

Appendix F

320120913P

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18 15									
B-AC	0 00	4 15	0 000		0 00	0 00	0 0		0 00
C-AB	3 87	7 91	0 489		3.78	1.68	26 0		0 27
A-BC	11 85	26 19	0 452	10 0	1 24	0 83	12 8		

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.15-18 30									
B-AC	0 00	4 79	0 000		0 00	0 00	0 0		0 00
C-AB	3 24	8 34	0 388		1.68	0.94	14 3		0 20
A-BC	9 93	26 19	0 379	10 0	0 83	0 61	9 4		

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17 15	0 0
17 30	0 0
17 45	0 0
18 00	0 0
18 15	0 0
18 30	0 0

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17 15	0 9 *
17 30	1 5 **
17 45	3 6 ****
18 00	3 8 ****
18 15	1 7 **
18 30	0 9 *

QUEUE FOR STREAM A-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17 15	0 6 *
17 30	0 8 *
17 45	1 2 *
18 00	1 2 *
18 15	0 8 *
18 30	0 6 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	DEMAND (VEH/H)	* QUEUEING * (MIN)	* DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * (MIN)	* DELAY * (MIN/VEH)
B-AC	0 0	0 0	0 0	0 00	0 0	0 00
C-AB	355.1	236.7	187.0	0 53	187.1	0 53
A-BC	1088.8	725.8	79.4	0.07	79.4	0.07
ALL	2432.1	1621.4	266.4	0 11	266.5	0.11

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 * 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*****

===== end of file =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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RG40 3GA UK

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

Run with file:-
C:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Chatburn Well Terrace\ChatBurn Well Terrace AM.vao
(drive-on-the-left) at 09:50:21 on Sunday, 7 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
LOCATION:
DATE: 05/10/12
CLIENT:
NUMERATOR:
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Chatburn Road
ARM B - Waterloo Road
ARM C - B6748
ARM D - Well Terrace

GEOMETRIC DATA

Table with 15 columns: ARM, I, V (M), I, E (M), I, I (M), I, R (M), I, D (M), I, PHI (DEG), I, SLOPE, I, INTERCEPT (PCU/MIN), I. Rows include ARM A, B, C, D with various geometric parameters.

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

AFFIC DEMAND DATA

Only sets included in the current run are shown

ALING FACTORS

Table with 4 columns: LARM, I, FLOW SCALE(%), I. Rows A, B, C, D with flow scale values of 100.

ME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

MAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SET TITLE: 2012 Base

115

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK IS REACHED	MINUTES FROM START WHEN FLOW STOPS	FALLING PEAK	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	75.00	6.47	9.71	6.47
ARM B	15.00	45.00	75.00	75.00	5.60	8.40	5.60
ARM C	15.00	45.00	75.00	75.00	3.45	5.18	3.45
ARM D	15.00	45.00	75.00	75.00	7.49	11.23	7.49

DEMAND SET TITLE: 2012 Base

133

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

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.510	0.000	0.490
	ARM B	0.471	0.000	0.000	0.529
	ARM C	0.486	0.159	0.000	0.355
	ARM D	0.366	0.634	0.000	0.000

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

170

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	6.50	32.77	0.198	-	0.0	0.2	3.6	-	0.038
ARM B	5.62	25.32	0.222	-	0.0	0.3	4.2	-	0.051
ARM C	3.46	21.87	0.158	-	0.0	0.2	2.8	-	0.054
ARM D	7.52	25.29	0.297	-	0.0	0.4	6.2	-	0.056

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	7.76	31.95	0.243	-	0.2	0.3	4.7	-	0.041
ARM B	6.71	24.90	0.270	-	0.3	0.4	5.4	-	0.055
ARM C	4.14	20.70	0.200	-	0.2	0.2	3.7	-	0.060
ARM D	8.97	24.66	0.364	-	0.4	0.6	8.4	-	0.064

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	9.51	30.83	0.308	-	0.3	0.4	6.6	-	0.047
ARM B	8.22	24.34	0.338	-	0.4	0.5	7.5	-	0.062
ARM C	5.06	19.09	0.265	-	0.2	0.4	5.3	-	0.071
ARM D	10.99	23.80	0.462	-	0.6	0.8	12.4	-	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)
17.30-17.45									
ARM A	9.51	30.82	0.308	-	0.4	0.4	6.7	-	0.047
ARM B	8.22	24.33	0.338	-	0.5	0.5	7.6	-	0.062
ARM C	5.06	19.08	0.265	-	0.4	0.4	5.4	-	0.071
ARM D	10.99	23.80	0.462	-	0.8	0.9	12.8	-	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)
17.45-18.00									
ARM A	7.76	31.93	0.243	-	0.4	0.3	4.9	-	0.041
ARM B	6.71	24.90	0.270	-	0.5	0.4	5.7	-	0.055
ARM C	4.14	20.68	0.200	-	0.4	0.3	3.8	-	0.061
ARM D	8.97	24.65	0.364	-	0.9	0.6	8.8	-	0.064

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
ARM A	6.50	32.75	0.198	-	0.3	0.2	3.8	-	0.038
ARM B	5.62	25.31	0.222	-	0.4	0.3	4.4	-	0.051
ARM C	3.46	21.85	0.158	-	0.3	0.2	2.9	-	0.054
ARM D	7.52	25.27	0.297	-	0.6	0.4	6.5	-	0.056

EUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.4
17.30	0.5 *
17.45	0.5 *
18.00	0.4
18.15	0.3

EUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.2
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

EUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.6 *
17.30	0.8 *
17.45	0.9 *
18.00	0.6 *
18.15	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

320120913P

ARM	TOTAL DEMAND	* QUEUING * * DELAY *	* INCLUSIVE QUEUING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	713.0	30.3	0.04
B	616.6	34.7	0.06
C	379.9	23.8	0.06
D	824.5	55.1	0.07
ALL	2534.0	143.9	0.06

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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 =====

ARCADY 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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Run with file:-
"z:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Chatburn Well Terrace\ChatBurn Well Terrace PM vao'
(drive-on-the-left) at 10:03:52 on Sunday, 7 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
LOCATION:
DATE: 05/10/12
CLIENT:
NUMERATOR:
JOB NUMBER:
STATUS:
DESCRIPTION:

FILE DATA

ARM A - Chatburn Road
ARM B - Waterloo Road
ARM C - B6748
ARM D - Well Terrace

GEOMETRIC DATA

Table with 15 columns: 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. Rows include ARM A, B, C, D with various geometric parameters.

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

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

LOADING FACTORS

Table with 2 columns: IARM, I FLOW SCALE(%), I. Rows A, B, C, D all show a flow scale of 100.

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SET IIIIE: 2012 Base

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RAIR 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	6.56	9.84	6.56
ARM B	15.00	45.00	75.00	6.54	9.81	6.54
ARM C	15.00	45.00	75.00	3.97	5.96	3.97
ARM D	15.00	45.00	75.00	6.59	9.88	6.59

DEMAND SET IIIIE: 2012 Base

TIME	TURNING PROPORTIONS			
	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	0.000	0.530	0.000	0.470
	0.0	278.0	0.0	247.0
	(0.0)	(0.0)	(0.0)	(0.0)
	0.438	0.000	0.000	0.562
	229.0	0.0	0.0	294.0
	(0.0)	(0.0)	(0.0)	(0.0)
	0.406	0.179	0.000	0.415
	129.0	57.0	0.0	132.0
	(0.0)	(0.0)	(0.0)	(0.0)
	0.381	0.619	0.000	0.000
	201.0	326.0	0.0	0.0
	(0.0)	(0.0)	(0.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/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	6.59	33.17	0.199	-	0.0	0.2	3.7	-	0.038
ARM B	6.56	25.38	0.259	-	0.0	0.3	5.1	-	0.053
ARM C	3.99	21.29	0.187	-	0.0	0.2	3.4	-	0.058
ARM D	6.61	25.07	0.264	-	0.0	0.4	5.2	-	0.054

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/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	7.87	32.43	0.243	-	0.2	0.3	4.7	-	0.041
ARM B	7.84	24.97	0.314	-	0.3	0.5	6.7	-	0.058
ARM C	4.76	20.00	0.238	-	0.2	0.3	4.6	-	0.066
ARM D	7.90	24.40	0.324	-	0.4	0.5	7.0	-	0.061

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/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	9.63	31.42	0.307	-	0.3	0.4	6.5	-	0.046
ARM B	9.60	24.42	0.393	-	0.5	0.6	9.4	-	0.067
ARM C	5.84	18.24	0.320	-	0.3	0.5	6.8	-	0.080
ARM D	9.67	23.49	0.412	-	0.5	0.7	10.2	-	0.072

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
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ARM A	9.63	31.41	0.307	-	0.4	0.4	6.6	-	0.046
ARM B	9.60	24.42	0.393	-	0.6	0.6	9.7	-	0.067
ARM C	5.84	18.23	0.320	-	0.5	0.5	7.0	-	0.081
ARM D	9.67	23.48	0.412	-	0.7	0.7	10.4	-	0.072

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
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ARM C	4.76	19.98	0.238	-	0.5	0.3	4.8	-	0.066
ARM D	7.90	24.39	0.324	-	0.7	0.5	7.4	-	0.061

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
ARM A	6.59	33.15	0.199	-	0.3	0.2	3.8	-	0.038
ARM B	6.56	25.37	0.259	-	0.5	0.4	5.3	-	0.053
ARM C	3.99	21.27	0.188	-	0.3	0.2	3.5	-	0.058
ARM D	6.61	25.06	0.264	-	0.5	0.4	5.5	-	0.054

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.5
17.30	0.6 *
17.45	0.6 *
18.00	0.5
18.15	0.4

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.5
17.45	0.5
18.00	0.3
18.15	0.2

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.5
17.30	0.7 *
17.45	0.7 *
18.00	0.5
18.15	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

320120913P

ARM	TOTAL DEMAND	* QUEUING * * DELAY *	* INCLUSIVE QUEUING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN)
A	722.6	30.2	30.2
B	719.9	43.3	43.3
C	437.7	30.2	30.2
D	725.4	45.7	45.7
ALL	2605.6	149.4	149.4

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUING 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)
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RG40 3GA UK

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

Run with file:-
"aa:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Chatburn Well Terrace\ChatBurn Well Terrace AM vao
(drive-on-the-left) at 09:53:06 on Sunday, 7 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
LOCATION:
DATE: 05/10/12
CLIENT:
NUMERATOR:
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Chatburn Road
ARM B - Waterloo Road
ARM C - B6748
ARM D - Well Terrace

GEOMETRIC DATA

Table with 15 columns: ARM, I, V (M), I, E (M), I, I (M), I, R (M), I, D (M), I, PHI (DEG), I, SLOPE, I, INTERCEPI (PCU/MIN), I. Rows include ARM A, B, C, D with various geometric parameters.

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

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

LOADING FACTORS

Table with 4 columns: IARM, I, FLOW SCALE(%), I. Rows A, B, C, D all have a flow scale of 100.

TIME PERIOD BEGINS (16 45) AND ENDS (16 15)
LENGTH OF TIME PERIOD - (90) MINUTES
LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SET IIIIE: 2017 Base

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)			
		I	I	I	I	I	I	
I	I	ARM	FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER
I	I	I	I	I	I	I	I	I
I	I	I	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
I	I	ARM A	15 00	45 00	75 00	6.76	10.14	6.76
I	I	ARM B	15 00	45 00	75 00	5.71	8.57	5.71
I	I	ARM C	15.00	45.00	75.00	3.59	5.38	3.59
I	I	ARM D	15.00	45.00	75.00	7.81	11.72	7.81

DEMAND SET IIIIE: 2017 Base

I	I	TURNING PROPORTIONS					
		I	I	I	I		
I	I	TURNING COUNTS					
I	I	(PERCENTAGE OF H.V.S)					
I	I	TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
I	I	16 45 - 18 15					
I	I		ARM A	0.000	0.510	0.000	0.490
I	I			0.0	276.0	0.0	265.0
I	I			(0.0)	(0.0)	(0.0)	(0.0)
I	I		ARM B	0.457	0.000	0.000	0.543
I	I			209.0	0.0	0.0	248.0
I	I			(0.0)	(0.0)	(0.0)	(0.0)
I	I		ARM C	0.484	0.160	0.000	0.355
I	I			139.0	46.0	0.0	102.0
I	I			(0.0)	(0.0)	(0.0)	(0.0)
I	I		ARM D	0.365	0.635	0.000	0.000
I	I			228.0	397.0	0.0	0.0
I	I			(0.0)	(0.0)	(0.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	
I	I	16.45-17.00									
I	I	ARM A	6.79	32.58	0.208	-	0.0	0.3	3.9	0.039	
I	I	ARM B	5.71	25.23	0.227	-	0.0	0.3	4.3	0.051	
I	I	ARM C	3.60	21.70	0.166	-	0.0	0.2	2.9	0.055	
I	I	ARM D	7.84	25.25	0.311	-	0.0	0.4	6.6	0.057	

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI 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	ARM A	8.11	31.73	0.255	-	0.3	0.3	5.1	0.042	
I	I	ARM B	6.85	24.79	0.276	-	0.3	0.4	5.6	0.056	
I	I	ARM C	4.30	20.49	0.210	-	0.2	0.3	3.9	0.062	
I	I	ARM D	9.36	24.61	0.381	-	0.4	0.6	9.0	0.066	

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI 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	ARM A	9.93	30.56	0.325	-	0.3	0.5	7.1	0.048	
I	I	ARM B	8.39	24.20	0.347	-	0.4	0.5	7.8	0.063	
I	I	ARM C	5.27	18.84	0.280	-	0.3	0.4	5.7	0.074	
I	I	ARM D	11.47	23.74	0.483	-	0.6	0.9	13.5	0.081	

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI 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	ARM A	9.93	30.55	0.325	-	0.5	0.5	7.2	0.048	
I	I	ARM B	8.39	24.20	0.347	-	0.5	0.5	7.9	0.063	
I	I	ARM C	5.27	18.83	0.280	-	0.4	0.4	5.8	0.074	
I	I	ARM D	11.47	23.74	0.483	-	0.9	0.9	13.9	0.081	

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	
I	I	17.45-18.00									
I	I	ARM A	8.11	31.71	0.256	-	0.5	0.3	5.2	0.042	
I	I	ARM B	6.85	24.79	0.276	-	0.5	0.4	5.9	0.056	
I	I	ARM C	4.30	20.48	0.210	-	0.4	0.3	4.1	0.062	
I	I	ARM D	9.36	24.60	0.381	-	0.9	0.6	9.5	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)
18.00-18 15									
ARM A	6 79	32 56	0 208	- -	0 3	0 3	4 0	-	0 039
ARM B	5 73	25 22	0 227	- -	0 4	0 3	4 5	-	0 051
ARM C	3 60	21 68	0 166	- -	0 3	0 2	3 0	-	0 055
ARM D	7 84	25 23	0 311	- -	0 6	0 5	6 9	-	0 058

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17 00	0 3
17 15	0 3
17 30	0 5
17 45	0 5
18 00	0 3
18 15	0 3

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17 00	0 3
17 15	0 4
17 30	0 5 *
17 45	0 5 *
18 00	0 4
18 15	0 3

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17 00	0 2
17 15	0 3
17 30	0 4
17 45	0 4
18 00	0 3
18 15	0 2

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17 00	0 4
17 15	0 6 *
17 30	0 9 *
17 45	0 9 *
18 00	0 6 *
18 15	0 5

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	DEMAND (VEH/H)	QUEUEING DELAY (MIN)	QUEUEING DELAY (MIN/VEH)	INCLUSIVE QUEUEING DELAY (MIN)	INCLUSIVE QUEUEING DELAY (MIN/VEH)
A	744 6	496 4	32 5	0 04	32 5	0 04
B	629 0	419 4	35 9	0 06	35 9	0 06
C	395 0	263 4	25 4	0 06	25 4	0 06
D	860 3	573 5	59 4	0 07	59 4	0 07
ALL	2629 0	1752 6	153 2	0 06	153 2	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

