	6.37								
C-B	0.00	7.19	0.000		0.00	0.00	0.0		0.00
A-B	3.68								
A-C	4.83								

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)
08.30-08.45									
B-C	0.22	6.96	0.032		0.03	0.03	0.5		0.15
B-A	2.74	6.83	0.401		0.45	0.65	9.4		0.24
C-A	7.61								
C-B	0.00	6.85	0.000		0.00	0.00	0.0		0.00
A-B	4.39								
A-C	5.77								

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)
08.45-09.00									
B-C	0.28	5.70	0.048		0.03	0.05	0.7		0.18
B-A	3.36	6.14	0.547		0.65	1.15	16.0		0.35
C-A	9.32								
C-B	0.00	6.39	0.000		0.00	0.00	0.0		0.00
A-B	5.38								
A-C	7.06								

TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY

	(VEH/MIN)	(VEH/MIN)	CAPACITY (RFC)	FLOW (PEDS/MIN)	QUEUE (VEHS)	QUEUE (VEHS)	(VEH.MIN/ TIME SEGMENT)	(VEH.MIN/ TIME SEGMENT)	PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.28	5.66	0.049		0.05	0.05	0.8		0.19
B-A	3.36	6.14	0.547		1.15	1.18	17.5		0.36
C-A	9.32								
C-B	0.00	6.39	0.000		0.00	0.00	0.0		0.00
A-B	5.38								
A-C	7.06								

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)
09.15-09.30									
B-C	0.22	6.92	0.032		0.05	0.03	0.5		0.15
B-A	2.74	6.83	0.401		1.18	0.69	10.9		0.25
C-A	7.61								
C-B	0.00	6.85	0.000		0.00	0.00	0.0		0.00
A-B	4.39								
A-C	5.77								

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)
09.30-09.45									
B-C	0.19	7.62	0.025		0.03	0.03	0.4		0.13
B-A	2.30	7.34	0.313		0.69	0.46	7.3		0.20
C-A	6.37								
C-B	0.00	7.19	0.000		0.00	0.00	0.0		0.00
A-B	3.68								
A-C	4.83								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.0	
08.45	0.0	
09.00	0.1	
09.15	0.1	
09.30	0.0	
09.45	0.0	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.4	
08.45	0.7	*
09.00	1.2	*
09.15	1.2	*
09.30	0.7	*
09.45	0.5	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	20.6	13.8	3.2	0.16	3.2	0.16
B-A	251.9	167.9	67.4	0.27	67.4	0.27
C-A	699.2	466.1				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	403.3	268.9				
A-C	529.9	353.3				
ALL	1905.0	1270.0	70.7	0.04	70.7	0.04

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
588.44	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 With Development

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	10.64	15.96	10.64
ARM B	15.00	45.00	75.00	2.88	4.31	2.88
ARM C	15.00	45.00	75.00	5.16	7.74	5.16

.Demand set: PM 2020 With Development

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.398	0.602
		0.0	339.0	512.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.917	0.000	0.083
		211.0	0.0	19.0
		(1.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		413.0	0.0	0.0
		(2.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 With Development
AND FOR TIME PERIOD 2

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									
B-C	0.24	7.12	0.033		0.00	0.03	0.5		0.15
B-A	2.65	7.29	0.363		0.00	0.56	7.9		0.21
C-A	5.18								
C-B	0.00	6.82	0.000		0.00	0.00	0.0		0.00
A-B	4.25								
A-C	6.42								

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									
B-C	0.28	6.23	0.046		0.03	0.05	0.7		0.17
B-A	3.16	6.74	0.469		0.56	0.86	12.1		0.28
C-A	6.19								
C-B	0.00	6.41	0.000		0.00	0.00	0.0		0.00
A-B	5.08								
A-C	7.67								

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									
B-C	0.35	4.54	0.077		0.05	0.08	1.2		0.24
B-A	3.87	5.98	0.648		0.86	1.70	23.0		0.45

C-A	7.58								
C-B	0.00	5.84	0.000		0.00	0.00	0.0		0.00
A-B	6.22								
A-C	9.40								

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									
B-C	0.35	4.45	0.078		0.08	0.08	1.2		0.24
B-A	3.87	5.98	0.648		1.70	1.76	26.1		0.47
C-A	7.58								
C-B	0.00	5.84	0.000		0.00	0.00	0.0		0.00
A-B	6.22								
A-C	9.40								

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									
B-C	0.28	6.16	0.046		0.08	0.05	0.8		0.17
B-A	3.16	6.74	0.469		1.76	0.91	14.7		0.29
C-A	6.19								
C-B	0.00	6.41	0.000		0.00	0.00	0.0		0.00
A-B	5.08								
A-C	7.67								

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									
B-C	0.24	7.08	0.034		0.05	0.04	0.5		0.15
B-A	2.65	7.29	0.363		0.91	0.58	9.2		0.22
C-A	5.18								
C-B	0.00	6.82	0.000		0.00	0.00	0.0		0.00
A-B	4.25								
A-C	6.42								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.0	
16.45	0.0	
17.00	0.1	
17.15	0.1	
17.30	0.0	
17.45	0.0	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.7	**
17.15	1.8	**
17.30	0.9	*
17.45	0.6	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	26.2	17.4	4.9	0.19	4.9	0.19
B-A	290.4	193.6	92.9	0.32	93.0	0.32
C-A	568.5	379.0				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	466.6	311.1				
A-C	704.7	469.8				
ALL	2056.4	1370.9	97.9	0.05	97.9	0.05

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
588.44	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 With Development + Tourism

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	10.64	15.96	10.64
ARM B	15.00	45.00	75.00	2.88	4.31	2.88
ARM C	15.00	45.00	75.00	5.16	7.74	5.16

.Demand set: PM 2020 With Development + Tourism

TIME	FROM/TO	TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.15 - 16.30				
	ARM A	0.000	0.398	0.602
		0.0	339.0	512.0
		(0.0)	(0.0)	(1.0)
	ARM B	0.917	0.000	0.083
		211.0	0.0	19.0
		(1.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		413.0	0.0	0.0
		(2.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 With Development + Tourism
AND FOR TIME PERIOD 2

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									
B-C	0.24	7.12	0.033		0.00	0.03	0.5		0.15
B-A	2.65	7.29	0.363		0.00	0.56	7.9		0.21
C-A	5.18								
C-B	0.00	6.82	0.000		0.00	0.00	0.0		0.00
A-B	4.25								
A-C	6.42								

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									
B-C	0.28	6.23	0.046		0.03	0.05	0.7		0.17
B-A	3.16	6.74	0.469		0.56	0.86	12.1		0.28
C-A	6.19								
C-B	0.00	6.41	0.000		0.00	0.00	0.0		0.00
A-B	5.08								
A-C	7.67								

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									
B-C	0.35	4.54	0.077		0.05	0.08	1.2		0.24
B-A	3.87	5.98	0.648		0.86	1.70	23.0		0.45
C-A	7.58								
C-B	0.00	5.84	0.000		0.00	0.00	0.0		0.00
A-B	6.22								
A-C	9.40								

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									
B-C	0.35	4.45	0.078		0.08	0.08	1.2		0.24
B-A	3.87	5.98	0.648		1.70	1.76	26.1		0.47
C-A	7.58								
C-B	0.00	5.84	0.000		0.00	0.00	0.0		0.00
A-B	6.22								
A-C	9.40								

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									
B-C	0.28	6.16	0.046		0.08	0.05	0.8		0.17
B-A	3.16	6.74	0.469		1.76	0.91	14.7		0.29
C-A	6.19								
C-B	0.00	6.41	0.000		0.00	0.00	0.0		0.00
A-B	5.08								
A-C	7.67								

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									
B-C	0.24	7.08	0.034		0.05	0.04	0.5		0.15
B-A	2.65	7.29	0.363		0.91	0.58	9.2		0.22
C-A	5.18								
C-B	0.00	6.82	0.000		0.00	0.00	0.0		0.00
A-B	4.25								
A-C	6.42								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.0	
16.45	0.0	
17.00	0.1	
17.15	0.1	
17.30	0.0	
17.45	0.0	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	0.9	*
17.00	1.7	**
17.15	1.8	**
17.30	0.9	*
17.45	0.6	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	26.2	17.4	4.9	0.19	4.9	0.19
B-A	290.4	193.6	92.9	0.32	93.0	0.32
C-A	568.5	379.0				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	466.6	311.1				
A-C	704.7	469.8				
ALL	2056.4	1370.9	97.9	0.05	97.9	0.05

* 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 RUN*******

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

Run with file:-
"j:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\9.Ship Gyratory\
Harbour Road_Broad St Junction\Harbour Road_Broad Street Junction.vai"
(drive-on-the-left) at 14:46:24 on Wednesday, 15 July 2009

.FILE PROPERTIES
****

RUN TITLE: Ship Gyratory_ Harbour Road/Broad Street Junction
LOCATION:
DATE: 13/07/09
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Broad Street (E)
ARM B - Harbour Rd - exit only (S)
ARM C - Dummy Arm - Circulatory flow only (W)

.GEOMETRIC DATA

ARM B IS JUNCTION EXIT ONLY

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.36	5.67	37.90	23.50	35.00	35.0	0.648	28.306
ARM C	5.32	5.32	0.00	9.20	35.00	80.0	0.487	20.663

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

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 2008 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK	NUMBER OF MINUTES FROM START WHEN FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
	TO RISE	IS REACHED	FALLING			
ARM A	15.00	45.00	75.00	2.58	3.86	2.58
ARM C	15.00	45.00	75.00	5.45	8.17	5.45

DEMAND SET TITLE: AM 2008 Base

T33

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45		TURNING PROPORTIONS (PERCENTAGE OF H.V.S)		
		TURNING COUNTS		
	ARM A	0.000	1.000	0.000
		0.0	206.0	0.0
		(0.0)	(8.0)	(0.0)
	ARM C	0.741	0.259	0.000
		323.0	113.0	0.0
		(3.0)	(6.0)	(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	2.58	25.31	0.102	- -	-	0.0	0.1	1.7	-	0.044
ARM C	5.47	19.91	0.275	- -	-	0.0	0.4	5.5	-	0.069
08.30-08.45									
ARM A	3.09	25.13	0.123	- -	-	0.1	0.1	2.1	-	0.045
ARM C	6.53	19.91	0.328	- -	-	0.4	0.5	7.1	-	0.075
08.45-09.00									
ARM A	3.78	24.89	0.152	- -	-	0.1	0.2	2.6	-	0.047
ARM C	8.00	19.91	0.402	- -	-	0.5	0.7	9.8	-	0.084
09.00-09.15									
ARM A	3.78	24.89	0.152	- -	-	0.2	0.2	2.7	-	0.047
ARM C	8.00	19.91	0.402	- -	-	0.7	0.7	10.0	-	0.084
09.15-09.30									
ARM A	3.09	25.13	0.123	- -	-	0.2	0.1	2.1	-	0.045
ARM C	6.53	19.91	0.328	- -	-	0.7	0.5	7.5	-	0.075
09.30-09.45									
ARM A	2.58	25.31	0.102	- -	-	0.1	0.1	1.7	-	0.044
ARM C	5.47	19.91	0.275	- -	-	0.5	0.4	5.8	-	0.069

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.1	
08.45	0.1	
09.00	0.2	
09.15	0.2	
09.30	0.1	
09.45	0.1	

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.4	
08.45	0.5	
09.00	0.7	*
09.15	0.7	*
09.30	0.5	
09.45	0.4	

.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	283.5	189.0	12.9	0.05	12.9	0.05
C	600.1	400.1	45.8	0.08	45.8	0.08
ALL	883.7	589.1	58.7	0.07	58.7	0.07

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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RG40 3GA,UK

Run with file:-
"j:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\9.Ship Gyratory\
Harbour Road_Broad St Junction\Harbour Road_Broad Street Junction.vai"
(drive-on-the-left) at 14:50:01 on Wednesday, 15 July 2009

.FILE PROPERTIES
****

RUN TITLE: Ship Gyratory_ Harbour Road/Broad Street Junction
LOCATION:
DATE: 13/07/09
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Broad Street (E)
ARM B - Harbour Rd - exit only (S)
ARM C - Dummy Arm - Circulatory flow only (W)

.GEOMETRIC DATA

ARM B IS JUNCTION EXIT ONLY

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.36	5.67	37.90	23.50	35.00	35.0	0.648	28.306
ARM C	5.32	5.32	0.00	9.20	35.00	80.0	0.487	20.663

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

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 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK TO RISE	FLOW STOPS IS REACHED	BEFORE FALLING	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	3.00	4.50	3.00
ARM C	15.00	45.00	75.00	6.35	9.52	6.35

DEMAND SET TITLE: AM 2020 Base

T33

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45				
	ARM A	0.000	1.000	0.000
		0.0	240.0	0.0
		(0.0)	(8.0)	(0.0)
	ARM C	0.740	0.260	0.000
		376.0	132.0	0.0
		(3.0)	(6.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	3.01	25.16	0.120	- - -	0.0	0.1	2.0	-	0.045
ARM C	6.37	19.91	0.320	- - -	0.0	0.5	6.8	-	0.074
08.30-08.45									
ARM A	3.60	24.95	0.144	- - -	0.1	0.2	2.5	-	0.047
ARM C	7.61	19.91	0.382	- - -	0.5	0.6	9.0	-	0.081
08.45-09.00									
ARM A	4.40	24.67	0.179	- - -	0.2	0.2	3.2	-	0.049
ARM C	9.32	19.91	0.468	- - -	0.6	0.9	12.7	-	0.094
09.00-09.15									
ARM A	4.40	24.67	0.179	- - -	0.2	0.2	3.3	-	0.049
ARM C	9.32	19.91	0.468	- - -	0.9	0.9	13.1	-	0.094
09.15-09.30									
ARM A	3.60	24.95	0.144	- - -	0.2	0.2	2.6	-	0.047
ARM C	7.61	19.91	0.382	- - -	0.9	0.6	9.6	-	0.082
09.30-09.45									
ARM A	3.01	25.15	0.120	- - -	0.2	0.1	2.1	-	0.045
ARM C	6.37	19.91	0.320	- - -	0.6	0.5	7.3	-	0.074

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.1	
08.45	0.2	
09.00	0.2	
09.15	0.2	
09.30	0.2	
09.45	0.1	

QUEUE AT ARM C

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	

.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	330.3	220.2	15.6	0.05	15.6	0.05
C	699.2	466.1	58.5	0.08	58.5	0.08
ALL	1029.6	686.4	74.1	0.07	74.1	0.07

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
9.Ship Gyratory\Harbour Road_Broad St Junction\Harbour Road_Broad Street Junction.vai"
(drive-on-the-left) at 14:27:23 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Ship Gyratory_ Harbour Road/Broad Street Junction
LOCATION:
DATE: 12/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Broad Street (E)
ARM B - Harbour Rd - exit only (S)
ARM C - Dummy Arm - Circulatory flow only (W)

.GEOMETRIC DATA

ARM B IS JUNCTION EXIT ONLY

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.36	5.67	37.90	23.50	35.00	35.0	0.648	28.306
ARM C	5.32	5.32	0.00	9.20	35.00	80.0	0.487	20.663

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	2.42	3.64	2.42
ARM C	15.00	45.00	75.00	6.76	10.14	6.76

DEMAND SET TITLE: AM 2020 With Development

T33

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45				
	ARM A	0.000	1.000	0.000
		0.0	194.0	0.0
		(0.0)	(8.0)	(0.0)
	ARM C	0.407	0.593	0.000
		220.0	321.0	0.0
		(3.0)	(6.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	2.43	23.66	0.103	- - -	0.0	0.1	1.7	-	0.047
ARM C	6.79	19.72	0.344	- - -	0.0	0.5	7.6	-	0.077
08.30-08.45									
ARM A	2.91	23.15	0.126	- - -	0.1	0.1	2.1	-	0.049
ARM C	8.11	19.72	0.411	- - -	0.5	0.7	10.1	-	0.086
08.45-09.00									
ARM A	3.56	22.47	0.158	- - -	0.1	0.2	2.8	-	0.053
ARM C	9.93	19.72	0.503	- - -	0.7	1.0	14.5	-	0.102
09.00-09.15									
ARM A	3.56	22.46	0.158	- - -	0.2	0.2	2.8	-	0.053
ARM C	9.93	19.72	0.503	- - -	1.0	1.0	15.1	-	0.102
09.15-09.30									
ARM A	2.91	23.14	0.126	- - -	0.2	0.1	2.2	-	0.049
ARM C	8.11	19.72	0.411	- - -	1.0	0.7	10.9	-	0.086
09.30-09.45									
ARM A	2.43	23.64	0.103	- - -	0.1	0.1	1.7	-	0.047
ARM C	6.79	19.72	0.344	- - -	0.7	0.5	8.1	-	0.077

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.2
09.15	0.2
09.30	0.1
09.45	0.1

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.30	0.5	*
08.45	0.7	*
09.00	1.0	*
09.15	1.0	*
09.30	0.7	*
09.45	0.5	*

.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	267.0	178.0	13.3	0.05	13.3	0.05
C	744.6	496.4	66.3	0.09	66.3	0.09
ALL	1011.7	674.4	79.6	0.08	79.6	0.08

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

Run with file:-
"j:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\9.Ship Gyratory\
Harbour Road_Broad St Junction\Harbour Road_Broad Street Junction.vai"
(drive-on-the-left) at 14:51:18 on Wednesday, 15 July 2009

.FILE PROPERTIES
****

RUN TITLE: Ship Gyratory_ Harbour Road/Broad Street Junction
LOCATION:
DATE: 13/07/09
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Broad Street (E)
ARM B - Harbour Rd - exit only (S)
ARM C - Dummy Arm - Circulatory flow only (W)

.GEOMETRIC DATA

ARM B IS JUNCTION EXIT ONLY

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.36	5.67	37.90	23.50	35.00	35.0	0.648	28.306
ARM C	5.32	5.32	0.00	9.20	35.00	80.0	0.487	20.663

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	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 2008 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE TO RISE	AT TOP IS REACHED	AFTER FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	5.29	7.93	5.29		
ARM C	15.00	45.00	75.00	5.30	7.95	5.30		

DEMAND SET TITLE: PM 2008 Base

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45		TURNING PROPORTIONS (PERCENTAGE OF H.V.S)		
		TURNING COUNTS		
	ARM A	0.000	1.000	0.000
		0.0	423.0	0.0
		(0.0)%	(2.0)%	(0.0)%
	ARM C	0.646	0.354	0.000
		274.0	150.0	0.0
		(3.0)%	(1.0)%	(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	5.31	26.55	0.200	- -	-	0.0	0.2	3.7	-	0.047
ARM C	5.32	20.20	0.263	- -	-	0.0	0.4	5.2	-	0.067
16.30-16.45									
ARM A	6.34	26.31	0.241	- -	-	0.2	0.3	4.7	-	0.050
ARM C	6.35	20.20	0.315	- -	-	0.4	0.5	6.7	-	0.072
16.45-17.00									
ARM A	7.76	25.99	0.299	- -	-	0.3	0.4	6.3	-	0.055
ARM C	7.78	20.20	0.385	- -	-	0.5	0.6	9.1	-	0.080
17.00-17.15									
ARM A	7.76	25.98	0.299	- -	-	0.4	0.4	6.4	-	0.055
ARM C	7.78	20.20	0.385	- -	-	0.6	0.6	9.3	-	0.080
17.15-17.30									
ARM A	6.34	26.31	0.241	- -	-	0.4	0.3	4.9	-	0.050
ARM C	6.35	20.20	0.315	- -	-	0.6	0.5	7.1	-	0.072
17.30-17.45									
ARM A	5.31	26.54	0.200	- -	-	0.3	0.3	3.8	-	0.047
ARM C	5.32	20.20	0.263	- -	-	0.5	0.4	5.5	-	0.067

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.2	
16.45	0.3	
17.00	0.4	
17.15	0.4	
17.30	0.3	
17.45	0.3	

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	
17.00	0.6	*
17.15	0.6	*
17.30	0.5	
17.45	0.4	

.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	582.2	388.2	29.6	0.05	29.6	0.05
C	583.6	389.1	42.9	0.07	42.9	0.07
ALL	1165.8	777.2	72.6	0.06	72.6	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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RG40 3GA,UK

Run with file:-
"j:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\9.Ship Gyratory\
Harbour Road_Broad St Junction\Harbour Road_Broad Street Junction.vai"
(drive-on-the-left) at 14:51:47 on Wednesday, 15 July 2009

.FILE PROPERTIES
****

RUN TITLE: Ship Gyratory_ Harbour Road/Broad Street Junction
LOCATION:
DATE: 13/07/09
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Broad Street (E)
ARM B - Harbour Rd - exit only (S)
ARM C - Dummy Arm - Circulatory flow only (W)

.GEOMETRIC DATA

ARM B IS JUNCTION EXIT ONLY

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.36	5.67	37.90	23.50	35.00	35.0	0.648	28.306
ARM C	5.32	5.32	0.00	9.20	35.00	80.0	0.487	20.663

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	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 Base

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP OF PEAK	AFTER PEAK
	TO RISE	IS REACHED	FALLING	PEAK		
ARM A	15.00	45.00	75.00	6.15	9.23	6.15
ARM C	15.00	45.00	75.00	6.16	9.24	6.16

DEMAND SET TITLE: PM 2020 Base

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	1.000	0.000
		0.0	492.0	0.0
		(0.0)	(2.0)	(0.0)
	ARM C	0.647	0.353	0.000
		319.0	174.0	0.0
		(3.0)	(1.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	6.17	26.36	0.234	- -	-	0.0	0.3	4.5	-	0.049
ARM C	6.19	20.20	0.306	- -	-	0.0	0.4	6.4	-	0.071
16.30-16.45									
ARM A	7.37	26.08	0.283	- -	-	0.3	0.4	5.8	-	0.053
ARM C	7.39	20.20	0.366	- -	-	0.4	0.6	8.4	-	0.078
16.45-17.00									
ARM A	9.03	25.71	0.351	- -	-	0.4	0.5	7.9	-	0.060
ARM C	9.05	20.20	0.448	- -	-	0.6	0.8	11.7	-	0.089
17.00-17.15									
ARM A	9.03	25.70	0.351	- -	-	0.5	0.5	8.1	-	0.060
ARM C	9.05	20.20	0.448	- -	-	0.8	0.8	12.1	-	0.090
17.15-17.30									
ARM A	7.37	26.07	0.283	- -	-	0.5	0.4	6.0	-	0.054
ARM C	7.39	20.20	0.366	- -	-	0.8	0.6	8.9	-	0.078
17.30-17.45									
ARM A	6.17	26.35	0.234	- -	-	0.4	0.3	4.7	-	0.050
ARM C	6.19	20.20	0.306	- -	-	0.6	0.4	6.8	-	0.071

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.3	
16.45	0.4	
17.00	0.5	*
17.15	0.5	*
17.30	0.4	
17.45	0.3	

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.6	*
17.00	0.8	*
17.15	0.8	*
17.30	0.6	*
17.45	0.4	

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
.---

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	677.2	451.5	37.0	0.05	37.0	0.05	
C	678.6	452.4	54.3	0.08	54.3	0.08	
ALL	1355.8	903.9	91.3	0.07	91.4	0.07	

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
9.Ship Gyratory\Harbour Road_Broad St Junction\Harbour Road_Broad Street Junction.vai"
(drive-on-the-left) at 11:28:03 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Ship Gyratory_ Harbour Road/Broad Street Junction
LOCATION:
DATE: 12/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Broad Street (E)
ARM B - Harbour Rd - exit only (S)
ARM C - Dummy Arm - Circulatory flow only (W)

.GEOMETRIC DATA

ARM B IS JUNCTION EXIT ONLY

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.36	5.67	37.90	23.50	35.00	35.0	0.648	28.306
ARM C	5.32	5.32	0.00	9.20	35.00	80.0	0.487	20.663

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	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 Base+tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.39	11.08	7.39
ARM C	15.00	45.00	75.00	8.85	13.28	8.85

DEMAND SET TITLE: PM 2020 Base+tourism

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45		TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000 0.0 (0.0)	1.000 591.0 (2.0)	0.000 0.0 (0.0)
	ARM C	0.605 428.0 (3.0)	0.395 280.0 (1.0)	0.000 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	7.42	25.51	0.291	- -	-	0.0	0.4	6.0	-	0.055
	ARM C	8.88	20.22	0.439	- -	-	0.0	0.8	11.2	-	0.087
16.30-16.45										
	ARM A	8.85	25.06	0.353	- -	-	0.4	0.5	8.0	-	0.062
	ARM C	10.61	20.22	0.525	- -	-	0.8	1.1	15.8	-	0.104
16.45-17.00										
	ARM A	10.85	24.46	0.443	- -	-	0.5	0.8	11.6	-	0.073
	ARM C	12.99	20.22	0.643	- -	-	1.1	1.8	25.1	-	0.137
17.00-17.15										
	ARM A	10.85	24.45	0.443	- -	-	0.8	0.8	11.9	-	0.073
	ARM C	12.99	20.22	0.643	- -	-	1.8	1.8	26.5	-	0.139
17.15-17.30										
	ARM A	8.85	25.05	0.354	- -	-	0.8	0.6	8.4	-	0.062
	ARM C	10.61	20.22	0.525	- -	-	1.8	1.1	17.4	-	0.105
17.30-17.45										
	ARM A	7.42	25.49	0.291	- -	-	0.6	0.4	6.3	-	0.055
	ARM C	8.88	20.22	0.439	- -	-	1.1	0.8	12.2	-	0.088

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.4	
16.45	0.5	*
17.00	0.8	*
17.15	0.8	*
17.30	0.6	*
17.45	0.4	

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.1	*
17.00	1.8	**
17.15	1.8	**
17.30	1.1	*
17.45	0.8	*

.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	813.5	542.3	52.1	0.06	52.1	0.06
C	974.5	649.7	108.3	0.11	108.3	0.11
ALL	1788.0	1192.0	160.4	0.09	160.5	0.09

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
9.Ship Gyratory\Harbour Road_Broad St Junction\Harbour Road_Broad Street Junction.vai"
(drive-on-the-left) at 14:28:29 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Ship Gyratory_ Harbour Road/Broad Street Junction
LOCATION:
DATE: 12/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Broad Street (E)
ARM B - Harbour Rd - exit only (S)
ARM C - Dummy Arm - Circulatory flow only (W)

.GEOMETRIC DATA

ARM B IS JUNCTION EXIT ONLY

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.36	5.67	37.90	23.50	35.00	35.0	0.648	28.306
ARM C	5.32	5.32	0.00	9.20	35.00	80.0	0.487	20.663

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	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+Tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	3.86	5.79	3.86
ARM C	15.00	45.00	75.00	10.81	16.22	10.81

DEMAND SET TITLE: PM 2020 With Development+Tourism

T33

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	1.000	0.000
		0.0	309.0	0.0
		(0.0)	(2.0)	(0.0)
	ARM C	0.280	0.720	0.000
		242.0	623.0	0.0
		(3.0)	(1.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	3.88	22.77	0.170	- -	-	0.0	0.2	3.0	-	0.053
ARM C	10.85	20.35	0.533	- -	-	0.0	1.1	16.1	-	0.104
16.30-16.45									
ARM A	4.63	21.78	0.213	- -	-	0.2	0.3	4.0	-	0.058
ARM C	12.96	20.35	0.637	- -	-	1.1	1.7	24.6	-	0.134
16.45-17.00									
ARM A	5.67	20.46	0.277	- -	-	0.3	0.4	5.6	-	0.068
ARM C	15.87	20.35	0.780	- -	-	1.7	3.3	45.8	-	0.213
17.00-17.15									
ARM A	5.67	20.42	0.278	- -	-	0.4	0.4	5.7	-	0.068
ARM C	15.87	20.35	0.780	- -	-	3.3	3.4	51.0	-	0.222
17.15-17.30									
ARM A	4.63	21.71	0.213	- -	-	0.4	0.3	4.2	-	0.059
ARM C	12.96	20.35	0.637	- -	-	3.4	1.8	28.5	-	0.139
17.30-17.45									
ARM A	3.88	22.71	0.171	- -	-	0.3	0.2	3.1	-	0.053
ARM C	10.85	20.35	0.533	- -	-	1.8	1.2	18.1	-	0.106

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.2	
16.45	0.3	
17.00	0.4	
17.15	0.4	
17.30	0.3	
17.45	0.2	

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.1	*
16.45	1.7	**
17.00	3.3	***
17.15	3.4	***
17.30	1.8	**
17.45	1.2	*

.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	425.3	283.5	25.6	0.06	25.6	0.06
C	1190.6	793.7	184.1	0.15	184.1	0.15
ALL	1615.9	1077.3	209.7	0.13	209.7	0.13

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

For sales and distribution information,
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Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
9.Ship Gyratory\Harbour Road_Broad St Junction\Harbour Road_Broad Street Junction.vai"
(drive-on-the-left) at 14:27:58 on Monday, 12 April 2010

.FILE PROPERTIES
****

RUN TITLE: Ship Gyratory_ Harbour Road/Broad Street Junction
LOCATION:
DATE: 12/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Broad Street (E)
ARM B - Harbour Rd - exit only (S)
ARM C - Dummy Arm - Circulatory flow only (W)

.GEOMETRIC DATA

ARM B IS JUNCTION EXIT ONLY

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.36	5.67	37.90	23.50	35.00	35.0	0.648	28.306
ARM C	5.32	5.32	0.00	9.20	35.00	80.0	0.487	20.663

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

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE TO RISE	AT TOP IS REACHED	AFTER FALLING	BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	3.86	5.79	3.86			
ARM C	15.00	45.00	75.00	9.49	14.23	9.49			

DEMAND SET TITLE: PM 2020 With Development

T33

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45		TURNING PROPORTIONS (PERCENTAGE OF H.V.S)		
		TURNING COUNTS		
	ARM A	0.000	1.000	0.000
		0.0	309.0	0.0
		(0.0)%	(2.0)%	(0.0)%
	ARM C	0.319	0.681	0.000
		242.0	517.0	0.0
		(3.0)%	(1.0)%	(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	3.88	23.61	0.164	- -	0.0	0.2	2.9	-	0.051
ARM C	9.52	20.33	0.468	- -	0.0	0.9	12.6	-	0.091
16.30-16.45									
ARM A	4.63	22.79	0.203	- -	0.2	0.3	3.8	-	0.055
ARM C	11.37	20.33	0.559	- -	0.9	1.2	18.1	-	0.111
16.45-17.00									
ARM A	5.67	21.69	0.261	- -	0.3	0.4	5.2	-	0.062
ARM C	13.93	20.33	0.685	- -	1.2	2.1	29.9	-	0.153
17.00-17.15									
ARM A	5.67	21.66	0.262	- -	0.4	0.4	5.3	-	0.063
ARM C	13.93	20.33	0.685	- -	2.1	2.1	31.9	-	0.156
17.15-17.30									
ARM A	4.63	22.75	0.203	- -	0.4	0.3	3.9	-	0.055
ARM C	11.37	20.33	0.559	- -	2.1	1.3	20.2	-	0.113
17.30-17.45									
ARM A	3.88	23.58	0.164	- -	0.3	0.2	3.0	-	0.051
ARM C	9.52	20.33	0.468	- -	1.3	0.9	13.8	-	0.093

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.2	
16.45	0.3	
17.00	0.4	
17.15	0.4	
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	1.2	*
17.00	2.1	**
17.15	2.1	**
17.30	1.3	*
17.45	0.9	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
.---

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	425.3	283.5	24.0	0.06	24.0	0.06	
C	1044.7	696.5	126.4	0.12	126.5	0.12	
ALL	1470.0	980.0	150.5	0.10	150.5	0.10	

* 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

TRL LIMITED

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.0 ANALYSIS PROGRAM
RELEASE 3.0 (JUNE 2006)

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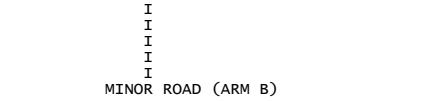
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\9.Ship Gyratory\
Harbour Rd_Nicholas Rd Junction\HarbourRd_NicholasRd JunctionDELETE.vpi"
(drive-on-the-left) at 10:41:57 on Tuesday, 23 December 2008

.RUN INFORMATION

RUN TITLE: Ship Gyratory_Harbour Rad / Nicholas Road Junction
LOCATION:
DATE: 25/03/08
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS St Nicholas (S)
ARM B IS Park Avenue (W)
ARM C IS St Nicholas (E)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 6.80 M.
CENTRAL RESERVE WIDTH	(WCR) 10.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 30.0 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 57.0 M.
- VISIBILITY TO RIGHT	(VB-A) 20.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
- WIDTH AT 0 M FROM JUNC.	5.60 M.
- WIDTH AT 5 M FROM JUNC.	5.35 M.
- WIDTH AT 10 M FROM JUNC.	5.32 M.
- WIDTH AT 15 M FROM JUNC.	5.20 M.
- WIDTH AT 20 M FROM JUNC.	5.16 M.
- LENGTH OF FLARED SECTION	1 VEHS

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity

will be adjusted)

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B

I				I
I	585.55	0.22	0.09	I

I Intercept For Stream B-A	I Slope For Opposing Stream A-C	I Slope For Opposing Stream A-B	I Slope For Opposing Stream C-A	I Slope For Opposing Stream C-B	I
I 569.20	0.21	0.08	0.13	0.30	I

I Intercept For Stream C-B	I Slope For Opposing Stream A-C	I Slope For Opposing Stream A-B	I
I 591.34	0.22	0.22	I

NB These values do not allow for any site specific corrections

.TRAFFIC DEMAND DATA

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

Demand set: AM 2008 Base

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 TURNING COUNT DATA

I ARM	I NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	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
I ARM A	I 15.00	I 45.00	I 75.00	I 2.35	I 3.52	I 2.35	I
I ARM B	I 15.00	I 45.00	I 75.00	I 1.27	I 1.91	I 1.27	I
I ARM C	I 15.00	I 45.00	I 75.00	I 1.86	I 2.79	I 1.86	I

I TIME	I FROM/TO	I ARM A	I ARM B	I ARM C	I
I 08.15 - 09.45	I	I	I	I	
I	I ARM A	I 0.000	I 0.074	I 0.926	I
I	I	I 0.0	I 14.0	I 174.0	I
I	I	I (0.0)	I (0.0)	I (6.0)	I
I	I	I	I	I	
I	I ARM B	I 0.775	I 0.000	I 0.225	I
I	I	I 79.0	I 0.0	I 23.0	I
I	I	I (0.0)	I (0.0)	I (0.0)	I
I	I	I	I	I	
I	I ARM C	I 1.000	I 0.000	I 0.000	I
I	I	I 149.0	I 0.0	I 0.0	I
I	I	I (9.0)	I (0.0)	I (0.0)	I
I	I	I	I	I	

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2008 Base
AND FOR TIME PERIOD 1