==== end of file =====

320120913P

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Chatburn Well Terrace\ChatBurn Well Terrace PM vai"
 (drive-on-the-left) at 10:05:29 on Sunday, 7 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR:
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Chatburn Road
 ARM B - Waterloo Road
 ARM C - B6748
 ARM D - Well Terrace

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	INTERCEPI (PCU/MIN)	I
I ARM A	I	6.25	I	7.00	I	9.00	I	25.00	I	30.00	I	13.0	I	0.785	I	36.929	I
I ARM B	I	3.50	I	7.15	I	9.50	I	180.00	I	30.00	I	26.0	I	0.655	I	27.430	I
I ARM C	I	4.60	I	6.90	I	1.70	I	23.00	I	30.00	I	4.0	I	0.682	I	27.864	I
I ARM D	I	3.75	I	7.00	I	16.00	I	10.00	I	30.00	I	20.0	I	0.655	I	28.474	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

113

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SEI IIILS: 2017 Base

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		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
ARM A	I	15 00	I 45.00	I 75 00	I 6.85	I 10.27	I 6.85
ARM B	I	15 00	I 45.00	I 75 00	I 6.82	I 10.24	I 6.82
ARM C	I	15.00	I 45.00	I 75 00	I 4.16	I 6.24	I 4.16
ARM D	I	15.00	I 45.00	I 75.00	I 6.89	I 10.33	I 6.89

DEMAND SEI IIIIE: 2017 Base

I	I	TURNING PROPORTIONS				
		I FROM/TO	I ARM A	I ARM B	I ARM C	
I	I	TURNING COUNTS				
I	I	(PERCENTAGE OF H.V.S)				
16 45 - 18 15	I	ARM A	I 0.000	I 0.529	I 0.000	I 0.471
	I		I 0.0	I 290.0	I 0.0	I 258.0
	I		I (0.0)	I (0.0)	I (0.0)	I (0.0)
	I	ARM B	I 0.438	I 0.000	I 0.000	I 0.562
	I		I 239.0	I 0.0	I 0.0	I 307.0
	I		I (0.0)	I (0.0)	I (0.0)	I (0.0)
	I	ARM C	I 0.405	I 0.180	I 0.000	I 0.414
	I		I 135.0	I 60.0	I 0.0	I 138.0
	I		I (0.0)	I (0.0)	I (0.0)	I (0.0)
	I	ARM D	I 0.381	I 0.619	I 0.000	I 0.000
	I		I 210.0	I 341.0	I 0.0	I 0.0
	I		I (0.0)	I (0.0)	I (0.0)	I (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)
16.45-17 00	6.88	32.99	0.208	-	0.0	0.3	3.9	-	0.038
ARM A	6.85	25.28	0.271	-	0.0	0.4	5.4	-	0.054
ARM B	4.18	21.01	0.199	-	0.0	0.2	3.6	-	0.059
ARM C	6.91	24.92	0.277	-	0.0	0.4	5.6	-	0.055
ARM D									

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	8.21	32.22	0.255	-	0.3	0.3	5.1	-	0.042
ARM A	8.18	24.86	0.329	-	0.4	0.5	7.2	-	0.060
ARM B	4.99	19.65	0.254	-	0.2	0.3	5.0	-	0.068
ARM C	8.26	24.22	0.341	-	0.4	0.5	7.6	-	0.063
ARM D									

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	10.06	31.16	0.323	-	0.3	0.5	7.0	-	0.047
ARM A	10.02	24.29	0.413	-	0.5	0.7	10.2	-	0.070
ARM B	6.11	17.81	0.343	-	0.3	0.5	7.6	-	0.085
ARM C	10.11	23.26	0.435	-	0.5	0.8	11.2	-	0.076
ARM D									

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	10.06	31.15	0.323	-	0.5	0.5	7.1	-	0.047
ARM A	10.02	24.28	0.413	-	0.7	0.7	10.5	-	0.070
ARM B	6.11	17.80	0.343	-	0.5	0.5	7.8	-	0.085
ARM C	10.11	23.26	0.435	-	0.8	0.8	11.5	-	0.076
ARM D									

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18 00	8.21	32.20	0.255	-	0.5	0.3	5.2	-	0.042
ARM A	8.18	24.86	0.329	-	0.7	0.5	7.5	-	0.060
ARM B	4.99	19.64	0.254	-	0.5	0.3	5.2	-	0.068
ARM C	8.26	24.21	0.341	-	0.8	0.5	8.0	-	0.063
ARM D									

320120913P

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
ARM A	6.88	32.98	0.209	-	0.3	0.3	4.0	-	0.038
ARM B	6.85	25.28	0.271	-	0.5	0.4	5.7	-	0.054
ARM C	4.18	20.98	0.199	-	0.3	0.2	3.8	-	0.060
ARM D	6.91	24.90	0.278	-	0.5	0.4	5.9	-	0.056

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.3
17.30	0.5
17.45	0.5
18.00	0.3
18.15	0.3

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.5
17.30	0.7 *
17.45	0.7 *
18.00	0.5
18.15	0.4

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.5 *
17.45	0.5 *
18.00	0.3
18.15	0.2

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.5 *
17.30	0.8 *
17.45	0.8 *
18.00	0.5 *
18.15	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	INCLUSIVE QUEUEING DELAY (VEH/H)	QUEUEING DELAY (MIN)	INCLUSIVE QUEUEING DELAY (MIN/VEH)
A	754.3	502.9	32.3	0.04
B	751.5	501.0	46.6	0.06
C	458.3	305.6	33.0	0.07
D	758.4	505.6	49.7	0.07
ALL	2722.6	1815.0	161.6	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

===== end of file =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Chatburn Well Terrace\ChatBurn Well Terrace AM vai"
 (drive-on-the-left) at 09:54:37 on Sunday, 7 October 2012

LE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 NUMERATOR:
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

PVI DATA

ARM A - Chatburn Road
 ARM B - Waterloo Road
 ARM C - B6748
 ARM D - Well Terrace

OMEIRIC DATA

ARM	I	V (M)	I	E (M)	I	I (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I
ARM A	I	6.25	I	7.00	I	9.00	I	25.00	I	30.00	I	13.0	I	0.785	I	36.929	I
ARM B	I	3.50	I	7.15	I	9.50	I	180.00	I	30.00	I	26.0	I	0.665	I	27.430	I
ARM C	I	4.60	I	6.90	I	1.70	I	23.00	I	30.00	I	4.0	I	0.682	I	27.864	I
ARM D	I	3.75	I	7.00	I	16.00	I	10.00	I	30.00	I	20.0	I	0.655	I	28.474	I

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

AFFIC DEMAND DATA

Only sets included in the current run are shown

ALING FACTORS

113

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

320120913P

ME PERIOD BEGINS(16.45)AND ENDS(18.15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

MAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNI DATA

DEMAND SEI IIIIE: 2012 Base + Dev

115										
ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER	TO RISE	IS REACHED	FALLING	PEAK
ARM A	15.00	45.00	75.00	6.66	9.99	6.66				
ARM B	15.00	45.00	75.00	5.75	8.63	5.75				
ARM C	15.00	45.00	75.00	3.45	5.18	3.45				
ARM D	15.00	45.00	75.00	8.57	12.86	8.57				

DEMAND SEI IIIIE: 2012 Base + Dev

133										
TIME	FROM	TO	ARM A	ARM B	ARM C	ARM D	TURNING PROPORTIONS			
							TURNING COUNTS			
							(PERCENTAGE OF H.V.S)			
16.45 - 18.15							0.000	0.499	0.000	0.501
							0.0	266.0	0.0	267.0
							(0.0)	(0.0)	(0.0)	(0.0)
							0.452	0.000	0.000	0.548
							208.0	0.0	0.0	252.0
							(0.0)	(0.0)	(0.0)	(0.0)
							0.486	0.159	0.000	0.355
							134.0	44.0	0.0	98.0
							(0.0)	(0.0)	(0.0)	(0.0)
							0.372	0.628	0.000	0.000
							255.0	431.0	0.0	0.0
							(0.0)	(0.0)	(0.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
ARM A	6.69	32.27	0.207	-	0.0	0.3	3.8	-	0.039
ARM B	5.77	25.21	0.229	-	0.0	0.3	4.3	-	0.051
ARM C	3.46	21.66	0.160	-	0.0	0.2	2.8	-	0.055
ARM D	8.61	25.31	0.340	-	0.0	0.5	7.5	-	0.060

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	7.99	31.35	0.255	-	0.3	0.3	5.0	-	0.043
ARM B	6.89	24.77	0.278	-	0.3	0.4	5.7	-	0.056
ARM C	4.14	20.44	0.202	-	0.2	0.3	3.7	-	0.061
ARM D	10.28	24.69	0.416	-	0.5	0.7	10.4	-	0.069

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	9.78	30.10	0.325	-	0.3	0.5	7.1	-	0.049
ARM B	8.44	24.18	0.349	-	0.4	0.5	7.8	-	0.063
ARM C	5.06	18.77	0.270	-	0.3	0.4	5.4	-	0.073
ARM D	12.59	23.84	0.528	-	0.7	1.1	16.1	-	0.088

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	9.78	30.09	0.325	-	0.5	0.5	7.2	-	0.049
ARM B	8.44	24.17	0.349	-	0.5	0.5	8.0	-	0.064
ARM C	5.06	18.76	0.270	-	0.4	0.4	5.5	-	0.073
ARM D	12.59	23.83	0.528	-	1.1	1.1	16.6	-	0.089

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	7.99	31.33	0.255	-	0.5	0.3	5.2	-	0.043
ARM B	6.89	24.77	0.278	-	0.5	0.4	5.9	-	0.056
ARM C	4.14	20.42	0.202	-	0.4	0.3	3.9	-	0.061
ARM D	10.28	24.68	0.416	-	1.1	0.7	11.1	-	0.070

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18 15									
ARM A	6 69	32 24	0 207	--	--	0 3	0 3	4 0	0 039
ARM B	5 77	25 20	0 229	--	--	0 4	0 3	4 5	0 052
ARM C	3 46	21 64	0 160	--	--	0 3	0 2	2 9	0 055
ARM D	8 61	25 30	0 340	--	--	0 7	0 5	7 9	0 060

EUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17 00	0 3
17 15	0 3
17 30	0 5
17 45	0 5
18 00	0 3
18 15	0 3

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17 00	0 3
17 15	0 4
17 30	0 5 *
17 45	0 5 *
18 00	0 4
18 15	0 3

EUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17 00	0 2
17 15	0 3
17 30	0 4
17 45	0 4
18 00	0 3
18 15	0 2

EUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17 00	0 5 *
17 15	0 7 *
17 30	1 1 *
17 45	1 1 *
18 00	0 7 *
18 15	0 5 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	CAPACITY (VEH/H)	QUEUEING (MIN)	* DELAY * (MIN/VEH)	INCLUSIVE QUEUEING (MIN)	* DELAY * (MIN/VEH)
A	733 6	489 1	32 4	0 04	32 4	0 04
B	633 2	422 1	36 3	0 06	36 3	0 06
C	379 9	253 3	24 2	0 06	24 2	0 06
D	944 2	629 5	69 6	0 07	69 6	0 07
ALL	2690 9	1793 9	162 5	0 06	162 6	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

==== end of file =====

320120913P

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Chatburn Well Terrace\ChatBurn Well Terrace PM.vao (drive-on-the-left) at 10:07:34 on Sunday, 7 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR:
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Chatburn Road
 ARM B - Waterloo Road
 ARM C - B6748
 ARM D - Well Terrace

GEOMETRIC DATA

I ARM	I	V (M)	I	E (M)	I	I (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (FCU/MIN)	I
I ARM A	I	6.25	I	7.00	I	9.00	I	25.00	I	30.00	I	13.0	I	0.785	I	36.929	I
I ARM B	I	3.50	I	7.15	I	9.50	I	180.00	I	30.00	I	26.0	I	0.665	I	27.430	I
I ARM C	I	4.60	I	6.90	I	1.70	I	23.00	I	30.00	I	4.0	I	0.682	I	27.864	I
I ARM D	I	3.75	I	7.00	I	16.00	I	10.00	I	30.00	I	20.0	I	0.655	I	28.474	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

113

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SET IITL: 2012 Base + Dev

115

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RALE 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 03	10.54	7.03
ARM B	15 00	45.00	75 00	6 99	10.48	6.99
ARM C	15.00	45 00	75.00	3.97	5.96	3.97
ARM D	15.00	45.00	75.00	7.16	10.74	7.16

DEMAND SET IIIIB: 2012 Base + Dev

133

TIME	TURNING PROPORTIONS			
	ARM A	ARM B	ARM C	ARM D
16 45 - 18 15	0.000	0.507	0.000	0.493
	0.0	285.0	0.0	277.0
	(0.0)	(0.0)	(0.0)	(0.0)
	0.417	0.000	0.000	0.583
	233.0	0.0	0.0	326.0
	(0.0)	(0.0)	(0.0)	(0.0)
	0.406	0.179	0.000	0.415
	129.0	57.0	0.0	132.0
	(0.0)	(0.0)	(0.0)	(0.0)
	0.386	0.614	0.000	0.000
	221.0	352.0	0.0	0.0
	(0.0)	(0.0)	(0.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

170

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	7 05	32 92	0 214	--	0 0	0 3	4 0	--	0 039
ARM A	7 01	25 13	0 279	--	0 0	0 4	5 7	--	0 055
ARM B	3 99	20 73	0 192	--	0 0	0 2	3 5	--	0 060
ARM C	7 19	25 04	0 287	--	0 0	0 4	5 9	--	0 056
ARM D									

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	8 42	32 13	0 262	--	0 3	0 4	5 2	--	0 042
ARM A	8 38	24 67	0 339	--	0 4	0 5	7 5	--	0 061
ARM B	4 76	19 33	0 247	--	0 2	0 3	4 8	--	0 069
ARM C	8 59	24 37	0 352	--	0 4	0 5	8 0	--	0 063
ARM D									

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	10 31	31 05	0 332	--	0 4	0 5	7 3	--	0 048
ARM A	10 26	24 06	0 426	--	0 5	0 7	10 8	--	0 072
ARM B	5 84	17 41	0 335	--	0 3	0 5	7 3	--	0 086
ARM C	10 51	23 45	0 448	--	0 5	0 8	11 8	--	0 077
ARM D									

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	10 31	31 04	0 332	--	0 5	0 5	7 4	--	0 048
ARM A	10 26	24 05	0 426	--	0 7	0 7	11 1	--	0 072
ARM B	5 84	17 40	0 335	--	0 5	0 5	7 5	--	0 086
ARM C	10 51	23 44	0 449	--	0 8	0 8	12 1	--	0 077
ARM D									

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18 00	8 42	32 11	0 262	--	0 5	0 4	5 4	--	0 042
ARM A	8 38	24 67	0 340	--	0 7	0 5	7 9	--	0 062
ARM B	4 76	19 31	0 247	--	0 5	0 3	5 0	--	0 069
ARM C	8 59	24 35	0 353	--	0 8	0 5	8 4	--	0 064
ARM D									

320120913P

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
ARM A	7.05	32.90	0.214	-	0.4	0.3	4.2	-	0.039
ARM B	7.01	25.12	0.279	-	0.5	0.4	5.9	-	0.055
ARM C	1.99	20.70	0.193	-	0.3	0.2	3.7	-	0.060
ARM D	7.19	25.02	0.287	-	0.5	0.4	6.2	-	0.056

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.4
17.30	0.5
17.45	0.5
18.00	0.4
18.15	0.3

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.5 *
17.30	0.7 *
17.45	0.7 *
18.00	0.5 *
18.15	0.4

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.5
17.45	0.5 *
18.00	0.3
18.15	0.2