I 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)	I
I 08.15-08.30										I
I B-C	0.29	8.03	0.036		0.00	0.04	0.5		0.13	I
I B-A	0.99	10.56	0.094		0.00	0.10	1.5		0.10	I
I C-A	1.87									I
I C-B	0.00	8.46	0.000		0.00	0.00	0.0		0.00	I
I A-B	0.18									I
I A-C	2.18									I
I										I

I 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)	I
I 08.30-08.45										I
I B-C	0.34	7.90	0.044		0.04	0.05	0.7		0.13	I
I B-A	1.18	10.38	0.114		0.10	0.13	1.9		0.11	I
I C-A	2.23									I
I C-B	0.00	8.36	0.000		0.00	0.00	0.0		0.00	I
I A-B	0.21									I
I A-C	2.61									I
I										I

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)
08.45-09.00									
B-C	0.42	7.71	0.055		0.05	0.06	0.8		0.14
B-A	1.45	10.13	0.143		0.13	0.17	2.4		0.12
C-A	2.73								
C-B	0.00	8.23	0.000		0.00	0.00	0.0		0.00
A-B	0.26								
A-C	3.19								

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)
09.00-09.15									
B-C	0.42	7.71	0.055		0.06	0.06	0.9		0.14
B-A	1.45	10.13	0.143		0.17	0.17	2.5		0.12
C-A	2.73								
C-B	0.00	8.23	0.000		0.00	0.00	0.0		0.00
A-B	0.26								
A-C	3.19								

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)
09.15-09.30									
B-C	0.34	7.90	0.044		0.06	0.05	0.7		0.13
B-A	1.18	10.38	0.114		0.17	0.13	2.0		0.11
C-A	2.23								
C-B	0.00	8.36	0.000		0.00	0.00	0.0		0.00
A-B	0.21								
A-C	2.61								

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)
09.30-09.45									
B-C	0.29	8.03	0.036		0.05	0.04	0.6		0.13
B-A	0.99	10.56	0.094		0.13	0.10	1.6		0.10
C-A	1.87								
C-B	0.00	8.46	0.000		0.00	0.00	0.0		0.00
A-B	0.18								
A-C	2.18								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.1
09.15	0.1
09.30	0.0
09.45	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.2
09.15	0.2
09.30	0.1
09.45	0.1

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	31.7	21.1	4.2	0.13	4.2	0.13
B-A	108.7	72.5	11.9	0.11	11.9	0.11
C-A	205.1	136.7				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	19.3	12.8				
A-C	239.5	159.7				
ALL	604.3	402.8	16.1	0.03	16.1	0.03

* 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

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity

will be adjusted)

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
585.55	0.22	0.09

Intercept For Stream B-A	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B
569.20	0.21	0.08	0.13	0.30

Intercept For Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
591.34	0.22	0.22

NB These values do not allow for any site specific corrections

.TRAFFIC DEMAND DATA

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

Demand set: PM 2008 Base

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 TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	2.88	4.31	2.88
ARM B	15.00	45.00	75.00	1.42	2.14	1.42
ARM C	15.00	45.00	75.00	2.15	3.23	2.15

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45	ARM A	0.000	0.157	0.843
		0.0	36.0	194.0
		(0.0)	(0.0)	(2.0)
	ARM B	0.596	0.000	0.404
		68.0	0.0	46.0
		(0.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		172.0	0.0	0.0
		(4.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2008 Base
AND FOR TIME PERIOD 2

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									
B-C	0.58	8.92	0.065		0.00	0.07	1.0		0.12
B-A	0.85	9.56	0.089		0.00	0.10	1.4		0.11
C-A	2.16								
C-B	0.00	8.37	0.000		0.00	0.00	0.0		0.00
A-B	0.45								
A-C	2.43								

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									
B-C	0.69	8.76	0.079		0.07	0.08	1.2		0.12
B-A	1.02	9.38	0.109		0.10	0.12	1.8		0.12
C-A	2.58								
C-B	0.00	8.26	0.000		0.00	0.00	0.0		0.00
A-B	0.54								
A-C	2.91								

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									
B-C	0.84	8.54	0.099		0.08	0.11	1.6		0.13
B-A	1.25	9.12	0.137		0.12	0.16	2.3		0.13
C-A	3.16								
C-B	0.00	8.10	0.000		0.00	0.00	0.0		0.00
A-B	0.66								
A-C	3.56								

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									
B-C	0.84	8.54	0.099		0.11	0.11	1.6		0.13
B-A	1.25	9.12	0.137		0.16	0.16	2.4		0.13
C-A	3.16								
C-B	0.00	8.10	0.000		0.00	0.00	0.0		0.00
A-B	0.66								
A-C	3.56								

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									
B-C	0.69	8.76	0.079		0.11	0.09	1.3		0.12
B-A	1.02	9.38	0.109		0.16	0.12	1.9		0.12
C-A	2.58								
C-B	0.00	8.26	0.000		0.00	0.00	0.0		0.00
A-B	0.54								
A-C	2.91								

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									
B-C	0.58	8.92	0.065		0.09	0.07	1.1		0.12
B-A	0.85	9.56	0.089		0.12	0.10	1.5		0.11
C-A	2.16								
C-B	0.00	8.37	0.000		0.00	0.00	0.0		0.00
A-B	0.45								
A-C	2.43								

QUEUE FOR STREAM B-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 FOR STREAM B-A

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

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * DELAY *	* INCLUSIVE QUEUEING * DELAY *

		(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C		63.3	42.2	7.9	0.12	7.9	0.12
B-A		93.6	62.4	11.3	0.12	11.3	0.12
C-A		236.7	157.8				
C-B		0.0	0.0	0.0	0.00	0.0	0.00
A-B		49.6	33.0				
A-C		267.0	178.0				
ALL		710.2	473.5	19.1	0.03	19.1	0.03

* 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

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE BUREAU
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: Software@trl.co.uk

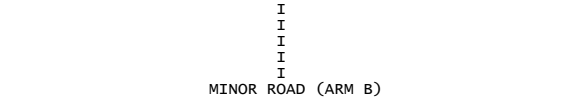
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
9.Ship Gyratory\Harbour Rd_Nicholas Rd Junction\HarbourRd_NicholasRd Junction.vpi"
(drive-on-the-left) at 11:17:17 on Tuesday, 13 April 2010

.RUN INFORMATION

RUN TITLE	: Ship Gyratory_Harbour Rad / Nicholas Road Junction
LOCATION	:
DATE	: 12/04/10
CLIENT	:
ENUMERATOR	: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER	:
STATUS	:
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS St Nicholas (S)
ARM B IS Park Avenue (W)
ARM C IS St Nicholas (E)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 6.80 M.
CENTRAL RESERVE WIDTH	(WCR) 10.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 30.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 57.0 M.
- VISIBILITY TO RIGHT	(VB-A) 20.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	5.60 M.
WIDTH AT 5 M FROM JUNCTION	5.35 M.
WIDTH AT 10 M FROM JUNCTION	5.32 M.
WIDTH AT 15 M FROM JUNCTION	5.20 M.
WIDTH AT 20 M FROM JUNCTION	5.16 M.
- LENGTH OF FLARED SECTION	1 VEHS

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
591.34	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: AM 2020 Base

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	2.74	4.11	2.74
ARM B	15.00	45.00	75.00	1.49	2.23	1.49
ARM C	15.00	45.00	75.00	2.17	3.26	2.17

.Demand set: AM 2020 Base

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 08.30				
	ARM A	0.000	0.073	0.927
		0.0	16.0	203.0
		(0.0)	(0.0)	(6.0)
	ARM B	0.773	0.000	0.227
		92.0	0.0	27.0
		(0.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		174.0	0.0	0.0
		(9.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2020 Base
AND FOR TIME PERIOD 1

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									
B-C	0.34	7.93	0.043		0.00	0.04	0.6		0.13
B-A	1.15	10.40	0.111		0.00	0.12	1.8		0.11
C-A	2.18								
C-B	0.00	8.38	0.000		0.00	0.00	0.0		0.00
A-B	0.20								
A-C	2.55								

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)
08.30-08.45									
B-C	0.40	7.77	0.052		0.04	0.05	0.8		0.14
B-A	1.38	10.19	0.135		0.12	0.16	2.3		0.11
C-A	2.61								
C-B	0.00	8.26	0.000		0.00	0.00	0.0		0.00
A-B	0.24								
A-C	3.04								

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)
08.45-09.00									
B-C	0.50	7.54	0.066		0.05	0.07	1.0		0.14
B-A	1.69	9.90	0.171		0.16	0.20	3.0		0.12
C-A	3.19								
C-B	0.00	8.11	0.000		0.00	0.00	0.0		0.00
A-B	0.29								
A-C	3.73								

TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY

	(VEH/MIN)	(VEH/MIN)	CAPACITY (RFC)	FLOW (PEDS/MIN)	QUEUE (VEHS)	QUEUE (VEHS)	(VEH.MIN/ TIME SEGMENT)	(VEH.MIN/ TIME SEGMENT)	PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.50	7.54	0.066		0.07	0.07	1.0		0.14
B-A	1.69	9.90	0.171		0.20	0.20	3.1		0.12
C-A	3.19								
C-B	0.00	8.11	0.000		0.00	0.00	0.0		0.00
A-B	0.29								
A-C	3.73								

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)
09.15-09.30									
B-C	0.40	7.77	0.052		0.07	0.06	0.9		0.14
B-A	1.38	10.19	0.135		0.20	0.16	2.4		0.11
C-A	2.61								
C-B	0.00	8.26	0.000		0.00	0.00	0.0		0.00
A-B	0.24								
A-C	3.04								

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)
09.30-09.45									
B-C	0.34	7.93	0.043		0.06	0.05	0.7		0.13
B-A	1.15	10.40	0.111		0.16	0.13	1.9		0.11
C-A	2.18								
C-B	0.00	8.38	0.000		0.00	0.00	0.0		0.00
A-B	0.20								
A-C	2.55								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1
09.45	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.2
09.00	0.2
09.15	0.2
09.30	0.2
09.45	0.1

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	37.2	24.8	5.1	0.14	5.1	0.14
B-A	126.6	84.4	14.5	0.11	14.5	0.11
C-A	239.5	159.7				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	22.0	14.7				
A-C	279.4	186.3				
ALL	704.7	469.8	19.5	0.03	19.5	0.03

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
591.34	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 Base

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	3.33	4.99	3.33
ARM B	15.00	45.00	75.00	1.65	2.47	1.65
ARM C	15.00	45.00	75.00	2.51	3.77	2.51

.Demand set: PM 2020 Base

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.154	0.846
		0.0	41.0	225.0
		(0.0)	(0.0)	(2.0)
	ARM B	0.598	0.000	0.402
		79.0	0.0	53.0
		(0.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		201.0	0.0	0.0
		(4.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 Base
AND FOR TIME PERIOD 2

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									
B-C	0.67	8.78	0.076		0.00	0.08	1.2		0.12
B-A	0.99	9.42	0.105		0.00	0.12	1.7		0.12
C-A	2.52								
C-B	0.00	8.28	0.000		0.00	0.00	0.0		0.00
A-B	0.51								
A-C	2.82								

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									
B-C	0.79	8.59	0.092		0.08	0.10	1.5		0.13
B-A	1.18	9.20	0.129		0.12	0.15	2.1		0.12
C-A	3.01								
C-B	0.00	8.14	0.000		0.00	0.00	0.0		0.00
A-B	0.61								
A-C	3.37								

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									
B-C	0.97	8.33	0.117		0.10	0.13	1.9		0.14
B-A	1.45	8.90	0.163		0.15	0.19	2.8		0.13

I C-A	3.69								I
I C-B	0.00	7.96	0.000		0.00	0.00	0.0	0.00	I
I A-B	0.75								I
I A-C	4.13								I
I									I

I 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) I
I 17.00-17.15									I
I B-C	0.97	8.33	0.117		0.13	0.13	2.0		0.14 I
I B-A	1.45	8.90	0.163		0.19	0.19	2.9		0.13 I
I C-A	3.69								I
I C-B	0.00	7.96	0.000		0.00	0.00	0.0		0.00 I
I A-B	0.75								I
I A-C	4.13								I
I									I

I 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) I
I 17.15-17.30									I
I B-C	0.79	8.59	0.092		0.13	0.10	1.6		0.13 I
I B-A	1.18	9.20	0.129		0.19	0.15	2.3		0.12 I
I C-A	3.01								I
I C-B	0.00	8.14	0.000		0.00	0.00	0.0		0.00 I
I A-B	0.61								I
I A-C	3.37								I
I									I

I 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) I
I 17.30-17.45									I
I B-C	0.67	8.78	0.076		0.10	0.08	1.3		0.12 I
I B-A	0.99	9.42	0.105		0.15	0.12	1.8		0.12 I
I C-A	2.52								I
I C-B	0.00	8.28	0.000		0.00	0.00	0.0		0.00 I
I A-B	0.51								I
I A-C	2.82								I
I									I

QUEUE FOR STREAM B-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 FOR STREAM B-A

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

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM I	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
I	I (VEH)	(VEH/H) I	(MIN)	(MIN/VEH) I	(MIN)	(MIN/VEH) I
I B-C I	73.0 I	48.6 I	9.4 I	0.13 I	9.4 I	0.13 I
I B-A I	108.7 I	72.5 I	13.7 I	0.13 I	13.7 I	0.13 I
I C-A I	276.7 I	184.4 I	I	I	I	I
I C-B I	0.0 I	0.0 I	0.0 I	0.00 I	0.0 I	0.00 I
I A-B I	56.4 I	37.6 I	I	I	I	I
I A-C I	309.7 I	206.5 I	I	I	I	I
I ALL I	824.5 I	549.7 I	23.1 I	0.03 I	23.1 I	0.03 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
591.34	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 Base+tourism

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	4.90	7.35	4.90
ARM B	15.00	45.00	75.00	1.65	2.47	1.65
ARM C	15.00	45.00	75.00	3.83	5.74	3.83

.Demand set: PM 2020 Base+tourism

TIME	TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.105	0.895
		0.0	41.0	351.0
		(0.0)%	(0.0)%	(2.0)%
	ARM B	0.598	0.000	0.402
		79.0	0.0	53.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	1.000	0.000	0.000
		306.0	0.0	0.0
		(4.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 Base+tourism
AND FOR TIME PERIOD 2

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									
B-C	0.67	8.42	0.079		0.00	0.08	1.2		0.13
B-A	0.99	8.85	0.112		0.00	0.12	1.8		0.13
C-A	3.84								
C-B	0.00	7.95	0.000		0.00	0.00	0.0		0.00
A-B	0.51								
A-C	4.40								

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									
B-C	0.79	8.16	0.097		0.08	0.11	1.6		0.14
B-A	1.18	8.52	0.139		0.12	0.16	2.3		0.14
C-A	4.58								
C-B	0.00	7.76	0.000		0.00	0.00	0.0		0.00
A-B	0.61								
A-C	5.26								

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									
B-C	0.97	7.80	0.125		0.11	0.14	2.1		0.15
B-A	1.45	8.07	0.180		0.16	0.22	3.2		0.15
C-A	5.62								
C-B	0.00	7.49	0.000		0.00	0.00	0.0		0.00
A-B	0.75								
A-C	6.44								

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									
B-C	0.97	7.80	0.125		0.14	0.14	2.1		0.15
B-A	1.45	8.07	0.180		0.22	0.22	3.3		0.15
C-A	5.62								
C-B	0.00	7.49	0.000		0.00	0.00	0.0		0.00
A-B	0.75								
A-C	6.44								

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									
B-C	0.79	8.16	0.097		0.14	0.11	1.7		0.14
B-A	1.18	8.52	0.139		0.22	0.16	2.5		0.14
C-A	4.58								
C-B	0.00	7.76	0.000		0.00	0.00	0.0		0.00
A-B	0.61								
A-C	5.26								

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									
B-C	0.67	8.42	0.079		0.11	0.09	1.3		0.13
B-A	0.99	8.85	0.112		0.16	0.13	2.0		0.13
C-A	3.84								
C-B	0.00	7.95	0.000		0.00	0.00	0.0		0.00
A-B	0.51								
A-C	4.40								

QUEUE FOR STREAM B-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 FOR STREAM B-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 FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	73.0	48.6	10.0	0.14	10.0	0.14
B-A	108.7	72.5	15.0	0.14	15.0	0.14
C-A	421.2	280.8				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	56.4	37.6				
A-C	483.1	322.1				
ALL	1142.4	761.6	25.0	0.02	25.0	0.02

* 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 RUN*******

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

FOR SALES AND DISTRIBUTION INFORMATION,
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TRL SOFTWARE BUREAU
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: Software@trl.co.uk

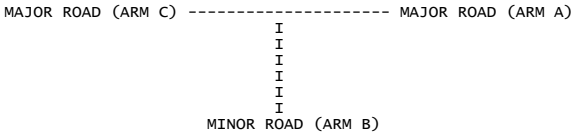
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
9.Ship Gyratory\Harbour Rd_Nicholas Rd Junction\HarbourRd_NicholasRd Junction.vpi"
(drive-on-the-left) at 13:58:08 on Monday, 12 April 2010

.RUN INFORMATION

RUN TITLE : Ship Gyratory_Harbour Rad / Nicholas Road Junction
LOCATION :
DATE : 12/04/10
CLIENT :
ENUMERATOR : Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER :
STATUS :
DESCRIPTION :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS St Nicholas (S)
ARM B IS Park Avenue (W)
ARM C IS St Nicholas (E)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 6.80 M.
CENTRAL RESERVE WIDTH	(WCR) 10.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 30.00 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 57.0 M.
- VISIBILITY TO RIGHT	(VB-A) 20.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	5.60 M.
WIDTH AT 5 M FROM JUNCTION	5.35 M.
WIDTH AT 10 M FROM JUNCTION	5.32 M.
WIDTH AT 15 M FROM JUNCTION	5.20 M.
WIDTH AT 20 M FROM JUNCTION	5.16 M.
- LENGTH OF FLARED SECTION	1 VEHS

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
591.34	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: AM 2020 With Development

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.44	11.16	7.44
ARM B	15.00	45.00	75.00	1.81	2.72	1.81
ARM C	15.00	45.00	75.00	4.60	6.90	4.60

.Demand set: AM 2020 With Development

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 08.30				
	ARM A	0.000	0.052	0.948
		0.0	31.0	564.0
		(0.0)	(0.0)	(6.0)
	ARM B	0.814	0.000	0.186
		118.0	0.0	27.0
		(0.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		368.0	0.0	0.0
		(9.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2020 With Development
AND FOR TIME PERIOD 1

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									
B-C	0.34	6.70	0.051		0.00	0.05	0.8		0.16
B-A	1.48	8.93	0.166		0.00	0.20	2.8		0.13
C-A	4.62								
C-B	0.00	7.37	0.000		0.00	0.00	0.0		0.00
A-B	0.39								
A-C	7.08								

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)
08.30-08.45									
B-C	0.40	6.33	0.064		0.05	0.07	1.0		0.17
B-A	1.77	8.39	0.211		0.20	0.26	3.8		0.15
C-A	5.51								
C-B	0.00	7.07	0.000		0.00	0.00	0.0		0.00
A-B	0.46								
A-C	8.45								

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)
08.45-09.00									
B-C	0.50	5.78	0.086		0.07	0.09	1.3		0.19
B-A	2.17	7.64	0.283		0.26	0.39	5.6		0.18
C-A	6.75								
C-B	0.00	6.64	0.000		0.00	0.00	0.0		0.00
A-B	0.57								
A-C	10.35								

TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY

	(VEH/MIN)	(VEH/MIN)	CAPACITY (RFC)	FLOW (PEDS/MIN)	QUEUE (VEHS)	QUEUE (VEHS)	(VEH.MIN/ TIME SEGMENT)	(VEH.MIN/ TIME SEGMENT)	PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.50	5.77	0.086		0.09	0.09	1.4		0.19
B-A	2.17	7.64	0.283		0.39	0.39	5.9		0.18
C-A	6.75								
C-B	0.00	6.64	0.000		0.00	0.00	0.0		0.00
A-B	0.57								
A-C	10.35								

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)
09.15-09.30									
B-C	0.40	6.32	0.064		0.09	0.07	1.1		0.17
B-A	1.77	8.39	0.211		0.39	0.27	4.2		0.15
C-A	5.51								
C-B	0.00	7.07	0.000		0.00	0.00	0.0		0.00
A-B	0.46								
A-C	8.45								

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)
09.30-09.45									
B-C	0.34	6.70	0.051		0.07	0.05	0.8		0.16
B-A	1.48	8.93	0.166		0.27	0.20	3.1		0.13
C-A	4.62								
C-B	0.00	7.37	0.000		0.00	0.00	0.0		0.00
A-B	0.39								
A-C	7.08								

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1
09.45	0.1

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.2
08.45	0.3
09.00	0.4
09.15	0.4
09.30	0.3
09.45	0.2

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	37.2	24.8	6.4	0.17	6.4	0.17
B-A	162.4	108.3	25.5	0.16	25.5	0.16
C-A	506.5	337.7				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	42.7	28.4				
A-C	776.3	517.5				
ALL	1525.1	1016.7	31.8	0.02	31.8	0.02

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
591.34	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 With Development

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	7.11	10.67	7.11
ARM B	15.00	45.00	75.00	1.84	2.76	1.84
ARM C	15.00	45.00	75.00	7.32	10.99	7.32

.Demand set: PM 2020 With Development

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.135	0.865
		0.0	77.0	492.0
		(0.0)	(0.0)	(2.0)
	ARM B	0.639	0.000	0.361
		94.0	0.0	53.0
		(0.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		586.0	0.0	0.0
		(4.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 With Development
AND FOR TIME PERIOD 2

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									
B-C	0.67	7.73	0.086		0.00	0.09	1.3		0.14
B-A	1.18	8.04	0.147		0.00	0.17	2.5		0.15
C-A	7.35								
C-B	0.00	7.50	0.000		0.00	0.00	0.0		0.00
A-B	0.97								
A-C	6.17								

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									
B-C	0.79	7.36	0.108		0.09	0.12	1.8		0.15
B-A	1.41	7.51	0.188		0.17	0.23	3.3		0.16
C-A	8.78								
C-B	0.00	7.22	0.000		0.00	0.00	0.0		0.00
A-B	1.15								
A-C	7.37								

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									
B-C	0.97	6.83	0.142		0.12	0.16	2.4		0.17
B-A	1.72	6.77	0.255		0.23	0.34	4.9		0.20

C-A	10.75							
C-B	0.00	6.82	0.000	0.00	0.00	0.0	0.00	
A-B	1.41							
A-C	9.03							

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									
B-C	0.97	6.82	0.143		0.16	0.17	2.5		0.17
B-A	1.72	6.77	0.255		0.34	0.34	5.1		0.20
C-A	10.75								
C-B	0.00	6.82	0.000		0.00	0.00	0.0		0.00
A-B	1.41								
A-C	9.03								

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									
B-C	0.79	7.36	0.108		0.17	0.12	1.9		0.15
B-A	1.41	7.51	0.188		0.34	0.23	3.6		0.16
C-A	8.78								
C-B	0.00	7.22	0.000		0.00	0.00	0.0		0.00
A-B	1.15								
A-C	7.37								

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									
B-C	0.67	7.73	0.086		0.12	0.10	1.5		0.14
B-A	1.18	8.04	0.147		0.23	0.17	2.7		0.15
C-A	7.35								
C-B	0.00	7.50	0.000		0.00	0.00	0.0		0.00
A-B	0.97								
A-C	6.17								

QUEUE FOR STREAM B-C

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

QUEUE FOR STREAM B-A

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

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	73.0	48.6	11.3	0.15	11.3	0.15
B-A	129.4	86.3	22.0	0.17	22.0	0.17
C-A	806.6	537.7				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	106.0	70.7				
A-C	677.2	451.5				
ALL	1792.1	1194.7	33.3	0.02	33.3	0.02

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
591.34	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 With Development+Tourism

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	8.68	13.01	8.68
ARM B	15.00	45.00	75.00	1.84	2.76	1.84
ARM C	15.00	45.00	75.00	8.65	12.97	8.65

.Demand set: PM 2020 With Development+Tourism

TIME	TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30				
	ARM A	0.000	0.111	0.889
		0.0	77.0	617.0
		(0.0)	(0.0)	(2.0)
	ARM B	0.639	0.000	0.361
		94.0	0.0	53.0
		(0.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		692.0	0.0	0.0
		(4.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 With Development+Tourism
AND FOR TIME PERIOD 2

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									
B-C	0.67	7.38	0.090		0.00	0.10	1.4		0.15
B-A	1.18	7.46	0.158		0.00	0.19	2.7		0.16
C-A	8.68								
C-B	0.00	7.18	0.000		0.00	0.00	0.0		0.00
A-B	0.97								
A-C	7.74								

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									
B-C	0.79	6.93	0.115		0.10	0.13	1.9		0.16
B-A	1.41	6.82	0.207		0.19	0.26	3.7		0.18
C-A	10.37								
C-B	0.00	6.83	0.000		0.00	0.00	0.0		0.00
A-B	1.15								
A-C	9.24								

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									
B-C	0.97	6.26	0.155		0.13	0.18	2.6		0.19
B-A	1.72	5.92	0.291		0.26	0.40	5.8		0.24
C-A	12.70								
C-B	0.00	6.35	0.000		0.00	0.00	0.0		0.00
A-B	1.41								
A-C	11.32								

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									
B-C	0.97	6.26	0.155		0.18	0.18	2.7		0.19
B-A	1.72	5.92	0.291		0.40	0.41	6.1		0.24
C-A	12.70								
C-B	0.00	6.35	0.000		0.00	0.00	0.0		0.00
A-B	1.41								
A-C	11.32								

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									
B-C	0.79	6.93	0.115		0.18	0.13	2.0		0.16
B-A	1.41	6.82	0.207		0.41	0.26	4.1		0.19
C-A	10.37								
C-B	0.00	6.83	0.000		0.00	0.00	0.0		0.00
A-B	1.15								
A-C	9.24								

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									
B-C	0.67	7.37	0.090		0.13	0.10	1.5		0.15
B-A	1.18	7.46	0.158		0.26	0.19	2.9		0.16
C-A	8.68								
C-B	0.00	7.18	0.000		0.00	0.00	0.0		0.00
A-B	0.97								
A-C	7.74								

QUEUE FOR STREAM B-C

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

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.2
16.45	0.3
17.00	0.4
17.15	0.4
17.30	0.3
17.45	0.2

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	73.0	48.6	12.2	0.17	12.2	0.17
B-A	129.4	86.3	25.3	0.20	25.3	0.20
C-A	952.5	635.0				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
A-B	106.0	70.7				
A-C	849.3	566.2				
ALL	2110.1	1406.7	37.5	0.02	37.5	0.02

* 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 RUN*******

_____ 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\IssueRevA\
8.Harbour Rd_Paget Rd\Harbour Rd_Padget Rd Roundabout\Harbour_StationRd_Rndbt.vai"
(drive-on-the-left) at 11:27:58 on Wednesday, 7 April 2010

.FILE PROPERTIES
****

RUN TITLE: Harbour Rd Station Approach
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Station Approach
ARM B - Padget Rd (S)
ARM C - Harbour Rd

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
I ARM A	5.85	7.19	1.10	15.20	28.00	40.0	0.657	29.373
I ARM B	4.41	7.26	21.00	24.30	28.00	12.0	0.759	34.602
I ARM C	5.87	8.90	18.00	51.00	28.00	13.0	0.869	43.100

V = approach half-width E = 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

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

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 Base 2008

I ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
I ARM A	15.00	45.00	75.00	0.84	1.26	0.84
I ARM B	15.00	45.00	75.00	0.61	0.92	0.61
I ARM C	15.00	45.00	75.00	2.53	3.79	2.53

DEMAND SET TITLE: AM Base 2008

	TURNING PROPORTIONS

TIME	FROM/TO	TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
08.15 - 09.45				
	ARM A	0.000	0.000	1.000
		0.0	0.0	67.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.122	0.000	0.878
		6.0	0.0	43.0
		(0.0)	(0.0)	(8.0)
	ARM C	0.262	0.188	0.550
		53.0	38.0	111.0
		(4.0)	(3.0)	(3.0)

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)
08.15-08.30									
ARM A	0.84	27.29	0.031	- - -	0.0	0.0	0.5	-	0.038
ARM B	0.61	30.70	0.020	- - -	0.0	0.0	0.3	-	0.033
ARM C	2.53	41.68	0.061	- - -	0.0	0.1	1.0	-	0.026
08.30-08.45									
ARM A	1.00	27.05	0.037	- - -	0.0	0.0	0.6	-	0.038
ARM B	0.73	30.38	0.024	- - -	0.0	0.0	0.4	-	0.034
ARM C	3.03	41.66	0.073	- - -	0.1	0.1	1.2	-	0.026
08.45-09.00									
ARM A	1.23	26.72	0.046	- - -	0.0	0.0	0.7	-	0.039
ARM B	0.90	29.94	0.030	- - -	0.0	0.0	0.5	-	0.034
ARM C	3.71	41.65	0.089	- - -	0.1	0.1	1.5	-	0.026
09.00-09.15									
ARM A	1.23	26.72	0.046	- - -	0.0	0.0	0.7	-	0.039
ARM B	0.90	29.94	0.030	- - -	0.0	0.0	0.5	-	0.034
ARM C	3.71	41.65	0.089	- - -	0.1	0.1	1.5	-	0.026
09.15-09.30									
ARM A	1.00	27.05	0.037	- - -	0.0	0.0	0.6	-	0.038
ARM B	0.73	30.38	0.024	- - -	0.0	0.0	0.4	-	0.034
ARM C	3.03	41.66	0.073	- - -	0.1	0.1	1.2	-	0.026
09.30-09.45									
ARM A	0.84	27.29	0.031	- - -	0.0	0.0	0.5	-	0.038
ARM B	0.61	30.70	0.020	- - -	0.0	0.0	0.3	-	0.033
ARM C	2.53	41.67	0.061	- - -	0.1	0.1	1.0	-	0.026

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0

08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1
09.45	0.1

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	92.2	61.5	3.5	0.04	3.5	0.04	
B	67.4	45.0	2.3	0.03	2.3	0.03	
C	278.0	185.4	7.2	0.03	7.2	0.03	
ALL	437.7	291.8	13.0	0.03	13.0	0.03	

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
8.Harbour Rd_Paget Rd\Harbour Rd_Padget Rd Roundabout\Harbour_StationRd_Rndbt.vai"
(drive-on-the-left) at 11:28:33 on Wednesday, 7 April 2010

.FILE PROPERTIES
****

RUN TITLE: Harbour Rd Station Approach
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Station Approach
ARM B - Padget Rd (S)
ARM C - Harbour Rd

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.85	7.19	1.10	15.20	28.00	40.0	0.657	29.373
ARM B	4.41	7.26	21.00	24.30	28.00	12.0	0.759	34.602
ARM C	5.87	8.90	18.00	51.00	28.00	13.0	0.869	43.100

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100

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 Base 2020

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	0.98	1.46	0.98
ARM B	15.00	45.00	75.00	0.71	1.07	0.71
ARM C	15.00	45.00	75.00	2.95	4.43	2.95

DEMAND SET TITLE: AM Base 2020

	TURNING PROPORTIONS

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45		TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000	0.000	1.000
		0.0	0.0	78.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.123	0.000	0.877
		7.0	0.0	50.0
		(0.0)	(0.0)	(8.0)
	ARM C	0.263	0.191	0.547
		62.0	45.0	129.0
		(4.0)	(3.0)	(3.0)

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)
08.15-08.30										
	ARM A	0.98	27.08	0.036	- -	-	0.0	0.6	-	0.038
	ARM B	0.72	30.44	0.023	- -	-	0.0	0.4	-	0.034
	ARM C	2.96	41.66	0.071	- -	-	0.1	1.1	-	0.026
08.30-08.45										
	ARM A	1.17	26.80	0.044	- -	-	0.0	0.7	-	0.039
	ARM B	0.85	30.06	0.028	- -	-	0.0	0.4	-	0.034
	ARM C	3.54	41.65	0.085	- -	-	0.1	1.4	-	0.026
08.45-09.00										
	ARM A	1.43	26.42	0.054	- -	-	0.0	0.8	-	0.040
	ARM B	1.05	29.55	0.035	- -	-	0.0	0.5	-	0.035
	ARM C	4.33	41.63	0.104	- -	-	0.1	1.7	-	0.027
09.00-09.15										
	ARM A	1.43	26.42	0.054	- -	-	0.1	0.9	-	0.040
	ARM B	1.05	29.55	0.035	- -	-	0.0	0.6	-	0.035
	ARM C	4.33	41.63	0.104	- -	-	0.1	1.7	-	0.027
09.15-09.30										
	ARM A	1.17	26.80	0.044	- -	-	0.1	0.7	-	0.039
	ARM B	0.85	30.06	0.028	- -	-	0.0	0.4	-	0.034
	ARM C	3.54	41.65	0.085	- -	-	0.1	1.4	-	0.026
09.30-09.45										
	ARM A	0.98	27.08	0.036	- -	-	0.0	0.6	-	0.038
	ARM B	0.72	30.43	0.024	- -	-	0.0	0.4	-	0.034
	ARM C	2.96	41.66	0.071	- -	-	0.1	1.2	-	0.026

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.1
09.15	0.1
09.30	0.0
09.45	0.0

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0

08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1
09.45	0.1

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		T75
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	
A	107.4	71.6	4.2	0.04	4.2	0.04	
B	78.5	52.3	2.7	0.03	2.7	0.03	
C	324.8	216.6	8.5	0.03	8.5	0.03	
ALL	510.7	340.4	15.4	0.03	15.4	0.03	

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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
8.Harbour Rd_Paget Rd\Harbour Rd_Padget Rd Roundabout\Harbour_StationRd_Rndbt.vai"
(drive-on-the-left) at 15:52:23 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Harbour Rd Station Approach
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Station Approach
ARM B - Padget Rd (S)
ARM C - Harbour Rd

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.85	7.19	1.10	15.20	28.00	40.0	0.657	29.373
ARM B	4.41	7.26	21.00	24.30	28.00	12.0	0.759	34.602
ARM C	5.87	8.90	18.00	51.00	28.00	13.0	0.869	43.100

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

IARM	FLOW SCALE(%)
A	100
B	100
C	100

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	1.21	1.82	1.21
ARM B	15.00	45.00	75.00	0.71	1.07	0.71
ARM C	15.00	45.00	75.00	6.06	9.09	6.06