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.5 *
17.30	0.8 *
17.45	0.8 *
18.00	0.5 *
18.15	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	* QUEUEING (VEH/H)	* DELAY (MIN)	* INCLUSIVE QUEUEING (MIN)	* DELAY (MIN/VEH)
A	773.6	515.7	33.6	0.04	33.6
B	769.4	512.9	48.9	0.06	48.9
C	437.7	291.8	31.8	0.07	31.8
D	788.7	525.8	52.3	0.07	52.3
ALL	2769.4	1846.2	166.7	0.06	166.7

* 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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n with file:-

"a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Chatburn Well Terrace\ChatBurn Well Terrace AM vai (drive-on-the-left) at 09:55:47 on Sunday, 7 October 2012

LE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 NUMERATOR:
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

PUT DATA

ARM A - Chatburn Road
 ARM B - Waterloo Road
 ARM C - B6748
 ARM D - Well Terrace

OMEIRIC DATA

320120913P

ARM	I	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	I	6.25	7.00	9.00	25.00	30.00	13.0	0.785	36.929
ARM B	I	3.50	7.15	9.50	180.00	30.00	26.0	0.655	27.430
ARM C	I	4.60	6.90	1.70	23.00	30.00	4.0	0.682	27.864
ARM D	I	3.75	7.00	16.00	10.00	30.00	20.0	0.655	28.474

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

AFFIC DEMAND DATA

Only sets included in the current run are shown

ALING FACTORS

T13

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

ME PERIOD BEGINS (16.45) AND ENDS (18.15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

MAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET IIIILE: 2017 Base + Dev

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	ARM	I	I	I	I	I	I
I	I	I	I	I	I	I	I
I	I	TO RISE	IS REACHED	FALLING	BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
I	ARM A	I 15.00	I 45.00	I 75.00	I 6.95	I 10.42	I 6.95
I	ARM B	I 15.00	I 45.00	I 75.00	I 6.11	I 9.17	I 6.11
I	ARM C	I 15.00	I 45.00	I 75.00	I 3.59	I 5.38	I 3.59
I	ARM D	I 15.00	I 45.00	I 75.00	I 8.90	I 13.35	I 8.90

DEMAND SET IIIILE: 2017 Base + Dev

I	I	TURNING PROPORTIONS				
		I	I	I	I	
I	I	TURNING COUNTS				
I	I	(PERCENTAGE OF H.V.S)				
I	TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
I	16 45 - 18 15	I	I	I	I	I
I	I	ARM A	I 0.000	I 0.500	I 0.000	I 0.500
I	I	I	I 0.0	I 278.0	I 0.0	I 278.0
I	I	I	I (0.0)	I (0.0)	I (0.0)	I (0.0)
I	I	I	I	I	I	I
I	I	ARM B	I 0.462	I 0.000	I 0.000	I 0.538
I	I	I	I 226.0	I 0.0	I 0.0	I 263.0
I	I	I	I (0.0)	I (0.0)	I (0.0)	I (0.0)
I	I	I	I	I	I	I
I	I	ARM C	I 0.484	I 0.160	I 0.000	I 0.355
I	I	I	I 139.0	I 46.0	I 0.0	I 102.0
I	I	I	I (0.0)	I (0.0)	I (0.0)	I (0.0)
I	I	I	I	I	I	I
I	I	ARM D	I 0.371	I 0.629	I 0.000	I 0.000
I	I	I	I 264.0	I 448.0	I 0.0	I 0.0
I	I	I	I (0.0)	I (0.0)	I (0.0)	I (0.0)
I	I	I	I	I	I	I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/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	16.45-17 00									
I	ARM A	6.98	32.08	0.217	--	0.0	0.3	4.1	--	0.040
I	ARM B	6.14	25.12	0.244	--	0.0	0.3	4.7	--	0.053
I	ARM C	3.60	21.32	0.169	--	0.0	0.2	3.0	--	0.056
I	ARM D	8.93	25.11	0.356	--	0.0	0.5	8.0	--	0.062

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/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	17.00-17 15									
I	ARM A	8.33	31.13	0.268	--	0.3	0.4	5.4	--	0.044
I	ARM B	7.33	24.66	0.297	--	0.3	0.4	6.2	--	0.058
I	ARM C	4.30	20.03	0.215	--	0.2	0.3	4.0	--	0.064
I	ARM D	10.67	24.44	0.436	--	0.5	0.8	11.3	--	0.072

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/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	17.15-17 30									
I	ARM A	10.20	29.83	0.342	--	0.4	0.5	7.6	--	0.051
I	ARM B	8.97	24.04	0.373	--	0.4	0.6	8.7	--	0.066
I	ARM C	5.27	18.28	0.288	--	0.3	0.4	5.9	--	0.077
I	ARM D	13.07	23.54	0.555	--	0.8	1.2	17.8	--	0.095

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/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	17.30-17 45									
I	ARM A	10.20	29.82	0.342	--	0.5	0.5	7.8	--	0.051
I	ARM B	8.97	24.04	0.373	--	0.6	0.6	8.9	--	0.066
I	ARM C	5.27	18.26	0.288	--	0.4	0.4	6.0	--	0.077
I	ARM D	13.07	23.53	0.555	--	1.2	1.2	18.5	--	0.095

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/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	17.45-18 00									
I	ARM A	8.33	31.10	0.268	--	0.5	0.4	5.6	--	0.044
I	ARM B	7.33	24.66	0.297	--	0.6	0.4	6.5	--	0.058
I	ARM C	4.30	20.01	0.215	--	0.4	0.3	4.2	--	0.064
I	ARM D	10.67	24.43	0.437	--	1.2	0.8	12.0	--	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)
18.00-18.15									
ARM A	6.98	32.06	0.218	-	0.4	0.3	4.2	-	0.040
ARM B	6.14	25.11	0.244	-	0.4	0.3	4.9	-	0.053
ARM C	3.60	21.29	0.169	-	0.3	0.2	3.1	-	0.057
ARM D	8.93	25.09	0.356	-	0.8	0.6	8.5	-	0.062

EUE AI ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.4
17.30	0.5 *
17.45	0.5 *
18.00	0.4
18.15	0.3

QUEUE AI ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.4
17.30	0.6 *
17.45	0.6 *
18.00	0.4
18.15	0.3

EUE AI ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

EUE AI ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.5 *
17.15	0.8 *
17.30	1.2 *
17.45	1.2 *
18.00	0.8 *
18.15	0.6 *

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	INCLUSIVE QUEUEING (VEH/H)	* QUEUEING * (MIN)	* DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * (MIN)	* DELAY * (MIN/VEH)
A	765.3	510.2	34.7	0.05	34.7	0.05
B	673.1	448.7	40.0	0.06	40.0	0.06
C	395.0	263.4	26.3	0.07	26.3	0.07
D	980.0	653.3	76.2	0.08	76.2	0.08
ALL	2813.4	1875.6	177.1	0.06	177.2	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

==== end of file =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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 RG40 3GA UK

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

Run with file:-
 "a:\Project_008_02_Clitheroe_DIPC\Post Appeal_250912\ARCADY\Chatburn Well Terrace\ChatBurn Well Terrace PM vai'
 (drive-on-the-left) at 10:08:30 on Sunday, 7 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR:
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Chatburn Road
 ARM B - Waterloo Road
 ARM C - B6748
 ARM D - Well Terrace

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	6.25	I	7.00	I	9.00	I	25.00	I	30.00	I	13.0	I	0.785	I	36.929	I
I ARM B	I	3.50	I	7.15	I	9.50	I	180.00	I	30.00	I	26.0	I	0.655	I	27.430	I
I ARM C	I	4.60	I	6.90	I	1.70	I	23.00	I	30.00	I	4.0	I	0.682	I	27.864	I
I ARM D	I	3.75	I	7.00	I	16.00	I	10.00	I	30.00	I	20.0	I	0.655	I	28.474	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

113

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SET TITLE: 2017 Base + Dev

T15									
ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	MINUTES FROM START WHEN FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	7.31	10.97	7.31			
ARM B	15.00	45.00	75.00	7.28	10.91	7.28			
ARM C	15.00	45.00	75.00	4.16	6.24	4.16			
ARM D	15.00	45.00	75.00	7.46	11.19	7.46			

MAND SET TITLE: 2017 Base + Dev

I33										
TIME	TURNING PROPORTIONS				TURNING COUNTS				(PERCENTAGE OF H.V.S)	
	FROM/TO	ARM A	ARM B	ARM C	ARM D	FROM/TO	ARM A	ARM B		ARM C
16:45 - 18:15	ARM A	0.000	0.508	0.000	0.492	0	297	0	0	0
	ARM B	0.418	0.000	0.000	0.582	243	0	0	0	339
	ARM C	0.405	0.180	0.000	0.414	135	60	0	0	138
	ARM D	0.385	0.615	0.000	0.000	230	367	0	0	0

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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)
16.45-17.00									
ARM A	7.34	32.74	0.224	-	0.0	0.3	4.3	-	0.039
ARM B	7.30	25.04	0.292	-	0.0	0.4	6.0	-	0.056
ARM C	4.18	20.44	0.204	-	0.0	0.3	3.8	-	0.061
ARM D	7.49	24.89	0.301	-	0.0	0.4	6.3	-	0.057
17.00-17.15									
ARM A	8.77	31.91	0.275	-	0.3	0.4	5.6	-	0.043
ARM B	8.72	24.56	0.355	-	0.4	0.5	8.1	-	0.063
ARM C	4.99	18.98	0.263	-	0.3	0.4	5.2	-	0.071
ARM D	8.94	24.18	0.370	-	0.4	0.6	8.6	-	0.066
17.15-17.30									
ARM A	10.73	30.79	0.349	-	0.4	0.5	7.9	-	0.050
ARM B	10.68	23.92	0.446	-	0.5	0.8	11.7	-	0.075
ARM C	6.11	16.99	0.360	-	0.4	0.6	8.1	-	0.092
ARM D	10.96	23.22	0.472	-	0.6	0.9	12.9	-	0.081
17.30-17.45									
ARM A	10.73	30.78	0.349	-	0.5	0.5	8.0	-	0.050
ARM B	10.68	23.92	0.447	-	0.8	0.8	12.0	-	0.076
ARM C	6.11	16.97	0.360	-	0.6	0.6	8.4	-	0.092
ARM D	10.96	23.21	0.472	-	0.9	0.9	13.3	-	0.082
17.45-18.00									
ARM A	8.77	31.90	0.275	-	0.5	0.4	5.8	-	0.043
ARM B	8.72	24.56	0.355	-	0.8	0.6	8.5	-	0.063
ARM C	4.99	18.96	0.263	-	0.6	0.4	5.5	-	0.072
ARM D	8.94	24.16	0.370	-	0.9	0.6	9.1	-	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)
18.00-18.15									
ARM A	7.34	32.72	0.224	-	0.4	0.3	4.4	-	0.039
ARM B	7.30	25.03	0.292	-	0.6	0.4	6.3	-	0.057
ARM C	4.18	20.41	0.205	-	0.4	0.3	3.9	-	0.062
ARM D	7.49	24.87	0.301	-	0.6	0.4	6.6	-	0.058

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.4
17.30	0.5 *
17.45	0.5 *
18.00	0.4
18.15	0.3

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.5 *
17.30	0.8 *
17.45	0.8 *
18.00	0.6 *
18.15	0.4

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.4
17.30	0.6 *
17.45	0.6 *
18.00	0.4
18.15	0.3

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.6 *
17.30	0.9 *
17.45	0.9 *
18.00	0.6 *
18.15	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	INCLUSIVE QUEUEING (VEH/H)	EXCLUSIVE QUEUEING (MIN)	EXCLUSIVE DELAY (MIN/VEH)	INCLUSIVE QUEUEING (MIN)	INCLUSIVE DELAY (MIN/VEH)
A	805.2	536.8	35.9	0.04	35.9	0.04
B	801.1	534.1	52.6	0.07	52.6	0.07
C	458.3	305.6	34.9	0.08	34.9	0.08
D	821.7	547.8	56.8	0.07	56.8	0.07
ALL	2886.4	1924.2	180.2	0.06	180.2	0.06

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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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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

Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Moor Lane Woone lane AM vai'
 (drive-on-the-left) at 15:44:12 on Thursday, 4 October 2012

LE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 04/10/12
 CLIENT:
 NUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

PUTI DATA

ARM A - Woone Lane
 ARM B - Moor lane E / Lowergate
 ARM C - Moor lane W

NI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL
 M B HAS A CENTRAL ISLAND

320120913P

ARM	I	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT
I	I	I	I	I	I	I	I	I	I	(PCU/MIN)
ARM A	I	3.55	5.30	3.50	3.25	12.50	11.00	4.00	0.648	15.643
ARM B	I	6.00	3.50	0.00	3.50	17.25	17.00	-2.00	0.515	14.477
ARM C	I	3.50	3.50	0.00	3.50	9.00	3.50	6.00	0.719	17.124

V = approach half-width Lm = effective flare length A = distance between arms
 = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

ly sets included in the current run are shown

SCALING FACTORS

113

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

ME PERIOD BEGINS (07 45) AND ENDS (09 15)

LENGTH OF TIME PERIOD - (90) MINUTES

NGTH OF TIME SEGMENT - (15) MINUTES

MAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2012 AM Base

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER
ARM A	15.00	45.00	75.00	4.21	6.32	4.21
ARM B	15.00	45.00	75.00	4.70	7.05	4.70
ARM C	15.00	45.00	75.00	5.96	8.94	5.96

DEMAND SET TITLE: 2012 AM Base

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15		0.000	0.878	0.122
		0.0	296.0	41.0
		(0.0)	(0.0)	(0.0)
		0.984	0.000	0.016
		370.0	0.0	6.0
		(0.0)	(0.0)	(0.0)
		0.319	0.681	0.000
		152.0	325.0	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00								
ARM A	4.23	13.02	0.325	-	0.0	0.5	6.9	0.113
ARM B	4.72	14.21	0.332	-	0.0	0.5	7.1	0.105
ARM C	5.99	13.81	0.433	-	0.0	0.8	10.8	0.126

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH_MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15								
ARM A	5.05	12.50	0.404	-	0.5	0.7	9.7	0.134
ARM B	5.63	14.16	0.398	-	0.5	0.7	9.5	0.117
ARM C	7.15	13.15	0.544	-	0.8	1.2	16.7	0.165

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH_MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30								
ARM A	6.18	11.81	0.523	-	0.7	1.1	15.3	0.176
ARM B	6.90	14.09	0.490	-	0.7	0.9	13.6	0.139
ARM C	8.75	12.26	0.714	-	1.2	2.4	32.2	0.273

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH_MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45								
ARM A	6.18	11.78	0.525	-	1.1	1.1	16.3	0.179
ARM B	6.90	14.09	0.490	-	0.9	1.0	14.2	0.139
ARM C	8.75	12.24	0.715	-	2.4	2.4	36.0	0.286

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH_MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00								
ARM A	5.05	12.45	0.405	-	1.1	0.7	10.8	0.136
ARM B	5.63	14.16	0.398	-	1.0	0.7	10.4	0.118
ARM C	7.15	13.13	0.544	-	2.4	1.2	19.5	0.171

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	4.23	12.99	0.326	-	0.7	0.5	7.5	0.115
ARM B	4.72	14.21	0.332	-	0.7	0.5	7.7	0.106
ARM C	5.99	13.78	0.434	-	1.2	0.8	12.2	0.129

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5
08.15	0.7 *
08.30	1.1 *
08.45	1.1 *
09.00	0.7 *
09.15	0.5

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5
08.15	0.7 *
08.30	0.9 *
08.45	1.0 *
09.00	0.7 *
09.15	0.5 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.8 *
08.15	1.2 *
08.30	2.4 **
08.45	2.4 **
09.00	1.2 *
09.15	0.8 *

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	INCLUSIVE QUEUEING	INCLUSIVE QUEUEING
	(VEH)	(VEH/H)	(MIN)
A	463.9	309.2	66.5
B	517.5	345.0	62.6
C	656.6	437.7	127.2
ALL	1637.9	1092.0	256.3