DEMAND SET TITLE: AM 2020 with Development
.---------- T33

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 09.45				
	ARM A	0.000	0.000	1.000
		0.0	0.0	97.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.123	0.000	0.877
		7.0	0.0	50.0
		(0.0)	(0.0)	(8.0)
	ARM C	0.175	0.093	0.732
		85.0	45.0	355.0
		(4.0)	(3.0)	(3.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	1.22	25.22	0.048	- - -	0.0	0.1	0.7	-	0.042
ARM B	0.72	28.19	0.025	- - -	0.0	0.0	0.4	-	0.036
ARM C	6.09	41.70	0.146	- - -	0.0	0.2	2.5	-	0.028
08.30-08.45									
ARM A	1.45	24.57	0.059	- - -	0.1	0.1	0.9	-	0.043
ARM B	0.85	27.38	0.031	- - -	0.0	0.0	0.5	-	0.038
ARM C	7.27	41.69	0.174	- - -	0.2	0.2	3.1	-	0.029
08.45-09.00									
ARM A	1.78	23.69	0.075	- - -	0.1	0.1	1.2	-	0.046
ARM B	1.05	26.26	0.040	- - -	0.0	0.0	0.6	-	0.040
ARM C	8.90	41.67	0.214	- - -	0.2	0.3	4.0	-	0.031
09.00-09.15									
ARM A	1.78	23.69	0.075	- - -	0.1	0.1	1.2	-	0.046
ARM B	1.05	26.26	0.040	- - -	0.0	0.0	0.6	-	0.040
ARM C	8.90	41.67	0.214	- - -	0.3	0.3	4.1	-	0.031
09.15-09.30									
ARM A	1.45	24.57	0.059	- - -	0.1	0.1	1.0	-	0.043
ARM B	0.85	27.37	0.031	- - -	0.0	0.0	0.5	-	0.038
ARM C	7.27	41.69	0.174	- - -	0.3	0.2	3.2	-	0.029
09.30-09.45									
ARM A	1.22	25.21	0.048	- - -	0.1	0.1	0.8	-	0.042
ARM B	0.72	28.18	0.025	- - -	0.0	0.0	0.4	-	0.036
ARM C	6.09	41.70	0.146	- - -	0.2	0.2	2.6	-	0.028

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1
09.45	0.1

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.2
08.45	0.2
09.00	0.3
09.15	0.3
09.30	0.2
09.45	0.2

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	133.5	89.0	5.8	0.04	5.8	0.04
B	78.5	52.3	3.0	0.04	3.0	0.04
C	667.6	445.0	19.5	0.03	19.6	0.03
ALL	879.5	586.4	28.4	0.03	28.4	0.03

T75

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END OF JOB

_____ 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\IssueRevA\
8.Harbour Rd_Paget Rd\Harbour Rd_Padget Rd Roundabout\Harbour_StationRd_Rndbt.vai"
(drive-on-the-left) at 11:29:23 on Wednesday, 7 April 2010

.FILE PROPERTIES
****

RUN TITLE: Harbour Rd Station Approach
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Station Approach
ARM B - Padget Rd (S)
ARM C - Harbour Rd

.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	5.85	I	7.19	I	1.10	I	15.20	I	28.00	I	40.0	I	0.657	I	29.373	I
I ARM B	I	4.41	I	7.26	I	21.00	I	24.30	I	28.00	I	12.0	I	0.759	I	34.602	I
I ARM C	I	5.87	I	8.90	I	18.00	I	51.00	I	28.00	I	13.0	I	0.869	I	43.100	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

IARM	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 Base 2008

I ARM	I	NUMBER OF MINUTES FROM START WHEN TO RISE	I	NUMBER OF MINUTES FROM START WHEN IS REACHED	I	NUMBER OF MINUTES FROM START WHEN FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	I	RATE OF FLOW (VEH/MIN) AFTER PEAK	I
I ARM A	I	15.00	I	45.00	I	75.00	I	1.08	I	1.61	I	1.08	I
I ARM B	I	15.00	I	45.00	I	75.00	I	2.30	I	3.45	I	2.30	I
I ARM C	I	15.00	I	45.00	I	75.00	I	4.68	I	7.01	I	4.68	I

DEMAND SET TITLE: PM Base 2008

I	I	TURNING PROPORTIONS	I

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.105	0.895
		0.0	9.0	77.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.082	0.000	0.918
		15.0	0.0	169.0
		(0.0)	(0.0)	(2.0)
	ARM C	0.441	0.134	0.425
		165.0	50.0	159.0
		(1.0)	(0.0)	(2.0)

TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	1.08	26.90	0.040	- - -	0.0	0.0	0.6	-	0.039
ARM B	2.31	31.72	0.073	- - -	0.0	0.1	1.2	-	0.034
ARM C	4.69	42.39	0.111	- - -	0.0	0.1	1.8	-	0.027
16.30-16.45									
ARM A	1.29	26.57	0.048	- - -	0.0	0.1	0.8	-	0.040
ARM B	2.76	31.28	0.088	- - -	0.1	0.1	1.4	-	0.035
ARM C	5.60	42.36	0.132	- - -	0.1	0.2	2.3	-	0.027
16.45-17.00									
ARM A	1.58	26.11	0.060	- - -	0.1	0.1	1.0	-	0.041
ARM B	3.38	30.67	0.110	- - -	0.1	0.1	1.8	-	0.037
ARM C	6.86	42.31	0.162	- - -	0.2	0.2	2.9	-	0.028
17.00-17.15									
ARM A	1.58	26.11	0.060	- - -	0.1	0.1	1.0	-	0.041
ARM B	3.38	30.67	0.110	- - -	0.1	0.1	1.9	-	0.037
ARM C	6.86	42.31	0.162	- - -	0.2	0.2	2.9	-	0.028
17.15-17.30									
ARM A	1.29	26.57	0.049	- - -	0.1	0.1	0.8	-	0.040
ARM B	2.76	31.27	0.088	- - -	0.1	0.1	1.5	-	0.035
ARM C	5.60	42.36	0.132	- - -	0.2	0.2	2.3	-	0.027
17.30-17.45									
ARM A	1.08	26.90	0.040	- - -	0.1	0.0	0.6	-	0.039
ARM B	2.31	31.71	0.073	- - -	0.1	0.1	1.2	-	0.034
ARM C	4.69	42.39	0.111	- - -	0.2	0.1	1.9	-	0.027

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.1
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.0

QUEUE AT ARM B

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 C

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

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	118.4	78.9	4.7	0.04	4.7	0.04
B	253.3	168.8	8.9	0.04	8.9	0.04
C	514.8	343.2	14.1	0.03	14.1	0.03
ALL	886.4	590.9	27.7	0.03	27.7	0.03

T75

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
8.Harbour Rd_Paget Rd\Harbour Rd_Padget Rd Roundabout\Harbour_StationRd_Rndbt.vai"
(drive-on-the-left) at 11:29:51 on Wednesday, 7 April 2010

.FILE PROPERTIES
****

RUN TITLE: Harbour Rd Station Approach
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Station Approach
ARM B - Padget Rd (S)
ARM C - Harbour Rd

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.85	7.19	1.10	15.20	28.00	40.0	0.657	29.373
ARM B	4.41	7.26	21.00	24.30	28.00	12.0	0.759	34.602
ARM C	5.87	8.90	18.00	51.00	28.00	13.0	0.869	43.100

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

IARM	FLOW SCALE(%)
A	100
B	100
C	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 Base 2020

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO RISE	TO PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	1.24	1.86	1.24	
ARM B	15.00	45.00	75.00	2.66	3.99	2.66	
ARM C	15.00	45.00	75.00	5.44	8.16	5.44	

DEMAND SET TITLE: PM Base 2020

TURNING PROPORTIONS

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.101	0.899
		0.0	10.0	89.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.080	0.000	0.920
		17.0	0.0	196.0
		(0.0)	(0.0)	(2.0)
	ARM C	0.441	0.133	0.425
		192.0	58.0	185.0
		(1.0)	(0.0)	(2.0)

TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	1.24	26.62	0.047	- -	-	0.0	0.0	0.7	-	0.039
ARM B	2.67	31.36	0.085	- -	-	0.0	0.1	1.4	-	0.035
ARM C	5.46	42.37	0.129	- -	-	0.0	0.1	2.2	-	0.027
16.30-16.45									
ARM A	1.48	26.23	0.057	- -	-	0.0	0.1	0.9	-	0.040
ARM B	3.19	30.84	0.103	- -	-	0.1	0.1	1.7	-	0.036
ARM C	6.52	42.33	0.154	- -	-	0.1	0.2	2.7	-	0.028
16.45-17.00									
ARM A	1.82	25.70	0.071	- -	-	0.1	0.1	1.1	-	0.042
ARM B	3.91	30.14	0.130	- -	-	0.1	0.1	2.2	-	0.038
ARM C	7.98	42.28	0.189	- -	-	0.2	0.2	3.5	-	0.029
17.00-17.15									
ARM A	1.82	25.70	0.071	- -	-	0.1	0.1	1.1	-	0.042
ARM B	3.91	30.13	0.130	- -	-	0.1	0.1	2.2	-	0.038
ARM C	7.98	42.28	0.189	- -	-	0.2	0.2	3.5	-	0.029
17.15-17.30									
ARM A	1.48	26.23	0.057	- -	-	0.1	0.1	0.9	-	0.040
ARM B	3.19	30.84	0.103	- -	-	0.1	0.1	1.8	-	0.036
ARM C	6.52	42.33	0.154	- -	-	0.2	0.2	2.8	-	0.028
17.30-17.45									
ARM A	1.24	26.62	0.047	- -	-	0.1	0.0	0.7	-	0.039
ARM B	2.67	31.35	0.085	- -	-	0.1	0.1	1.4	-	0.035
ARM C	5.46	42.37	0.129	- -	-	0.2	0.1	2.2	-	0.027

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.1
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.0

QUEUE AT ARM B

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 C

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

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	136.3	90.8	5.5	0.04	5.5	0.04
B	293.2	195.5	10.7	0.04	10.7	0.04
C	598.7	399.2	16.8	0.03	16.8	0.03
ALL	1028.2	685.5	33.1	0.03	33.1	0.03

T75

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
8.Harbour Rd_Paget Rd\Harbour Rd_Padget Rd Roundabout\Harbour_StationRd_Rndbt.vai"
(drive-on-the-left) at 15:54:01 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Harbour Rd Station Approach
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Station Approach
ARM B - Padget Rd (S)
ARM C - Harbour Rd

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.85	7.19	1.10	15.20	28.00	40.0	0.657	29.373
ARM B	4.41	7.26	21.00	24.30	28.00	12.0	0.759	34.602
ARM C	5.87	8.90	18.00	51.00	28.00	13.0	0.869	43.100

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

IARM	FLOW SCALE(%)
A	100
B	100
C	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 Base 2020 +tourism

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	1.79	2.68	1.79
ARM B	15.00	45.00	75.00	3.88	5.81	3.88
ARM C	15.00	45.00	75.00	8.11	12.17	8.11

DEMAND SET TITLE: PM Base 2020 +tourism
.---------- T33

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.070	0.930
		0.0	10.0	133.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.055	0.000	0.945
		17.0	0.0	293.0
		(0.0)	(0.0)	(2.0)
	ARM C	0.438	0.133	0.430
		284.0	86.0	279.0
		(1.0)	(0.0)	(2.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	1.79	25.60	0.070	- -	0.0	0.1	1.1	-	0.042
ARM B	3.89	30.02	0.130	- -	0.0	0.1	2.2	-	0.038
ARM C	8.14	42.37	0.192	- -	0.0	0.2	3.5	-	0.029
16.30-16.45									
ARM A	2.14	25.02	0.086	- -	0.1	0.1	1.4	-	0.044
ARM B	4.64	29.25	0.159	- -	0.1	0.2	2.8	-	0.041
ARM C	9.72	42.33	0.230	- -	0.2	0.3	4.4	-	0.031
16.45-17.00									
ARM A	2.62	24.23	0.108	- -	0.1	0.1	1.8	-	0.046
ARM B	5.69	28.20	0.202	- -	0.2	0.3	3.7	-	0.044
ARM C	11.91	42.28	0.282	- -	0.3	0.4	5.8	-	0.033
17.00-17.15									
ARM A	2.62	24.23	0.108	- -	0.1	0.1	1.8	-	0.046
ARM B	5.69	28.20	0.202	- -	0.3	0.3	3.8	-	0.044
ARM C	11.91	42.28	0.282	- -	0.4	0.4	5.9	-	0.033
17.15-17.30									
ARM A	2.14	25.02	0.086	- -	0.1	0.1	1.4	-	0.044
ARM B	4.64	29.24	0.159	- -	0.3	0.2	2.9	-	0.041
ARM C	9.72	42.33	0.230	- -	0.4	0.3	4.5	-	0.031
17.30-17.45									
ARM A	1.79	25.60	0.070	- -	0.1	0.1	1.1	-	0.042
ARM B	3.89	30.01	0.130	- -	0.2	0.1	2.3	-	0.038
ARM C	8.14	42.36	0.192	- -	0.3	0.2	3.6	-	0.029

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	0.1
16.45	0.2
17.00	0.3
17.15	0.3
17.30	0.2
17.45	0.1

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.2
16.45	0.3
17.00	0.4
17.15	0.4
17.30	0.3
17.45	0.2

.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	196.8	131.2	8.7	0.04	8.7	0.04
B	426.7	284.5	17.6	0.04	17.6	0.04
C	893.3	595.5	27.8	0.03	27.8	0.03
ALL	1516.8	1011.2	54.1	0.04	54.1	0.04

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
8.Harbour Rd_Paget Rd\Harbour Rd_Padget Rd Roundabout\Harbour_StationRd_Rndbt.vai"
(drive-on-the-left) at 15:53:06 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Harbour Rd Station Approach
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Station Approach
ARM B - Padget Rd (S)
ARM C - Harbour Rd

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	5.85	7.19	1.10	15.20	28.00	40.0	0.657	29.373
ARM B	4.41	7.26	21.00	24.30	28.00	12.0	0.759	34.602
ARM C	5.87	8.90	18.00	51.00	28.00	13.0	0.869	43.100

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

IARM	FLOW SCALE(%)
A	100
B	100
C	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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	1.54	2.31	1.54
ARM B	15.00	45.00	75.00	2.66	3.99	2.66
ARM C	15.00	45.00	75.00	8.64	12.96	8.64

DEMAND SET TITLE: PM 2020 with Development
.

T33

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.081	0.919
		0.0	10.0	113.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.080	0.000	0.920
		17.0	0.0	196.0
		(0.0)	(0.0)	(2.0)
	ARM C	0.311	0.084	0.605
		215.0	58.0	418.0
		(1.0)	(0.0)	(2.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	1.54	24.70	0.062	- -	0.0	0.1	1.0	-	0.043
ARM B	2.67	28.90	0.092	- -	0.0	0.1	1.5	-	0.038
ARM C	8.67	42.27	0.205	- -	0.0	0.3	3.8	-	0.030
16.30-16.45									
ARM A	1.84	23.95	0.077	- -	0.1	0.1	1.2	-	0.045
ARM B	3.19	27.92	0.114	- -	0.1	0.1	1.9	-	0.040
ARM C	10.35	42.24	0.245	- -	0.3	0.3	4.8	-	0.031
16.45-17.00									
ARM A	2.26	22.91	0.099	- -	0.1	0.1	1.6	-	0.048
ARM B	3.91	26.56	0.147	- -	0.1	0.2	2.6	-	0.044
ARM C	12.68	42.19	0.301	- -	0.3	0.4	6.4	-	0.034
17.00-17.15									
ARM A	2.26	22.90	0.099	- -	0.1	0.1	1.6	-	0.048
ARM B	3.91	26.55	0.147	- -	0.2	0.2	2.6	-	0.044
ARM C	12.68	42.19	0.301	- -	0.4	0.4	6.4	-	0.034
17.15-17.30									
ARM A	1.84	23.94	0.077	- -	0.1	0.1	1.3	-	0.045
ARM B	3.19	27.91	0.114	- -	0.2	0.1	2.0	-	0.040
ARM C	10.35	42.24	0.245	- -	0.4	0.3	4.9	-	0.031
17.30-17.45									
ARM A	1.54	24.69	0.063	- -	0.1	0.1	1.0	-	0.043
ARM B	2.67	28.89	0.093	- -	0.1	0.1	1.5	-	0.038
ARM C	8.67	42.27	0.205	- -	0.3	0.3	3.9	-	0.030

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	0.1
16.45	0.1
17.00	0.2
17.15	0.2
17.30	0.1
17.45	0.1

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.3
16.45	0.3
17.00	0.4
17.15	0.4
17.30	0.3
17.45	0.3

.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	169.3	112.9	7.7	0.05	7.7	0.05
B	293.2	195.5	12.1	0.04	12.1	0.04
C	951.1	634.1	30.3	0.03	30.3	0.03
ALL	1413.6	942.4	50.1	0.04	50.1	0.04

* 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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

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Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
8.Harbour Rd_Paget Rd\Harbour Rd_Padget Rd Roundabout\Harbour_StationRd_Rndbt.vai"
(drive-on-the-left) at 15:53:31 on Tuesday, 13 April 2010

.FILE PROPERTIES
****

RUN TITLE: Harbour Rd Station Approach
LOCATION:
DATE: 06/04/10
CLIENT:
ENUMERATOR: Ryan.Hopkins [WACCMSJQ2J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
ARM A - Station Approach
ARM B - Padget Rd (S)
ARM C - Harbour Rd

.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	5.85	I	7.19	I	1.10	I	15.20	I	28.00	I	40.0	I	0.657	I	29.373	I
I ARM B	I	4.41	I	7.26	I	21.00	I	24.30	I	28.00	I	12.0	I	0.759	I	34.602	I
I ARM C	I	5.87	I	8.90	I	18.00	I	51.00	I	28.00	I	13.0	I	0.869	I	43.100	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

IARM	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 + tourism

I ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TO TOP OF PEAK	I	FLOW STOPS	I	RATE OF FLOW (VEH/MIN) BEFORE	I	AT TOP	I	AFTER	I
		TO RISE		IS REACHED		FALLING		PEAK		OF PEAK		PEAK	
I ARM A	I	15.00	I	45.00	I	75.00	I	2.09	I	3.13	I	2.09	I
I ARM B	I	15.00	I	45.00	I	75.00	I	3.88	I	5.81	I	3.88	I
I ARM C	I	15.00	I	45.00	I	75.00	I	10.76	I	16.14	I	10.76	I

DEMAND SET TITLE: PM 2020 with Development + tourism

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 17.45				
	ARM A	0.000	0.060	0.940
		0.0	10.0	157.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.055	0.000	0.945
		17.0	0.0	293.0
		(0.0)	(0.0)	(2.0)
	ARM C	0.357	0.100	0.544
		307.0	86.0	468.0
		(1.0)	(0.0)	(2.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

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	2.10	24.06	0.087	- -	0.0	0.1	1.4	-	0.045
ARM B	3.89	28.00	0.139	- -	0.0	0.2	2.4	-	0.041
ARM C	10.80	42.30	0.255	- -	0.0	0.3	5.1	-	0.032
16.30-16.45									
ARM A	2.50	23.18	0.108	- -	0.1	0.1	1.8	-	0.048
ARM B	4.64	26.83	0.173	- -	0.2	0.2	3.1	-	0.045
ARM C	12.90	42.27	0.305	- -	0.3	0.4	6.5	-	0.034
16.45-17.00									
ARM A	3.06	21.97	0.140	- -	0.1	0.2	2.4	-	0.053
ARM B	5.69	25.23	0.225	- -	0.2	0.3	4.3	-	0.051
ARM C	15.80	42.22	0.374	- -	0.4	0.6	8.8	-	0.038
17.00-17.15									
ARM A	3.06	21.96	0.140	- -	0.2	0.2	2.4	-	0.053
ARM B	5.69	25.22	0.226	- -	0.3	0.3	4.4	-	0.051
ARM C	15.80	42.22	0.374	- -	0.6	0.6	8.9	-	0.038
17.15-17.30									
ARM A	2.50	23.17	0.108	- -	0.2	0.1	1.8	-	0.048
ARM B	4.64	26.82	0.173	- -	0.3	0.2	3.2	-	0.045
ARM C	12.90	42.27	0.305	- -	0.6	0.4	6.7	-	0.034
17.30-17.45									
ARM A	2.10	24.05	0.087	- -	0.1	0.1	1.5	-	0.046
ARM B	3.89	27.98	0.139	- -	0.2	0.2	2.5	-	0.042
ARM C	10.80	42.30	0.255	- -	0.4	0.3	5.2	-	0.032

QUEUE AT ARM A

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

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE

16.30	0.2
16.45	0.2
17.00	0.3
17.15	0.3
17.30	0.2
17.45	0.2

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.3	
16.45	0.4	
17.00	0.6	*
17.15	0.6	*
17.30	0.4	
17.45	0.3	

.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	229.9	153.2	11.3	0.05	11.3	0.05
B	426.7	284.5	19.8	0.05	19.8	0.05
C	1185.1	790.1	41.2	0.03	41.2	0.03
ALL	1841.7	1227.8	72.3	0.04	72.3	0.04

* 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

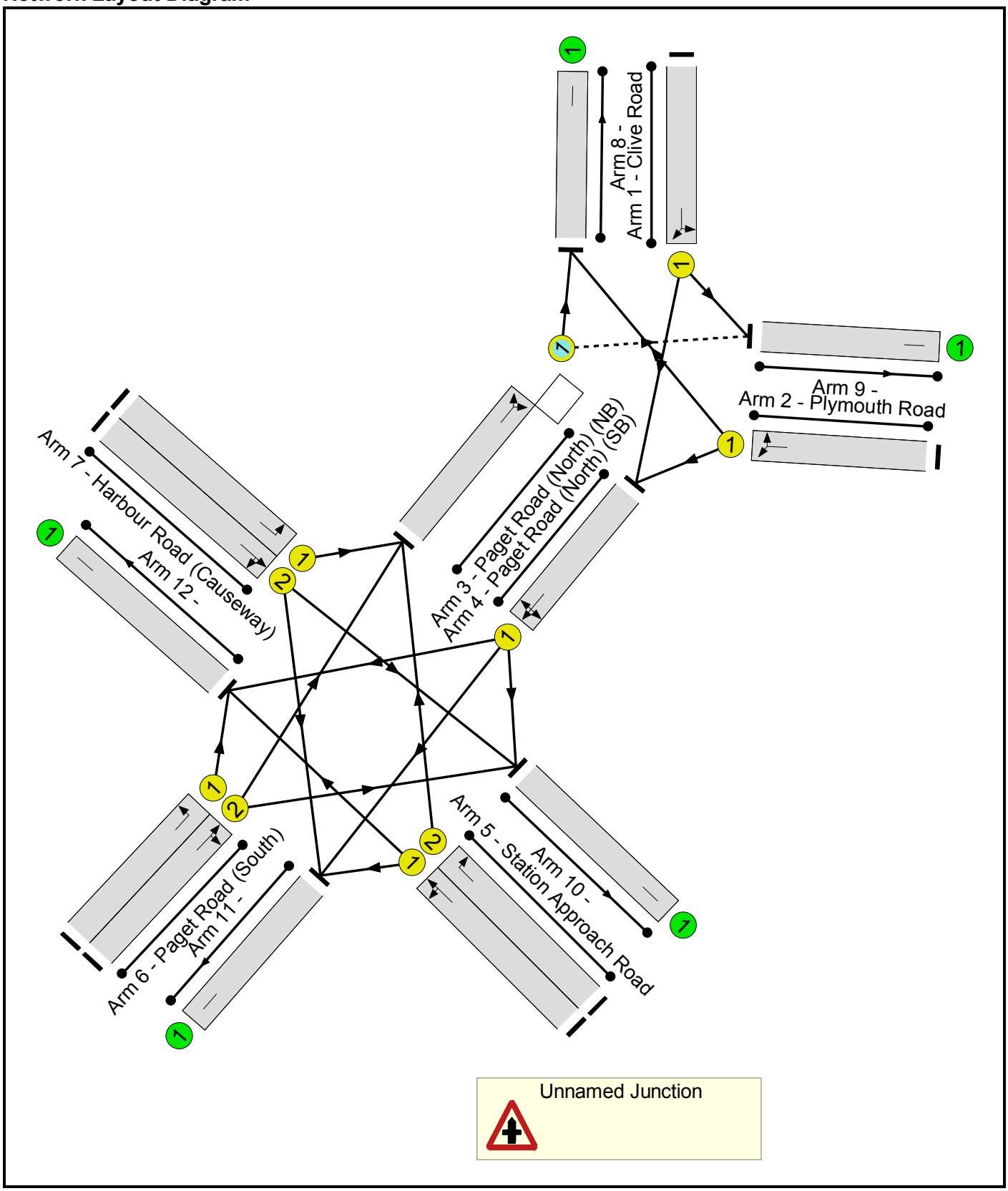
Full Input Data And Results

User and Project Details

Project:	**Waterfront barry**
Title:	
Location:	Harbour Road / Paget Road, Barry
File name:	HarbourPaget.lsg3x
Author:	Ryan Hopkins
Company:	Arup
Address:	
Notes:	

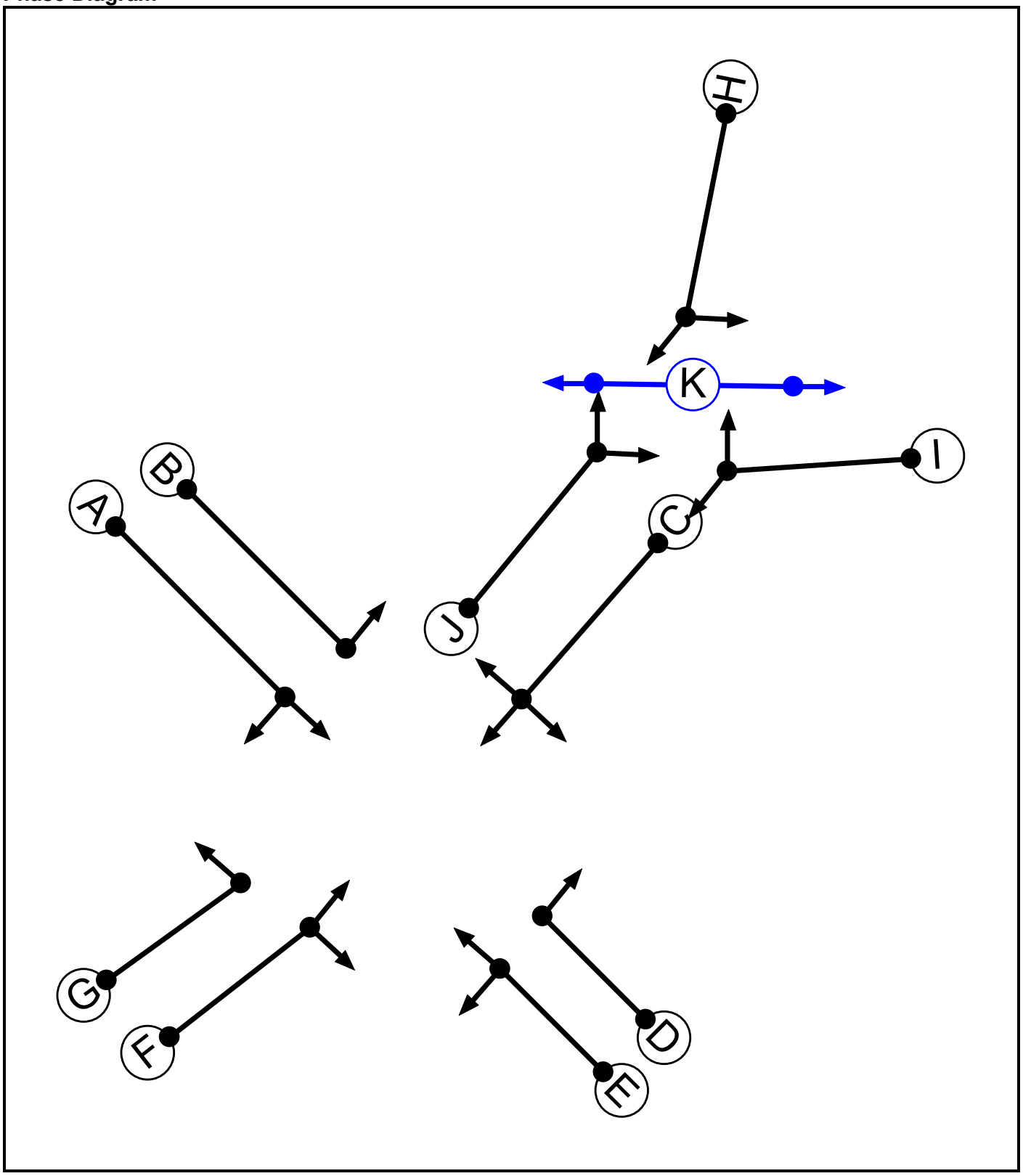
Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase type	Stage Stream	Assoc Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7
E	Traffic	1		7	7
F	Traffic	1		7	7
G	Traffic	1		7	7
H	Traffic	2		7	7
I	Traffic	2		7	7
J	Traffic	2		7	7
K	Pedestrian	2		7	7

Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K
A		-	7	7	7	7	7	-	-	-	-
B	-		-	7	-	-	7	-	-	-	-
C	7	-		7	7	7	7	-	-	-	-
D	7	7	7		-	7	7	-	-	-	-
E	7	-	7	-		7	7	-	-	-	-
F	7	-	7	7	7		-	-	-	-	-
G	7	7	7	7	7	-		-	-	-	-
H	-	-	-	-	-	-	-		7	-	7
I	-	-	-	-	-	-	-	7		7	7
J	-	-	-	-	-	-	-	-	7		7
K	-	-	-	-	-	-	-	7	7	7	

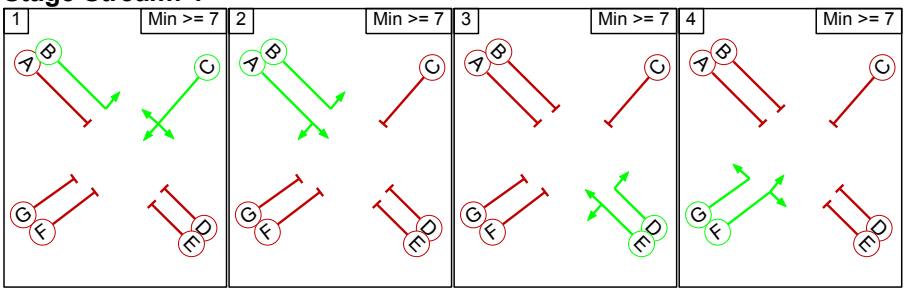
Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	B C
1	2	A B
1	3	D E
1	4	F G
2	1	H J
2	2	I
2	3	K

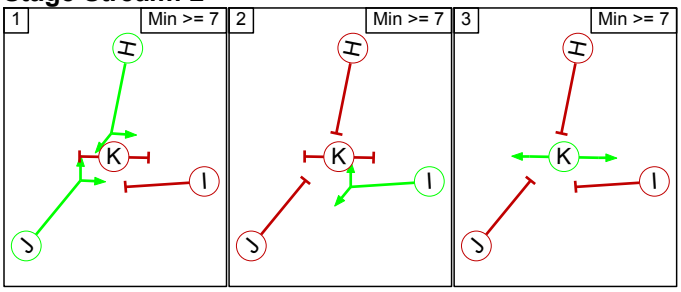
Full Input Data And Results

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no phase delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no phase delays defined					

Prohibited Stage Changes

Stage Stream: 1

		To Stage			
		1	2	3	4
From Stage	1		7	7	7
	2	7		7	7
	3	7	7		7
	4	7	7	7	

Stage Stream: 2

		To Stage		
		1	2	3
From Stage	1		7	7
	2	7		7
	3	7	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Unnamed Junction										
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
3/1 (Paget Road (North) (NB))	9/1 (Right)	1400	1/1	0.01	1/1	2.00	2.00	0.50	2	2.00

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Clive Road)	U	H	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 4 Ahead	Inf
											Arm 9 Left	13.50
2/1 (Plymouth Road)	U	I	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 4 Left	13.50
											Arm 8 Right	Inf
3/1 (Paget Road (North) (NB))	O	J	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 8 Ahead	Inf
											Arm 9 Right	16.50
4/1 (Paget Road (North) (SB))	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 10 Left	16.50
											Arm 11 Ahead	Inf
											Arm 12 Right	16.50
5/1 (Station Approach Road)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 11 Left	16.50
											Arm 12 Ahead	Inf
5/2 (Station Approach Road)	U	D	2	3	60.0	Geom	-	3.00	0.00	N	Arm 3 Right	16.50
6/1 (Paget Road (South))	U	G	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 12 Left	56.50
6/2 (Paget Road (South))	U	F	2	3	60.0	Geom	-	3.50	0.00	N	Arm 3 Ahead	Inf
											Arm 10 Right	16.50
7/1 (Harbour Road (Causeway))	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 3 Left	16.50
7/2 (Harbour Road (Causeway))	U	A	2	3	60.0	Geom	-	3.00	0.00	N	Arm 10 Ahead	Inf
											Arm 11 Right	15.00
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1	U		2	3	60.0	Inf	-	-	-	-	-	-
12/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM 2020 inc Dev+BI'	08:30	09:30	01:00	
2: 'PM 2020 in Dev+BI'	16:30	17:30	01:00	
3: '2020 Dev and Tour'	16:30	17:30	01:00	

Traffic Lane Flows

Lane	Scenario 1: AM 2020 inc Dev+BI
Junction: Unnamed Junction	
1/1	463
2/1	121
3/1	369
4/1	452
5/1	24
5/2	72
6/1	13
6/2	44
7/1	260
7/2	53
8/1	411
9/1	90
10/1	95
11/1	46
12/1	408

Full Input Data And Results

Scenario 1: 'AM 2020 inc Dev+BI' (FG1: 'AM 2020 inc Dev+BI', Plan 1: 'Standard')

Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Clive Road)	3.50	0.00	Y	Arm 4 Ahead	Inf	89.8 %	1943
				Arm 9 Left	13.50	10.2 %	
2/1 (Plymouth Road)	4.00	0.00	Y	Arm 4 Left	13.50	29.8 %	1951
				Arm 8 Right	Inf	70.2 %	
3/1 (Paget Road (North) (NB))	3.50	0.00	Y	Arm 8 Ahead	Inf	88.3 %	1944
				Arm 9 Right	16.50	11.7 %	
4/1 (Paget Road (North) (SB))	3.50	0.00	Y	Arm 10 Left	16.50	11.7 %	1811
				Arm 11 Ahead	Inf	6.2 %	
				Arm 12 Right	16.50	82.1 %	
5/1 (Station Approach Road)	3.00	0.00	Y	Arm 11 Left	16.50	0.0 %	1915
				Arm 12 Ahead	Inf	100.0 %	
5/2 (Station Approach Road)	3.00	0.00	N	Arm 3 Right	16.50	100.0 %	1884
6/1 (Paget Road (South))	3.50	0.00	Y	Arm 12 Left	56.50	100.0 %	1914
6/2 (Paget Road (South))	3.50	0.00	N	Arm 3 Ahead	Inf	84.1 %	2075
				Arm 10 Right	16.50	15.9 %	
7/1 (Harbour Road (Causeway))	3.00	0.00	Y	Arm 3 Left	16.50	100.0 %	1755
7/2 (Harbour Road (Causeway))	3.00	0.00	N	Arm 10 Ahead	Inf	66.0 %	1988
				Arm 11 Right	15.00	34.0 %	
8/1	Infinite Saturation Flow						Inf
9/1	Infinite Saturation Flow						Inf
10/1	Infinite Saturation Flow						Inf
11/1	Infinite Saturation Flow						Inf
12/1	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: PM 2020 inc Dev+Bl
Junction: Unnamed Junction	
1/1	568
2/1	135
3/1	528
4/1	582
5/1	86
5/2	39
6/1	129
6/2	84
7/1	422
7/2	122
8/1	502
9/1	147
10/1	234
11/1	68
12/1	634

Full Input Data And Results

Scenario 2: 'PM 2020 inc Dev+BI' (FG2: 'PM 2020 in Dev+BI', Plan 1: 'Standard')

Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Clive Road)	3.50	0.00	Y	Arm 4 Ahead	Inf	85.9 %	1935
				Arm 9 Left	13.50	14.1 %	
2/1 (Plymouth Road)	4.00	0.00	Y	Arm 4 Left	13.50	69.6 %	1870
				Arm 8 Right	Inf	30.4 %	
3/1 (Paget Road (North) (NB))	3.50	0.00	Y	Arm 8 Ahead	Inf	87.3 %	1943
				Arm 9 Right	16.50	12.7 %	
4/1 (Paget Road (North) (SB))	3.50	0.00	Y	Arm 10 Left	16.50	20.8 %	1810
				Arm 11 Ahead	Inf	5.5 %	
				Arm 12 Right	16.50	73.7 %	
5/1 (Station Approach Road)	3.00	0.00	Y	Arm 11 Left	16.50	11.6 %	1895
				Arm 12 Ahead	Inf	88.4 %	
5/2 (Station Approach Road)	3.00	0.00	N	Arm 3 Right	16.50	100.0 %	1884
6/1 (Paget Road (South))	3.50	0.00	Y	Arm 12 Left	56.50	100.0 %	1914
6/2 (Paget Road (South))	3.50	0.00	N	Arm 3 Ahead	Inf	79.8 %	2067
				Arm 10 Right	16.50	20.2 %	
7/1 (Harbour Road (Causeway))	3.00	0.00	Y	Arm 3 Left	16.50	100.0 %	1755
7/2 (Harbour Road (Causeway))	3.00	0.00	N	Arm 10 Ahead	Inf	78.7 %	2012
				Arm 11 Right	15.00	21.3 %	
8/1	Infinite Saturation Flow						Inf
9/1	Infinite Saturation Flow						Inf
10/1	Infinite Saturation Flow						Inf
11/1	Infinite Saturation Flow						Inf
12/1	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: PM 2020 Dev + Tourism
Junction: Unnamed Junction	
1/1	671
2/1	202
3/1	635
4/1	689
5/1	110
5/2	60
6/1	181
6/2	129
7/1	463
7/2	187
8/1	611
9/1	208
10/1	326
11/1	97
12/1	761

Full Input Data And Results

Scenario 3: 'PM 2020 Dev + Tourism' (FG3: '2020 Dev and Tour', Plan 1: 'Standard')

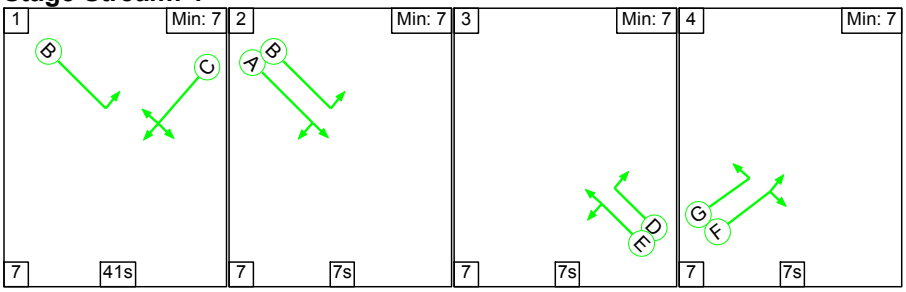
Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Clive Road)	3.50	0.00	Y	Arm 4 Ahead	Inf	83.3 %	1929
				Arm 9 Left	13.50	16.7 %	
2/1 (Plymouth Road)	4.00	0.00	Y	Arm 4 Left	13.50	64.4 %	1881
				Arm 8 Right	Inf	35.6 %	
3/1 (Paget Road (North) (NB))	3.50	0.00	Y	Arm 8 Ahead	Inf	84.9 %	1938
				Arm 9 Right	16.50	15.1 %	
4/1 (Paget Road (North) (SB))	3.50	0.00	Y	Arm 10 Left	16.50	23.7 %	1811
				Arm 11 Ahead	Inf	6.7 %	
				Arm 12 Right	16.50	69.7 %	
5/1 (Station Approach Road)	3.00	0.00	Y	Arm 11 Left	16.50	9.1 %	1899
				Arm 12 Ahead	Inf	90.9 %	
5/2 (Station Approach Road)	3.00	0.00	N	Arm 3 Right	16.50	100.0 %	1884
6/1 (Paget Road (South))	3.50	0.00	Y	Arm 12 Left	56.50	100.0 %	1914
6/2 (Paget Road (South))	3.50	0.00	N	Arm 3 Ahead	Inf	86.8 %	2080
				Arm 10 Right	16.50	13.2 %	
7/1 (Harbour Road (Causeway))	3.00	0.00	Y	Arm 3 Left	16.50	100.0 %	1755
7/2 (Harbour Road (Causeway))	3.00	0.00	N	Arm 10 Ahead	Inf	78.1 %	2011
				Arm 11 Right	15.00	21.9 %	
8/1	Infinite Saturation Flow						Inf
9/1	Infinite Saturation Flow						Inf
10/1	Infinite Saturation Flow						Inf
11/1	Infinite Saturation Flow						Inf
12/1	Infinite Saturation Flow						Inf

Scenario 1: 'AM 2020 inc Dev+BI' (FG1: 'AM 2020 inc Dev+BI', Plan 1: 'Standard')

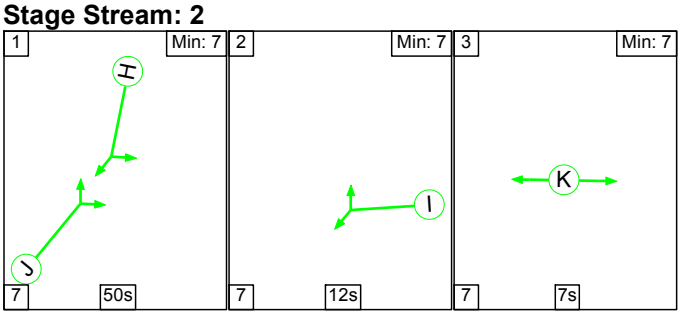
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

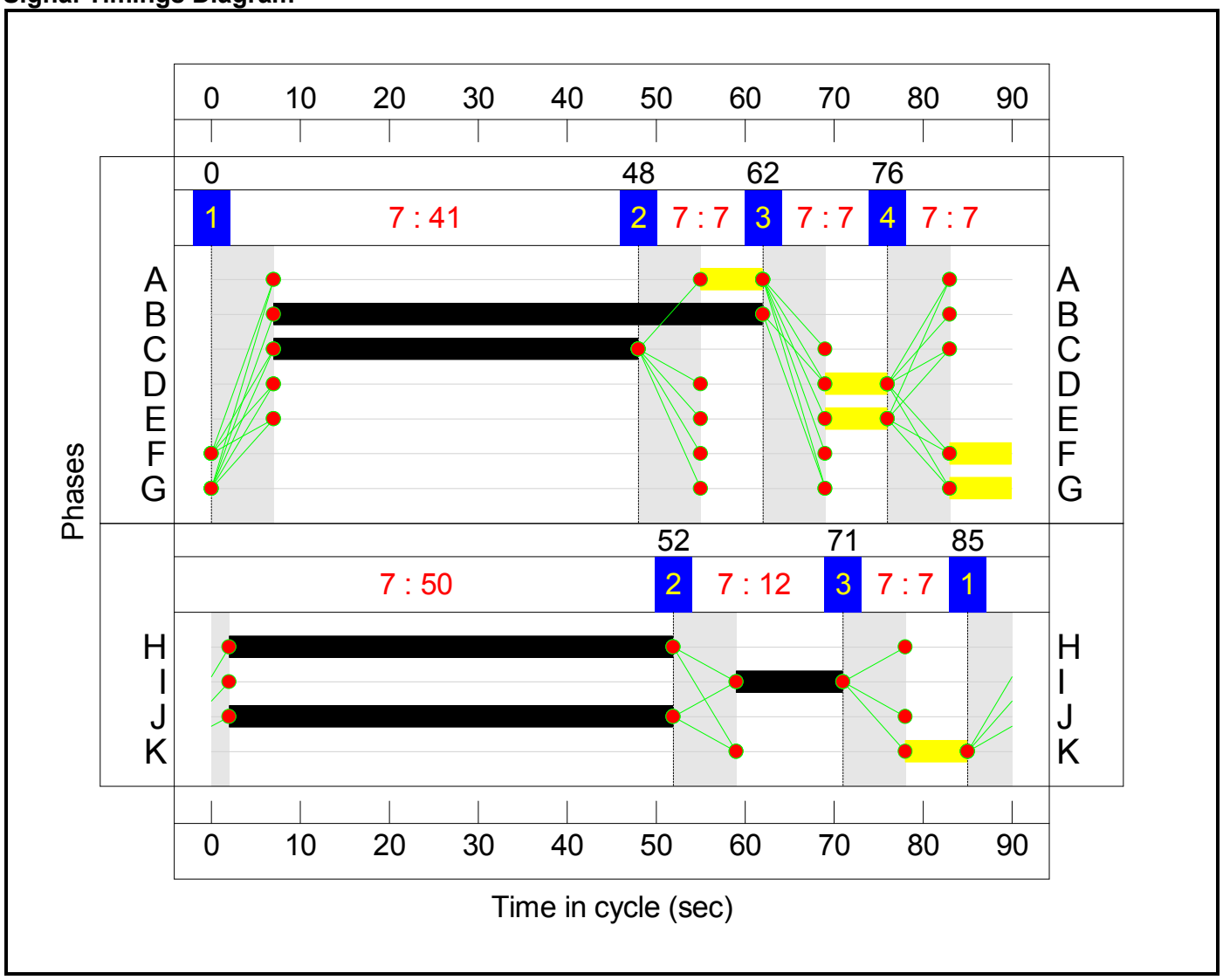
Stage Stream: 1

Stage	1	2	3	4
Duration	41	7	7	7
Change Point	0	48	62	76

Stage Stream: 2

Stage	1	2	3
Duration	50	12	7
Change Point	85	52	71

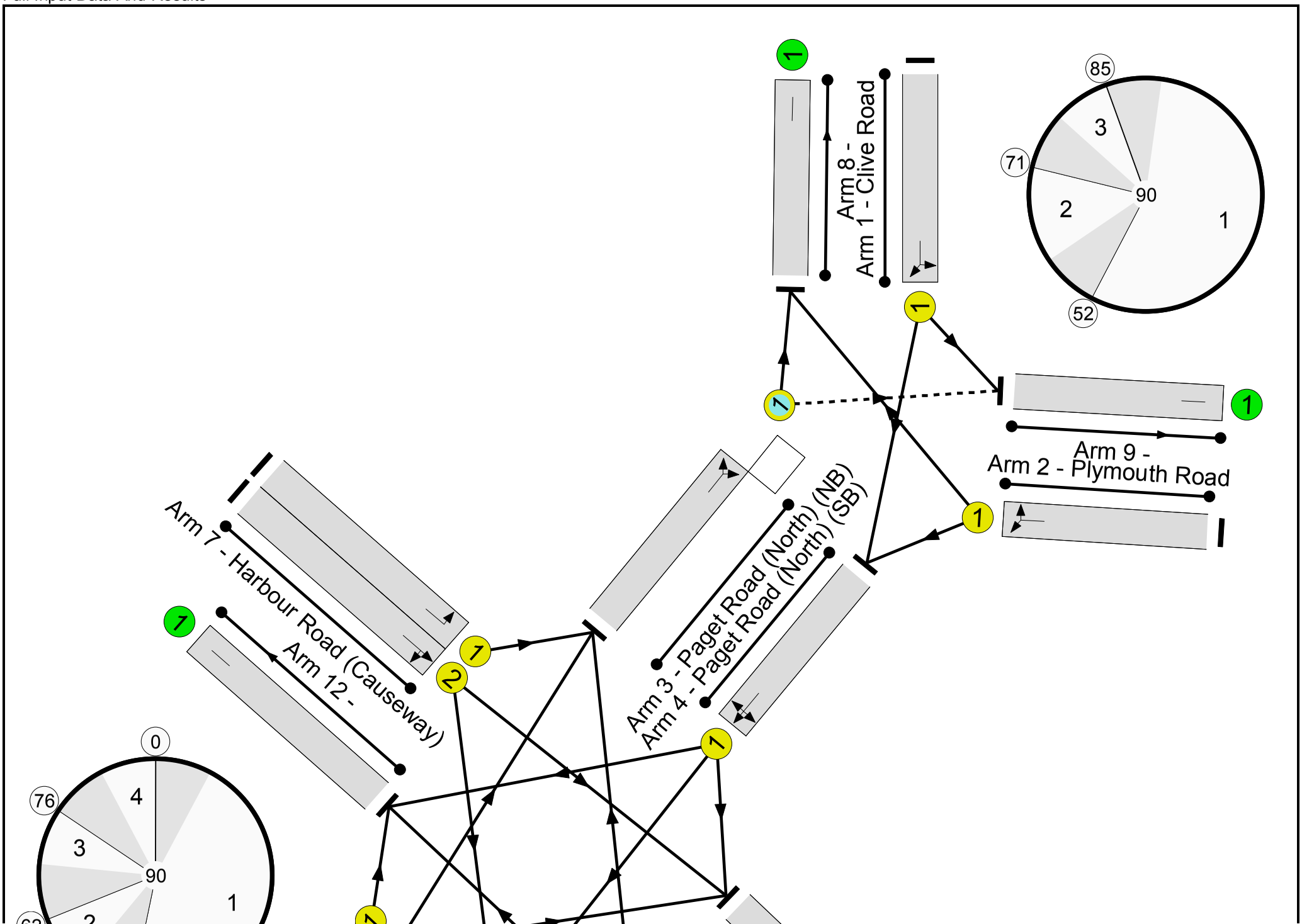
Signal Timings Diagram



Full Input Data And Results

Full Input Data And Results

Network Layout Diagram


Arm 8 -
Arm 1 - Clive Road
Arm 9 -
Arm 2 - Plymouth Road
Arm 7 - Harbour Road (Causeway)
Arm 12 -
Arm 3 - Paget Road (North) (NB)
Arm 4 - Paget Road (North) (SB)
85
3
71
90
2
1
52
0
4
76
3
90
1

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	-	-	-	-	-	-	-	-	-	-	**53.5%**
Unnamed Junction	-	-	-	-	-	-	-	-	-	-	-	-	**53.5%**
1/1	Clive Road Ahead Left	U	2	N/A	H		1	50	-	463	1943	1101	42.1%
2/1	Plymouth Road Left Right	U	2	N/A	I		1	12	-	121	1951	282	42.9%
3/1	Paget Road (North) (NB) Ahead Right	O	2	N/A	J		1	50	-	369	1944	1102	33.5%
4/1	Paget Road (North) (SB) Left Ahead Right	U	1	N/A	C		1	41	-	452	1811	845	53.5%
5/1	Station Approach Road Left Ahead	U	1	N/A	E		1	7	-	24	1915	170	14.1%
5/2	Station Approach Road Right	U	1	N/A	D		1	7	-	72	1884	167	43.0%
6/1	Paget Road (South) Left	U	1	N/A	G		1	7	-	13	1914	170	7.6%
6/2	Paget Road (South) Ahead Right	U	1	N/A	F		1	7	-	44	2075	184	23.9%
7/1	Harbour Road (Causeway) Left	U	1	N/A	B		1	55	-	260	1755	1092	23.8%
7/2	Harbour Road (Causeway) Ahead Right	U	1	N/A	A		1	7	-	53	1988	177	30.0%
8/1		U	N/A	N/A	-		-	-	-	411	1	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	90	1	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	95	1	Inf	0.0%
11/1		U	N/A	N/A	-		-	-	-	46	1	Inf	0.0%
12/1		U	N/A	N/A	-		-	-	-	408	1	Inf	0.0%

Full Input Data And Results

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**43**	**0**	**0**	**7.2**	**2.6**	**0.0**	**9.8**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**43**	**0**	**0**	**7.2**	**2.6**	**0.0**	**9.8**	**-**	**-**	**-**	**-**
1/1	463	463	-	-	-	1.4	0.4	-	1.8	13.9	6.6	0.4	6.9
2/1	121	121	-	-	-	1.2	0.4	-	1.6	46.3	2.8	0.4	3.1
3/1	369	369	43	0	0	0.7	0.3	0.0	1.0	9.6	3.9	0.3	4.1
4/1	452	452	-	-	-	1.1	0.6	-	1.7	13.4	3.6	0.6	4.2
5/1	24	24	-	-	-	0.3	0.1	-	0.3	50.1	0.6	0.1	0.6
5/2	72	72	-	-	-	0.8	0.4	-	1.2	57.6	1.7	0.4	2.1
6/1	13	13	-	-	-	0.1	0.0	-	0.2	49.3	0.3	0.0	0.3
6/2	44	44	-	-	-	0.5	0.2	-	0.6	51.0	1.0	0.2	1.2
7/1	260	260	-	-	-	0.5	0.2	-	0.7	9.7	2.8	0.2	3.0
7/2	53	53	-	-	-	0.6	0.2	-	0.8	52.9	1.2	0.2	1.5
8/1	411	411	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	90	90	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	95	95	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	46	46	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	408	408	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 Stream: 1 PRC for Signalled Lanes (%): 68.3
C1 Stream: 2 PRC for Signalled Lanes (%): 109.6
PRC Over All Lanes (%): 68.3

Total Delay for Signalled Lanes (pcuHr): 5.44
Total Delay for Signalled Lanes (pcuHr): 4.33
Total Delay Over All Lanes(pcuHr): 9.77

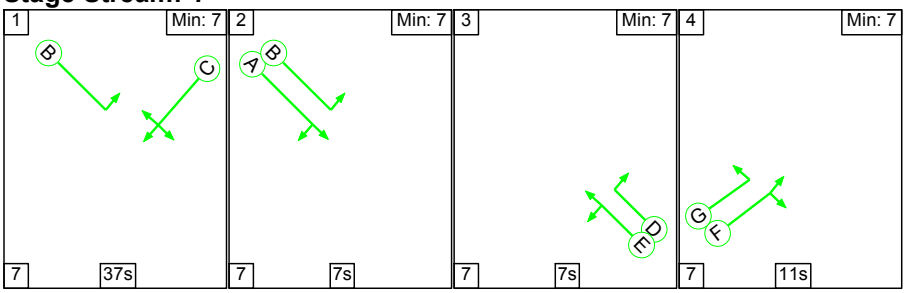
Cycle Time (s): 90

Full Input Data And Results

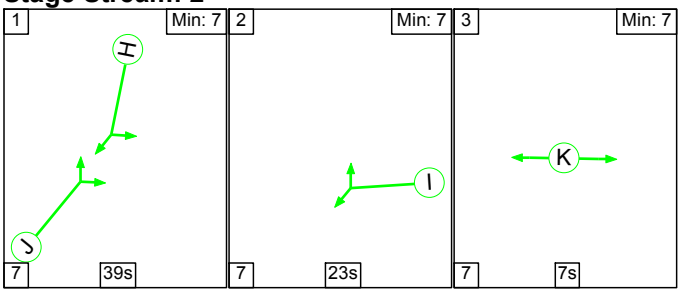
Scenario 2: 'PM 2020 inc Dev+BI' (FG2: 'PM 2020 in Dev+BI', Plan 1: 'Standard')

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

Stage Stream: 1

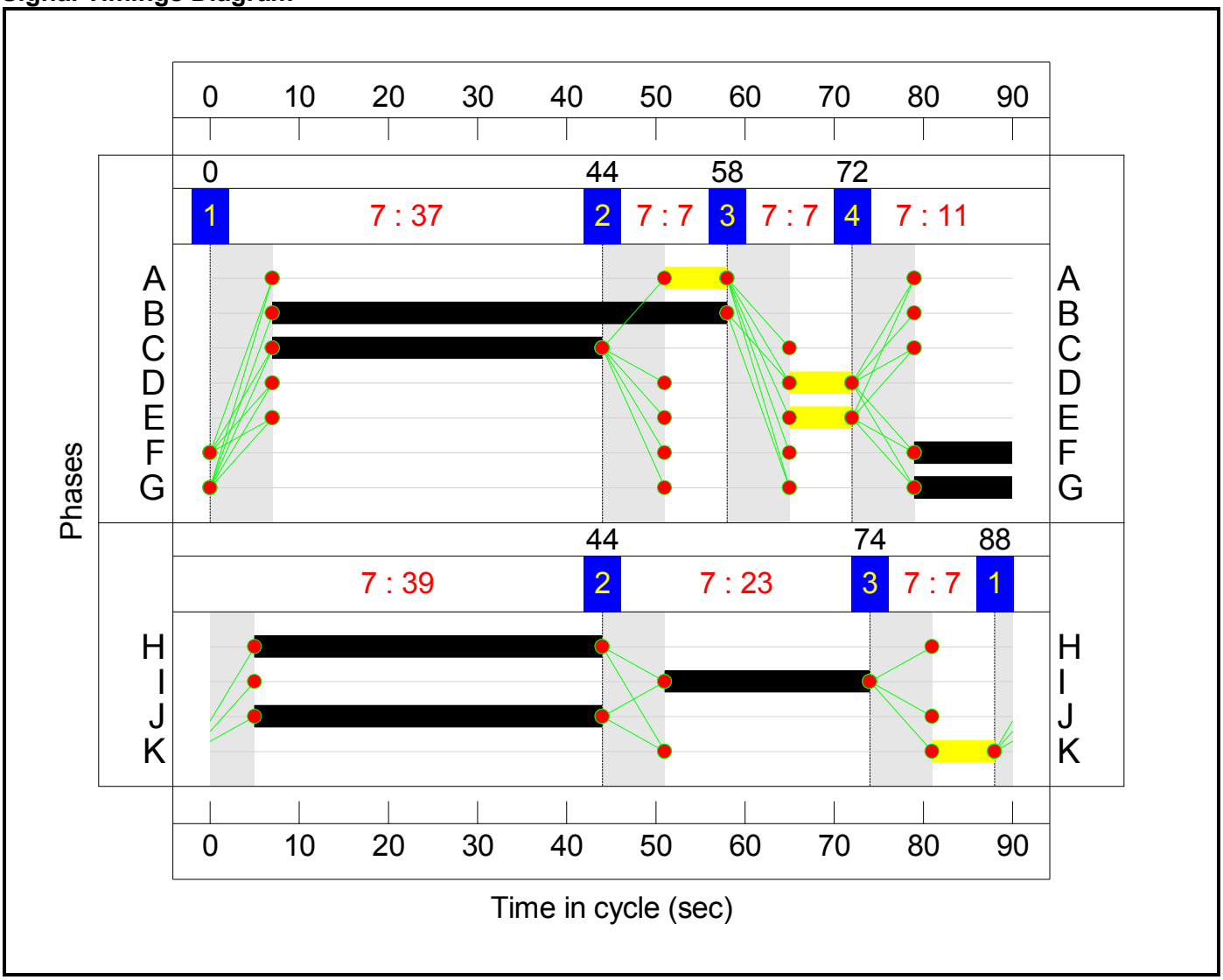
Stage	1	2	3	4
Duration	37	7	7	11
Change Point	0	44	58	72

Stage Stream: 2

Stage	1	2	3
Duration	39	23	7
Change Point	88	44	74

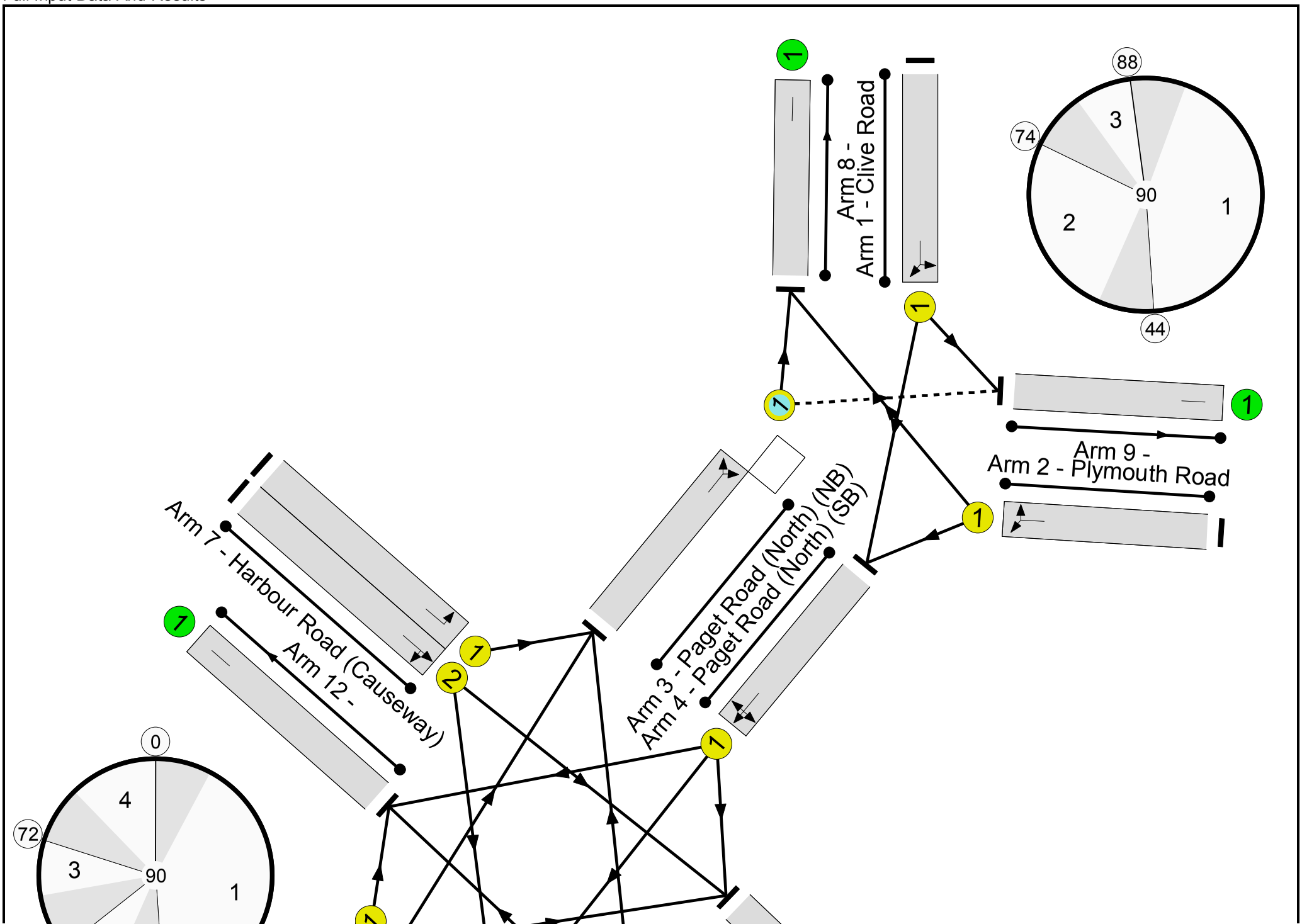
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Arm 8 -
Arm 1 - Clive Road
Arm 9 -
Arm 2 - Plymouth Road
Arm 7 - Harbour Road (Causeway)
Arm 12 -
Arm 3 - Paget Road (North) (NB)
Arm 4 - Paget Road (North) (SB)
88
74
3
90
1
2
44
0
4
72
3
90
1

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	-	-	-	-	-	-	-	-	-	-	**76.2%**
Unnamed Junction	-	-	-	-	-	-	-	-	-	-	-	-	**76.2%**
1/1	Clive Road Ahead Left	U	2	N/A	H		1	39	-	568	1935	860	66.0%
2/1	Plymouth Road Left Right	U	2	N/A	I		1	23	-	135	1870	499	27.1%
3/1	Paget Road (North) (NB) Ahead Right	O	2	N/A	J		1	39	-	528	1943	864	61.1%
4/1	Paget Road (North) (SB) Left Ahead Right	U	1	N/A	C		1	37	-	582	1810	764	76.2%
5/1	Station Approach Road Left Ahead	U	1	N/A	E		1	7	-	86	1895	168	51.1%
5/2	Station Approach Road Right	U	1	N/A	D		1	7	-	39	1884	167	23.3%
6/1	Paget Road (South) Left	U	1	N/A	G		1	11	-	129	1914	255	50.5%
6/2	Paget Road (South) Ahead Right	U	1	N/A	F		1	11	-	84	2067	276	30.5%
7/1	Harbour Road (Causeway) Left	U	1	N/A	B		1	51	-	422	1755	1014	41.6%
7/2	Harbour Road (Causeway) Ahead Right	U	1	N/A	A		1	7	-	122	2012	179	68.2%
8/1		U	N/A	N/A	-		-	-	-	502	1	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	147	1	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	234	1	Inf	0.0%
11/1		U	N/A	N/A	-		-	-	-	68	1	Inf	0.0%
12/1		U	N/A	N/A	-		-	-	-	634	1	Inf	0.0%

Full Input Data And Results

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**67**	**0**	**0**	**13.5**	**6.3**	**0.0**	**19.8**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**67**	**0**	**0**	**13.5**	**6.3**	**0.0**	**19.8**	**-**	**-**	**-**	**-**
1/1	568	568	-	-	-	3.1	1.0	-	4.1	25.8	11.0	1.0	12.0
2/1	135	135	-	-	-	1.0	0.2	-	1.2	31.0	2.7	0.2	2.8
3/1	528	528	67	0	0	1.6	0.8	0.0	2.4	16.5	5.5	0.8	6.3
4/1	582	582	-	-	-	1.8	1.6	-	3.3	20.6	4.2	1.6	5.7
5/1	86	86	-	-	-	0.9	0.5	-	1.5	60.7	2.0	0.5	2.5
5/2	39	39	-	-	-	0.4	0.2	-	0.6	52.2	0.9	0.2	1.1
6/1	129	129	-	-	-	1.3	0.5	-	1.8	50.4	3.0	0.5	3.5
6/2	84	84	-	-	-	0.8	0.2	-	1.0	44.6	1.9	0.2	2.1
7/1	422	422	-	-	-	1.2	0.4	-	1.6	13.6	5.9	0.4	6.2
7/2	122	122	-	-	-	1.3	1.0	-	2.4	70.3	2.9	1.0	4.0
8/1	502	502	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	147	147	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	234	234	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	68	68	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	634	634	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

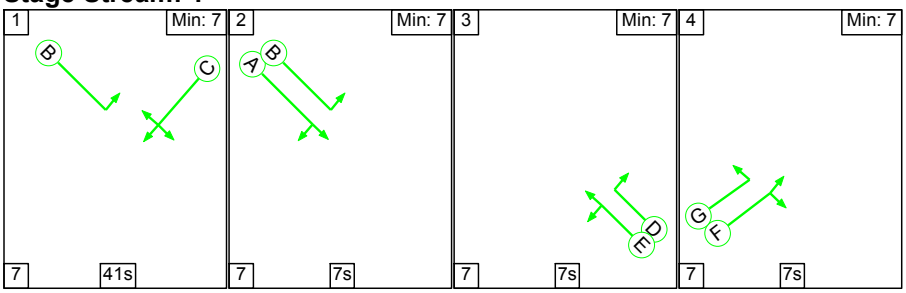
C1 Stream: 1 PRC for Signalled Lanes (%): 18.2 Total Delay for Signalled Lanes (pcuHr): 12.17
C1 Stream: 2 PRC for Signalled Lanes (%): 36.3 Total Delay for Signalled Lanes (pcuHr): 7.65
PRC Over All Lanes (%): 18.2 Total Delay Over All Lanes(pcuHr): 19.82 Cycle Time (s): 90

Full Input Data And Results

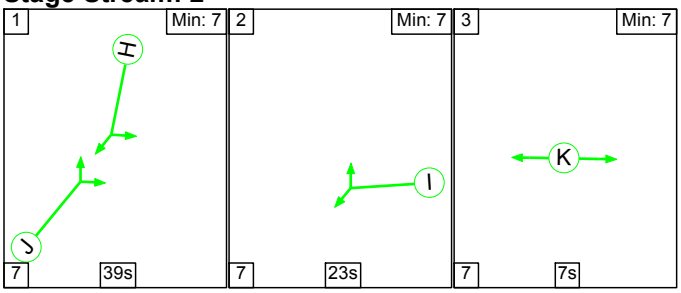
Scenario 3: 'PM 2020 Dev + Tourism' (FG3: '2020 Dev and Tour', Plan 1: 'Standard')

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

Stage Stream: 1

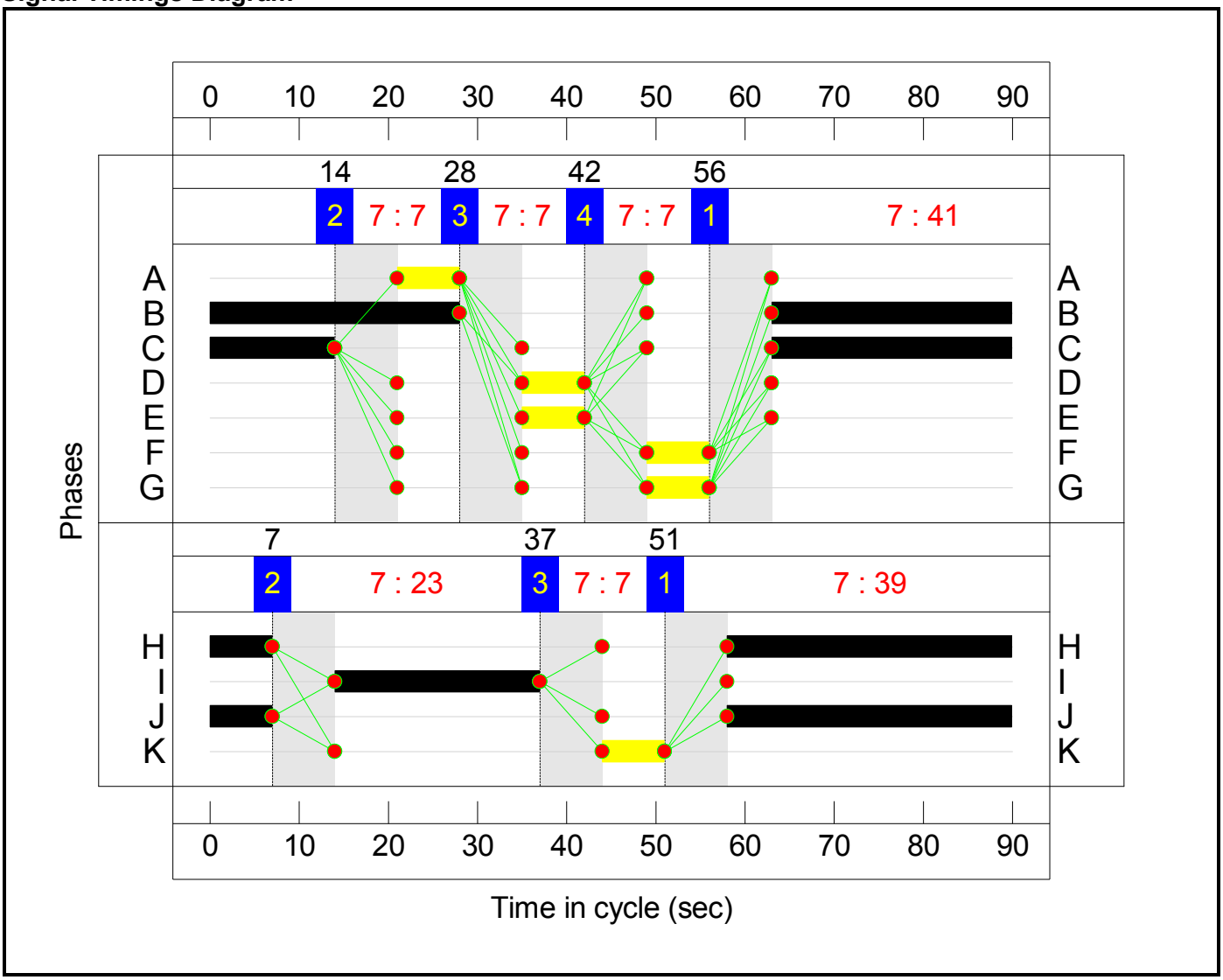
Stage	1	2	3	4
Duration	41	7	7	7
Change Point	56	14	28	42