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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Moor Lane Woone Lane PM vai'
 (drive-on-the-left) at 15:52:52 on Thursday 4 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 04/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

 ARM A - Woone Lane
 ARM B - Moor Lane E / Lowergate
 ARM C - Moor Lane W

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL
 ARM B HAS A CENTRAL ISLAND

ARM	V (M)	E (M)	Lm (M)	Vm (M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.55	5.30	3.50	3.25	12.50	11.00	4.00	0.648	15.643
ARM B	6.00	3.50	0.00	3.50	17.25	17.00	-2.00	0.515	14.477
ARM C	3.50	3.50	0.00	3.50	9.00	3.50	6.00	0.719	17.124

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

113

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SET IIII8: 2012 PM Base I15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
ARM A	15.00	45.00	75.00	4.24	6.36	4.24
ARM B	15.00	45.00	75.00	5.55	8.33	5.55
ARM C	15.00	45.00	75.00	4.55	6.83	4.55

DEMAND SET IIII8: 2012 PM Base I33

TIME	ARM A	ARM B	ARM C
16.45 - 18.15	0.000	0.876	0.124
	0.00	297.0	42.0
	(0.0)	(0.0)	(0.0)
	0.966	0.000	0.034
	429.0	0.0	15.0
	(0.0)	(0.0)	(0.0)
	0.277	0.723	0.000
	101.0	263.0	0.0
	(0.0)	(0.0)	(0.0)

320120913P

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT I70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00								
ARM A	4.25	13.52	0.315	-	0.0	0.5	6.6	0.107
ARM B	5.57	14.21	0.392	-	0.0	0.6	9.2	0.115
ARM C	4.57	13.28	0.344	-	0.0	0.5	7.5	0.114

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15								
ARM A	5.08	13.10	0.388	-	0.5	0.6	9.1	0.124
ARM B	6.65	14.15	0.470	-	0.6	0.9	12.7	0.133
ARM C	5.45	12.51	0.436	-	0.5	0.8	11.0	0.141

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30								
ARM A	6.22	12.53	0.496	-	0.6	1.0	13.9	0.157
ARM B	8.15	14.08	0.579	-	0.9	1.3	19.1	0.167
ARM C	6.68	11.49	0.581	-	0.8	1.3	19.0	0.205

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45								
ARM A	6.22	12.52	0.497	-	1.0	1.0	14.6	0.159
ARM B	8.15	14.08	0.579	-	1.3	1.4	20.2	0.168
ARM C	6.68	11.47	0.583	-	1.3	1.4	20.4	0.209

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00								
ARM A	5.08	13.07	0.389	-	1.0	0.6	10.0	0.126
ARM B	6.65	14.15	0.470	-	1.4	0.9	14.1	0.135
ARM C	5.45	12.48	0.437	-	1.4	0.8	12.4	0.144

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	4.25	13.50	0.315	-	0.6	0.5	7.2	0.108
ARM B	5.57	14.20	0.392	-	0.9	0.7	10.1	0.116
ARM C	4.57	13.24	0.345	-	0.8	0.5	8.2	0.116

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.5
17.15	0.6 *
17.30	1.0 *
17.45	1.0 *
18.00	0.6 *
18.15	0.5

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.6 *
17.15	0.9 *
17.30	1.3 *
17.45	1.4 *
18.00	0.9 *
18.15	0.7 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.5 *
17.15	0.8 *
17.30	1.3 *
17.45	1.4 *
18.00	0.8 *
18.15	0.5 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN)
A	466.6	61.3	61.3
B	611.1	85.4	85.4
C	501.0	78.5	78.5
ALL	1578.8	225.2	225.3

* 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\Moor Lane Woone Lane AM.vai"
 (drive-on-the-left) at 15:45:48 on Thursday, 4 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 04/10/12
 CLIENT:
 OPERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

PVI DATA

ARM A - Woone Lane
 ARM B - Moor Lane E / Lowergate
 ARM C - Moor Lane W

ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL
 M B HAS A CENTRAL ISLAND

ARM	V (M)	E (M)	Lm (M)	Vm (M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.55	5.30	3.50	3.25	12.50	11.00	4.00	0.648	15.643
ARM B	6.00	3.50	0.00	3.50	17.25	17.00	-2.00	0.515	14.477
ARM C	3.50	3.50	0.00	3.50	9.00	2.50	6.00	0.719	17.124

V = approach half-width Lm = effective flare length A = distance between arms
 = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

ly sets included in the current run are shown

SCALING FACTORS

T13

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

TIME PERIOD BEGINS (07 45) AND ENDS (09 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913D

DEMAND SET TITLE: 2017 AM Base

I	I	NUMBER OF MINUTES FROM SIARI WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	I	TO RISE	IS REACHED	FALLING	BEFORE	AT TOP	AFTER
I	ARM A	15.00	45.00	75.00	4.40	6.60	4.40
I	ARM B	15.00	45.00	75.00	4.91	7.37	4.91
I	ARM C	15.00	45.00	75.00	6.22	9.34	6.22

DEMAND SET TITLE: 2017 AM Base

I	I	TURNING PROPORTIONS			I
		I	I	I	
I	I	FROM/TO	ARM A	ARM B	ARM C
I	07.45 - 09.15	ARM A	0.000	0.878	0.122
I			0.0	309.0	43.0
I			(0.0)	(0.0)	(0.0)
I		ARM B	0.985	0.000	0.015
I			387.0	0.0	6.0
I			(0.0)	(0.0)	(0.0)
I		ARM C	0.319	0.681	0.000
I			159.0	339.0	0.0
I			(0.0)	(0.0)	(0.0)

QUEUES AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	07.45-08.00								
I	ARM A	4.42	12.91	0.342	-	0.0	0.5	7.4	0.117
I	ARM B	4.93	14.20	0.347	-	0.0	0.5	7.6	0.107
I	ARM C	6.25	13.66	0.458	-	0.0	0.8	11.8	0.133

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.00-08.15								
I	ARM A	5.27	12.37	0.426	-	0.5	0.7	10.6	0.140
I	ARM B	5.89	14.15	0.416	-	0.5	0.7	10.3	0.121
I	ARM C	7.46	12.96	0.576	-	0.8	1.3	18.8	0.180

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.15-08.30								
I	ARM A	6.46	11.66	0.554	-	0.7	1.2	17.2	0.190
I	ARM B	7.21	14.07	0.512	-	0.7	1.0	14.9	0.145
I	ARM C	9.14	12.03	0.759	-	1.3	2.9	38.9	0.322

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.30-08.45								
I	ARM A	6.46	11.62	0.556	-	1.2	1.2	18.4	0.194
I	ARM B	7.21	14.07	0.513	-	1.0	1.0	15.6	0.146
I	ARM C	9.14	12.02	0.760	-	2.9	3.0	44.7	0.343

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.45-09.00								
I	ARM A	5.27	12.30	0.429	-	1.2	0.8	11.9	0.144
I	ARM B	5.89	14.14	0.416	-	1.0	0.7	11.2	0.122
I	ARM C	7.46	12.94	0.577	-	3.0	1.4	22.6	0.190

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	4.42	12.87	0.343	-	0.8	0.5	8.2	0.119
ARM B	4.93	14.20	0.347	-	0.7	0.5	8.3	0.108
ARM C	6.25	13.62	0.459	-	1.4	0.9	13.5	0.137

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5 *
08.15	0.7 *
08.30	1.2 *
08.45	1.2 *
09.00	0.8 *
09.15	0.5 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5 *
08.15	0.7 *
08.30	1.0 *
08.45	1.0 *
09.00	0.7 *
09.15	0.5 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.8 *
08.15	1.3 *
08.30	2.9 ***
08.45	3.0 ***
09.00	1.4 *
09.15	0.9 *

320120913P

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN)
A	484.5	73.7	73.7
B	540.9	67.8	67.8
C	685.5	150.3	150.3
ALL	1710.9	291.7	291.8

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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Moor Lane Woone Lane PM val'
 (drive-on-the-left) at 15:54:24 on Thursday 4 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 04/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Woone Lane
 ARM B - Moor Lane E / Lowergate
 ARM C - Moor lane W

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL
 ARM B HAS A CENTRAL ISLAND

I	ARM	I	V (M)	I	E (M)	I	Ln (M)	I	Vm (M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	3.55	I	5.30	I	3.50	I	3.25	I	12.50	I	11.00	I	4.00	I	0.648	I	15.643	I	
I	ARM B	I	6.00	I	3.50	I	0.00	I	3.50	I	17.25	I	17.00	I	-2.00	I	0.515	I	14.477	I	
I	ARM C	I	3.50	I	3.50	I	0.00	I	3.50	I	9.00	I	3.50	I	6.00	I	0.719	I	17.124	I	

V = approach half-width Ln = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

113

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SET TITLE: 2017 PM Base

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

MAND SET TITLE: 2017 PM Base

I	I	TURNING PROPORTIONS			
		I	I	I	
I	I	TURNING COUNTS			
		I	I	I	
I	I	(PERCENTAGE OF H.V.S)			
		I	I	I	
		FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.876	0.124	
	ARM B	0.966	0.000	0.034	
	ARM C	0.278	0.722	0.000	

320120913P

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00	ARM A: 4.45	13.42	0.332	-	0.0	0.5	7.1	0.111
	ARM B: 5.83	14.19	0.411	-	0.0	0.7	9.9	0.118
	ARM C: 4.78	13.11	0.365	-	0.0	0.6	8.2	0.119
17.00-17.15	ARM A: 5.32	12.98	0.410	-	0.5	0.7	9.9	0.130
	ARM B: 6.97	14.14	0.493	-	0.7	1.0	13.8	0.139
	ARM C: 5.71	12.30	0.464	-	0.6	0.9	12.3	0.151
17.15-17.30	ARM A: 6.51	12.40	0.525	-	0.7	1.1	15.5	0.168
	ARM B: 8.53	14.06	0.607	-	1.0	1.5	21.3	0.179
	ARM C: 6.99	11.23	0.623	-	0.9	1.6	22.2	0.231
17.30-17.45	ARM A: 6.51	12.37	0.526	-	1.1	1.1	16.4	0.171
	ARM B: 8.53	14.06	0.607	-	1.5	1.5	22.7	0.181
	ARM C: 6.99	11.20	0.624	-	1.6	1.6	24.2	0.237
17.45-18.00	ARM A: 5.32	12.95	0.411	-	1.1	0.7	11.0	0.132
	ARM B: 6.97	14.14	0.493	-	1.5	1.0	15.5	0.141
	ARM C: 5.71	12.26	0.465	-	1.6	0.9	14.0	0.155

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	4.45	13.40	0.332	-	0.7	0.5	7.8	0.112
ARM B	5.83	14.19	0.411	-	1.0	0.7	11.0	0.120
ARM C	4.78	13.06	0.366	-	0.9	0.6	9.1	0.121

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.5
17.15	0.7 *
17.30	1.1 *
17.45	1.1 *
18.00	0.7 *
18.15	0.5 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.7 *
17.15	1.0 *
17.30	1.5 *
17.45	1.5 **
18.00	1.0 *
18.15	0.7 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.6 *
17.15	0.9 *
17.30	1.6 **
17.45	1.6 **
18.00	0.9 *
18.15	0.6 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	INCLUSIVE QUEUEING DELAY (MIN)	QUEUEING DELAY (MIN/VEH)
A	488.6	67.7	0.14
B	640.0	94.2	0.15
C	524.4	89.8	0.17
ALL	1653.1	251.7	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

===== end of file =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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

Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Moor Lane Woone Lane AM vai"
 (drive-on-the-left) at 15:48:19 on Thursday 4 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 04/10/12
 CLIENT:
 NUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Woone Lane
 ARM B - Moor Lane E / Lowergate
 ARM C - Moor Lane W

ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL
 M B HAS A CENTRAL ISLAND

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT
ARM A	3.55	5.30	3.50	3.25	12.50	11.00	4.00	0.648	15.643
ARM B	6.00	3.50	0.00	3.50	17.25	17.00	-2.00	0.515	14.477
ARM C	3.50	3.50	0.00	3.50	9.00	3.50	6.00	0.719	17.124

= approach half-width Lm = effective flare length A = distance between arms
 = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

ly sets included in the current run are shown

SCALING FACTORS

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

TIME PERIOD BEGINS (07:45) AND ENDS (09:15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SBI TITLE: 2012 AM Base + Dev

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	ARM	FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER
I	I	I	I	I	I	I	I
I	I	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
I	ARM A	15.00	45.00	75.00	4.21	6.32	4.21
I	ARM B	15.00	45.00	75.00	4.88	7.31	4.88
I	ARM C	15.00	45.00	75.00	6.39	9.58	6.39

DEMAND SBI TITLE: 2012 AM Base + Dev

I	I	TURNING PROPORTIONS			
		I	I	I	
I	I	TURNING COUNTS			
I	I	(PERCENTAGE OF H.V.S)			
I	I				
I	TIME	FROM/TO	ARM A	ARM B	ARM C
I	07 45 - 09 15	I	I	I	I
I	ARM A	0.000	0.878	0.122	
I		0.0	296.0	41.0	
I		(0.0)	(0.0)	(0.0)	
I	ARM B	0.985	0.000	0.015	
I		384.0	0.0	6.0	
I		(0.0)	(0.0)	(0.0)	
I	ARM C	0.297	0.703	0.000	
I		152.0	359.0	0.0	
I		(0.0)	(0.0)	(0.0)	
I					

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	07.45-08.00								
I	ARM A	4.23	12.75	0.332	-	0.0	0.5	7.1	0.117
I	ARM B	4.89	14.21	0.344	-	0.0	0.5	7.5	0.106
I	ARM C	6.41	13.68	0.469	-	0.0	0.9	12.3	0.136

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.00-08.15								
I	ARM A	5.05	12.17	0.415	-	0.5	0.7	10.1	0.140
I	ARM B	5.84	14.16	0.413	-	0.5	0.7	10.1	0.120
I	ARM C	7.66	13.00	0.589	-	0.9	1.4	19.8	0.185

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.15-08.30								
I	ARM A	6.18	11.43	0.541	-	0.7	1.1	16.4	0.188
I	ARM B	7.16	14.09	0.508	-	0.7	1.0	14.6	0.143
I	ARM C	9.38	12.07	0.777	-	1.4	3.2	42.0	0.342

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.30-08.45								
I	ARM A	6.18	11.38	0.543	-	1.1	1.2	17.4	0.192
I	ARM B	7.16	14.09	0.508	-	1.0	1.0	15.3	0.144
I	ARM C	9.38	12.06	0.778	-	3.2	3.3	48.8	0.369

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.45-09.00								
I	ARM A	5.05	12.10	0.417	-	1.2	0.7	11.4	0.143
I	ARM B	5.84	14.16	0.413	-	1.0	0.7	11.0	0.121
I	ARM C	7.66	12.97	0.590	-	3.3	1.5	24.0	0.197

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	4.23	12.71	0.333	-	0.7	0.5	7.8	0.118
ARM B	4.89	14.21	0.344	-	0.7	0.5	8.2	0.108
ARM C	6.41	13.65	0.470	-	1.5	0.9	14.1	0.140

EUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5
08.15	0.7 *
08.30	1.1 *
08.45	1.2 *
09.00	0.7 *
09.15	0.5 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5 *
08.15	0.7 *
08.30	1.0 *
08.45	1.0 *
09.00	0.7 *
09.15	0.5 *

EUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.9 *
08.15	1.4 *
08.30	3.2 ***
08.45	3.3 ***
09.00	1.5 *
09.15	0.9 *

320120913P

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN)
A	463.9	70.2	70.2
B	536.8	66.7	66.7
C	703.4	161.1	161.2
ALL	1704.0	298.0	298.1

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 -----

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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

Run with file:-
"a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Moor Lane Woone Lane PM.vai"
(drive-on-the-left) at 15:56:09 on Thursday, 4 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
LOCATION:
DATE: 04/10/12
CLIENT:
ENUMERATOR: Administrator
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Woone Lane
ARM B - Moor Lane E / Lowergate
ARM C - Moor lane W

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL
ARM B HAS A CENTRAL ISLAND

I	ARM	I	V (M)	I	E (M)	I	Lm (M)	I	Vm (M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)
I	ARM A	I	3.55	I	5.30	I	3.50	I	3.25	I	12.50	I	11.00	I	4.00	I	0.648	I	15.643
I	ARM B	I	6.00	I	3.50	I	0.00	I	3.50	I	17.25	I	17.00	I	-2.00	I	0.515	I	14.477
I	ARM C	I	3.50	I	3.50	I	0.00	I	3.50	I	9.00	I	3.50	I	6.00	I	0.719	I	17.124

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K = entry corner kerb line G=gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

----- I13

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE FURNING COUNCIL DATA

MAND SEI IIIIE: 2012 PM Base + Dev

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	ARM	I	I	I	I	I	I
		TO RISE	IS REACHED	FALLING	BEFORE	AT TOP	AFTER
I	ARM A	15 00	45 00	75 00	4.24	6.36	4.24
I	ARM B	15 00	45 00	75 00	6.13	9.19	6.13
I	ARM C	15 00	45 00	75 00	4.74	7.11	4.74

MAND SEI IIIIE: 2012 PM Base + Dev

I	I	TURNING PROPORTIONS			
		I	I	I	I
I		(PERCENTAGE OF H.V.S)			
	TIME	FROM/TO	ARM A	ARM B	ARM C
I	16 45 - 18 15				
I	ARM A	0 000	0.876	0.124	
I		0 0	297 0	42 0	
I		(0 0)	(0 0)	(0 0)	
I	ARM B	0.969	0 000	0.031	
I		475 0	0 0	15 0	
I		(0 0)	(0 0)	(0 0)	
I	ARM C	0.266	0.734	0 000	
I		101 0	278 0	0 0	
I		(0 0)	(0 0)	(0 0)	

320120913P

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17 00								
ARM A	4 25	13 40	0 317	-	0 0	0 5	6 6	0 109
ARM B	6 15	14 21	0 433	-	0 0	0 8	10 8	0 123
ARM C	4 76	12 87	0 369	-	0 0	0 6	8 3	0 122

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17 15								
ARM A	5 08	12 95	0 392	-	0 5	0 6	9 3	0 127
ARM B	7 34	14 15	0 519	-	0 8	1 1	15 3	0 146
ARM C	5 68	12 02	0 472	-	0 6	0 9	12 6	0 157

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17 30								
ARM A	6 22	12 36	0 503	-	0 6	1 0	14 2	0 161
ARM B	8 99	14 08	0 639	-	1 1	1 7	24 1	0 194
ARM C	6 95	10 89	0 639	-	0 9	1 7	23 5	0 248

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17 45								
ARM A	6 22	12 34	0 504	-	1 0	1 0	15 0	0 163
ARM B	8 99	14 08	0 639	-	1 7	1 7	25 9	0 196
ARM C	6 95	10 86	0 640	-	1 7	1 7	25 8	0 255

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18 00								
ARM A	5 08	12 92	0 393	-	1 0	0 7	10 2	0 128
ARM B	7 34	14 15	0 519	-	1 7	1 1	17 3	0 149
ARM C	5 68	11 98	0 474	-	1 7	0 9	14 5	0 161

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	4.25	13.37	0.318	-	0.7	0.5	7.3	0.110
ARM B	6.15	14.20	0.433	-	1.1	0.8	12.0	0.125
ARM C	4.76	12.82	0.371	-	0.9	0.6	9.3	0.125

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.5
17.15	0.6 *
17.30	1.0 *
17.45	1.0 *
18.00	0.7 *
18.15	0.5

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.8 *
17.15	1.1 *
17.30	1.7 **
17.45	1.7 **
18.00	1.1 *
18.15	0.8 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.6 *
17.15	0.9 *
17.30	1.7 **
17.45	1.7 **
18.00	0.9 *
18.15	0.6 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	INCLUSIVE QUEUEING DELAY (MIN)	QUEUEING DELAY (MIN/VEH)	INCLUSIVE QUEUEING DELAY (MIN)	QUEUEING DELAY (MIN/VEH)
A	466.6	62.6	0.13	62.6	0.13
B	674.4	105.3	0.16	105.4	0.16
C	521.7	94.1	0.18	94.1	0.18
ALL	1662.7	262.1	0.16	262.1	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

==== end of file =====

ARCADY 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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Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Moor Lane Woone Lane AM vai (drive-on-the-left) at 15:42:59 on Thursday, 4 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 04/10/12
 CLIENT:
 NUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Woone Lane
 ARM B - Moor Lane E / Lowergate
 ARM C - Moor Lane W

ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 TRAFFIC CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL
 M B HAS A CENTRAL ISLAND

ARM	V (M)	E (M)	Lm (M)	Vm (M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.55	5.30	3.50	3.25	12.50	11.00	4.00	0.648	15.643
ARM B	6.00	3.50	0.00	3.50	17.25	17.00	-2.00	0.515	14.477
ARM C	3.50	3.50	0.00	3.50	9.00	3.50	6.00	0.719	17.124

= approach half-width Lm = effective flare length A = distance between arms
 = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

ly sets included in the current run are shown

SCALING FACTORS

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

ME PERIOD BEGINS (07 45) AND ENDS (09 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

MAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SET TITLE: 2017 AM Base + Dev

115

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
ARM A	15.00	45.00	75.00	4.40	6.60	4.40
ARM B	15.00	45.00	75.00	5.09	7.63	5.09
ARM C	15.00	45.00	75.00	6.65	9.98	6.65

DEMAND SET TITLE: 2017 AM Base + Dev

133

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.878	0.122
	ARM B	0.985	0.000	0.015
	ARM C	0.299	0.701	0.000

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

170

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00								
ARM A	4.42	12.64	0.349	-	0.0	0.5	7.6	0.121
ARM B	5.11	14.20	0.360	-	0.0	0.6	8.0	0.109
ARM C	6.68	13.53	0.493	-	0.0	1.0	13.6	0.143

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15								
ARM A	5.27	12.04	0.438	-	0.5	0.8	11.1	0.147
ARM B	6.10	14.15	0.431	-	0.6	0.7	10.9	0.124
ARM C	7.97	12.81	0.622	-	1.0	1.6	22.5	0.203

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30								
ARM A	6.46	11.28	0.572	-	0.8	1.3	18.4	0.204
ARM B	7.47	14.07	0.531	-	0.7	1.1	15.9	0.150
ARM C	9.76	11.85	0.824	-	1.6	4.0	52.0	0.417

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45								
ARM A	6.46	11.22	0.576	-	1.3	1.3	19.8	0.210
ARM B	7.47	14.07	0.531	-	1.1	1.1	16.7	0.151
ARM C	9.76	11.84	0.825	-	4.0	4.3	63.3	0.467

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00								
ARM A	5.27	11.94	0.442	-	1.3	0.8	12.6	0.152
ARM B	6.10	14.14	0.431	-	1.1	0.8	11.9	0.125
ARM C	7.97	12.79	0.623	-	4.3	1.7	28.5	0.222

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	4.42	12.59	0.351	-	0.8	0.5	8.5	0.123
ARM B	5.11	14.20	0.360	-	0.8	0.6	8.8	0.110
ARM C	6.68	13.50	0.495	-	1.7	1.0	15.7	0.149

EUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5 *
08.15	0.8 *
08.30	1.3 *
08.45	1.3 *
09.00	0.8 *
09.15	0.5 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.6 *
08.15	0.7 *
08.30	1.1 *
08.45	1.1 *
09.00	0.8 *
09.15	0.6 *

EUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.0 *
08.15	1.6 **
08.30	4.0 ****
08.45	4.3 ****
09.00	1.7 **
09.15	1.0 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
I	I (VEH)	I (MIN)	I (MIN)
A	484.5	78.0	78.0
B	560.2	72.3	72.3
C	732.3	195.5	195.5
All	1777.0	345.8	345.8

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 =====

320120913P

ARCADY 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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Run with file:-
 "a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Moor lane Woone lane\Moor lane Woone lane EM vao'
 (drive-on-the-left) at 20:17:50 on Sunday, 7 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 04/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Woone lane
 ARM B - Moor lane E / Lowergate
 ARM C - Moor lane W

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL
 ARM B HAS A CENTRAL ISLAND

I	ARM	I	V (M)	I	E (M)	I	Lm (M)	I	Vm (M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	3.55	I	5.30	I	3.50	I	3.25	I	12.50	I	11.00	I	4.00	I	0.648	I	15.643	I	
I	ARM B	I	6.00	I	3.50	I	0.00	I	3.50	I	17.25	I	17.00	I	-2.00	I	0.515	I	14.477	I	
I	ARM C	I	3.50	I	3.50	I	0.00	I	2.50	I	9.00	I	3.50	I	6.00	I	0.719	I	17.124	I	

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

----- I13

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SET TITLE: 2017 PM Base + Dev

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	ARM	I	I	I	I	I	I
		FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER
		TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	I	15.00	I 45.00	I 75.00	I 4.44	I 6.66	I 4.44
ARM B	I	15.00	I 45.00	I 75.00	I 6.39	I 9.58	I 6.39
ARM C	I	15.00	I 45.00	I 75.00	I 4.95	I 7.42	I 4.95

DEMAND SET TITLE: 2017 PM Base + Dev

I	I	TURNING PROPORTIONS		
		I	I	I
I	I	TURNING COUNTS		
		I	I	I
I	I	(PERCENTAGE OF H.V.S)		
		I	I	I
TIME	FROM/TO	ARM A	ARM B	ARM C
16 45 - 18 15	ARM A	0.000	0.876	0.124
		0 0	311 0	44 0
		(0.0)	(0.0)	(0.0)
	ARM B	0.969	0.000	0.031
		495 0	0 0	16 0
		(0.0)	(0.0)	(0.0)
	ARM C	0.268	0.732	0.000
		106 0	290 0	0 0
		(0.0)	(0.0)	(0.0)

320120913P

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00	ARM A 4.45	13.31	0.335	--	0.0	0.5	7.2	0.112
	ARM B 6.41	14.19	0.452	--	0.0	0.8	11.6	0.127
	ARM C 4.97	12.70	0.391	--	0.0	0.6	9.1	0.128

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15	ARM A 5.32	12.84	0.414	--	0.5	0.7	10.1	0.132
	ARM B 7.66	14.14	0.542	--	0.8	1.2	16.7	0.153
	ARM C 5.93	11.81	0.502	--	0.6	1.0	14.2	0.169

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30	ARM A 6.51	12.23	0.533	--	0.7	1.1	15.9	0.173
	ARM B 9.38	14.06	0.667	--	1.2	1.9	27.0	0.209
	ARM C 7.27	10.63	0.684	--	1.0	2.0	28.0	0.286

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45	ARM A 6.51	12.20	0.534	--	1.1	1.1	16.9	0.176
	ARM B 9.38	14.06	0.667	--	1.9	2.0	29.2	0.213
	ARM C 7.27	10.60	0.686	--	2.0	2.1	31.3	0.298

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00	ARM A 5.32	12.79	0.416	--	1.1	0.7	11.3	0.135
	ARM B 7.66	14.14	0.542	--	2.0	1.2	19.0	0.157
	ARM C 5.93	11.76	0.505	--	2.1	1.0	16.6	0.176

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	4.45	13.27	0.336	-	0.7	0.5	7.9	0.114
ARM B	6.41	14.19	0.452	-	1.2	0.8	13.0	0.129
ARM C	4.97	12.64	0.393	-	1.0	0.7	10.2	0.131

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.5 *
17.15	0.7 *
17.30	1.1 *
17.45	1.1 *
18.00	0.7 *
18.15	0.5 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.8 *
17.15	1.2 *
17.30	1.9 **
17.45	2.0 **
18.00	1.2 *
18.15	0.8 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.6 *
17.15	1.0 *
17.30	2.0 **
17.45	2.1 **
18.00	1.0 *
18.15	0.7 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	488.6	69.2	0.14
B	703.4	116.5	0.17
C	545.1	109.3	0.20
ALL	1737.0	295.0	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

----- end of file -----

ARCADY 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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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Proposed Railway View Road Mini Rbt\
Proposed Railway View Road Min Rbt AM.vai"
(Drive-on-the-left) at 13:41:35 on Sunday 7 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
LOCATION:
DATE: 06/10/12
CLIENT:
ENUMERATOR: Administrator
JOB NUMBER:
STATUS:
DESCRIPTION:

PUT DATA

ARM A - Railway View Road S
ARM B - Waddington Road
ARM C - Railway View Road N

NI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

Table with 15 columns: I ARM, I V (M), I E (M), I Lm(M), I Vm(M), I A (M), I K (M), I G (%), I SLOPE, I INTERCEPT I (PCU/MIN) I. Rows include ARM A, ARM B, and ARM C with numerical values.

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

ALING FACTORS

Table with 2 columns: ARM, I FLOW SCALE (%) I. Rows include A, B, and C with a value of 100.

ME PERIOD BEGINS (07 45) AND ENDS (09 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

MAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SET TITLE: 2017 Base + Dev

I15										
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
ARM A	15.00	45.00	75.00	6.20	9.30	6.20				
ARM B	15.00	45.00	75.00	6.38	9.56	6.38				
ARM C	15.00	45.00	75.00	6.49	9.73	6.49				

DEMAND SET TITLE: 2017 Base + Dev

I133						
TIME	FROM/TO	ARM A	ARM B	ARM C	TURNING PROPORTIONS	TURNING COUNTS
07.45 - 09.15		0.000	0.310	0.690		
		0.0	154.0	342.0		
		(0.0)	(0.0)	(0.0)		
		0.225	0.000	0.775		
		115.0	0.0	395.0		
		(0.0)	(0.0)	(0.0)		
		0.582	0.418	0.000		
		302.0	217.0	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)	PEDESIRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00								
ARM A	6.22	13.28	0.469	-	0.0	0.9	12.3	0.140
ARM B	6.40	12.69	0.504	-	0.0	1.0	14.1	0.156
ARM C	6.51	13.36	0.487	-	0.0	0.9	13.2	0.143

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15								
ARM A	7.43	13.04	0.570	-	0.9	1.3	18.5	0.177
ARM B	7.64	12.32	0.620	-	1.0	1.6	22.3	0.210
ARM C	7.78	13.24	0.587	-	0.9	1.4	19.8	0.181

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30								
ARM A	9.10	12.71	0.716	-	1.3	3.4	32.7	0.266
ARM B	9.36	11.84	0.791	-	1.6	3.4	44.9	0.369
ARM C	9.52	13.09	0.728	-	1.4	2.5	34.5	0.269

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45								
ARM A	9.10	12.70	0.717	-	2.4	2.5	36.3	0.277
ARM B	9.36	11.82	0.792	-	3.4	3.6	52.6	0.400
ARM C	9.52	13.08	0.728	-	2.5	2.6	38.4	0.279

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00								
ARM A	7.43	13.02	0.571	-	2.5	1.4	21.8	0.184
ARM B	7.64	12.29	0.622	-	3.6	1.7	27.7	0.227
ARM C	7.78	13.23	0.588	-	2.6	1.5	23.4	0.189

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	6.22	13.26	0.469	-	1.4	0.9	14.1	0.143
ARM B	6.40	12.67	0.505	-	1.7	1.0	16.4	0.162
ARM C	6.51	13.35	0.488	-	1.5	1.0	15.2	0.148

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.9 *
08.15	1.3 *
08.30	2.4 **
08.45	2.5 **
09.00	1.4 *
09.15	0.9 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.0 *
08.15	1.6 **
08.30	3.4 ***
08.45	3.6 ****
09.00	1.7 **
09.15	1.0 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.9 *
08.15	1.4 *
08.30	2.5 ***
08.45	2.6 ***
09.00	1.5 *
09.15	1.0 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	QUEUEING DELAY	INCLUSIVE QUEUEING DELAY
I	I	I	I
	(VEH)	(MIN)	(MIN)
A	682.7	135.7	135.7
B	702.0	178.0	178.0
C	714.4	144.6	144.6
ALL	2099.0	458.2	458.3