Stage Stream: 2

Stage	1	2	3
Duration	39	23	7
Change Point	51	7	37

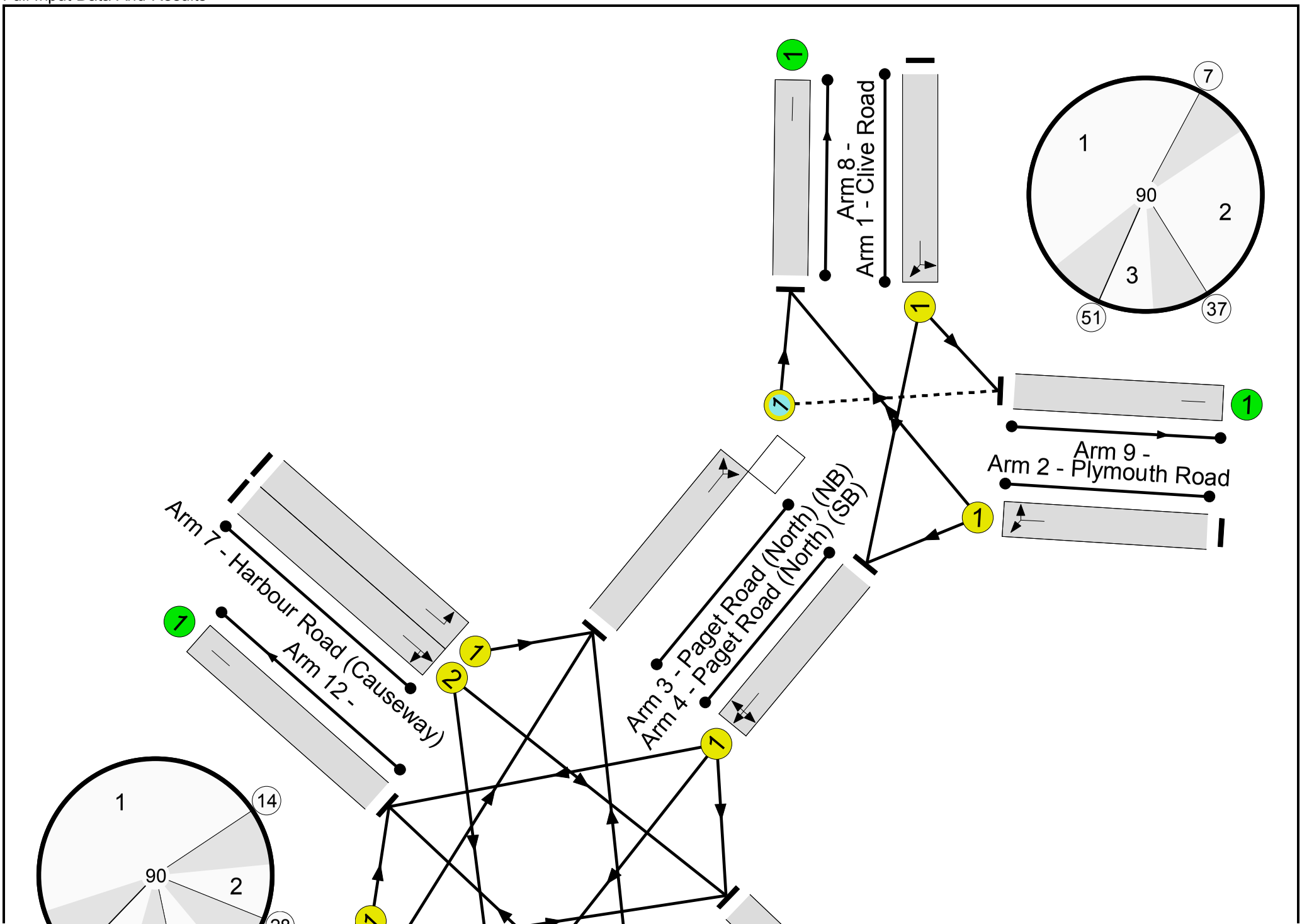
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Arm 8 -
Arm 1 - Clive Road
Arm 9 -
Arm 2 - Plymouth Road
Arm 7 - Harbour Road (Causeway)
Arm 12 -
Arm 3 - Paget Road (North) (NB)
Arm 4 - Paget Road (North) (SB)
1
90
2
3
7
37
51
14
28

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	-	-	-	-	-	-	-	-	-	-	**106.4%**
Unnamed Junction	-	-	-	-	-	-	-	-	-	-	-	-	**106.4%**
1/1	Clive Road Ahead Left	U	2	N/A	H		1	39	-	671	1929	857	78.3%
2/1	Plymouth Road Left Right	U	2	N/A	I		1	23	-	202	1881	502	40.3%
3/1	Paget Road (North) (NB) Ahead Right	O	2	N/A	J		1	39	-	635	1938	861	73.7%
4/1	Paget Road (North) (SB) Left Ahead Right	U	1	N/A	C		1	41	-	689	1811	845	81.5%
5/1	Station Approach Road Left Ahead	U	1	N/A	E		1	7	-	110	1899	169	65.2%
5/2	Station Approach Road Right	U	1	N/A	D		1	7	-	60	1884	167	35.8%
6/1	Paget Road (South) Left	U	1	N/A	G		1	7	-	181	1914	170	106.4%
6/2	Paget Road (South) Ahead Right	U	1	N/A	F		1	7	-	129	2080	185	69.8%
7/1	Harbour Road (Causeway) Left	U	1	N/A	B		1	55	-	463	1755	1092	42.4%
7/2	Harbour Road (Causeway) Ahead Right	U	1	N/A	A		1	7	-	187	2011	179	104.6%
8/1		U	N/A	N/A	-		-	-	-	611	1	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	208	1	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	326	1	Inf	0.0%
11/1		U	N/A	N/A	-		-	-	-	97	1	Inf	0.0%
12/1		U	N/A	N/A	-		-	-	-	761	1	Inf	0.0%

Full Input Data And Results

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**96**	**0**	**0**	**18.7**	**27.5**	**0.0**	**46.2**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**96**	**0**	**0**	**18.7**	**27.5**	**0.0**	**46.2**	**-**	**-**	**-**	**-**
1/1	671	671	-	-	-	4.0	1.8	-	5.7	30.8	14.2	1.8	15.9
2/1	202	202	-	-	-	1.5	0.3	-	1.9	33.1	4.1	0.3	4.4
3/1	635	635	96	0	0	2.2	1.4	0.0	3.5	20.1	12.4	1.4	13.8
4/1	689	689	-	-	-	1.8	2.1	-	3.9	20.5	11.1	2.1	13.2
5/1	110	110	-	-	-	1.2	0.9	-	2.1	69.4	2.7	0.9	3.6
5/2	60	60	-	-	-	0.6	0.3	-	0.9	55.3	1.4	0.3	1.7
6/1	181	170	-	-	-	2.4	10.0	-	12.4	246.9	4.8	10.0	14.8
6/2	129	129	-	-	-	1.4	1.1	-	2.5	70.8	3.1	1.1	4.2
7/1	463	463	-	-	-	1.1	0.4	-	1.5	11.6	5.9	0.4	6.3
7/2	187	179	-	-	-	2.5	9.2	-	11.7	224.9	4.9	9.2	14.1
8/1	611	611	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	208	208	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	320	320	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	95	95	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	750	750	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

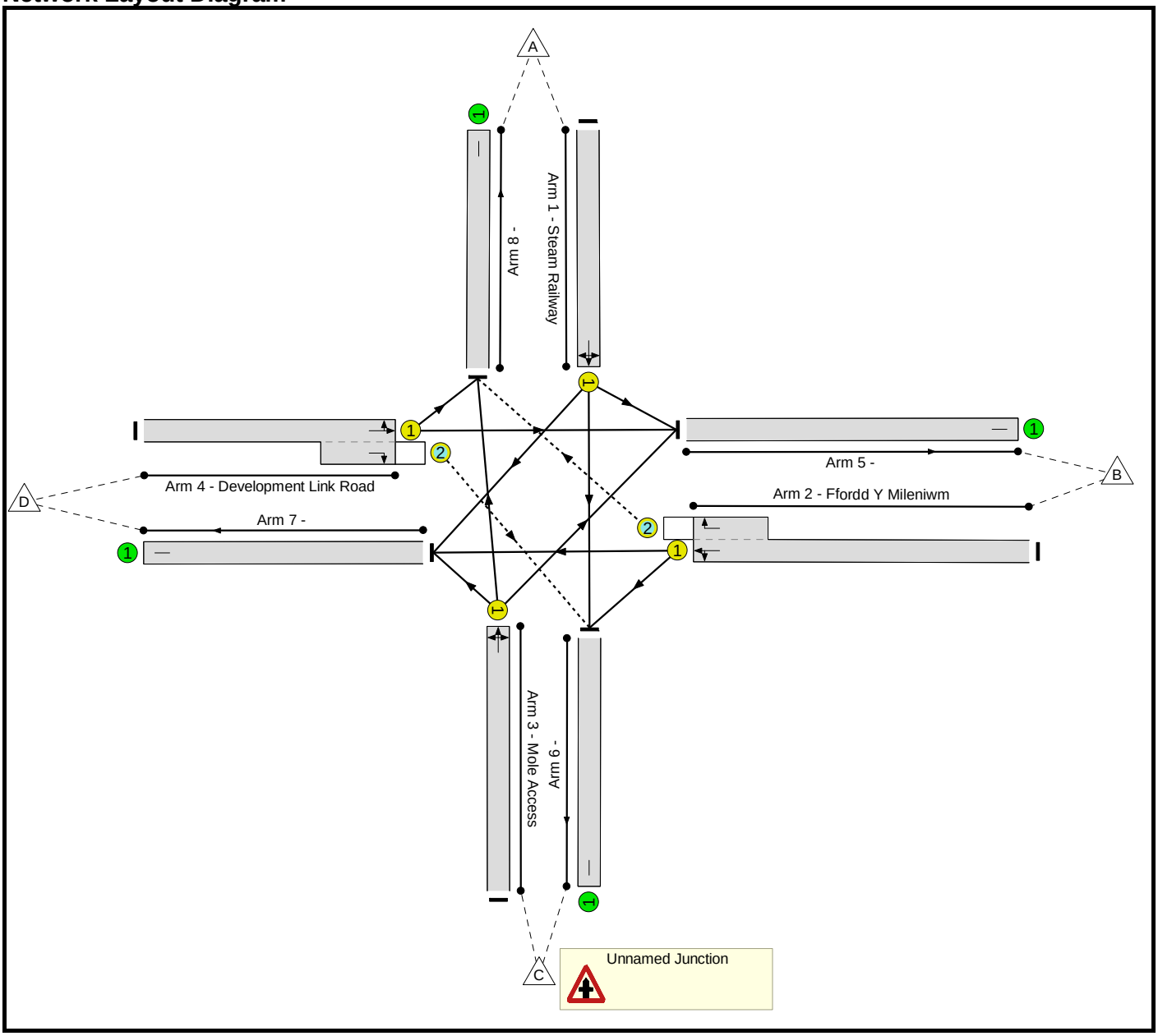
C1 Stream: 1 PRC for Signalled Lanes (%): -18.2 Total Delay for Signalled Lanes (pcuHr): 35.09
C1 Stream: 2 PRC for Signalled Lanes (%): 15.0 Total Delay for Signalled Lanes (pcuHr): 11.13
PRC Over All Lanes (%): -18.2 Total Delay Over All Lanes(pcuHr): 46.22 Cycle Time (s): 90

Full Input Data And Results

User and Project Details

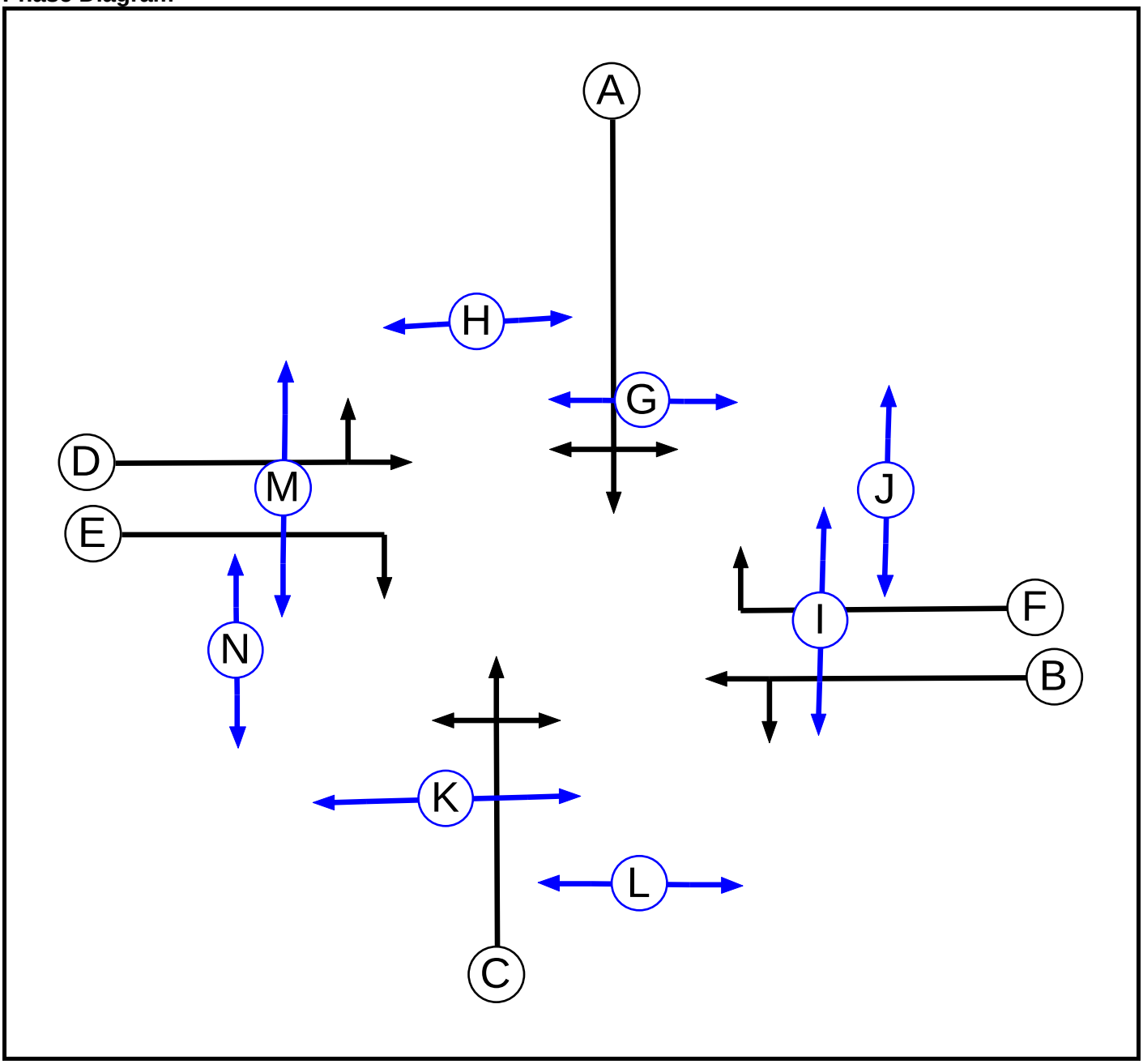
Project:	**Waterfront Barry**
Title:	
Location:	Internal Northern Junction
File name:	N Junction staggered ped crossings.lsg3x
Author:	Roddy Beynon
Company:	Arup
Address:	
Notes:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		7	7
H	Pedestrian		7	7
I	Pedestrian		7	7
J	Pedestrian		7	7
K	Pedestrian		7	7
L	Pedestrian		7	7
M	Pedestrian		7	7
N	Pedestrian		7	7

Phase Intergreens Matrix

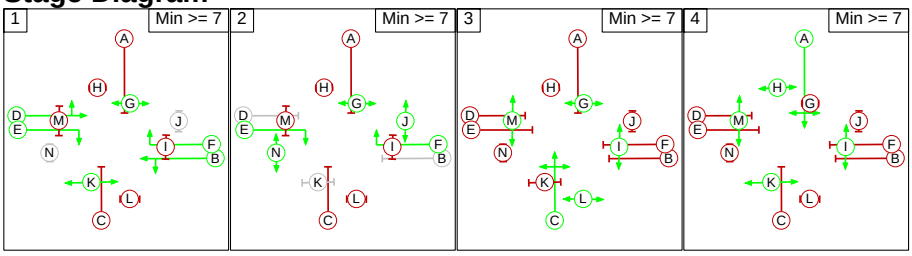
Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N
A		7	-	7	7	7	7	-	-	7	-	7	-	7
B	7		7	-	-	-	-	7	7	-	-	7	-	-
C	-	7		7	7	7	-	7	-	7	7	-	-	7
D	7	-	7		-	-	-	7	-	-	-	7	7	-
E	7	-	7	-		-	-	-	-	-	-	7	7	-
F	7	-	7	-	-		-	7	7	-	-	-	-	-
G	5	-	-	-	-	-		-	-	-	-	-	-	-
H	-	7	7	7	-	7	-		-	-	-	-	-	-
I	-	7	-	-	-	7	-	-		-	-	-	-	-
J	7	-	7	-	-	-	-	-	-		-	-	-	-
K	-	-	7	-	-	-	-	-	-	-		-	-	-
L	7	7	-	7	7	-	-	-	-	-	-		-	-
M	-	-	-	7	7	-	-	-	-	-	-	-		-
N	7	-	7	-	-	-	-	-	-	-	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	B D E F G K
2	E F G J N
3	C G I L M
4	A H I K M

Full Input Data And Results

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Changes

From Stage \ To Stage	1	2	3	4
1		0	7	7
2	2		7	7
3	7	7		7
4	7	7	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
2/2 (Ffordd Y Mileniwm)	8/1 (Right)	1440	4/1	1.09	4/1	2.00	-	0.50	2	2.00
4/2 (Development Link Road)	6/1 (Right)	1440	2/1	1.09	2/1	2.00	-	0.50	2	2.00

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Steam Railway)	U	A	2	3	60.0	Geom	-	3.64	0.00	Y	Arm 5 Left	18.00
											Arm 6 Ahead	Inf
											Arm 7 Right	30.00
2/1 (Ffordd Y Mileniwm)	U	B	2	3	60.0	Geom	-	3.10	0.00	Y	Arm 6 Left	30.00
											Arm 7 Ahead	Inf
2/2 (Ffordd Y Mileniwm)	O	F	2	3	5.0	Geom	-	3.10	0.00	N	Arm 8 Right	20.00
3/1 (Mole Access)	U	C	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 5 Right	40.00
											Arm 7 Left	15.00
											Arm 8 Ahead	Inf
4/1 (Development Link Road)	U	D	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	40.00
4/2 (Development Link Road)	O	E	2	3	5.0	Geom	-	3.00	0.00	N	Arm 6 Right	25.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
3: '2020 AM Peak PCU'	08:00	09:00	01:00	F1*1.05
4: '2020 PM Peak PCU'	16:30	17:30	01:00	F2*1.02

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: AM 2020
Junction: Unnamed Junction	
1/1	110
2/1 (with short)	646(In) 583(Out)
2/2 (short)	63
3/1	92
4/1 (with short)	890(In) 843(Out)
4/2 (short)	47
5/1	852
6/1	90
7/1	639
8/1	157

Scenario 1: 'AM 2020' (FG3: '2020 AM Peak PCU', Plan 1: 'with dedicated R turns')

Traffic Lane Flows

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (Steam Railway)	3.64	0.00	Y	Arm 5 Left	18.00	48.2 %	1859
				Arm 6 Ahead	Inf	2.7 %	
				Arm 7 Right	30.00	49.1 %	
2/1 (Ffordd Y Mileniwm)	3.10	0.00	Y	Arm 6 Left	30.00	6.9 %	1918
				Arm 7 Ahead	Inf	93.1 %	
2/2 (Ffordd Y Mileniwm)	3.10	0.00	N	Arm 8 Right	20.00	100.0 %	1921
3/1 (Mole Access)	3.65	0.00	Y	Arm 5 Right	40.00	50.0 %	1860
				Arm 7 Left	15.00	45.7 %	
				Arm 8 Ahead	Inf	4.3 %	
4/1 (Development Link Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	89.3 %	1907
				Arm 8 Left	40.00	10.7 %	
4/2 (Development Link Road)	3.00	0.00	N	Arm 6 Right	25.00	100.0 %	1939
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: PM 2020
Junction: Unnamed Junction	
1/1	118
2/1 (with short)	1217(In) 1031(Out)
2/2 (short)	186
3/1	129
4/1 (with short)	900(In) 840(Out)
4/2 (short)	60
5/1	743
6/1	133
7/1	1095
8/1	393

Scenario 2: 'PM 2020' (FG4: '2020 PM Peak PCU', Plan 1: 'with dedicated R turns')

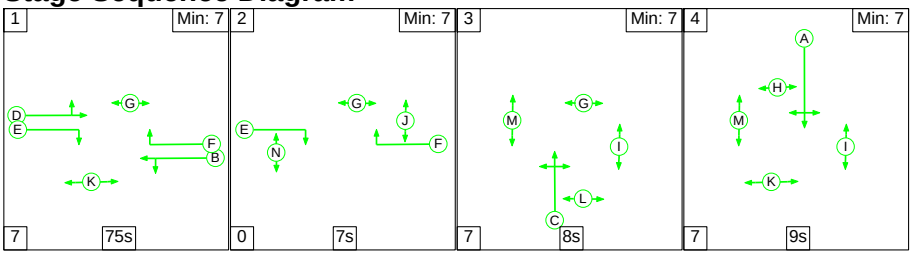
Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Steam Railway)	3.64	0.00	Y	Arm 5 Left	18.00	38.1 %	1865
				Arm 6 Ahead	Inf	3.4 %	
				Arm 7 Right	30.00	58.5 %	
2/1 (Ffordd Y Mileniwm)	3.10	0.00	Y	Arm 6 Left	30.00	6.7 %	1919
				Arm 7 Ahead	Inf	93.3 %	
2/2 (Ffordd Y Mileniwm)	3.10	0.00	N	Arm 8 Right	20.00	100.0 %	1921
3/1 (Mole Access)	3.65	0.00	Y	Arm 5 Right	40.00	41.9 %	1859
				Arm 7 Left	15.00	49.6 %	
				Arm 8 Ahead	Inf	8.5 %	
4/1 (Development Link Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	76.7 %	1898
				Arm 8 Left	40.00	23.3 %	
4/2 (Development Link Road)	3.00	0.00	N	Arm 6 Right	25.00	100.0 %	1939
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Full Input Data And Results

Scenario 1: 'AM 2020' (FG3: '2020 AM Peak PCU', Plan 1: 'with dedicated R turns')

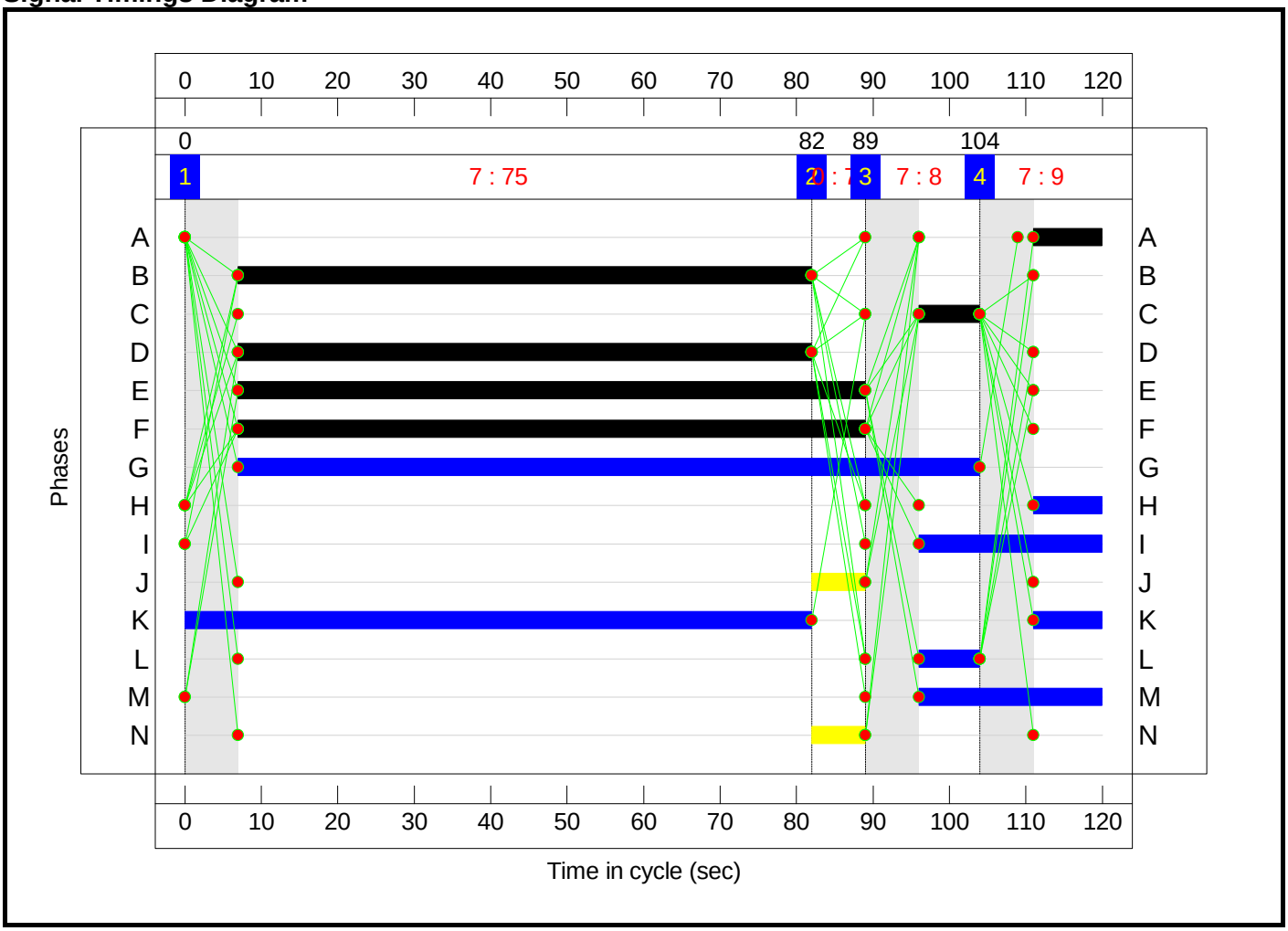
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	75	7	8	9
Change Point	0	82	89	104

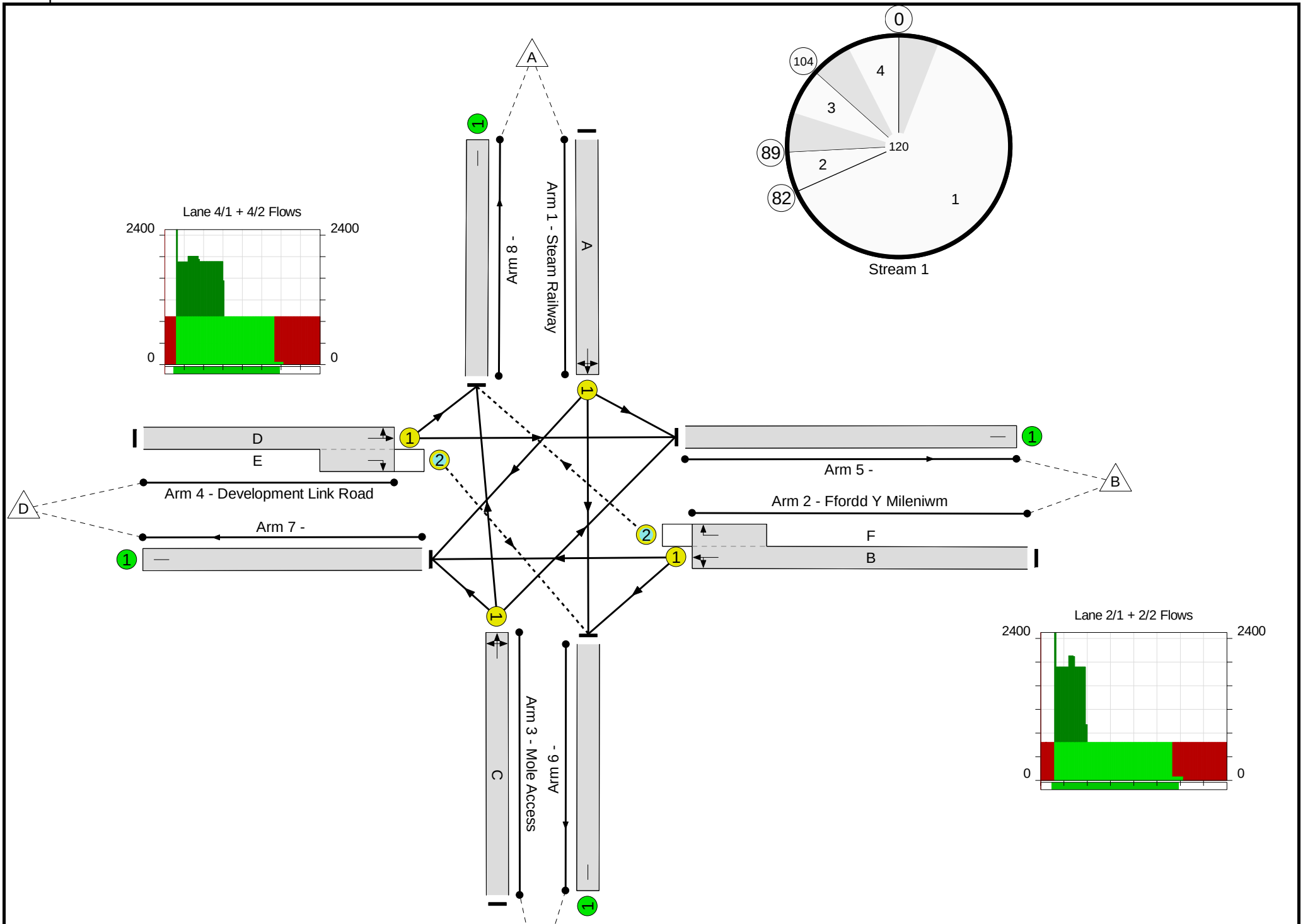
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.7%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.7%**
1/1	Steam Railway Left Ahead Right	U	N/A	N/A	A		1	9	-	110	1859	155	71.0%
2/1+2/2	Ffordd Y Mileniwm Left Ahead Right	U+O	N/A	N/A	B F		1	75:82	-	646	1918:1921	1237	52.2%
3/1	Mole Access Right Left Ahead	U	N/A	N/A	C		1	8	-	92	1860	140	65.9%
4/1+4/2	Development Link Road Ahead Right Left	U+O	N/A	N/A	D E		1	75:82	-	890	1907:1939	1224	72.7%
5/1		U	N/A	N/A	-		-	-	-	852	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	90	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	639	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	157	Inf	Inf	0.0%

Full Input Data And Results

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**105**	**3**	**2**	**8.6**	**4.0**	**0.4**	**13.0**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**105**	**3**	**2**	**8.6**	**4.0**	**0.4**	**13.0**	**-**	**-**	**-**	**-**
1/1	110	110	-	-	-	1.6	1.2	-	2.8	91.7	3.5	1.2	4.7
2/1+2/2	646	646	60	2	1	2.0	0.5	0.3	2.9	16.2	10.9	0.5	11.5
3/1	92	92	-	-	-	1.4	0.9	-	2.3	90.5	3.0	0.9	3.9
4/1+4/2	890	890	45	1	1	3.6	1.3	0.1	5.0	20.1	19.5	1.3	20.8
5/1	852	852	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	90	90	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	639	639	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	157	157	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 23.8
PRC Over All Lanes (%): 23.8

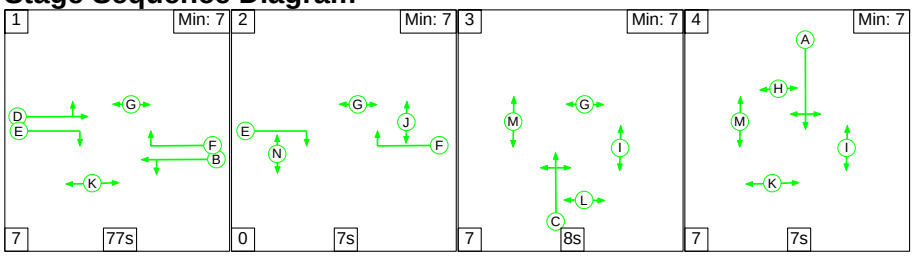
Total Delay for Signalled Lanes (pcuHr): 12.99
Total Delay Over All Lanes(pcuHr): 12.99

Cycle Time (s): 120

Full Input Data And Results

Scenario 2: 'PM 2020' (FG4: '2020 PM Peak PCU', Plan 1: 'with dedicated R turns')