320120913P

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 -----

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Proposed Railway View Road Min Rbt EM vai'
 (drive-on-the-left) at 09:01:46 on Saturday, 6 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 06/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

 ARM A - Railway View Road S
 ARM B - Waddington Road
 ARM C - Railway View Road N

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

I ARM	I V (M)	I E (M)	I Lm (M)	I Vm (M)	I A (M)	I K (M)	I G (%)	I SLOPE	I INTERCEPT
I	I	I	I	I	I	I	I	I	I (PCU/MIN)
I ARM A	I 4.15	I 4.15	I 0.00	I 4.15	I 9.00	I 7.80	I 0.00	I 0.452	I 14.498
I ARM B	I 3.70	I 3.70	I 0.00	I 3.70	I 11.60	I 10.80	I 0.00	I 0.434	I 14.537
I ARM C	I 3.50	I 3.50	I 0.00	I 3.50	I 8.90	I 5.10	I 0.00	I 0.418	I 13.959

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

I13

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

TIME PERIOD BEGINS(16 45)AND ENDS(18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SET IIIILE: 2017 Base + Dev

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	7.41	11.12	7.41
ARM B	15.00	45.00	75.00	5.86	8.79	5.86
ARM C	15.00	45.00	75.00	8.61	12.92	8.61

MAND SET IIIILE: 2017 Base + Dev

TIME	TURNING PROPORTIONS	TURNING COUNTS	(PERCENTAGE OF H.V.G)	
	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.388	0.612
		0.0	230.0	363.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.196	0.000	0.804
		92.0	0.0	377.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.511	0.489	0.000
		352.0	337.0	0.0
		(0.0)	(0.0)	(0.0)

320120913P

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00								
ARM A	7.44	12.61	0.590	-	0.0	1.4	19.4	0.187
ARM B	5.88	12.59	0.468	-	0.0	0.9	12.2	0.147
ARM C	8.65	13.48	0.641	-	0.0	1.7	23.7	0.198

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15								
ARM A	8.88	12.24	0.726	-	1.4	2.5	34.1	0.286
ARM B	7.03	12.20	0.576	-	0.9	1.3	18.8	0.191
ARM C	10.32	13.39	0.771	-	1.7	3.1	42.2	0.307

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30								
ARM A	10.88	11.80	0.922	-	2.5	7.5	87.7	0.666
ARM B	8.61	11.74	0.733	-	1.3	2.6	34.9	0.303
ARM C	12.64	13.26	0.954	-	3.1	9.8	111.2	0.734

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45								
ARM A	10.88	11.74	0.927	-	7.5	9.1	125.7	0.892
ARM B	8.61	11.67	0.737	-	2.6	2.7	39.6	0.323
ARM C	12.64	13.25	0.954	-	9.8	12.2	167.1	1.023

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00								
ARM A	8.88	12.09	0.735	-	9.1	3.0	56.6	0.400
ARM B	7.03	12.07	0.582	-	2.7	1.4	23.0	0.205
ARM C	10.32	13.38	0.772	-	12.2	3.7	76.5	0.470

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	SIARI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	7.44	12.56	0.592	-	-	3.0	1.5	24.1
ARM B	5.88	12.53	0.469	-	-	1.4	0.9	14.1
ARM C	8.65	13.47	0.642	-	-	3.7	1.9	30.1

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.4 *
17.15	2.5 ***
17.30	7.5 *****
17.45	9.1 *****
18.00	3.0 ***
18.15	1.5 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.9 *
17.15	1.3 *
17.30	2.6 ***
17.45	2.7 ***
18.00	1.4 *
18.15	0.9 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.7 **
17.15	3.1 ****
17.30	9.8 *****
17.45	12.2 *****
18.00	3.7 ****
18.15	1.9 **

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	816.2	347.7	0.43
B	645.5	142.7	0.22
C	948.4	450.7	0.48
ALL	2410.1	941.0	0.39

* 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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 RG40 3GA UK

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

Run with file:-
 'a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Shawbridge Street Waterloo Road AM vao' (drive-on-the-left) at 16:22:00 on Friday, 5 October 2012

LE PROPERTIES

RUN TITLE: clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 OPERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

PUI DATA

ARM A - Shawbridge St
 ARM B - Waterloo Road S
 ARM C - Waterloo Road N

NI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

ARM	I	V (M)	I	E (M)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I
	I		I		I		I		I		I		I		I				I
ARM A	I	4.35	I	4.35	I	0.00	I	4.35	I	8.50	I	6.50	I	0.00	I	0.461	I	12.341	I
ARM B	I	3.65	I	3.65	I	0.00	I	3.65	I	18.90	I	21.00	I	0.00	I	1.377	I	29.873	I
ARM C	I	3.85	I	3.85	I	0.00	I	3.85	I	12.70	I	9.30	I	0.00	I	0.438	I	14.958	I

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G=gradient over 50 m
 WARNING ARM B Entry corner kerb line distance is in range 20m-40m
 provided only for compatibility with accidents analysis
 seat capacities with increasing caution

TRAFFIC DEMAND DATA

ly sets included in the current run are shown

SCALING FACTORS

----- T13

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

TIME PERIOD BEGINS (07.45) AND ENDS (09.15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SET IIIIE: 2012 Base

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	I	TO RISE	IS REACHED	FALLING	BEFORE	AT TOP	AFTER
I	ARM A	15 00	45 00	75 00	4 80	7 20	4 80
I	ARM B	15 00	45 00	75 00	4 70	7 05	4 70
I	ARM C	15 00	45 00	75 00	8 79	13 18	8 79

DEMAND SET IIIIE: 2012 Base

I	I	TURNING PROPORTIONS			
		I	I	I	
I	I	TURNING COUNTS			
		I	I	I	
I	I	(PERCENTAGE OF H.V.S)			
		I	I	I	
I	TIME	FROM/TO	ARM A	ARM B	ARM C
I	07 45 - 09 15				
I	ARM A	0 000	0 188	0 813	
I	ARM B	0 239	0 000	0 761	
I	ARM C	0 388	0 612	0 000	

QUEUES AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

I	I	I	I	I	I	I	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	07.45-08 00								
I	ARM A	4 82	9 88	0 488	-	0 0	0 9	13 0	0 193
I	ARM B	4 72	24 55	0 192	-	0 0	0 2	3 5	0 050
I	ARM C	8 82	14 46	0 610	-	0 0	1 5	21 1	0 171
I	08.00-08 15								
I	ARM A	5 75	9 39	0 613	-	0 9	1 5	21 2	0 269
I	ARM B	5 63	23 48	0 240	-	0 2	0 3	4 6	0 056
I	ARM C	10 53	14 37	0 733	-	1 5	2 6	35 8	0 251
I	08.15-08 30								
I	ARM A	7 05	8 79	0 802	-	1 5	3 5	44 9	0 501
I	ARM B	6 90	22 15	0 311	-	0 3	0 4	6 6	0 065
I	ARM C	12 90	14 23	0 906	-	2 6	7 0	85 0	0 534
I	08.30-08 45								
I	ARM A	7 05	8 72	0 808	-	3 5	3 8	55 3	0 574
I	ARM B	6 90	22 03	0 313	-	0 4	0 5	6 8	0 066
I	ARM C	12 90	14 23	0 906	-	7 0	7 9	113 3	0 658
I	08.45-09 00								
I	ARM A	5 75	9 27	0 620	-	3 8	1 7	28 5	0 307
I	ARM B	5 63	23 28	0 242	-	0 5	0 3	4 9	0 057
I	ARM C	10 53	14 37	0 733	-	7 9	2 9	52 1	0 309

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09 15								
ARM A	4 82	9 83	0 490	- -	1 7	1 0	15 7	0 203
ARM B	4 72	24 43	0 193	- -	0 3	0 2	3 7	0 051
ARM C	8 82	14 46	0 610	- -	2 9	1 6	25 7	0 183

EUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08 00	0 9 *
08 15	1 5 **
08 30	3 5 ***
08 45	3 8 ****
09 00	1 7 **
09 15	1 0 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08 00	0 2
08 15	0 3
08 30	0 4
08 45	0 5
09 00	0 3
09 15	0 2

EUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08 00	1 5 **
08 15	2 6 ***
08 30	7 0 *****
08 45	7 9 *****
09 00	2 9 ***
09 15	1 6 **

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
I	I	I	I
I	(VEH)	(MIN)	(MIN)
I	(VEH/H)	(MIN/VEH)	(MIN/VEH)
A	528 5	178 6	178 7
B	517 5	30 1	30 1
C	967 6	333 1	333 2
ALL	2013 7	541 8	541 9

320120913P

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 =====

ARCADY 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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Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Shawbridge Street Waterloo Road PM vai"
 (drive-on-the-left) at 16:42:54 on Friday, 5 October 2012

FILE PROPERTIES

 RUN TITLE: clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

 ARM A - Shawbridge St
 ARM B - Waterloo Road S
 ARM C - Waterloo Road N

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

I ARM	I	V (M)	I	E (M)	I	Lm (M)	I	Vm (M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I (PCU/MIN)	I
I ARM A	I	4.35	I	4.35	I	0.00	I	4.35	I	8.50	I	6.50	I	0.00	I	0.572	I	12.341	I
I ARM B	I	3.65	I	3.65	I	0.00	I	3.65	I	18.90	I	21.00	I	0.00	I	1.488	I	29.873	I
I ARM C	I	3.85	I	3.85	I	0.00	I	3.85	I	12.70	I	9.30	I	0.00	I	0.549	I	14.958	I

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m
 WARNING ARM B Entry corner kerb line distance is in range 20m-40m
 provided only for compatibility with accidents analysis
 Treat capacities with increasing caution

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

----- T13

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SBI IIIILE: 2012 Base

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
ARM A	15 00	45 00	75 00	4.45	6.67	4.45
ARM B	15 00	45 00	75 00	4.65	6.98	4.65
ARM C	15 00	45 00	75 00	10.19	15.28	10.19

DEMAND SBI IIIILE: 2012 Base

TIME	FROM/TO	ARM A	ARM B	ARM C
16 45 - 18 15	ARM A	0.000	0.337	0.663
	ARM B	0.228	0.000	0.772
	ARM C	0.391	0.609	0.000

320120913P

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17 00								
ARM A	4 47	8 83	0.506	-	0 0	1 0	13 8	0.223
ARM B	4 67	25.53	0.183	-	0 0	0 2	3 3	0.048
ARM C	10 23	14 37	0.711	-	0 0	2 3	31 6	0.225
17.00-17 15								
ARM A	5 33	8 15	0.654	-	1 0	1 8	24 5	0.342
ARM B	5 57	24.67	0.226	-	0 2	0 3	4 3	0.052
ARM C	12 21	14 26	0.856	-	2 3	5 0	64 8	0.416
17.15-17 30								
ARM A	6 53	7 56	0.864	-	1 8	4 7	57 3	0.723
ARM B	6 83	23 62	0.289	-	0 3	0 4	6 0	0.059
ARM C	14 96	14 10	1.061	-	5 0	23 6	227 6	1.294
17.30-17 45								
ARM A	6 53	7 47	0.874	-	4 7	5 6	78 0	0.915
ARM B	6 83	23 49	0.291	-	0 4	0 4	6 1	0.060
ARM C	14 96	14 10	1.061	-	23 6	38 3	466 2	2.419
17.45-18 00								
ARM A	5 33	7 50	0.711	-	5 6	2 7	46 5	0.546
ARM B	5 57	24 44	0.228	-	0 4	0 3	4 5	0.053
ARM C	12 21	14 26	0.856	-	38 3	13 1	385 2	1.946

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RPC)	PEDESTRIAN FLOW (PDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	4.47	8.54	0.523	-	2.7	1.1	18.6	0.258
ARM B	4.67	25.37	0.184	-	0.3	0.2	3.4	0.048
ARM C	10.23	14.37	0.712	-	13.1	2.6	59.0	0.343

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.0 *
17.15	1.8 **
17.30	4.7 *****
17.45	5.6 *****
18.00	2.7 ****
18.15	1.1 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	2.3 **
17.15	5.0 *****
17.30	23.6 *****
17.45	38.3 *****
18.00	13.1 *****
18.15	2.6 ***

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
I	I	I	I
	(VEH)	(MIN)	(MIN)
A	490.0	238.8	238.8
B	512.0	27.6	27.6
C	1121.8	1234.3	1234.6
ALL	2123.8	1500.7	1501.0

* 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Shawbridge Street Waterloo Road AM vao (drive-on-the-left) at 16:31:29 on Friday, 5 October 2012

FILE PROPERTIES

RUN TITLE: clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 NUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

PVI DATA

ARM A - Shawbridge St
 ARM B - Waterloo Road S
 ARM C - Waterloo Road N

VI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

ARM	I	V (M)	I	E (M)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
ARM A	I	4.35	I	4.35	I	0.00	I	4.35	I	8.50	I	6.50	I	0.00	I	0.461	I	12.341	I	
ARM B	I	3.65	I	3.65	I	0.00	I	3.65	I	18.90	I	21.00	I	0.00	I	1.377	I	29.873	I	
ARM C	I	3.85	I	3.85	I	0.00	I	3.85	I	12.70	I	9.30	I	0.00	I	0.438	I	14.958	I	

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m
 WARNING ARM B Entry corner Kerb line distance is in range 20m-40m
 provided only for compatibility with accidents analysis
 sat capacities with increasing caution

TRAFFIC DEMAND DATA

ly sets included in the current run are shown

SCALING FACTORS

113

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

TIME PERIOD BEGINS(07:45) AND ENDS(09:15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SET TITLE: 2017 Base

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	ARM	I	I	I	I	I	I
I	I	I	I	I	I	I	I
I	I	I	I	I	I	I	I
I	ARM A	I	I	I	I	I	I
I	ARM B	I	I	I	I	I	I
I	ARM C	I	I	I	I	I	I

DEMAND SET TITLE: 2017 Base

I	I	TURNING PROPORTIONS		
		I	I	I
I	I	I	I	I
I	I	I	I	I
I	I	I	I	I
I	ARM A	I	I	I
I	ARM B	I	I	I
I	ARM C	I	I	I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	07.45-08.00								
I	ARM A	5.03	9.77	0.515	-	0.0	1.0	14.4	0.205
I	ARM B	4.91	24.32	0.202	-	0.0	0.3	3.7	0.051
I	ARM C	9.21	14.44	0.638	-	0.0	1.7	23.5	0.184
I	08.00-08.15								
I	ARM A	6.01	9.26	0.649	-	1.0	1.8	24.3	0.298
I	ARM B	5.86	22.20	0.252	-	0.3	0.3	5.0	0.058
I	ARM C	11.00	14.34	0.767	-	1.7	3.1	41.6	0.284
I	08.15-08.30								
I	ARM A	7.36	8.66	0.849	-	1.8	4.5	55.4	0.610
I	ARM B	7.17	21.84	0.329	-	0.3	0.5	7.1	0.068
I	ARM C	13.47	14.20	0.948	-	3.1	9.7	110.1	0.678
I	08.30-08.45								
I	ARM A	7.36	8.58	0.858	-	4.5	5.1	72.6	0.747
I	ARM B	7.17	21.68	0.331	-	0.5	0.5	7.4	0.069
I	ARM C	13.47	14.20	0.948	-	9.7	11.8	162.5	0.931
I	08.45-09.00								
I	ARM A	6.01	9.08	0.661	-	5.1	2.1	35.9	0.369
I	ARM B	5.86	22.93	0.256	-	0.5	0.3	5.3	0.059
I	ARM C	11.00	14.34	0.767	-	11.8	3.6	71.9	0.413

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDSIRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	5.03	9.71	0.518	-	2.1	1.1	17.7	0.220
ARM B	4.91	24.17	0.203	-	0.3	0.3	3.9	0.052
ARM C	9.21	14.44	0.638	-	3.6	1.8	29.3	0.200

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.0 *
08.15	1.8 **
08.30	4.5 ****
08.45	5.1 *****
09.00	2.1 **
09.15	1.1 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.3
08.30	0.5
08.45	0.5
09.00	0.3
09.15	0.3

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.7 **
08.15	3.1 ***
08.30	9.7 *****
08.45	11.8 *****
09.00	3.6 ****
09.15	1.8 **

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
I	I	I	I
	(VEH)	(MIN)	(MIN)
A	551.9	220.3	220.3
B	538.2	32.3	32.3
C	1010.3	438.9	439.0
ALL	2100.4	691.5	691.7

320120913P

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 -----

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Shawbridge Street Waterloo Road PM.vao"
 (drive-on-the-left) at 16:44:35 on Friday, 5 October 2012

FILE PROPERTIES

RUN TITLE: clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Shawbridge St
 ARM B - Waterloo Road S
 ARM C - Waterloo Road N

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

ARM	V (M)	E (M)	Lm (M)	Vm (M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT
ARM A	4.35	4.35	0.00	4.35	8.50	6.50	0.00	0.572	12.341
ARM B	3.65	3.65	0.00	3.65	18.90	21.00	0.00	1.488	29.873
ARM C	3.85	3.85	0.00	3.85	12.70	9.30	0.00	0.549	14.958

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m
 WARNING ARM B Entry corner kerb line distance is in range 20m-40m
 provided only for compatibility with accidents analysis
 Treat capacities with increasing caution

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 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SEI IIIILE: 2017 Base

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	ARM	FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER
I		TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
I	ARM A	15.00	45.00	75.00	4.66	6.99	4.66
I	ARM B	15.00	45.00	75.00	4.86	7.29	4.86
I	ARM C	15.00	45.00	75.00	10.65	15.97	10.65

DEMAND SEI IIIILE: 2017 Base

I	I	TURNING PROPORTIONS			
		I	I	I	
I		(PERCENTAGE OF H.V.S)			
I	TIME	FROM/TO	ARM A	ARM B	ARM C
I	16.45 - 18.15	ARM A	0.000	0.338	0.662
I			0.0	126.0	247.0
I			(0.0)	(0.0)	(0.0)
I		ARM B	0.229	0.000	0.771
I			89.0	0.0	300.0
I			(0.0)	(0.0)	(0.0)
I		ARM C	0.392	0.608	0.000
I			334.0	518.0	0.0
I			(0.0)	(0.0)	(0.0)

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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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00								
ARM A	4.68	8.69	0.539	--	0.0	1.1	15.6	0.241
ARM B	4.88	25.34	0.193	--	0.0	0.2	3.5	0.049
ARM C	10.69	14.35	0.745	--	0.0	2.7	36.4	0.250

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15								
ARM A	5.59	7.99	0.699	--	1.1	2.1	29.1	0.393
ARM B	5.83	24.44	0.238	--	0.2	0.3	4.6	0.054
ARM C	12.77	14.23	0.897	--	2.7	6.6	81.5	0.514

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30								
ARM A	6.84	7.53	0.909	--	2.1	6.1	71.4	0.872
ARM B	7.14	23.39	0.305	--	0.3	0.4	6.4	0.061
ARM C	15.63	14.06	1.112	--	6.6	33.5	309.9	1.695

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45								
ARM A	6.84	7.47	0.917	--	6.1	7.5	103.5	1.179
ARM B	7.14	23.23	0.307	--	0.4	0.4	6.6	0.062
ARM C	15.63	14.06	1.112	--	33.5	57.9	686.3	3.442

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00								
ARM A	5.59	7.48	0.747	--	7.5	3.3	61.0	0.691
ARM B	5.83	24.10	0.242	--	0.4	0.3	4.9	0.055
ARM C	12.77	14.22	0.897	--	57.9	39.6	731.1	3.517

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	4.68	7.78	0.601	-	3.3	1.6	26.3	0.346
ARM B	4.88	25.15	0.194	-	0.3	0.2	3.7	0.049
ARM C	10.69	14.34	0.745	-	39.6	3.4	251.0	1.316

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.1 *
17.15	2.1 **
17.30	6.1 *****
17.45	7.5 *****
18.00	3.3 ***
18.15	1.6 **

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	2.7 ***
17.15	6.6 *****
17.30	33.5 *****
17.45	57.9 *****
18.00	39.6 *****
18.15	3.4 ***

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN)
A	513.4	306.8	307.0
B	535.4	29.7	29.7
C	1172.7	2096.2	2096.6
ALL	2221.6	2432.7	2433.3

* 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 =====

ARCADY 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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Run with file:-
a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Shawbridge Street Waterloo Road AM.vai
(drive-on-the-left) at 16:33:16 on Friday, 5 October 2012

FILE PROPERTIES

RUN TITLE: clitheroe
LOCATION:
DATE: 05/10/12
CLIENT:
NUMERATOR: Administrator
JOB NUMBER:
STATUS:
DESCRIPTION:

FILE DATA

ARM A - Shawbridge St
ARM B - Waterloo Road S
ARM C - Waterloo Road N

ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

Table with 15 columns: ARM, V (M), E (M), Lm (M), Vm (M), A (M), K (M), G (%), SLOPE, INTERCEPT (PCU/MIN). Rows for ARM A, B, and C.

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m
WARNING ARM B Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
at capacities with increasing caution

TRAFFIC DEMAND DATA

ly sets included in the current run are shown

SCALING FACTORS

Table with 2 columns: ARM, FLOW SCALE (%). Rows for A, B, and C.

TIME PERIOD BEGINS (07:45) AND ENDS (09:15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SET TITLE: 2012 Base + Dev

I	I	I	I	I	I	I	I	I	I	I	I15								
											I	I							
I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I	FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	BEFORE	I	AT TOP	I	AFTER	I	
I	I	I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK	I	PEAK	I	PEAK	I	
I	ARM A	I	15.00	I	45.00	I	75.00	I	4.95	I	7.42	I	4.95	I		I		I	
I	ARM B	I	15.00	I	45.00	I	75.00	I	5.03	I	7.54	I	5.03	I		I		I	
I	ARM C	I	15.00	I	45.00	I	75.00	I	9.57	I	14.36	I	9.57	I		I		I	

DEMAND SET TITLE: 2012 Base + Dev

I	I	I33								
		I	I	I						
I	TIME	I	FROM/TO	I	ARM A	I	ARM B	I	ARM C	I
I	07.45 - 09.15	I		I		I		I		I
I		I	ARM A	I	0.000	I	0.189	I	0.811	I
I		I		I	0.0	I	75.0	I	321.0	I
I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I		I		I		I		I
I		I	ARM B	I	0.251	I	0.000	I	0.749	I
I		I		I	101.0	I	0.0	I	301.0	I
I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I		I		I		I		I
I		I	ARM C	I	0.389	I	0.611	I	0.000	I
I		I		I	298.0	I	468.0	I	0.0	I
I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I		I		I		I		I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	07.45-08.00								
I	ARM A	4.97	9.67	0.514	--	0.0	1.0	14.3	0.207
I	ARM B	5.04	24.40	0.207	--	0.0	0.3	3.8	0.052
I	ARM C	9.61	14.40	0.667	--	0.0	1.9	26.4	0.198

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.00-08.15								
I	ARM A	5.93	9.14	0.649	--	1.0	1.8	24.3	0.302
I	ARM B	6.02	23.31	0.258	--	0.3	0.3	5.1	0.058
I	ARM C	11.48	14.30	0.803	--	1.9	3.7	49.3	0.327

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.15-08.30								
I	ARM A	7.27	8.57	0.848	--	1.8	4.4	55.0	0.613
I	ARM B	7.38	21.96	0.336	--	0.3	0.5	7.4	0.068
I	ARM C	14.06	14.15	0.994	--	3.7	13.9	147.5	0.886

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.30-08.45								
I	ARM A	7.27	8.48	0.857	--	4.4	5.1	72.1	0.747
I	ARM B	7.38	21.81	0.338	--	0.5	0.5	7.6	0.069
I	ARM C	14.06	14.15	0.994	--	13.9	19.1	250.5	1.389

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.45-09.00								
I	ARM A	5.93	8.83	0.672	--	5.1	2.2	37.5	0.393
I	ARM B	6.02	23.04	0.261	--	0.5	0.4	5.4	0.059
I	ARM C	11.48	14.29	0.803	--	19.1	4.6	122.6	0.690

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PESDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	4.97	9.58	0.518	-	2.2	1.1	17.8	0.223
ARM B	5.04	24.25	0.208	-	0.4	0.3	4.0	0.052
ARM C	9.61	14.40	0.667	-	4.6	2.1	34.4	0.223

QUEUE AT ARM A

TIME SEGMENT	NO. OF VEHICLES IN QUEUE
08.00	1.0 *
08.15	1.8 ***
08.30	4.4 *****
08.45	5.1 *****
09.00	2.2 **
09.15	1.1 *

QUEUE AT ARM B

TIME SEGMENT	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.3
08.30	0.5 *
08.45	0.5 *
09.00	0.4
09.15	0.3

QUEUE AT ARM C

TIME SEGMENT	NO. OF VEHICLES IN QUEUE
08.00	1.9 **
08.15	3.7 *****
08.30	13.9 *****
08.45	19.1 *****
09.00	4.6 *****
09.15	2.1 **

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	QUEUEING DELAY	INCLUSIVE QUEUEING DELAY
I	I (VEH)	I (MIN)	I (MIN)
A	545.1	363.4	221.0
B	553.3	368.9	33.4
C	1054.3	702.9	630.7
ALL	2152.7	1435.2	885.0

320120913P

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

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Shawbridge Street Waterloo Road PM.vai"
 (drive-on-the-left) at 16:45:59 on Friday, 5 October 2012

FILE PROPERTIES

RUN TITLE: clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Shawbridge St
 ARM B - Waterloo Road S
 ARM C - Waterloo Road N

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (M)	I	E (M)	I	Ln(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.35	I	4.35	I	0.00	I	4.35	I	8.50	I	6.50	I	0.00	I	0.572	I	12.341	I	
I	ARM B	I	3.65	I	3.65	I	0.00	I	3.65	I	18.90	I	21.00	I	0.00	I	1.488	I	29.873	I	
I	ARM C	I	3.85	I	3.85	I	0.00	I	3.85	I	12.70	I	9.30	I	0.00	I	0.549	I	14.958	I	

V = approach half-width Ln = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m
 WARNING ARM B Entry corner kerb line distance is in range 20m-40m
 provided only for compatibility with accidents analysis
 Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

----- I13

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

TIME PERIOD BEGINS (16.45) AND ENDS (18.15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SET TITLE: 2012 Base + Dev

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)								
		I	I	I	I	I	I						
I	ARM	I	FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	BEFORE	I	AT TOP	I	AFTER
I		I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	4.82	I	7.24	I	4.82
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.99	I	7.48	I	4.99
I	ARM C	I	15.00	I	45.00	I	75.00	I	10.66	I	15.99	I	10.66

I15

MAND SET TITLE: 2012 Base + Dev

I	I	TURNING PROPORTIONS			I					
		I	I	I						
I	I	TURNING COUNTS			I					
		I	I	I						
I	I	(PERCENTAGE OF H.V.S)			I					
		I	I	I						
I	TIME	I	FROM/TO	I	ARM A	I	ARM B	I	ARM C	I
I	16 45 - 18 15	I		I		I		I		I
I		I	ARM A	I	0.000	I	0.334	I	0.666	I
I		I		I	0.0	I	129.0	I	257.0	I
I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I	ARM B	I	0.226	I	0.000	I	0.774	I
I		I		I	90.0	I	0.0	I	309.0	I
I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I	ARM C	I	0.390	I	0.610	I	0.000	I
I		I		I	333.0	I	520.0	I	0.0	I
I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I

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QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

I	I	I	I	I	I	I	I	I	I	I	I	I	I				
														I	I	I	I
I	TIME	I	DEMAND	I	CAPACITY	I	DEMAND/	I	PEDESTRIAN	I	START	I	END	I	DELAY	I	AVERAGE DELAY
I		I	(VEH/MIN)	I	(VEH/MIN)	I	CAPACITY	I	FLOW	I	QUEUE	I	QUEUE	I	(VEH. MIN/	I	PER ARRIVING
I		I		I		I	(RPC)	I	(PEDS/MIN)	I	(VEHS)	I	(VEHS)	I	TIME SEGMENT)	I	VEHICLE (MIN)
I	16.45-17 00	I	4.84	I	8.67	I	0.559	I	--	I	0.0	I	1.2	I	16.7	I	0.251
I	ARM A	I		I		I		I	--	I	0.0	I	0.2	I	3.6	I	0.050
I	ARM B	I	5.01	I	25.16	I	0.199	I	--	I	0.0	I	2.8	I	36.6	I	0.251
I	ARM C	I	10.70	I	14.34	I	0.746	I	--	I	0.0	I	2.8	I		I	
I	17.00-17 15	I	5.78	I	7.97	I	0.725	I	--	I	1.2	I	2.4	I	32.2	I	0.425
I	ARM A	I	5.98	I	24.23	I	0.247	I	--	I	0.2	I	0.3	I	4.8	I	0.055
I	ARM B	I	12.78	I	14.22	I	0.899	I	--	I	2.8	I	6.7	I	82.2	I	0.521
I	ARM C	I		I		I		I	--	I		I		I		I	
I	17.15-17 30	I	7.08	I	7.51	I	0.943	I	--	I	2.4	I	7.5	I	84.0	I	1.012
I	ARM A	I	7.32	I	23.19	I	0.316	I	--	I	0.3	I	0.5	I	6.8	I	0.063
I	ARM B	I	15.65	I	14.05	I	1.114	I	--	I	6.7	I	34.0	I	313.5	I	1.714
I	ARM C	I		I		I		I	--	I		I		I		I	
I	17.30-17 45	I	7.08	I	7.46	I	0.950	I	--	I	7.5	I	9.7	I	130.1	I	1.455
I	ARM A	I	7.32	I	22.99	I	0.318	I	--	I	0.5	I	0.5	I	6.9	I	0.064
I	ARM B	I	15.65	I	14.05	I	1.114	I	--	I	34.0	I	58.7	I	695.6	I	3.492
I	ARM C	I		I		I		I	--	I		I		I		I	
I	17.45-18 00	I	5.78	I	7.47	I	0.775	I	--	I	9.7	I	4.0	I	78.6	I	0.883
I	ARM A	I	5.98	I	23.78	I	0.251	I	--	I	0.5	I	0.3	I	5.1	I	0.056
I	ARM B	I	12.78	I	14.22	I	0.899	I	--	I	58.7	I	40.7	I	745.7	I	3.585
I	ARM C	I		I		I		I	--	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	4.84	7.74	0.626	-	4.0	1.8	29.9	0.381
ARM B	5.01	24.93	0.201	-	0.3	0.3	3.8	0.050
ARM C	10.70	14.34	0.747	-	40.7	3.5	264.2	1.387

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.2 *
17.15	2.4 **
17.30	7.5 *****
17.45	9.7 *****
18.00	4.0 ****
18.15	1.8 **

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.5
17.45	0.5
18.00	0.3
18.15	0.3

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	2.8 ***
17.15	6.7 *****
17.30	34.0 *****
17.45	58.7 *****
18.00	40.7 *****
18.15	3.5 ***

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN)
A	531.3	371.6	371.8
B	549.2	31.2	31.2
C	1174.1	2137.8	2138.3
ALL	2254.6	2540.5	2541.2

* 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)
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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Shawbridge Street Waterloo Road AM vai"
(drive-on-the-left) at 16:39:01 on Friday, 5 October 2012

LE PROPERTIES

RUN TITLE: clitheroe
LOCATION:
DATE: 05/10/12
CLIENT:
NUMERATOR: Administrator
JOB NUMBER:
STATUS:
DESCRIPTION:

PUT DATA

ARM A - Shawbridge St
ARM B - Waterloo Road S
ARM C - Waterloo Road N

NI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
AD SURFACE CONDITION: NORMAL

Table with 15 columns: ARM, I, V (M), I, E (M), I, Lm(M), I, Vm(M), I, A (M), I, K (M), I, G (%), I, SLOPE, I, INTERCEPT, I. Rows include ARM A, B, and C with various geometric parameters.