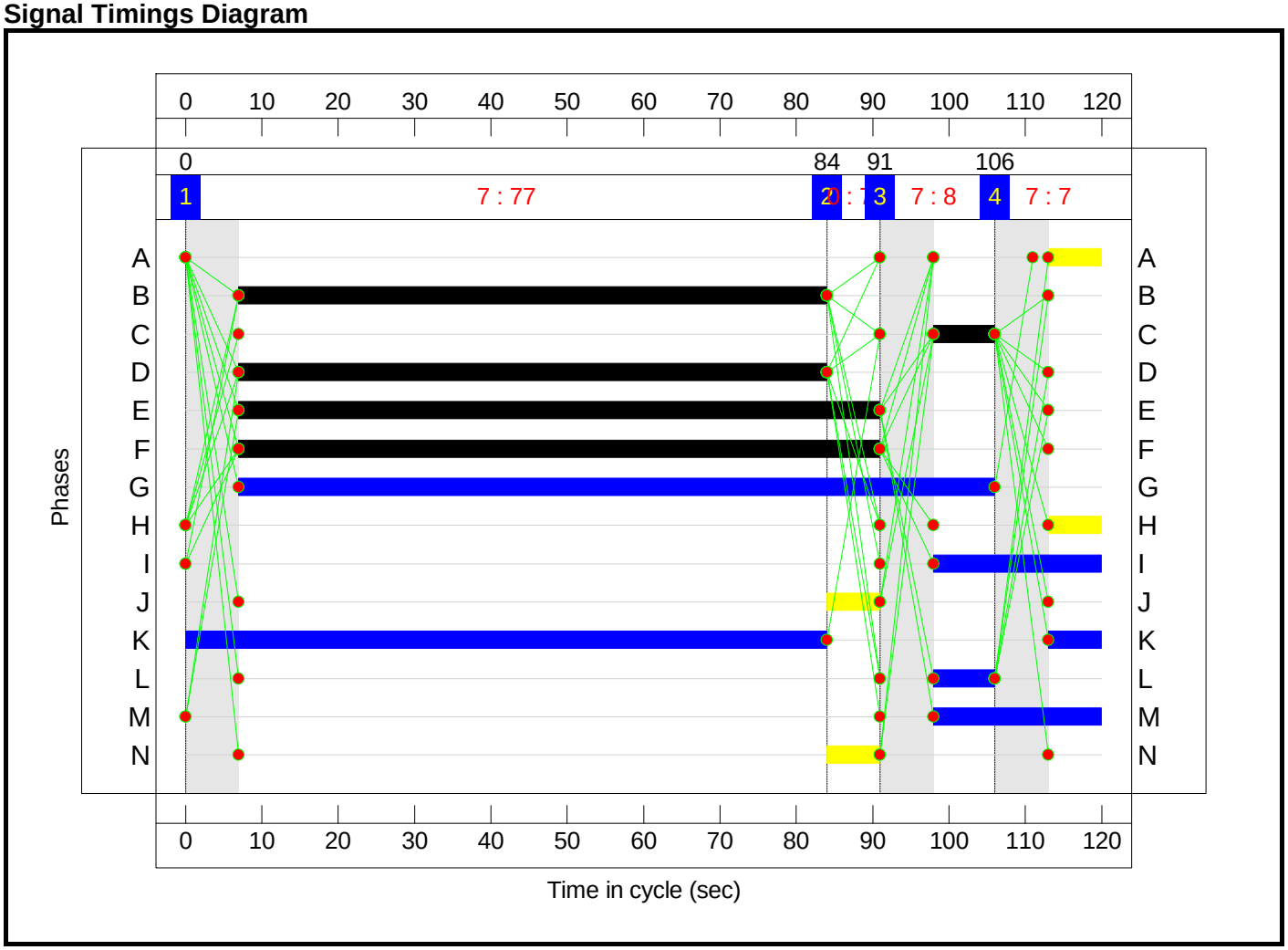
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	77	7	8	7
Change Point	0	84	91	106

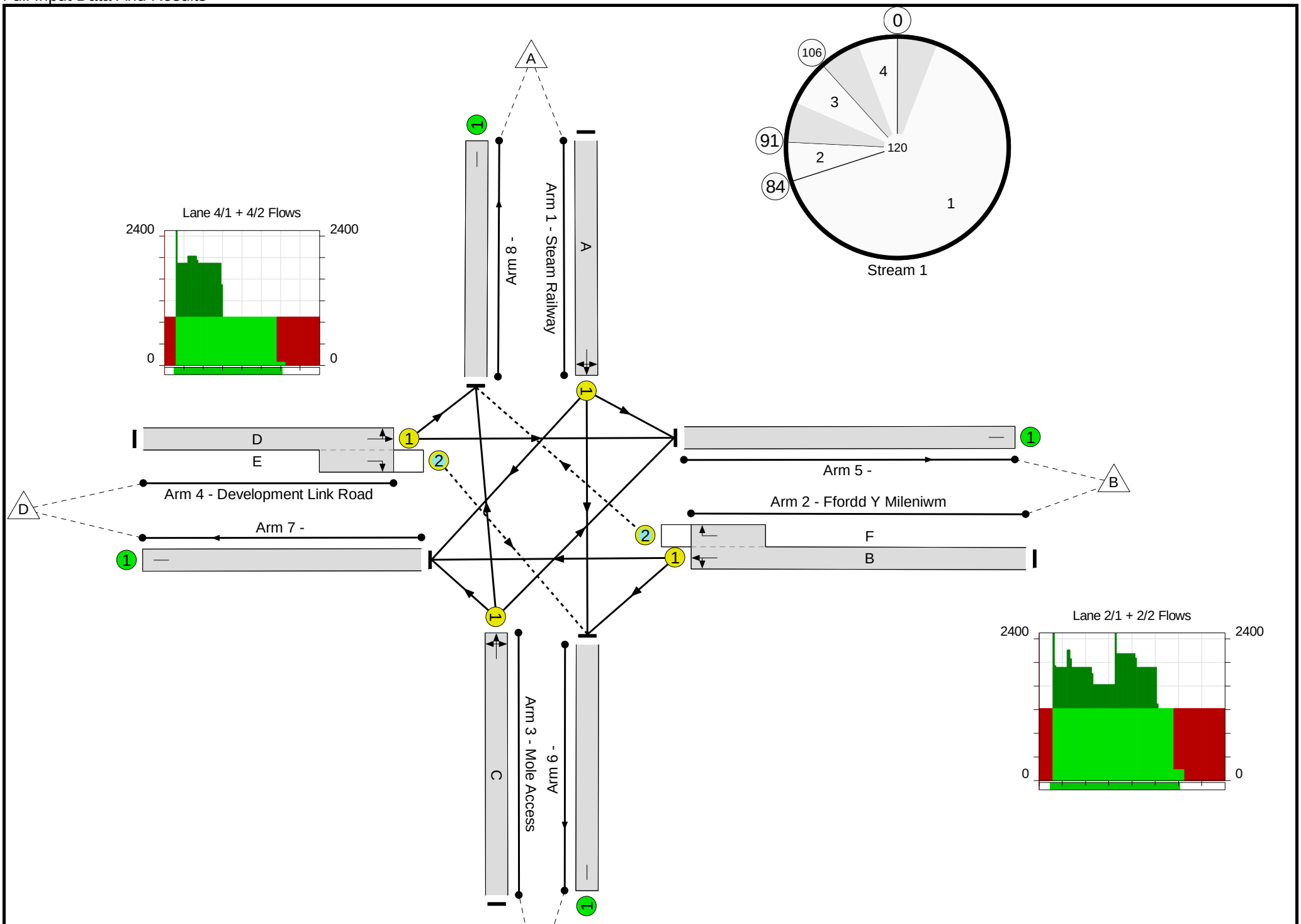
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**95.0%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**95.0%**
1/1	Steam Railway Left Ahead Right	U	N/A	N/A	A		1	7	-	118	1865	124	94.9%
2/1+2/2	Ffordd Y Mileniwm Left Ahead Right	U+O	N/A	N/A	B F		1	77:84	-	1217	1919:1921	1281	95.0%
3/1	Mole Access Right Left Ahead	U	N/A	N/A	C		1	8	-	129	1859	139	92.5%
4/1+4/2	Development Link Road Ahead Right Left	U+O	N/A	N/A	D E		1	77:84	-	900	1898:1939	1254	71.8%
5/1		U	N/A	N/A	-		-	-	-	743	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	133	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	1095	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	393	Inf	Inf	0.0%

Full Input Data And Results

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**207**	**6**	**33**	**13.3**	**16.7**	**1.6**	**31.5**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**207**	**6**	**33**	**13.3**	**16.7**	**1.6**	**31.5**	**-**	**-**	**-**	**-**
1/1	118	118	-	-	-	1.8	4.1	-	5.9	180.1	3.9	4.1	8.0
2/1+2/2	1217	1217	178	5	3	6.2	7.7	0.9	14.7	43.6	35.9	7.7	43.6
3/1	129	129	-	-	-	2.0	3.6	-	5.6	156.8	4.3	3.6	7.9
4/1+4/2	900	900	28	2	30	3.3	1.3	0.7	5.3	21.1	18.9	1.3	20.2
5/1	743	743	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	133	133	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	1095	1095	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	393	393	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): -5.6
PRC Over All Lanes (%): -5.6

Total Delay for Signalled Lanes (pcuHr): 31.52
Total Delay Over All Lanes(pcuHr): 31.52

Cycle Time (s): 120

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

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TRL SOFTWARE BUREAU
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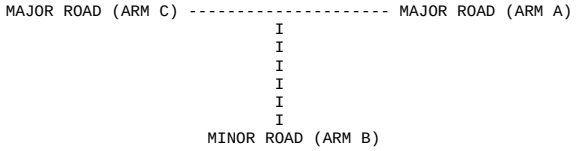
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
Internal Junctions\Revised Masterplan Junctions\ii\junction [ii].vpi"
(drive-on-the-left) at 16:11:04 on Thursday, 27 May 2010

.RUN INFORMATION

RUN TITLE	: Development at waterfront Barry - Internal Junctions
LOCATION	: Barry Waterfront
DATE	: 06/04/10
CLIENT	:
ENUMERATOR	: christopher.williams [WACB6DG93J]
JOB NUMBER	: 122374
STATUS	: On-going
DESCRIPTION	: Junction [ii]

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Spine Road South
ARM B IS Zone B
ARM C IS Spine Road North

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 6.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 3.50 M.
- VISIBILITY	(VC-B) 80.00 M.
- BLOCKS TRAFFIC	YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 19.0 M.
- VISIBILITY TO RIGHT	(VB-A) 20.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	10.00 M.
WIDTH AT 5 M FROM JUNCTION	5.40 M.
WIDTH AT 10 M FROM JUNCTION	3.00 M.
WIDTH AT 15 M FROM JUNCTION	3.00 M.
WIDTH AT 20 M FROM JUNCTION	3.00 M.
- LENGTH OF FLARED SECTION	DERIVED: 1 PCU

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B

0.00	0.00	0.00	

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
708.05	0.27	0.27

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: AM 2020 Internal traffic movements

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	11.13	16.69	11.13
ARM B	15.00	45.00	75.00	0.85	1.28	0.85
ARM C	15.00	45.00	75.00	7.47	11.21	7.47

.Demand set: AM 2020 Internal traffic movements

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
08.15 - 08.30	ARM A	0.000	0.091	0.909
		0.0	81.0	809.0
		(0.0)	(5.0)	(5.0)
	ARM B	0.426	0.000	0.574
		29.0	0.0	39.0
		(5.0)	(0.0)	(5.0)
	ARM C	0.883	0.117	0.000
		528.0	70.0	0.0
		(5.0)	(5.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2020 Internal traffic movements
AND FOR TIME PERIOD 1

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									
B-C	0.49	7.66	0.064		0.00	0.07	1.0		0.14
B-A	0.36	4.48	0.081		0.00	0.09	1.2		0.24
C-AB	0.88	8.18	0.107		0.00	0.12	1.8		0.14
A-B	1.02								
A-C	10.15								

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)
08.30-08.45									
B-C	0.58	7.07	0.083		0.07	0.09	1.3		0.15
B-A	0.43	3.72	0.117		0.09	0.13	1.9		0.30

C-AB	1.05	7.58	0.138	0.12	0.16	2.4		0.15
A-B	1.21							
A-C	12.12							

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)
08.45-09.00									
B-C	0.72	6.19	0.116		0.09	0.13	1.9		0.18
B-A	0.53	2.68	0.199		0.13	0.24	3.3		0.46
C-AB	1.28	6.76	0.190		0.16	0.23	3.5		0.18
A-B	1.49								
A-C	14.85								

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)
09.00-09.15									
B-C	0.72	6.19	0.116		0.13	0.13	1.9		0.18
B-A	0.53	2.68	0.199		0.24	0.24	3.6		0.47
C-AB	1.28	6.76	0.190		0.23	0.23	3.5		0.18
A-B	1.49								
A-C	14.85								

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)
09.15-09.30									
B-C	0.58	7.06	0.083		0.13	0.09	1.4		0.15
B-A	0.43	3.72	0.117		0.24	0.14	2.1		0.31
C-AB	1.05	7.58	0.138		0.23	0.16	2.4		0.15
A-B	1.21								
A-C	12.12								

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)
09.30-09.45									
B-C	0.49	7.65	0.064		0.09	0.07	1.1		0.14
B-A	0.36	4.47	0.081		0.14	0.09	1.4		0.24
C-AB	0.88	8.18	0.107		0.16	0.12	1.8		0.14
A-B	1.02								
A-C	10.15								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1
09.45	0.1

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.1
09.00	0.2
09.15	0.2
09.30	0.1
09.45	0.1

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.1
08.45	0.2
09.00	0.2
09.15	0.2
09.30	0.2
09.45	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)

B-C	53.7	35.8	8.6	0.16	8.6	0.16		
B-A	39.9	26.6	13.6	0.34	13.6	0.34		
C-AB	96.3	64.2	15.4	0.16	15.4	0.16		
A-B	111.5	74.3						
A-C	1113.5	742.4						
ALL	2141.7	1427.8	37.6	0.02	37.6	0.02		

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
708.05	0.27	0.27

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 Internal traffic movements

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	10.90	16.35	10.90
ARM B	15.00	45.00	75.00	0.44	0.66	0.44
ARM C	15.00	45.00	75.00	13.20	19.80	13.20

.Demand set: PM 2020 Internal traffic movements

TIME	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.007	0.993
		0.0	6.0	866.0
		(0.0)	(2.0)	(2.0)
	ARM B	0.514	0.000	0.486
		18.0	0.0	17.0
		(2.0)	(0.0)	(2.0)
	ARM C	0.993	0.007	0.000
		1049.0	7.0	0.0
		(2.0)	(2.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 Internal traffic movements
AND FOR TIME PERIOD 2

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									
B-C	0.21	8.22	0.026		0.00	0.03	0.4		0.12
B-A	0.23	4.01	0.056		0.00	0.06	0.8		0.26
C-AB	0.09	8.57	0.010		0.00	0.01	0.2		0.12
A-B	0.08								
A-C	10.87								

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									
B-C	0.25	7.60	0.034		0.03	0.03	0.5		0.14
B-A	0.27	3.08	0.088		0.06	0.09	1.3		0.36
C-AB	0.10	7.99	0.013		0.01	0.01	0.2		0.13
A-B	0.09								
A-C	12.98								

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									
B-C	0.31	6.63	0.047		0.03	0.05	0.7		0.16
B-A	0.33	1.80	0.184		0.09	0.21	2.9		0.67
C-AB	0.13	7.18	0.018		0.01	0.02	0.3		0.14
A-B	0.11								
A-C	15.89								

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									
B-C	0.31	6.62	0.047		0.05	0.05	0.7		0.16
B-A	0.33	1.80	0.184		0.21	0.22	3.3		0.68
C-AB	0.13	7.18	0.018		0.02	0.02	0.3		0.14
A-B	0.11								
A-C	15.89								

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									
B-C	0.25	7.59	0.034		0.05	0.04	0.5		0.14
B-A	0.27	3.08	0.088		0.22	0.10	1.6		0.36
C-AB	0.10	7.99	0.013		0.02	0.01	0.2		0.13
A-B	0.09								
A-C	12.98								

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									
B-C	0.21	8.22	0.026		0.04	0.03	0.4		0.12
B-A	0.23	4.01	0.056		0.10	0.06	1.0		0.26
C-AB	0.09	8.57	0.010		0.01	0.01	0.2		0.12
A-B	0.08								
A-C	10.87								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT	NO. OF VEHICLES

ENDING	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

.

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	23.4	15.6	3.3	0.14	3.3	0.14
B-A	24.8	16.5	10.9	0.44	10.9	0.44
C-AB	9.6	6.4	1.3	0.13	1.3	0.13
A-B	8.3	5.5				
A-C	1192.0	794.7				
ALL	2701.9	1801.3	15.4	0.01	15.4	0.01

* 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 RUN*******

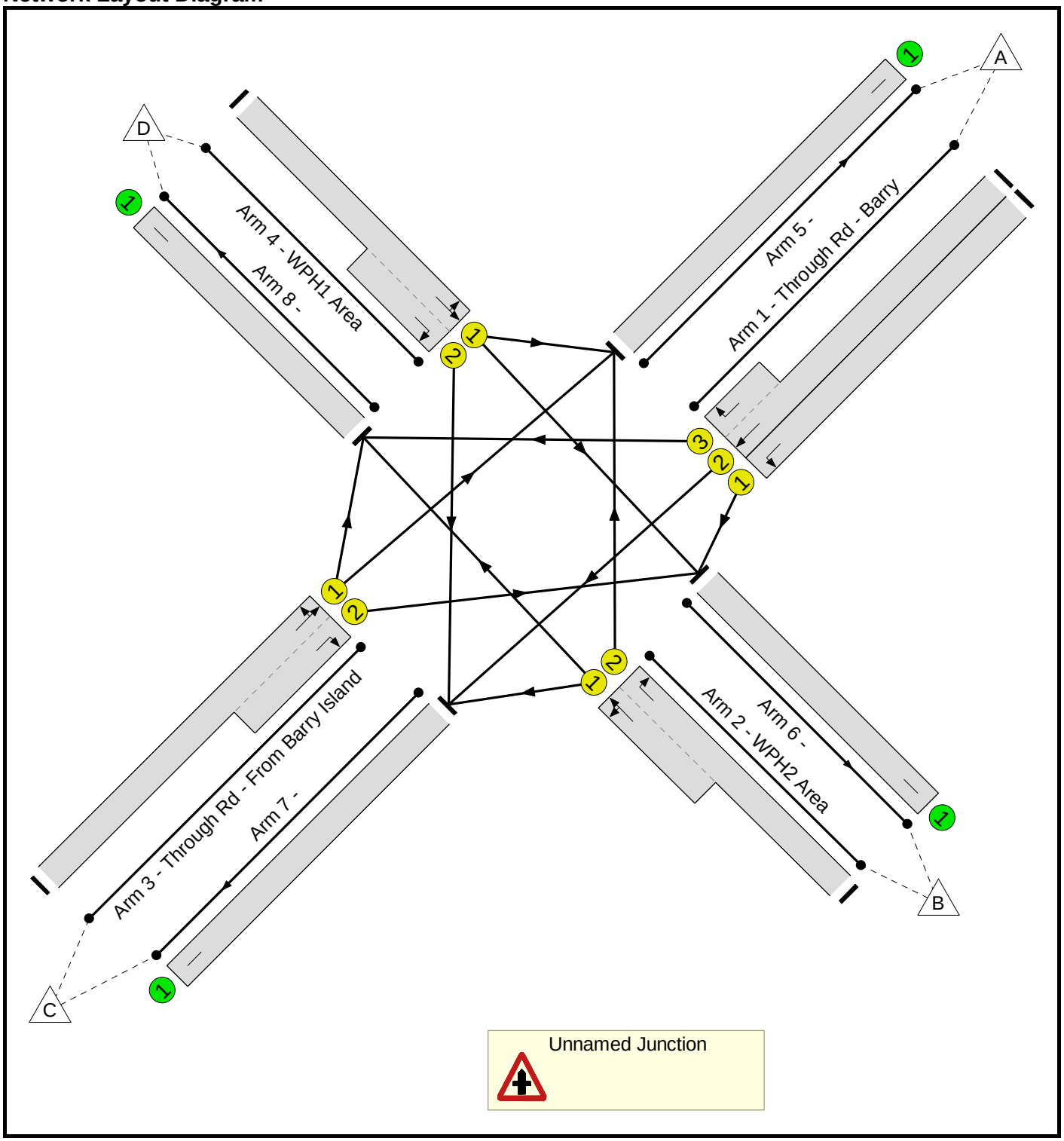
Full Input Data And Results

User and Project Details

Project:	**Waterfront Barry**
Title:	
Location:	Internal Supermarket Junction, Barry
File name:	Central WP Junction Lrg Smarket access - segregated peds.lsg3x
Author:	Roddy Beynon
Company:	Arup
Address:	
Notes:	

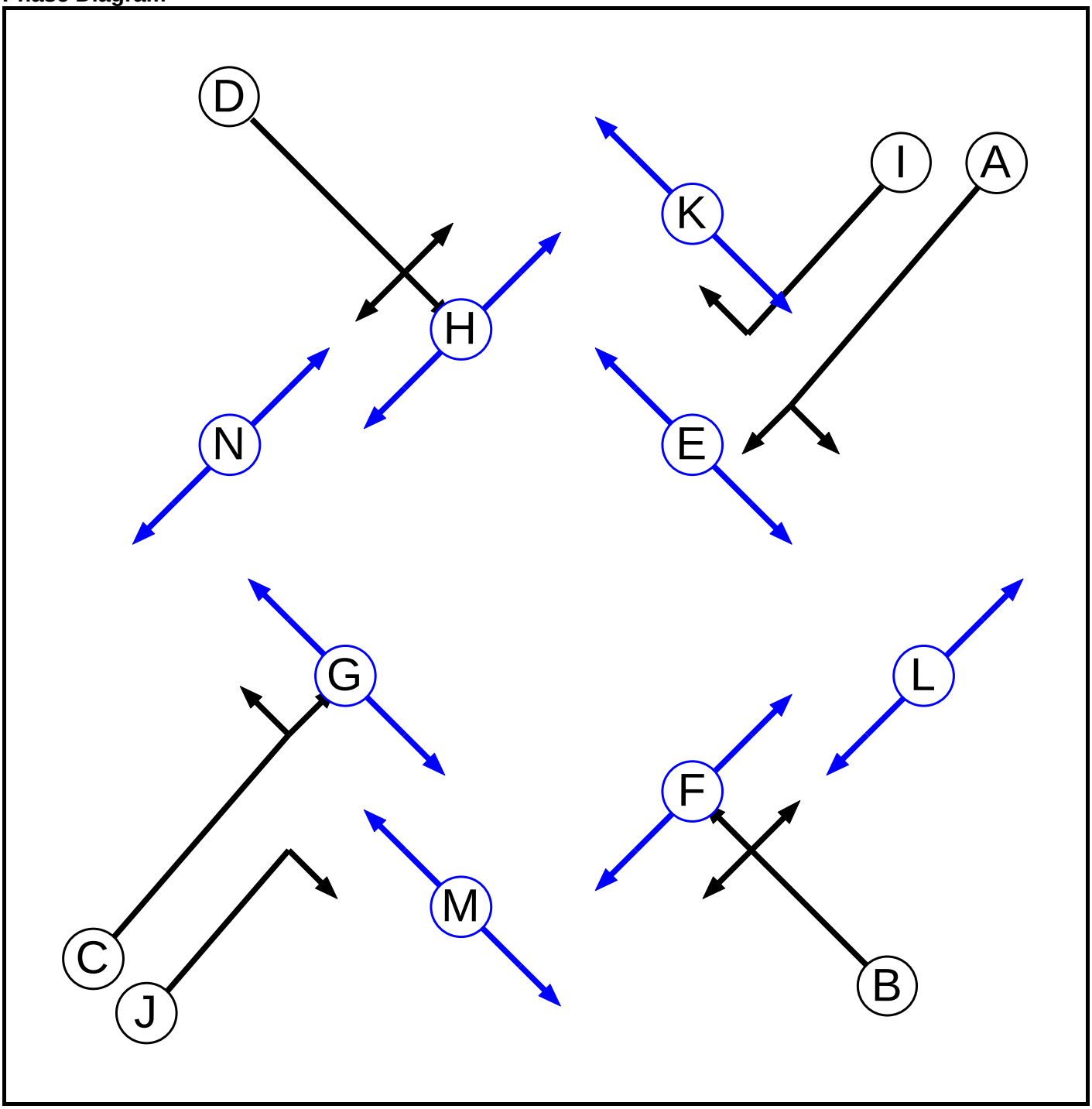
Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7
F	Pedestrian		7	7
G	Pedestrian		7	7
H	Pedestrian		7	7
I	Traffic		7	7
J	Traffic		7	7
K	Pedestrian		7	7
L	Pedestrian		7	7
M	Pedestrian		7	7
N	Pedestrian		7	7

Phase Intergreens Matrix

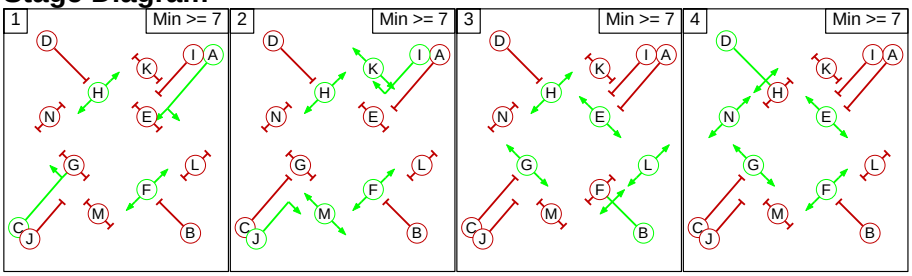
Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N
A		6	-	5	6	-	-	-	-	6	-	6	6	-
B	5		5	6	-	6	-	-	6	5	6	-	6	6
C	-	5		6	-	-	6	-	6	-	6	-	-	6
D	6	6	5		-	-	-	6	5	6	6	6	6	-
E	6	-	-	-		-	-	-	6	-	-	-	-	-
F	-	6	-	-	-		-	-	-	-	-	-	-	-
G	-	-	6	-	-	-		-	-	6	-	-	-	-
H	-	-	-	6	-	-	-		-	-	-	-	-	-
I	-	5	6	6	6	-	-	-		-	-	-	-	6
J	6	6	-	5	-	-	6	-	-		-	6	-	-
K	-	6	6	6	-	-	-	-	-	-		-	-	-
L	6	-	-	6	-	-	-	-	-	6	-		-	-
M	6	6	-	6	-	-	-	-	-	-	-	-		-
N	-	6	6	-	-	-	-	-	6	-	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A C F H
2	F H I J K M
3	B E G H L
4	D E F G N

Full Input Data And Results

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Changes

From Stage \ To Stage	1	2	3	4
1		6	6	6
2	6		6	6
3	6	6		6
4	6	6	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Unnamed Junction
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Through Rd - Barry)	U	A	2	3	10.0	Geom	-	3.00	0.00	Y	Arm 6 Left	12.50
1/2 (Through Rd - Barry)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 7 Ahead	Inf
1/3 (Through Rd - Barry)	U	I	2	3	4.0	Geom	-	3.00	0.00	N	Arm 8 Right	30.00
2/1 (WPH2 Area)	U	B	2	3	7.0	Geom	-	3.00	0.00	Y	Arm 7 Left	12.50
											Arm 8 Ahead	Inf
2/2 (WPH2 Area)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Right	20.00
3/1 (Through Rd - From Barry Island)	U	C	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	12.50
3/2 (Through Rd - From Barry Island)	U	J	2	3	7.0	Geom	-	3.00	0.00	N	Arm 6 Right	20.00
4/1 (WPH1 Area)	U	D	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	12.00
											Arm 6 Ahead	Inf
4/2 (WPH1 Area)	U	D	2	3	6.0	Geom	-	3.25	0.00	Y	Arm 7 Right	20.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
3: '2020 AM Peak PCU'	08:00	09:00	01:00	F1*1.05
4: '2020 PM Peak PCU'	16:30	17:30	01:00	F2*1.02

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2020 AM Peak
Junction: Unnamed Junction	
1/1	213
1/2 (with short)	374(In) 338(Out)
1/3 (short)	36
2/1 (short)	100
2/2 (with short)	329(In) 229(Out)
3/1 (with short)	732(In) 589(Out)
3/2 (short)	143
4/1 (with short)	226(In) 172(Out)
4/2 (short)	54
5/1	932
6/1	391
7/1	483
8/1	68

Full Input Data And Results

Scenario 1: '2020 AM Peak' (FG3: '2020 AM Peak PCU', Plan 1: 'Staging Plan No. 1')

Traffic Lane Flows

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (Through Rd - Barry)	3.00	0.00	Y	Arm 6 Left	12.50	100.0 %	1710
1/2 (Through Rd - Barry)	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915
1/3 (Through Rd - Barry)	3.00	0.00	N	Arm 8 Right	30.00	100.0 %	1957
2/1 (WPH2 Area)	3.00	0.00	Y	Arm 7 Left	12.50	91.0 %	1726
				Arm 8 Ahead	Inf	9.0 %	
2/2 (WPH2 Area)	3.00	0.00	Y	Arm 5 Right	20.00	100.0 %	1781
3/1 (Through Rd - From Barry Island)	3.00	0.00	Y	Arm 5 Ahead	Inf	96.1 %	1906
				Arm 8 Left	12.50	3.9 %	
3/2 (Through Rd - From Barry Island)	3.00	0.00	N	Arm 6 Right	20.00	100.0 %	1912
4/1 (WPH1 Area)	3.00	0.00	Y	Arm 5 Left	12.00	79.7 %	1742
				Arm 6 Ahead	Inf	20.3 %	
4/2 (WPH1 Area)	3.25	0.00	Y	Arm 7 Right	20.00	100.0 %	1805
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2020 PM Peak
Junction: Unnamed Junction	
1/1	411
1/2 (with short)	675(In) 575(Out)
1/3 (short)	100
2/1 (short)	262
2/2 (with short)	651(In) 389(Out)
3/1 (with short)	675(In) 491(Out)
3/2 (short)	184
4/1 (with short)	109(In) 77(Out)
4/2 (short)	32
5/1	891
6/1	617
7/1	830
8/1	183

Full Input Data And Results

Scenario 2: '2020 PM Peak' (FG4: '2020 PM Peak PCU', Plan 1: 'Staging Plan No. 1')

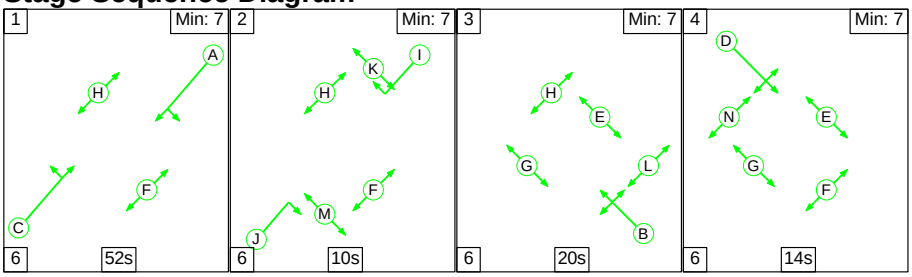
Traffic Lane Flows

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (Through Rd - Barry)	3.00	0.00	Y	Arm 6 Left	12.50	100.0 %	1710
1/2 (Through Rd - Barry)	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915
1/3 (Through Rd - Barry)	3.00	0.00	N	Arm 8 Right	30.00	100.0 %	1957
2/1 (WPH2 Area)	3.00	0.00	Y	Arm 7 Left	12.50	85.1 %	1738
				Arm 8 Ahead	Inf	14.9 %	
2/2 (WPH2 Area)	3.00	0.00	Y	Arm 5 Right	20.00	100.0 %	1781
3/1 (Through Rd - From Barry Island)	3.00	0.00	Y	Arm 5 Ahead	Inf	91.0 %	1895
				Arm 8 Left	12.50	9.0 %	
3/2 (Through Rd - From Barry Island)	3.00	0.00	N	Arm 6 Right	20.00	100.0 %	1912
4/1 (WPH1 Area)	3.00	0.00	Y	Arm 5 Left	12.00	71.4 %	1758
				Arm 6 Ahead	Inf	28.6 %	
4/2 (WPH1 Area)	3.25	0.00	Y	Arm 7 Right	20.00	100.0 %	1805
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Scenario 1: '2020 AM Peak' (FG3: '2020 AM Peak PCU', Plan 1: 'Staging Plan No. 1')

Stage Sequence Diagram

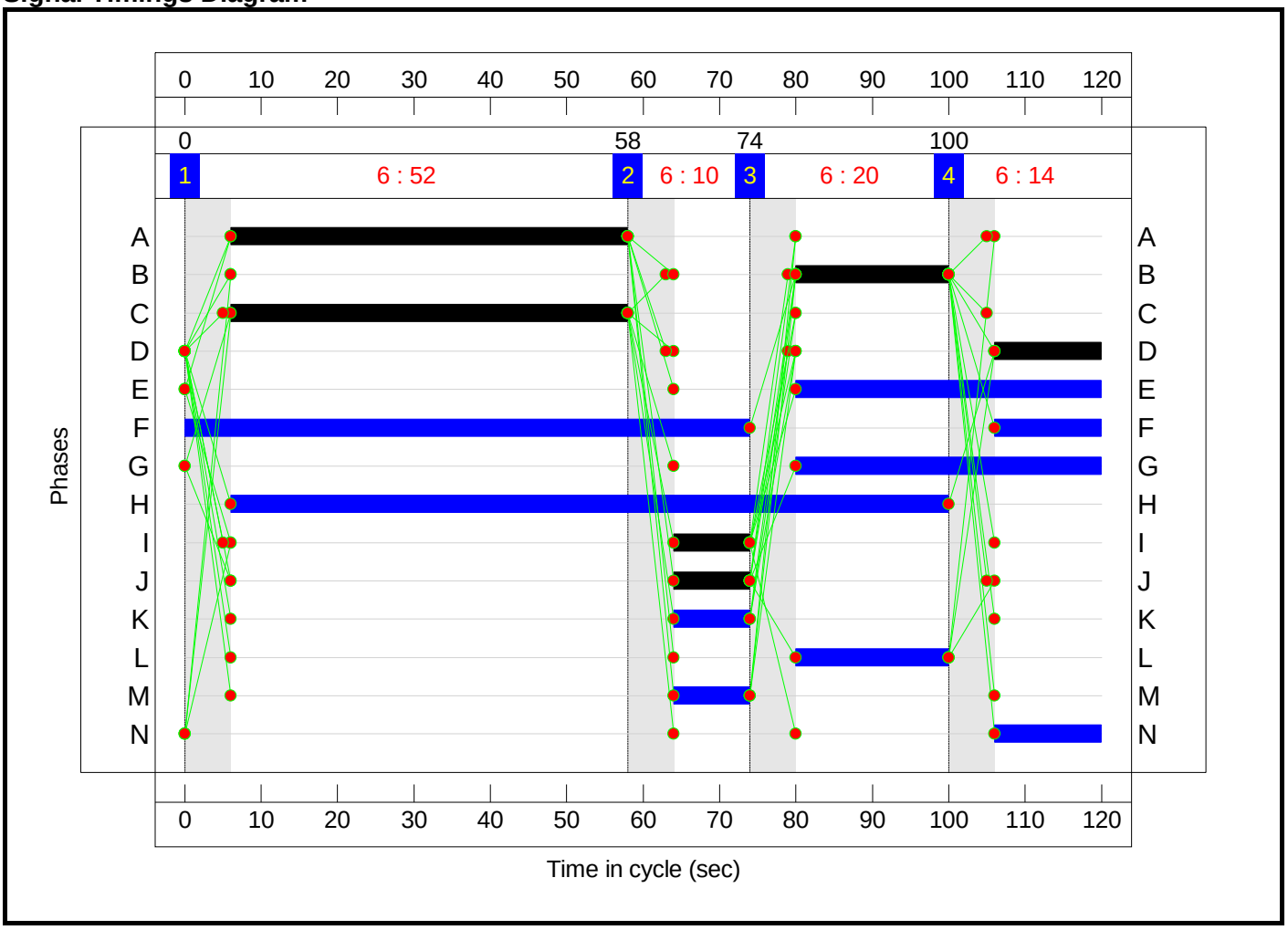


Stage Timings

Stage	1	2	3	4
Duration	52	10	20	14
Change Point	0	58	74	100

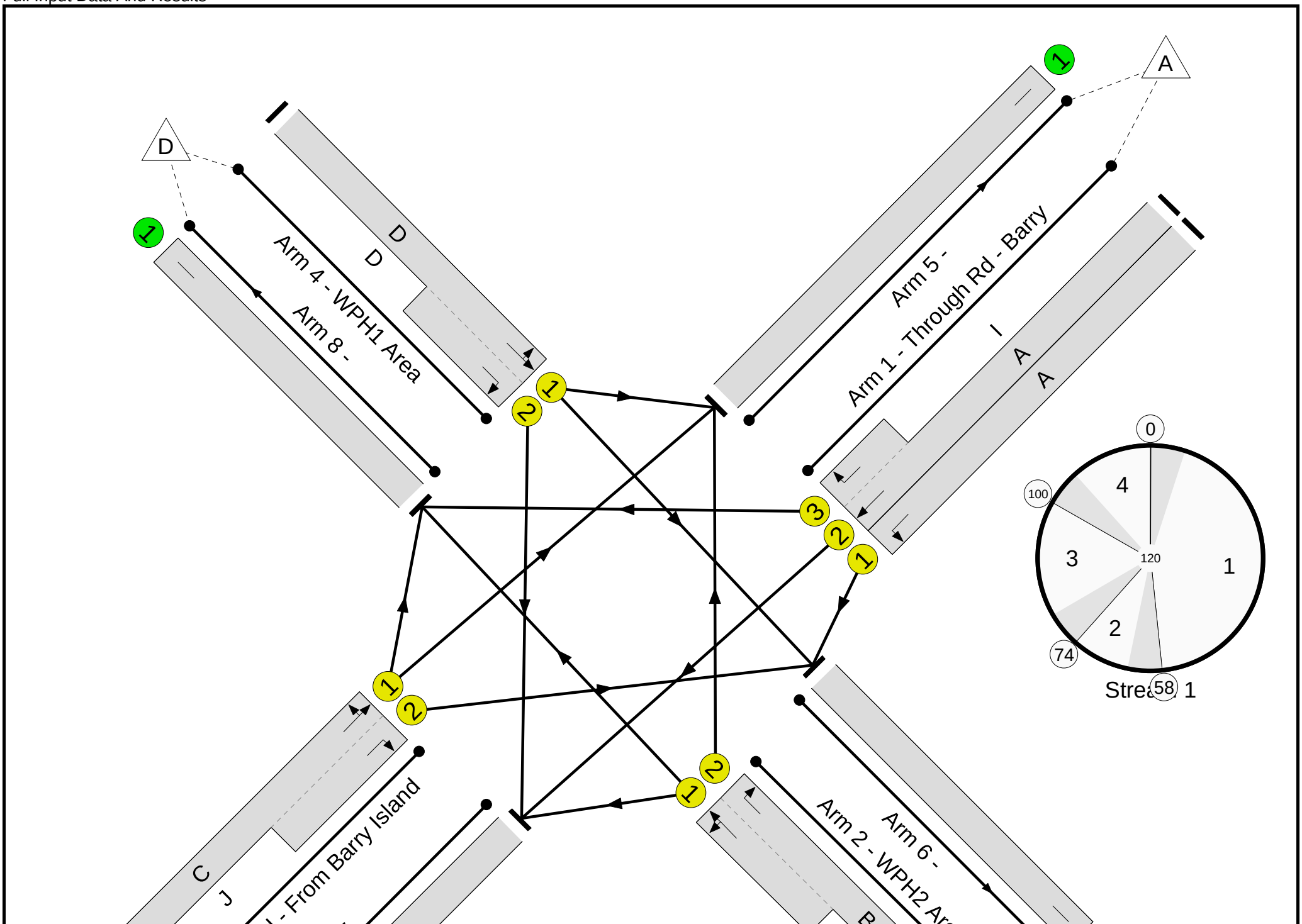
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A
D
Arm 4 - WPH1 Area
Arm 8 -
Arm 5 -
Arm 1 - Through Rd - Barry
Arm 6 -
Arm 2 - WPH2 Ar
0
4
100
3
120
1
2
74
58
Stre
1

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.6%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.6%**
1/1	Through Rd - Barry Left	U	N/A	N/A	A		1	52	-	213	1710	755	28.2%
1/2+1/3	Through Rd - Barry Ahead Right	U	N/A	N/A	A I		1	52:10	-	374	1915:1957	852	43.9%
2/2+2/1	WPH2 Area Right Left Ahead	U	N/A	N/A	B		1	20	-	329	1781:1726	405	81.3%
3/1+3/2	Through Rd - From Barry Island Ahead Right Left	U	N/A	N/A	C J		1	52:10	-	732	1906:1912	897	81.6%
4/1+4/2	WPH1 Area Left Ahead Right	U	N/A	N/A	D		1	14	-	226	1742:1805	280	80.6%
5/1		U	N/A	N/A	-		-	-	-	932	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	391	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	483	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	68	Inf	Inf	0.0%

Full Input Data And Results

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**18.0**	**6.8**	**0.0**	**24.7**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**18.0**	**6.8**	**0.0**	**24.7**	**-**	**-**	**-**	**-**
1/1	213	213	-	-	-	1.3	0.2	-	1.5	24.7	4.5	0.2	4.7
1/2+1/3	374	374	-	-	-	2.7	0.4	-	3.1	29.4	8.1	0.4	8.5
2/2+2/1	329	329	-	-	-	4.2	2.1	-	6.3	68.4	7.4	2.1	9.4
3/1+3/2	732	732	-	-	-	6.7	2.2	-	8.9	43.6	19.2	2.2	21.4
4/1+4/2	226	226	-	-	-	3.1	1.9	-	5.1	81.0	5.5	1.9	7.5
5/1	932	932	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	391	391	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	483	483	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	68	68	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 10.3
PRC Over All Lanes (%): 10.3

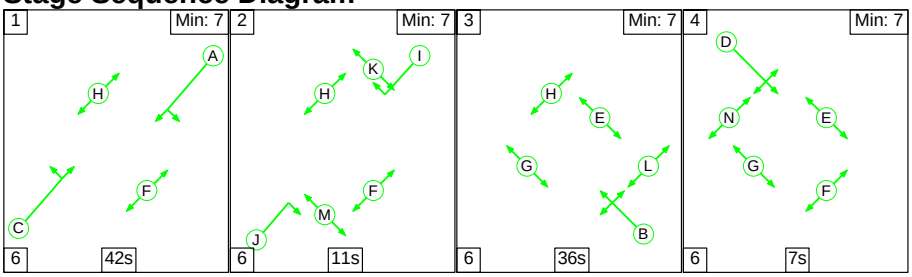
Total Delay for Signalled Lanes (pcuHr): 24.72
Total Delay Over All Lanes(pcuHr): 24.72

Cycle Time (s): 120

Full Input Data And Results

Scenario 2: '2020 PM Peak' (FG4: '2020 PM Peak PCU', Plan 1: 'Staging Plan No. 1')

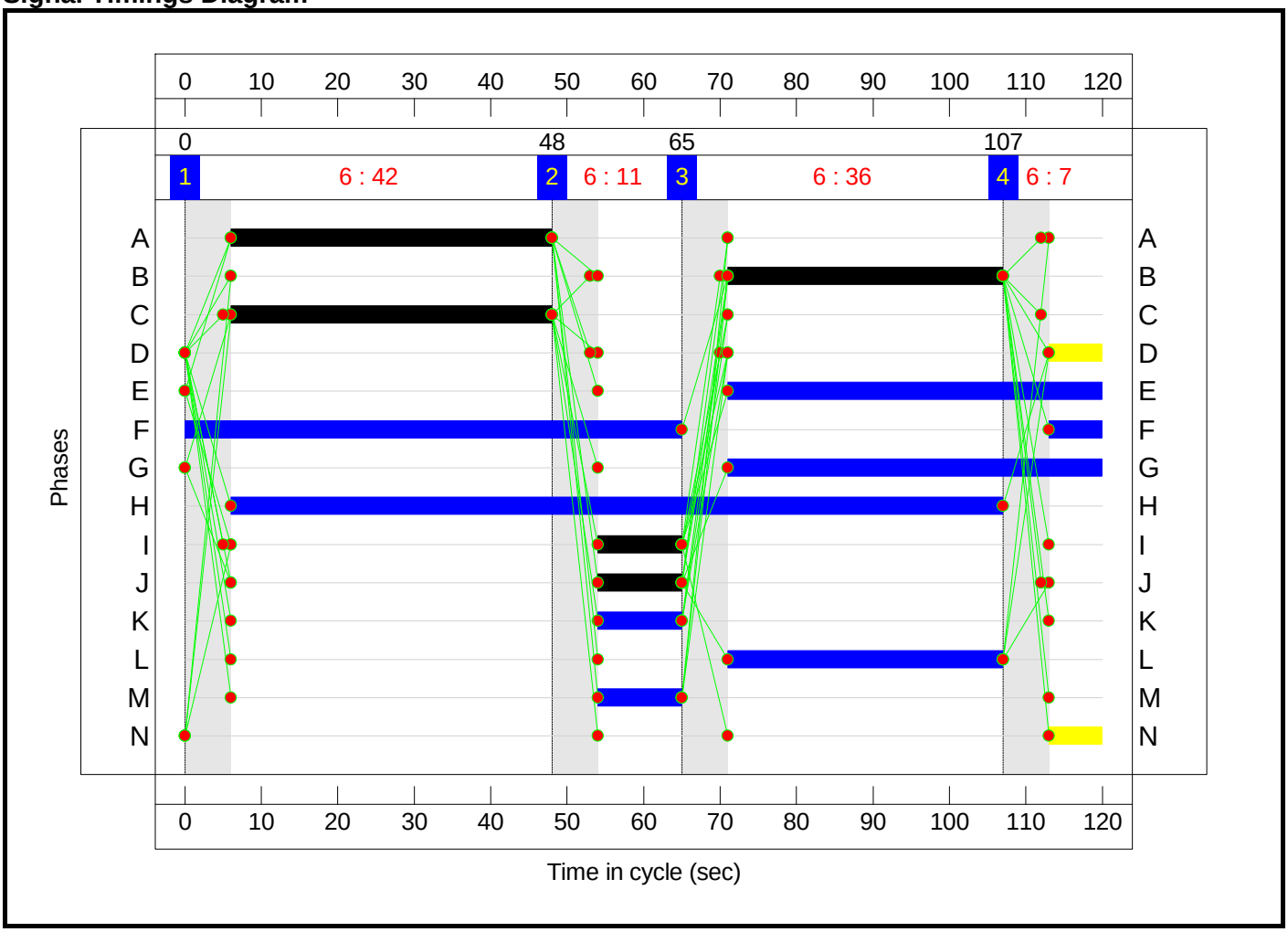
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	42	11	36	7
Change Point	0	48	65	107

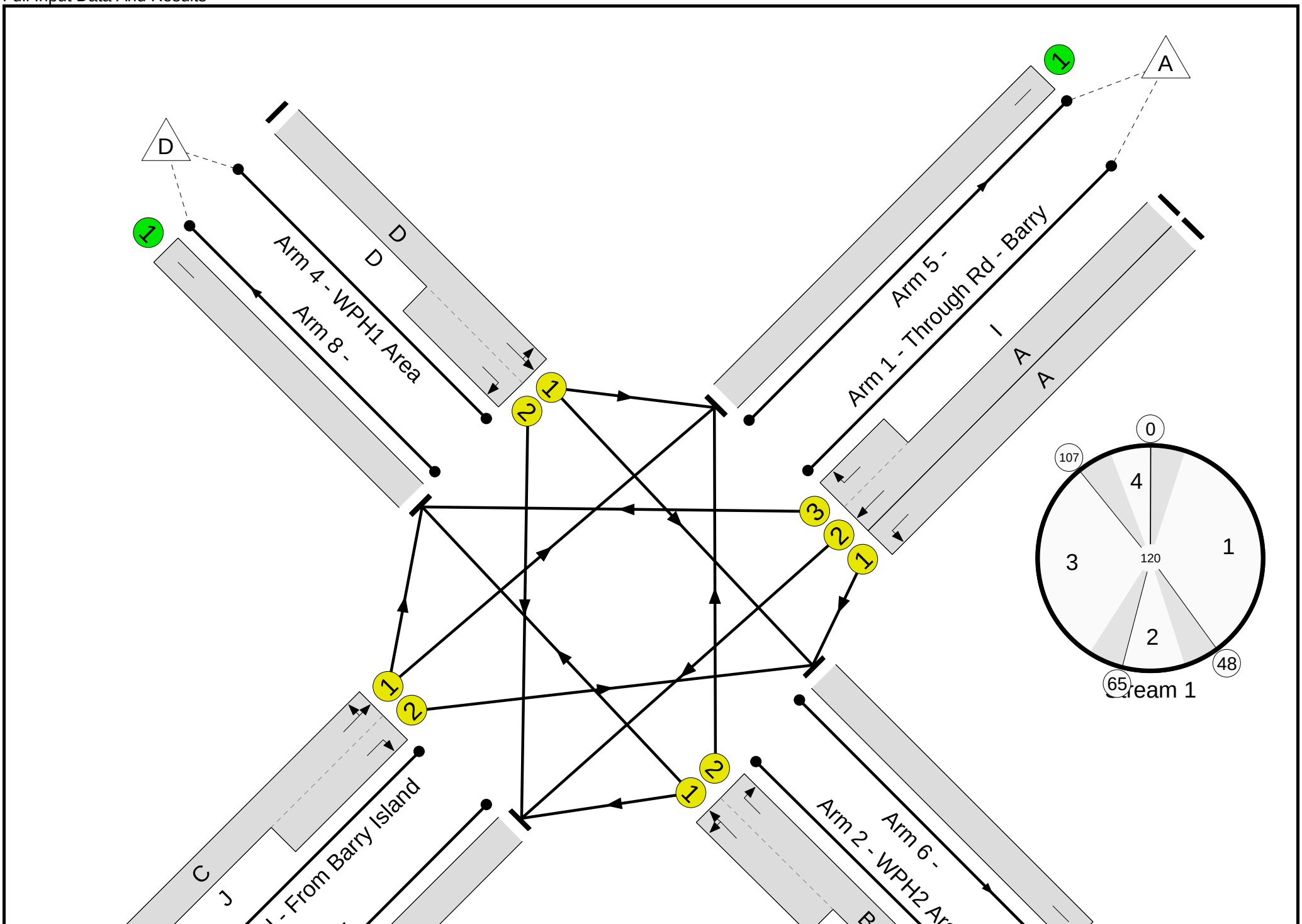
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**96.3%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**96.3%**
1/1	Through Rd - Barry Left	U	N/A	N/A	A		1	42	-	411	1710	613	67.1%
1/2+1/3	Through Rd - Barry Ahead Right	U	N/A	N/A	A I		1	42:11	-	675	1915:1957	701	96.3%
2/2+2/1	WPH2 Area Right Left Ahead	U	N/A	N/A	B		1	36	-	651	1781:1738	689	94.4%
3/1+3/2	Through Rd - From Barry Island Ahead Right Left	U	N/A	N/A	C J		1	42:11	-	675	1895:1912	707	95.5%
4/1+4/2	WPH1 Area Left Ahead Right	U	N/A	N/A	D		1	7	-	109	1758:1805	166	65.7%
5/1		U	N/A	N/A	-		-	-	-	891	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	617	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	830	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	183	Inf	Inf	0.0%

Full Input Data And Results

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**27.0**	**23.6**	**0.0**	**50.6**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**27.0**	**23.6**	**0.0**	**50.6**	**-**	**-**	**-**	**-**
1/1	411	411	-	-	-	3.7	1.0	-	4.7	41.4	11.5	1.0	12.5
1/2+1/3	675	675	-	-	-	7.4	8.0	-	15.4	82.1	21.2	8.0	29.2
2/2+2/1	651	651	-	-	-	6.8	6.4	-	13.1	72.7	16.1	6.4	22.4
3/1+3/2	675	675	-	-	-	7.5	7.3	-	14.8	78.7	18.2	7.3	25.5
4/1+4/2	109	109	-	-	-	1.6	0.9	-	2.6	84.9	2.5	0.9	3.4
5/1	891	891	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	617	617	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	830	830	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	183	183	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): -7.0

PRC Over All Lanes (%): -7.0

Total Delay for Signalled Lanes (pcuHr): 50.58

Total Delay Over All Lanes(pcuHr): 50.58

Cycle Time (s): 120

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE BUREAU
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: Software@trl.co.uk

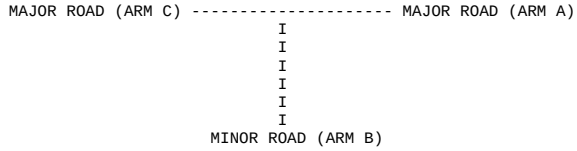
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
Internal Junctions\Revised Masterplan Junctions\iv\junction iv.vpi"
(drive-on-the-left) at 16:09:55 on Thursday, 27 May 2010

.RUN INFORMATION

RUN TITLE : Development at waterfront Barry - Internal Junctions
LOCATION : Barry Waterfront
DATE : 10/04/10
CLIENT :
ENUMERATOR : christopher.williams [WACB6DG93J]
JOB NUMBER : 122374
STATUS : On-going
DESCRIPTION : Junction [iv]

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Spine Rd North
ARM B IS Zone D
ARM C IS Spine Rd South

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 91.00 M.
- BLOCKS TRAFFIC	YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 19.0 M.
- VISIBILITY TO RIGHT	(VB-A) 16.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	7.00 M.
WIDTH AT 5 M FROM JUNCTION	3.00 M.
WIDTH AT 10 M FROM JUNCTION	2.75 M.
WIDTH AT 15 M FROM JUNCTION	2.75 M.
WIDTH AT 20 M FROM JUNCTION	2.70 M.
- LENGTH OF FLARED SECTION	DERIVED: 0 PCU

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B

I	0.00	0.00	0.00 I

* Due to the presence of a flare, data is not available

I Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	I
I 0.00	0.00	0.00	0.00	0.00	I

* Due to the presence of a flare, data is not available

I Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	I
I 626.66	0.23	0.23	I

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: AM 2020 Internal traffic movement

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I ARM	I FLOW STARTS I TO RISE	NUMBER OF MINUTES FROM START WHEN I TOP OF PEAK I IS REACHED	I FLOW STOPS I FALLING	RATE OF FLOW (VEH/MIN) I BEFORE I PEAK	I AT TOP I OF PEAK	I AFTER I PEAK	I
I ARM A	I 15.00	I 45.00	I 75.00	I 6.96	I 10.44	I 6.96	I
I ARM B	I 15.00	I 45.00	I 75.00	I 0.09	I 0.13	I 0.09	I
I ARM C	I 15.00	I 45.00	I 75.00	I 11.07	I 16.61	I 11.07	I

.Demand set: AM 2020 Internal traffic movement

I TIME	I FROM/TO	TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S) I ARM A	I ARM B	I ARM C	I
I 08.15 - 08.30	I	I	I	I	I
	I ARM A	I 0.000	I 0.002	I 0.998	I
	I	I 0.0	I 1.0	I 556.0	I
	I	I (0.0)	I (5.0)	I (5.0)	I
	I ARM B	I 0.714	I 0.000	I 0.286	I
	I	I 5.0	I 0.0	I 2.0	I
	I	I (5.0)	I (0.0)	I (5.0)	I
	I ARM C	I 0.999	I 0.001	I 0.000	I
	I	I 885.0	I 1.0	I 0.0	I
	I	I (5.0)	I (5.0)	I (0.0)	I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2020 Internal traffic movement
AND FOR TIME PERIOD 1

I 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)	I
I 08.15-08.30										I
I B-C	0.03	7.58	0.003		0.00	0.00	0.0		0.13	I
I B-A	0.06	4.93	0.013		0.00	0.01	0.2		0.21	I
I C-AB	0.01	8.35	0.002		0.00	0.00	0.0		0.12	I
I A-B	0.01									I
I A-C	6.98									I
I										I

I 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)	I
I 08.30-08.45										I
I B-C	0.03	7.29	0.004		0.00	0.00	0.1		0.14	I
I B-A	0.07	4.34	0.017		0.01	0.02	0.3		0.23	I

C-AB	0.01	8.04	0.002		0.00	0.00	0.0		0.12
A-B	0.01								
A-C	8.33								

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)
08.45-09.00									
B-C	0.04	6.88	0.005		0.00	0.01	0.1		0.15
B-A	0.09	3.52	0.026		0.02	0.03	0.4		0.29
C-AB	0.02	7.61	0.002		0.00	0.00	0.0		0.13
A-B	0.02								
A-C	10.20								

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)
09.00-09.15									
B-C	0.04	6.88	0.005		0.01	0.01	0.1		0.15
B-A	0.09	3.52	0.026		0.03	0.03	0.4		0.29
C-AB	0.02	7.61	0.002		0.00	0.00	0.0		0.13
A-B	0.02								
A-C	10.20								

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)
09.15-09.30									
B-C	0.03	7.29	0.004		0.01	0.00	0.1		0.14
B-A	0.07	4.34	0.017		0.03	0.02	0.3		0.23
C-AB	0.01	8.04	0.002		0.00	0.00	0.0		0.12
A-B	0.01								
A-C	8.33								

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)
09.30-09.45									
B-C	0.03	7.58	0.003		0.00	0.00	0.1		0.13
B-A	0.06	4.93	0.013		0.02	0.01	0.2		0.21
C-AB	0.01	8.35	0.002		0.00	0.00	0.0		0.12
A-B	0.01								
A-C	6.98								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)

B-C	2.8	1.8	0.4	0.14		0.4		0.14	
B-A	6.9	4.6	1.7	0.25		1.7		0.25	
C-AB	1.4	0.9	0.2	0.12		0.2		0.12	
A-B	1.4	0.9							
A-C	765.3	510.2							
ALL	1995.8	1330.5	2.2	0.00		2.2		0.00	

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
626.66	0.23	0.23

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: PM 2020 Internal traffic movement

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	13.34	20.01	13.34
ARM B	15.00	45.00	75.00	0.03	0.04	0.03
ARM C	15.00	45.00	75.00	10.91	16.37	10.91

.Demand set: PM 2020 Internal traffic movement

TIME	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.003	0.997
		0.0	3.0	1064.0
		(0.0)	(2.0)	(2.0)
	ARM B	0.500	0.000	0.500
		1.0	0.0	1.0
		(2.0)	(0.0)	(2.0)
	ARM C	0.998	0.002	0.000
		871.0	2.0	0.0
		(2.0)	(2.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2020 Internal traffic movement
AND FOR TIME PERIOD 2

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									
B-C	0.01	7.62	0.002		0.00	0.00	0.0		0.13
B-A	0.01	3.68	0.003		0.00	0.00	0.0		0.27
C-AB	0.03	7.17	0.003		0.00	0.00	0.1		0.14
A-B	0.04								
A-C	13.35								

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									
B-C	0.01	6.98	0.002		0.00	0.00	0.0		0.14
B-A	0.01	2.85	0.005		0.00	0.01	0.1		0.35
C-AB	0.03	6.58	0.005		0.00	0.00	0.1		0.15
A-B	0.04								
A-C	15.94								

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									
B-C	0.02	6.10	0.003		0.00	0.00	0.0		0.16
B-A	0.02	1.69	0.011		0.01	0.01	0.1		0.60
C-AB	0.04	5.75	0.006		0.00	0.01	0.1		0.17
A-B	0.06								
A-C	19.52								

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									
B-C	0.02	6.10	0.003		0.00	0.00	0.0		0.16
B-A	0.02	1.69	0.011		0.01	0.01	0.2		0.60
C-AB	0.04	5.75	0.006		0.01	0.01	0.1		0.17
A-B	0.06								
A-C	19.52								

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									
B-C	0.01	6.98	0.002		0.00	0.00	0.0		0.14
B-A	0.01	2.85	0.005		0.01	0.01	0.1		0.35
C-AB	0.03	6.58	0.005		0.01	0.00	0.1		0.15
A-B	0.04								
A-C	15.94								

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									
B-C	0.01	7.62	0.002		0.00	0.00	0.0		0.13
B-A	0.01	3.68	0.003		0.01	0.00	0.1		0.27
C-AB	0.03	7.17	0.003		0.00	0.00	0.1		0.14
A-B	0.04								
A-C	13.35								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT	NO. OF VEHICLES

ENDING	IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

.

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	1.4	0.9	0.2	0.15	0.2	0.15
B-A	1.4	0.9	0.6	0.41	0.6	0.41
C-AB	2.8	1.8	0.4	0.16	0.4	0.16
A-B	4.1	2.8				
A-C	1464.5	976.3				
ALL	2673.0	1782.0	1.2	0.00	1.2	0.00

* 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 RUN*******

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE BUREAU
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: Software@trl.co.uk

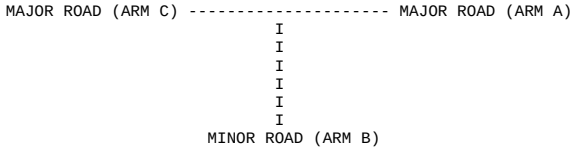
Run with file:-
"J:\122000\122374-00\4 Internal Project Data\4-40 Calculations\Transport\Junction Assessments\IssueRevA\
Internal Junctions\Revised Masterplan Junctions\ix\junction ix.vpi"
(drive-on-the-left) at 16:08:44 on Thursday, 27 May 2010

.RUN INFORMATION

RUN TITLE : Development at waterfront Barry - Internal junctions
LOCATION : Barry Waterfront
DATE : 12/04/10
CLIENT :
ENUMERATOR : christopher.williams [WACB6DG93J]
JOB NUMBER : 122374
STATUS : On-going
DESCRIPTION : Junction [ix]

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Spine Road (s)
ARM B IS Zone I (w)
ARM C IS Spine Road (n)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 60.00 M.
- BLOCKS TRAFFIC	YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 20.0 M.
- VISIBILITY TO RIGHT	(VB-A) 15.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	7.80 M.
WIDTH AT 5 M FROM JUNCTION	3.00 M.
WIDTH AT 10 M FROM JUNCTION	2.20 M.
WIDTH AT 15 M FROM JUNCTION	2.20 M.
WIDTH AT 20 M FROM JUNCTION	2.20 M.
- LENGTH OF FLARED SECTION	DERIVED: 0 PCU

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B

I	0.00	0.00	0.00 I

* Due to the presence of a flare, data is not available

I Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	I
I 0.00	0.00	0.00	0.00	0.00	I

* Due to the presence of a flare, data is not available

I Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	I
I 608.71	0.22	0.22	I

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: 2020 AM Internal traffic movements

TIME PERIOD BEGINS 08.15 AND ENDS 09.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I ARM	I FLOW STARTS TO RISE	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
I ARM A	I 15.00	I 45.00	I 75.00	I 5.11	I 7.67	I 5.11	I
I ARM B	I 15.00	I 45.00	I 75.00	I 0.11	I 0.17	I 0.11	I
I ARM C	I 15.00	I 45.00	I 75.00	I 5.50	I 8.25	I 5.50	I

.Demand set: 2020 AM Internal traffic movements

I TIME	I FROM/TO	I ARM A	I ARM B	I ARM C	I
I 08.15 - 08.30	I	I	I	I	I
I	I ARM A	I 0.000	I 0.000	I 1.000	I
I	I	I 0.0	I 0.0	I 409.0	I
I	I	I (0.0)	I (5.0)	I (5.0)	I
I	I	I	I	I	I
I	I ARM B	I 0.222	I 0.000	I 0.778	I
I	I	I 2.0	I 0.0	I 7.0	I
I	I	I (5.0)	I (0.0)	I (5.0)	I
I	I	I	I	I	I
I	I ARM C	I 0.995	I 0.005	I 0.000	I
I	I	I 438.0	I 2.0	I 0.0	I
I	I	I (5.0)	I (5.0)	I (0.0)	I
I	I	I	I	I	I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2020 AM Internal traffic movements
AND FOR TIME PERIOD 1

I 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)	I
I 08.15-08.30										I
I B-C	0.09	8.79	0.010		0.00	0.01	0.1		0.11	I
I B-A	0.03	5.84	0.004		0.00	0.00	0.1		0.17	I
I C-AB	0.03	8.52	0.003		0.00	0.00	0.0		0.12	I
I A-B	0.00									I
I A-C	5.13									I
I										I

I 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)	I
I 08.30-08.45										I
I B-C	0.10	8.55	0.012		0.01	0.01	0.2		0.12	I
I B-A	0.03	5.49	0.005		0.00	0.01	0.1		0.18	I

C-AB	0.03	8.30	0.004	0.00	0.00	0.1		0.12	
A-B	0.00								
A-C	6.13								

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)
08.45-09.00									
B-C	0.13	8.23	0.016		0.01	0.02	0.2		0.12
B-A	0.04	5.01	0.007		0.01	0.01	0.1		0.20
C-AB	0.04	7.99	0.005		0.00	0.00	0.1		0.13
A-B	0.00								
A-C	7.51								

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)
09.00-09.15									
B-C	0.13	8.23	0.016		0.02	0.02	0.2		0.12
B-A	0.04	5.01	0.007		0.01	0.01	0.1		0.20
C-AB	0.04	7.99	0.005		0.00	0.00	0.1		0.13
A-B	0.00								
A-C	7.51								

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)
09.15-09.30									
B-C	0.10	8.55	0.012		0.02	0.01	0.2		0.12
B-A	0.03	5.49	0.005		0.01	0.01	0.1		0.18
C-AB	0.03	8.30	0.004		0.00	0.00	0.1		0.12
A-B	0.00								
A-C	6.13								

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)
09.30-09.45									
B-C	0.09	8.78	0.010		0.01	0.01	0.2		0.12
B-A	0.03	5.84	0.004		0.01	0.00	0.1		0.17
C-AB	0.03	8.52	0.003		0.00	0.00	0.0		0.12
A-B	0.00								
A-C	5.13								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0
09.45	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)

B-C	9.6	6.4	1.1	0.12		1.1		0.12	
B-A	2.8	1.8	0.5	0.19		0.5		0.19	
C-AB	2.8	1.8	0.3	0.12		0.3		0.12	
A-B	0.0	0.0							
A-C	563.0	375.3							
ALL	1181.0	787.3	2.0	0.00		2.0		0.00	

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
0.00	0.00	0.00	0.00	0.00

* Due to the presence of a flare, data is not available

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
608.71	0.22	0.22

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

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

.Demand set: 2020 PM Internal traffic movements

TIME PERIOD BEGINS 16.15 AND ENDS 17.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	6.60	9.90	6.60
ARM B	15.00	45.00	75.00	0.05	0.08	0.05
ARM C	15.00	45.00	75.00	7.06	10.59	7.06

.Demand set: 2020 PM Internal traffic movements

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.15 - 16.30	ARM A	0.000	0.002	0.998
		0.0	1.0	527.0
		(0.0)	(2.0)	(2.0)
	ARM B	0.250	0.000	0.750
		1.0	0.0	3.0
		(2.0)	(0.0)	(2.0)
	ARM C	0.989	0.011	0.000
		559.0	6.0	0.0
		(2.0)	(2.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2020 PM Internal traffic movements
AND FOR TIME PERIOD 2

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									
B-C	0.04	8.74	0.004		0.00	0.00	0.1		0.11
B-A	0.01	5.54	0.002		0.00	0.00	0.0		0.18
C-AB	0.08	8.47	0.009		0.00	0.01	0.1		0.12
A-B	0.01								
A-C	6.61								

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									
B-C	0.04	8.45	0.005		0.00	0.01	0.1		0.12
B-A	0.01	5.09	0.003		0.00	0.00	0.0		0.20
C-AB	0.09	8.19	0.011		0.01	0.01	0.2		0.12
A-B	0.01								
A-C	7.90								

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									
B-C	0.06	8.04	0.007		0.01	0.01	0.1		0.13
B-A	0.02	4.46	0.004		0.00	0.00	0.1		0.23
C-AB	0.11	7.79	0.014		0.01	0.01	0.2		0.13
A-B	0.02								
A-C	9.67								

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									
B-C	0.06	8.04	0.007		0.01	0.01	0.1		0.13
B-A	0.02	4.46	0.004		0.00	0.00	0.1		0.23
C-AB	0.11	7.79	0.014		0.01	0.01	0.2		0.13
A-B	0.02								
A-C	9.67								

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									
B-C	0.04	8.45	0.005		0.01	0.01	0.1		0.12
B-A	0.01	5.09	0.003		0.00	0.00	0.0		0.20
C-AB	0.09	8.19	0.011		0.01	0.01	0.2		0.12
A-B	0.01								
A-C	7.90								

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									
B-C	0.04	8.74	0.004		0.01	0.00	0.1		0.11
B-A	0.01	5.54	0.002		0.00	0.00	0.0		0.18
C-AB	0.08	8.47	0.009		0.01	0.01	0.1		0.12
A-B	0.01								
A-C	6.61								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT	NO. OF VEHICLES

ENDING	IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

.

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	4.1	2.8	0.5	0.12	0.5	0.12
B-A	1.4	0.9	0.3	0.20	0.3	0.20
C-AB	8.3	5.5	1.0	0.13	1.0	0.13
A-B	1.4	0.9				
A-C	725.4	483.6				
ALL	1509.9	1006.6	1.8	0.00	1.8	0.00

* 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 RUN*******

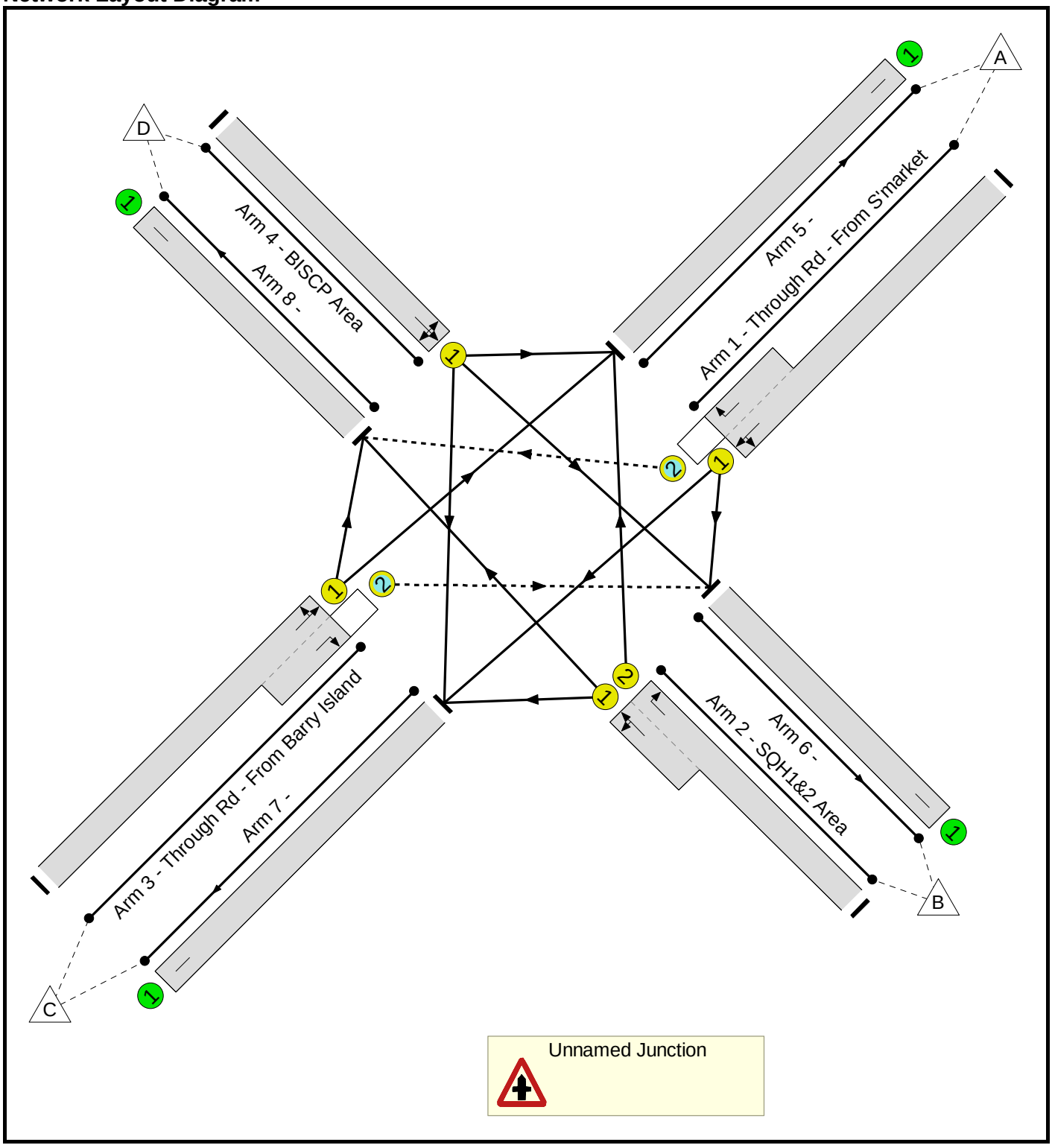
Full Input Data And Results

User and Project Details

Project:	**Waterfront Barry**
Title:	
Location:	Internal Southern Quay Junction, Barry
File name:	SQ Signals - with right turn.lsg3x
Author:	Roddy Beynon
Company:	Arup
Address:	
Notes:	

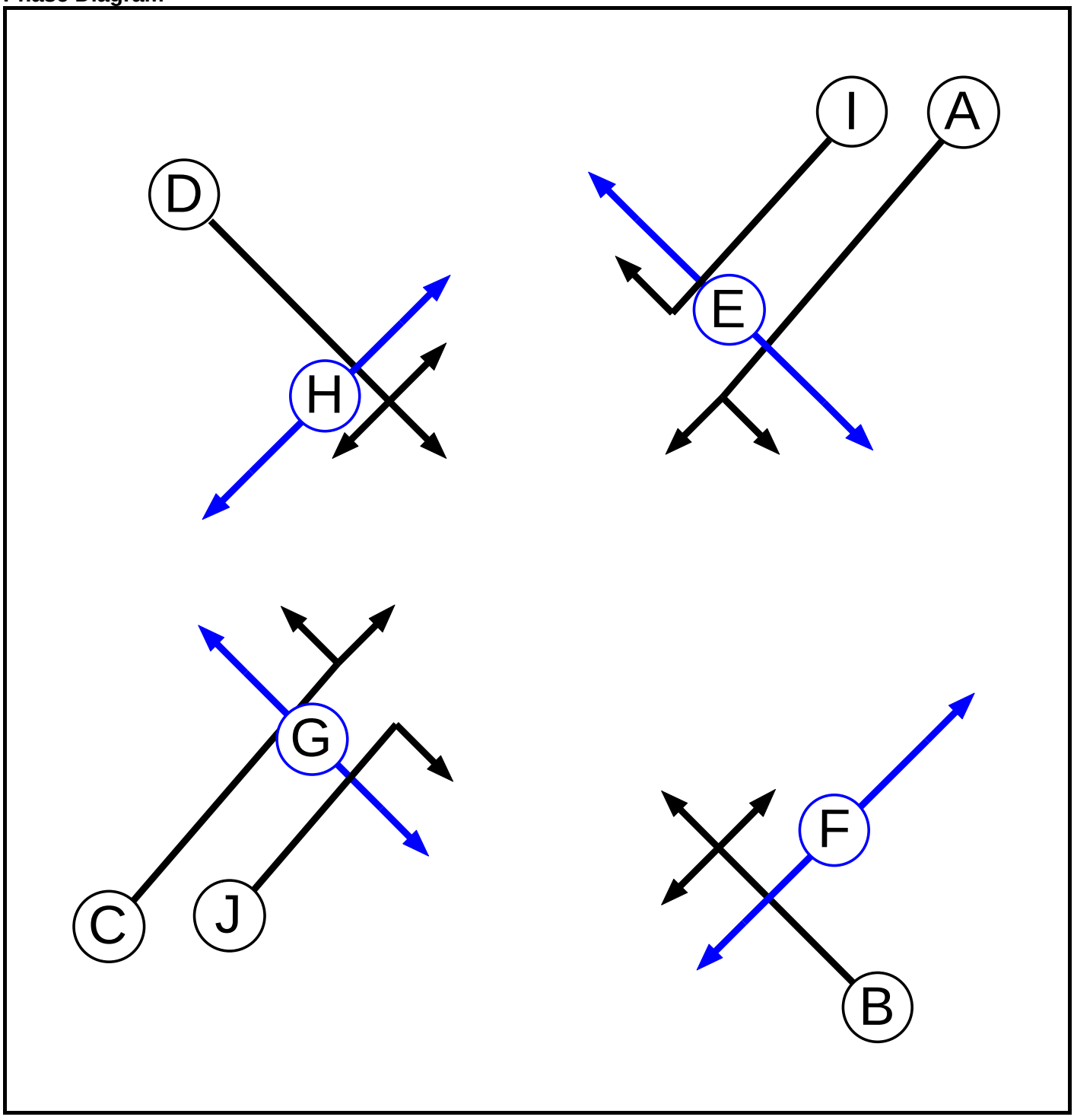
Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7
F	Pedestrian		7	7
G	Pedestrian		7	7
H	Pedestrian		7	7
I	Traffic		7	7
J	Traffic		7	7

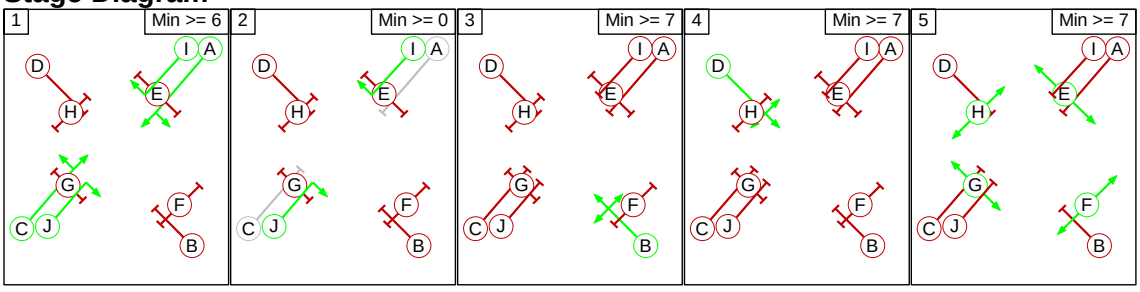
Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		6	-	5	5	8	9	-	-	-
	B	5		5	6	8	5	7	9	6	5
	C	-	5		6	9	-	5	7	-	-
	D	6	6	5		7	9	9	5	5	6
	E	13	13	13	13		-	-	-	13	13
	F	12	12	-	12	-		-	-	-	12
	G	12	12	12	12	-	-		-	-	12
	H	-	12	12	12	-	-	-		12	-
	I	-	5	-	6	5	-	-	8		-
	J	-	6	-	5	8	8	5	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A C I J
2	I J
3	B
4	D
5	E F G H

Stage Diagram



Full Input Data And Results

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Changes

From Stage \ To Stage	1	2	3	4	5
1		0	6	6	9
2	2		6	6	8
3	6	6		6	9
4	6	6	6		9
5	13	13	13	13	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/2 (Through Rd - From S'market)	8/1 (Right)	1440	3/1	1.09	3/1	2.00	-	0.50	2	2.00
3/2 (Through Rd - From Barry Island)	6/1 (Right)	1440	1/1	1.09	1/1	2.00	-	0.50	2	2.00

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Through Rd - From S'market)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Left	12.50
											Arm 7 Ahead	Inf
1/2 (Through Rd - From S'market)	O	I	2	3	5.0	Geom	-	3.00	0.00	N	Arm 8 Right	20.00
2/1 (SQH1&2 Area)	U	B	2	3	5.0	Geom	-	3.00	0.00	Y	Arm 7 Left	12.50
											Arm 8 Ahead	Inf
2/2 (SQH1&2 Area)	U	B	2	3	60.0	Geom	-	3.00	0.00	N	Arm 5 Right	20.00
3/1 (Through Rd - From Barry Island)	U	C	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	12.50
3/2 (Through Rd - From Barry Island)	O	J	2	3	5.0	Geom	-	3.00	0.00	N	Arm 6 Right	20.00
4/1 (BISCP Area)	U	D	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	12.50
											Arm 6 Ahead	Inf
											Arm 7 Right	20.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
3: '2020 AM Flows Lrg Smarket through junc viii - PCU'	08:00	09:00	01:00	F1*1.02
4: '2020 PM Flows Lrg Smarket through junc viii - PCU '	16:30	17:30	01:00	F2*1.05

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2020 AM
Junction: Unnamed Junction	
1/1 (with short)	470(In) 459(Out)
1/2 (short)	11
2/1 (short)	71
2/2 (with short)	362(In) 291(Out)
3/1 (with short)	425(In) 403(Out)
3/2 (short)	22
4/1	30
5/1	714
6/1	109
7/1	448
8/1	16

Scenario 1: '2020 AM' (FG3: '2020 AM Flows Lrg Smarket through junc viii - PCU', Plan 1: 'Staging Plan No. 1')

Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Through Rd - From S'market)	3.00	0.00	Y	Arm 6 Left	12.50	18.7 %	1873
				Arm 7 Ahead	Inf	81.3 %	
1/2 (Through Rd - From S'market)	3.00	0.00	N	Arm 8 Right	20.00	100.0 %	1912
2/1 (SQH1&2 Area)	3.00	0.00	Y	Arm 7 Left	12.50	97.2 %	1715
				Arm 8 Ahead	Inf	2.8 %	
2/2 (SQH1&2 Area)	3.00	0.00	N	Arm 5 Right	20.00	100.0 %	1912
3/1 (Through Rd - From Barry Island)	3.00	0.00	Y	Arm 5 Ahead	Inf	99.3 %	1913
				Arm 8 Left	12.50	0.7 %	
3/2 (Through Rd - From Barry Island)	3.00	0.00	N	Arm 6 Right	20.00	100.0 %	1912
4/1 (BISCP Area)	3.00	0.00	Y	Arm 5 Left	12.50	76.7 %	1730
				Arm 6 Ahead	Inf	3.3 %	
				Arm 7 Right	20.00	20.0 %	
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2020 PM
Junction: Unnamed Junction	
1/1 (with short)	856(In) 810(Out)
1/2 (short)	46
2/1 (short)	40
2/2 (with short)	200(In) 160(Out)
3/1 (with short)	547(In) 489(Out)
3/2 (short)	58
4/1	65
5/1	688
6/1	329
7/1	593
8/1	58

Scenario 2: '2020 PM' (FG4: '2020 PM Flows Lrg Smarket through junc viii - PCU ', Plan 1: 'Staging Plan No. 1')

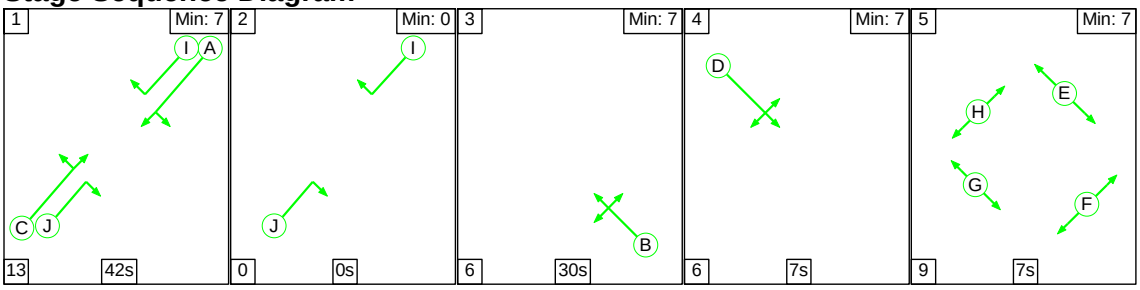
Traffic Lane Flows

Junction: Unnamed Junction							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Through Rd - From S'market)	3.00	0.00	Y	Arm 6 Left	12.50	32.8 %	1842
				Arm 7 Ahead	Inf	67.2 %	
1/2 (Through Rd - From S'market)	3.00	0.00	N	Arm 8 Right	20.00	100.0 %	1912
2/1 (SQH1&2 Area)	3.00	0.00	Y	Arm 7 Left	12.50	92.5 %	1724
				Arm 8 Ahead	Inf	7.5 %	
2/2 (SQH1&2 Area)	3.00	0.00	N	Arm 5 Right	20.00	100.0 %	1912
3/1 (Through Rd - From Barry Island)	3.00	0.00	Y	Arm 5 Ahead	Inf	98.2 %	1911
				Arm 8 Left	12.50	1.8 %	
3/2 (Through Rd - From Barry Island)	3.00	0.00	N	Arm 6 Right	20.00	100.0 %	1912
4/1 (BISCP Area)	3.00	0.00	Y	Arm 5 Left	12.50	73.8 %	1737
				Arm 6 Ahead	Inf	7.7 %	
				Arm 7 Right	20.00	18.5 %	
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Full Input Data And Results

Scenario 1: '2020 AM' (FG3: '2020 AM Flows Lrg Smarket through junc viii - PCU', Plan 1: 'Staging Plan No. 1')

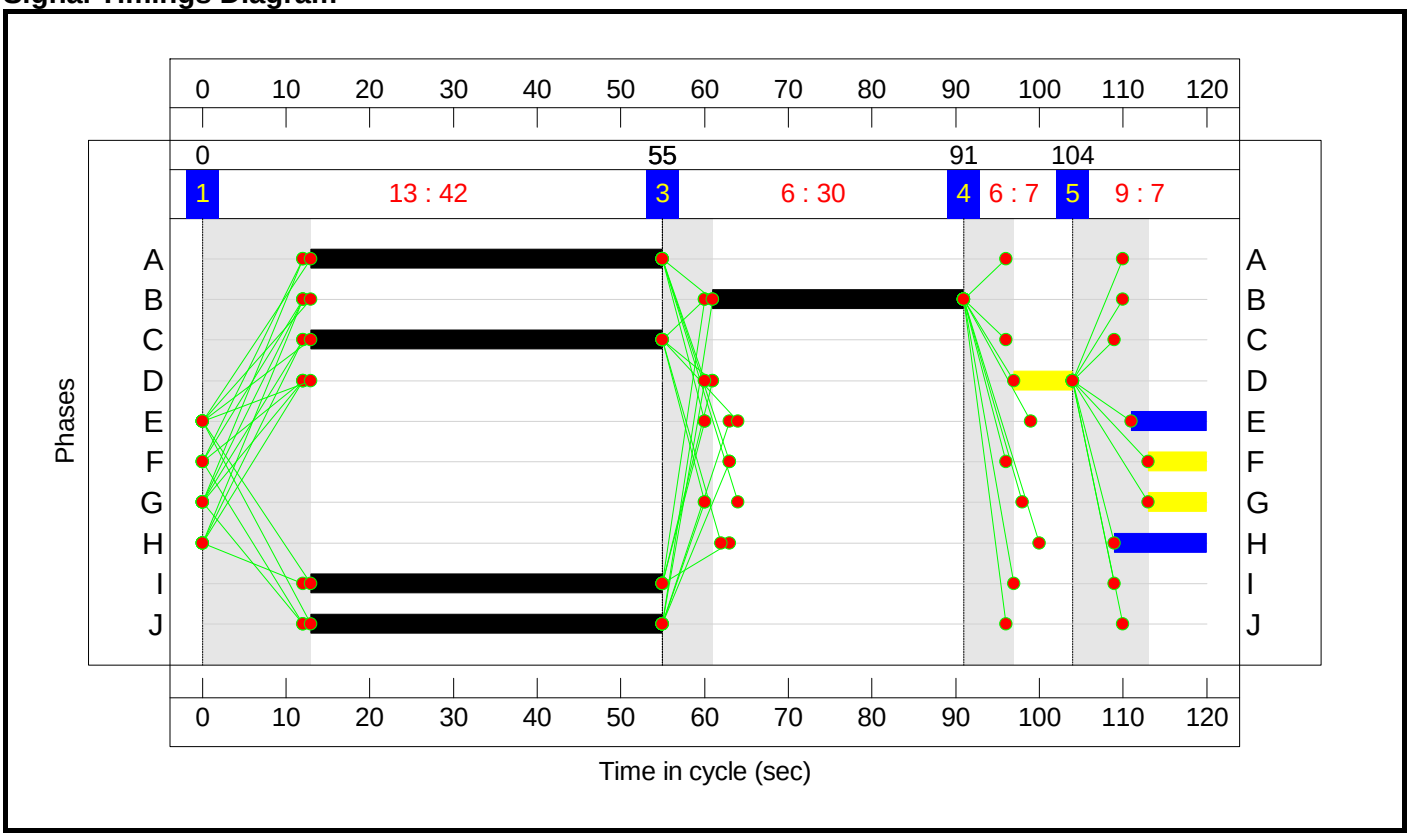
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	5
Duration	42	0	30	7	7
Change Point	0	55	55	91	104

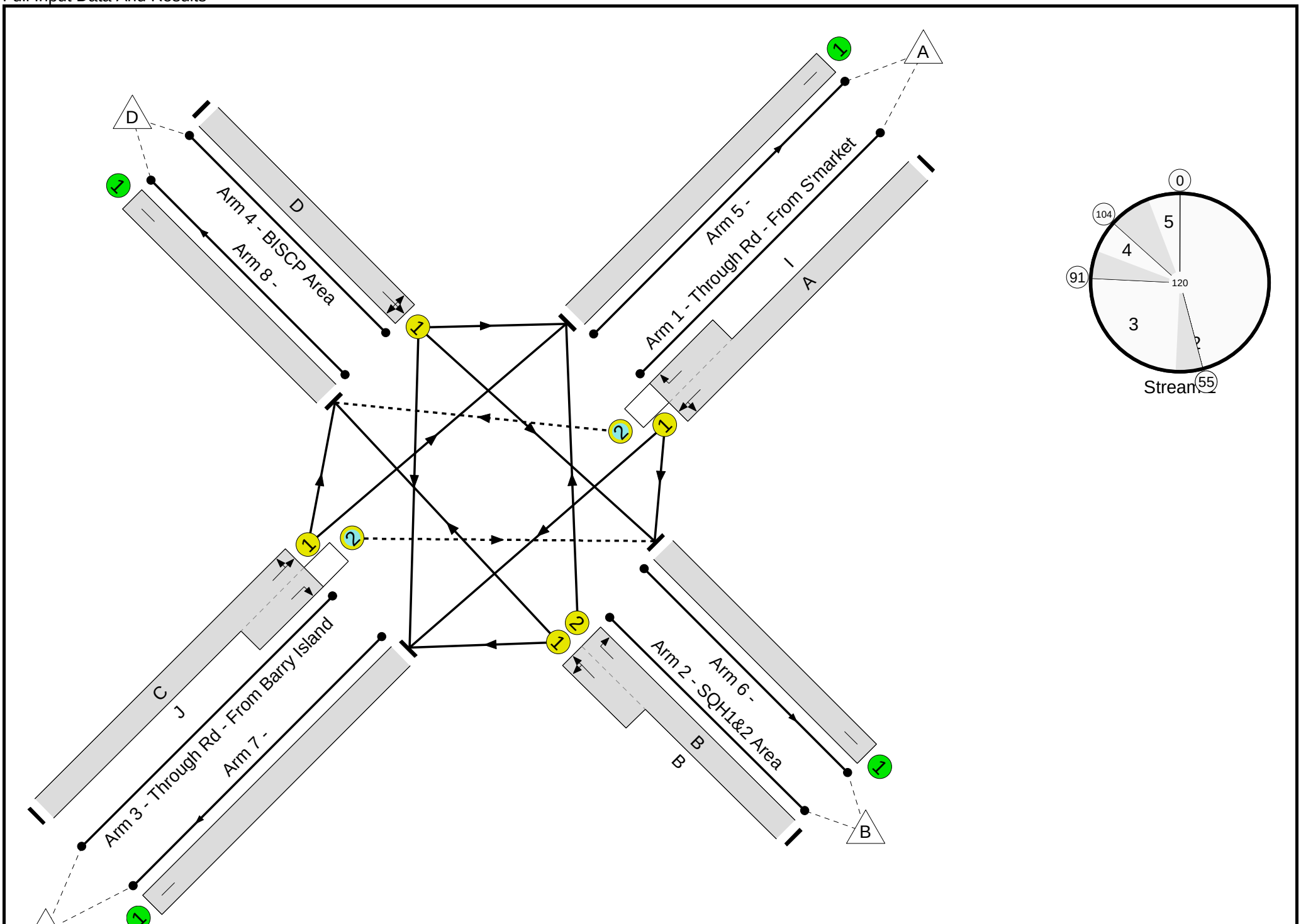
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.3%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.3%**
1/1+1/2	Through Rd - From S'market Left Ahead Right	U+O	N/A	N/A	A I		1	42	-	470	1873:1912	669	70.3%
2/2+2/1	SQH1&2 Area Right Left Ahead	U	N/A	N/A	B		1	30	-	362	1912:1715	529	68.4%
3/1+3/2	Through Rd - From Barry Island Ahead Right Left	U+O	N/A	N/A	C J		1	42	-	425	1913:1912	700	60.7%
4/1	BISCP Area Left Ahead Right	U	N/A	N/A	D		1	7	-	30	1730	115	26.0%
5/1		U	N/A	N/A	-		-	-	-	714	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	109	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	448	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	16	Inf	Inf	0.0%

Full Input Data And Results

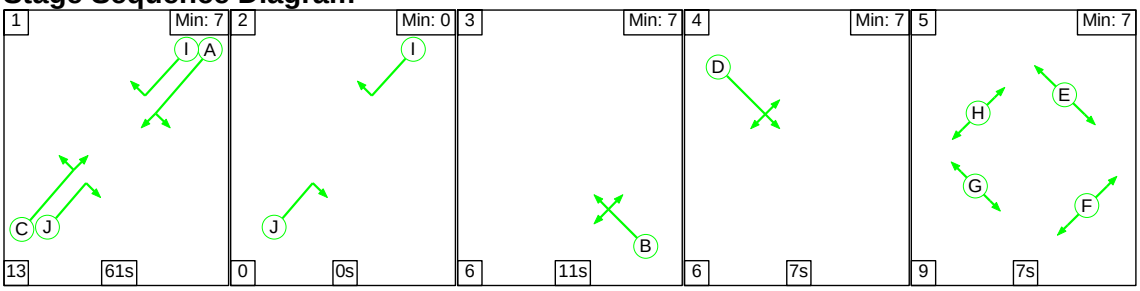
Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**33**	**0**	**0**	**12.3**	**3.2**	**0.1**	**15.6**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**33**	**0**	**0**	**12.3**	**3.2**	**0.1**	**15.6**	**-**	**-**	**-**	**-**
1/1+1/2	470	470	11	0	0	4.3	1.2	0.0	5.5	42.1	13.2	1.2	14.4
2/2+2/1	362	362	-	-	-	3.9	1.1	-	5.0	49.5	9.4	1.1	10.5
3/1+3/2	425	425	22	0	0	3.7	0.8	0.1	4.5	38.5	11.2	0.8	11.9
4/1	30	30	-	-	-	0.4	0.2	-	0.6	74.2	0.9	0.2	1.1
5/1	714	714	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	109	109	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	448	448	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	16	16	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 28.1 Total Delay for Signalled Lanes (pcuHr): 15.64
PRC Over All Lanes (%): 28.1 Total Delay Over All Lanes(pcuHr): 15.64 Cycle Time (s): 120

Full Input Data And Results

Scenario 2: '2020 PM' (FG4: '2020 PM Flows Lrg Smarket through junc viii - PCU ', Plan 1: 'Staging Plan No. 1')

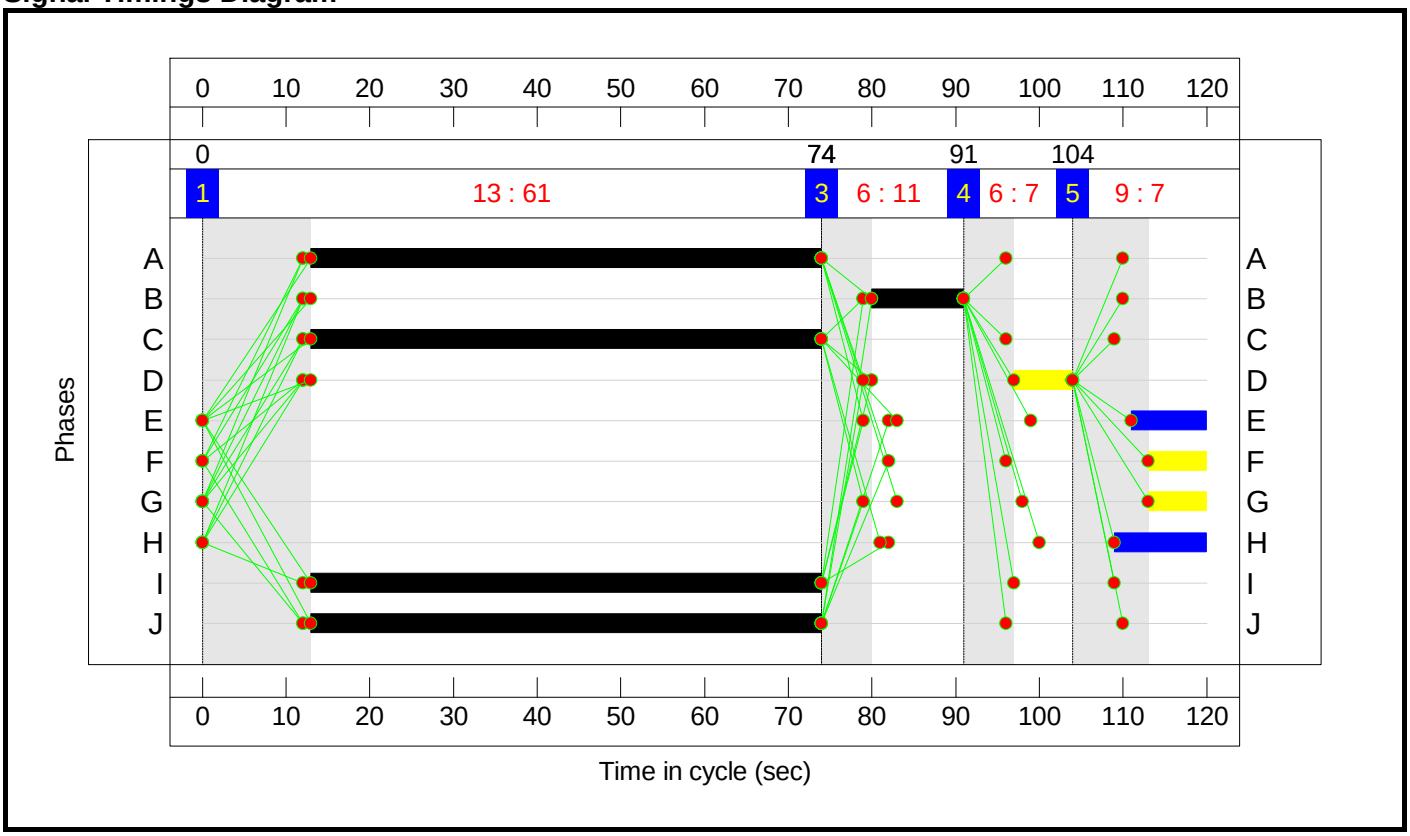
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	5
Duration	61	0	11	7	7
Change Point	0	74	74	91	104

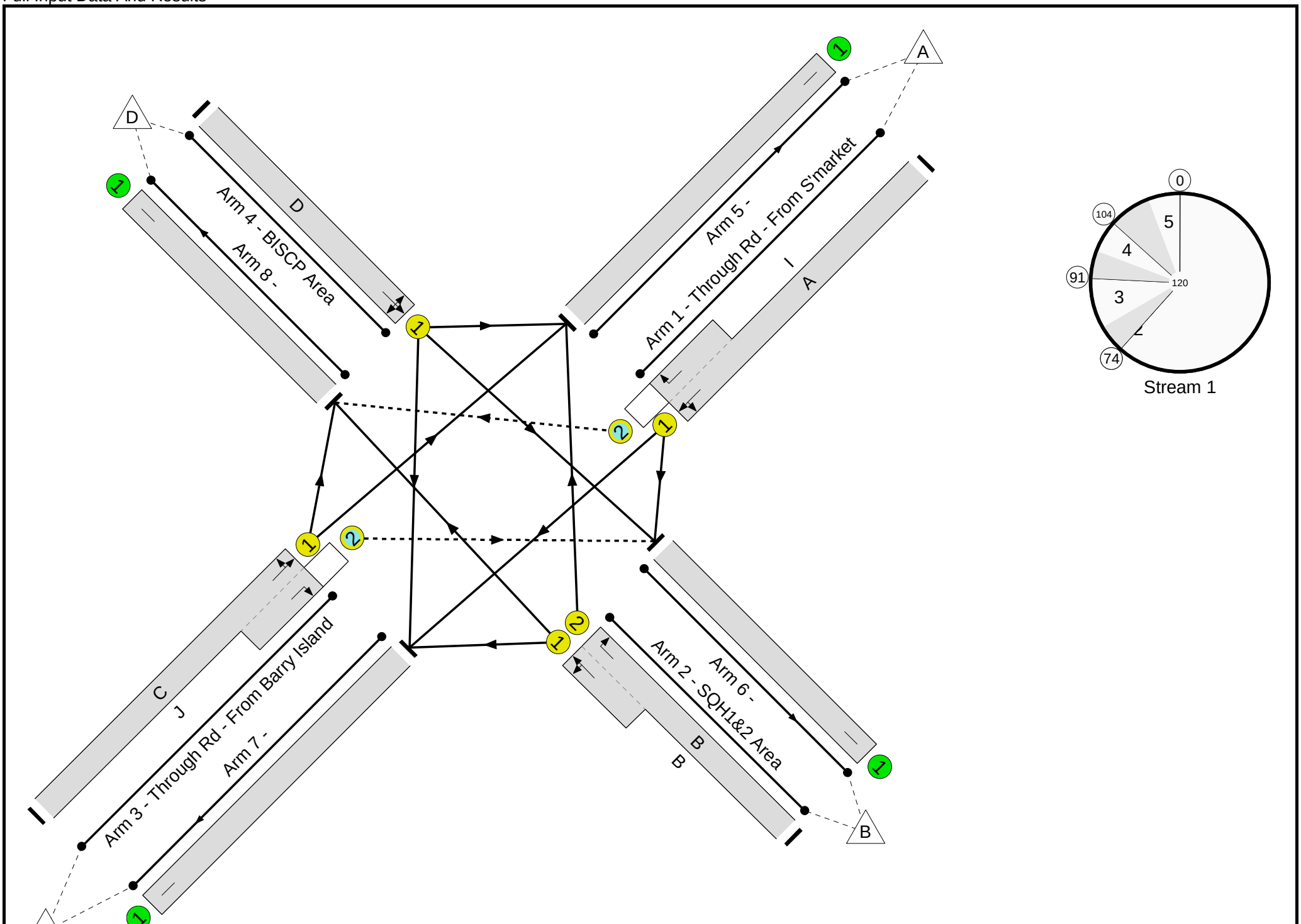
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**89.3%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**89.3%**
1/1+1/2	Through Rd - From S'market Left Ahead Right	U+O	N/A	N/A	A I		1	61	-	856	1842:1912	958	89.3%
2/2+2/1	SQH1&2 Area Right Left Ahead	U	N/A	N/A	B		1	11	-	200	1912:1724	234	85.4%
3/1+3/2	Through Rd - From Barry Island Ahead Right Left	U+O	N/A	N/A	C J		1	61	-	547	1911:1912	1011	54.1%
4/1	BISCP Area Left Ahead Right	U	N/A	N/A	D		1	7	-	65	1737	116	56.1%
5/1		U	N/A	N/A	-		-	-	-	688	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	329	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	593	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%

Full Input Data And Results

Item	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**102**	**0**	**2**	**12.9**	**7.6**	**0.7**	**21.2**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**102**	**0**	**2**	**12.9**	**7.6**	**0.7**	**21.2**	**-**	**-**	**-**	**-**
1/1+1/2	856	856	46	0	0	6.1	3.9	0.1	10.1	42.5	25.2	3.9	29.0
2/2+2/1	200	200	-	-	-	2.9	2.5	-	5.5	98.1	5.3	2.5	7.8
3/1+3/2	547	547	56	0	2	2.9	0.6	0.6	4.0	26.6	11.4	0.6	12.0
4/1	65	65	-	-	-	1.0	0.6	-	1.6	88.9	2.1	0.6	2.7
5/1	688	688	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	329	329	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	593	593	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 0.8 Total Delay for Signalled Lanes (pcuHr): 21.19
PRC Over All Lanes (%): 0.8 Total Delay Over All Lanes(pcuHr): 21.19 Cycle Time (s): 120