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m
WARNING ARM B Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
eat capacities with increasing caution

TRAFFIC DEMAND DATA

ly sets included in the current run are shown

SCALING FACTORS

Table with 3 columns: ARM, I, FLOW SCALE(%), I. Rows include ARM A, B, and C with a flow scale of 100.

ME PERIOD BEGINS (07 45) AND ENDS (09 15)
NGTH OF TIME PERIOD - (90) MINUTES
LENGTH OF TIME SEGMENT - (15) MINUTES

MAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

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DEMAND SET IIIIE: 2017 Base + Dev

ARM	NUMBER OF MINUTES FROM START WHEN 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	5.16	7.74	5.16
ARM B	15.00	45.00	75.00	5.21	7.82	5.21
ARM C	15.00	45.00	75.00	9.96	14.94	9.96

DEMAND SET IIIIE: 2017 Base + Dev

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.189	0.811
		0.0	78.0	335.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.252	0.000	0.748
		105.0	0.0	312.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.389	0.611	0.000
		310.0	487.0	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00								
ARM A	5.18	9.56	0.542	-	0.0	1.1	15.9	0.221
ARM B	5.23	24.17	0.216	-	0.0	0.3	4.0	0.053
ARM C	10.00	14.38	0.695	-	0.0	2.2	29.6	0.214

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15								
ARM A	6.19	9.02	0.686	-	1.1	2.0	28.0	0.338
ARM B	6.25	23.03	0.271	-	0.3	0.4	5.5	0.060
ARM C	11.94	14.27	0.837	-	2.2	4.5	58.4	0.381

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30								
ARM A	7.58	8.50	0.891	-	2.0	5.7	67.6	0.735
ARM B	7.65	21.68	0.353	-	0.4	0.5	8.0	0.071
ARM C	14.63	14.11	1.036	-	4.5	19.6	194.8	1.130

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45								
ARM A	7.58	8.42	0.900	-	5.7	6.8	94.7	0.967
ARM B	7.65	21.51	0.356	-	0.5	0.5	8.2	0.072
ARM C	14.63	14.11	1.036	-	19.6	30.3	376.4	1.994

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00								
ARM A	6.19	8.53	0.725	-	6.8	2.9	51.9	0.525
ARM B	6.25	22.68	0.275	-	0.5	0.4	5.8	0.061
ARM C	11.94	14.27	0.837	-	30.3	6.7	249.6	1.358

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	5.18	9.44	0.549	-	2.9	1.3	20.6	0.247
ARM B	5.23	23.97	0.218	-	0.4	0.3	4.3	0.053
ARM C	10.00	14.38	0.695	-	6.7	2.4	41.7	0.259

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.1 *
08.15	2.0 **
08.30	5.7 *****
08.45	6.8 *****
09.00	2.9 ***
09.15	1.3 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.4
08.30	0.5 *
08.45	0.5 *
09.00	0.4
09.15	0.3

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	2.2 **
08.15	4.5 ****
08.30	19.6 *****
08.45	30.3 *****
09.00	6.7 *****
09.15	2.4 **

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
I	(VEH)	(MIN)	(MIN)
A	568.5	278.7	278.7
B	574.0	35.8	35.8
C	1097.0	950.6	950.8
ALL	2239.4	1265.1	1265.4

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

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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

Run with file:-
 "a:\Project_008_02 Clitheroe DTFC\Post Appeal 250912\ARCADY\Shawbridge Street Waterloo Road PM vai"
 (drive-on-the-left) at 16:48:23 on Friday, 5 October 2012

FILE PROPERTIES

RUN TITLE: clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Shawbridge St
 ARM B - Waterloo Road S
 ARM C - Waterloo Road N

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

ARM	V (M)	E (M)	Lm (M)	Vm (M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT
ARM A	4.35	4.35	0.00	4.35	8.50	6.50	0.00	0.572	12.341
ARM B	3.65	3.65	0.00	3.65	18.90	21.00	0.00	1.488	29.873
ARM C	3.85	3.85	0.00	3.85	12.70	9.30	0.00	0.549	14.958

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m
 WARNING ARM B Entry corner kerb line distance is in range 20m-40m
 provided only for compatibility with accidents analysis.
 Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

I13

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SET IIIIE: 2017 Base + Dev

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	ARM	I	I	I	I	I	I
		FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER
		TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	I	15.00	45.00	75.00	5.04	7.56	5.04
ARM B	I	15.00	45.00	75.00	5.20	7.80	5.20
ARM C	I	15.00	45.00	75.00	11.13	16.69	11.13

MAND SET IIIIE: 2017 Base + Dev

I	I	TURNING PROPORTIONS			
		I	I	I	
I	I	TURNING COUNTS			
		I	I	I	
		(PERCENTAGE OF H.V.S)			
TIME		FROM/TO	ARM A	ARM B	ARM C
16 45 - 18 15	ARM A	0.000	0.335	0.665	
		0.0	135.0	268.0	
		(0.0)	(0.0)	(0.0)	
	ARM B	0.226	0.000	0.774	
		94.0	0.0	322.0	
		(0.0)	(0.0)	(0.0)	
	ARM C	0.391	0.609	0.000	
		348.0	542.0	0.0	
		(0.0)	(0.0)	(0.0)	

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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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00								
ARM A	5.06	8.53	0.593	-	0.0	1.4	18.9	0.274
ARM B	5.22	24.96	0.209	-	0.0	0.3	3.9	0.051
ARM C	11.17	14.31	0.780	-	0.0	3.3	42.5	0.282

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15								
ARM A	6.04	7.83	0.771	-	1.4	3.0	38.7	0.501
ARM B	6.23	24.00	0.260	-	0.3	0.3	5.2	0.056
ARM C	13.33	14.18	0.940	-	3.3	9.1	105.8	0.658

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30								
ARM A	7.40	7.50	0.986	-	3.0	9.8	105.5	1.237
ARM B	7.63	23.01	0.332	-	0.3	0.5	7.3	0.065
ARM C	16.33	14.01	1.166	-	9.1	45.7	416.5	2.208

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45								
ARM A	7.40	7.47	0.990	-	9.8	13.6	177.2	1.900
ARM B	7.63	22.80	0.335	-	0.5	0.5	7.5	0.066
ARM C	16.33	14.01	1.166	-	45.7	80.9	949.8	4.680

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00								
ARM A	6.04	7.46	0.810	-	13.6	5.3	118.1	1.303
ARM B	6.23	23.37	0.267	-	0.5	0.4	5.6	0.058
ARM C	13.33	14.18	0.940	-	80.9	70.7	1137.0	5.415

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	5.06	7.42	0.681	-	5.3	2.3	40.4	0.496
ARM B	5.22	24.68	0.212	-	0.4	0.3	4.1	0.051
ARM C	11.17	14.31	0.780	-	70.7	26.6	730.1	3.510

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.4 *
17.15	3.0 ***
17.30	9.8 *****
17.45	13.6 *****
18.00	5.3 *****
18.15	2.3 **

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.3
17.30	0.5
17.45	0.5 *
18.00	0.4
18.15	0.3

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	3.3 ***
17.15	9.1 *****
17.30	45.7 *****
17.45	80.9 *****
18.00	70.7 *****
18.15	26.6 *****

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
I	I	I	I
	(VEH)	(MIN)	(MIN)
A	554.7	498.8	499.2
B	572.6	33.5	33.5
C	1225.0	3381.5	3406.3
ALL	2352.3	3913.8	3938.9

* 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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 RG40 3GA UK

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

Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Queensway Whalley Road AM vao (drive-on-the-left) at 16:00:30 on Friday, 5 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 NUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

320120913P

INPUT DATA

ARM A - Whalley Rd N
 ARM B - Queensway
 ARM C - Whalley Rd S

ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

ARM	I	V (M)	E (M)	Lm (M)	Vm (M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT
I	I	I	I	I	I	I	I	I	I	I (PCU/MIN)
ARM A	I	4.00	5.90	10.00	4.00	10.00	7.10	0.00	0.503	15.331
ARM B	I	3.40	4.00	5.00	3.50	20.00	19.00	0.00	0.787	18.259
ARM C	I	4.35	4.35	0.00	4.35	18.50	19.00	0.00	0.810	21.705

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

AFFIC DEMAND DATA

Only sets included in the current run are shown

LOADING FACTORS

113

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

TIME PERIOD BEGINS (07:45) AND ENDS (09:15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

MAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2012 Base

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)								
		I	I	I	I	I	I						
I	ARM	I	I	I	I	I	I						
I		I	I	I	I	I	I						
I		I	I	I	I	I	I						
I		I	I	I	I	I	I						
I	ARM A	I	15.00	I	45.00	I	75.00	I	6.82	I	10.24	I	6.82
I	ARM B	I	15.00	I	45.00	I	75.00	I	5.14	I	7.71	I	5.34
I	ARM C	I	15.00	I	45.00	I	75.00	I	7.47	I	11.21	I	7.47

DEMAND SET TITLE: 2012 Base

I	I	TURNING PROPORTIONS			I				
		I	I	I					
I	I	TURNING COUNTS			I				
		I	I	I					
I	I	(PERCENTAGE OF H.V.S)			I				
		I	I	I					
I	TIME	I	I	I	I	I	I	I	
I		I	I	I	I	I	I	I	
I	07.45 - 09.15	I	ARM A	I	0.000	I	0.306	I	0.694
I		I		I	0.0	I	167.0	I	379.0
I		I		I	(0.0)	I	(0.0)	I	(0.0)
I		I	ARM B	I	0.051	I	0.000	I	0.949
I		I		I	21.0	I	0.0	I	390.0
I		I		I	(0.0)	I	(0.0)	I	(0.0)
I		I	ARM C	I	0.565	I	0.435	I	0.000
I		I		I	338.0	I	260.0	I	0.0
I		I		I	(0.0)	I	(0.0)	I	(0.0)
I		I		I		I		I	

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	07.45-08.00								
I	ARM A	6.85	13.70	0.500	-	0.0	1.0	13.9	0.143
I	ARM B	5.16	14.55	0.354	-	0.0	0.5	7.8	0.106
I	ARM C	7.50	21.49	0.349	-	0.0	0.5	7.8	0.071

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.00-08.15								
I	ARM A	8.18	13.37	0.612	-	1.0	1.5	21.7	0.190
I	ARM B	6.16	13.81	0.446	-	0.5	0.8	11.5	0.130
I	ARM C	8.96	21.45	0.418	-	0.5	0.7	10.4	0.080

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.15-08.30								
I	ARM A	10.02	12.94	0.775	-	1.5	3.1	42.2	0.320
I	ARM B	7.54	12.85	0.587	-	0.8	1.4	19.6	0.186
I	ARM C	10.97	21.39	0.513	-	0.7	1.0	15.1	0.096

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.30-08.45								
I	ARM A	10.02	12.93	0.775	-	3.1	3.3	48.4	0.339
I	ARM B	7.54	12.79	0.590	-	1.4	1.4	21.0	0.191
I	ARM C	10.97	21.39	0.513	-	1.0	1.0	15.7	0.096

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.45-09.00								
I	ARM A	8.18	13.37	0.612	-	3.3	1.6	26.2	0.201
I	ARM B	6.16	13.73	0.448	-	1.4	0.8	12.9	0.133
I	ARM C	8.96	21.45	0.418	-	1.0	0.7	11.1	0.080

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	6.85	13.69	0.501	-	1.6	1.0	16.0	0.148
ARM B	5.16	14.49	0.356	-	0.8	0.6	8.6	0.108
ARM C	7.50	21.49	0.349	-	0.7	0.5	8.3	0.072

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.0 *
08.15	1.5 **
08.30	3.1 ***
08.45	3.3 ****
09.00	1.6 **
09.15	1.0 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5 *
08.15	0.8 *
08.30	1.4 *
08.45	1.4 *
09.00	0.8 *
09.15	0.6 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5 *
08.15	0.7 *
08.30	1.0 *
08.45	1.0 *
09.00	0.7 *
09.15	0.5 *

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	QUEUEING (VEH/H)	INCLUSIVE QUEUEING (MIN)	QUEUEING * (MIN/VEH)	INCLUSIVE QUEUEING * (MIN)	INCLUSIVE QUEUEING * (MIN/VEH)
A	751.5	501.0	168.5	0.22	168.5	0.22
B	565.7	377.1	81.5	0.14	81.5	0.14
C	823.1	548.7	68.4	0.08	68.4	0.08
ALL	2140.3	1426.9	318.4	0.15	318.4	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

----- end of file -----

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Queensway Whalley Road PM vai"
 (drive-on-the-left) at 16:13:17 on Friday, 5 October 2012

FILE PROPERTIES

 RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

 ARM A - Whalley Rd N
 ARM B - Queensway
 ARM C - Whalley Rd S

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (M)	I	E (M)	I	Ln(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
I	ARM A	I	4.00	I	5.90	I	10.00	I	4.00	I	10.00	I	7.10	I	0.00	I	0.503	I	15.331	I
I	ARM B	I	3.40	I	4.00	I	5.00	I	3.50	I	20.00	I	19.00	I	0.00	I	0.787	I	18.259	I
I	ARM C	I	4.35	I	4.35	I	0.00	I	4.35	I	18.50	I	19.00	I	0.00	I	0.810	I	21.705	I

V = approach half-width Ln = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

----- 113

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

TIME PERIOD BEGINS (16.45) AND ENDS (18.15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET IITILE: 2012 Base

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER	RAIR OF FLOW (VEH/MIN)
ARM A	15.00	45.00	75.00	6.84	10.26	6.84	6.84
ARM B	15.00	45.00	75.00	7.49	11.23	7.49	7.49
ARM C	15.00	45.00	75.00	6.99	10.48	6.99	6.99

DEMAND SET IIITILE: 2012 Base

TIME	FROM/TO	ARM A	ARM B	ARM C	TURNING PROPORTIONS	TURNING COUNTS	(PERCENTAGE OF H.V.S)
16.45 - 18.15	ARM A	0.000	0.280	0.720	0.0	153.0	394.0
	ARM B	0.125	0.000	0.875	75.0	0.0	524.0
	ARM C	0.635	0.365	0.000	355.0	204.0	0.0

320120913P

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	ENDI QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00	ARM A: 6.86	14.05	0.489	-	0.0	0.9	13.3	0.137
	ARM B: 7.52	14.40	0.522	-	0.0	1.1	15.2	0.142
	ARM C: 7.01	20.95	0.335	-	0.0	0.5	7.3	0.071

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	ENDI QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15	ARM A: 8.20	13.80	0.594	-	0.9	1.4	20.3	0.176
	ARM B: 8.97	13.63	0.658	-	1.1	1.9	26.0	0.210
	ARM C: 8.38	20.80	0.403	-	0.5	0.7	9.8	0.080

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	ENDI QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30	ARM A: 10.04	13.45	0.746	-	1.4	2.7	37.4	0.278
	ARM B: 10.99	12.62	0.871	-	1.9	5.4	66.7	0.486
	ARM C: 10.26	20.62	0.498	-	0.7	1.0	14.2	0.096

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	ENDI QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45	ARM A: 10.04	13.45	0.746	-	2.7	2.8	42.0	0.290
	ARM B: 10.99	12.57	0.874	-	5.4	6.0	86.5	0.585
	ARM C: 10.26	20.60	0.498	-	1.0	1.0	14.7	0.097

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	STARTI QUEUE (VEHS)	ENDI QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00	ARM A: 8.20	13.79	0.594	-	2.8	1.5	24.1	0.184
	ARM B: 8.97	13.56	0.662	-	6.0	2.0	35.3	0.244
	ARM C: 8.38	20.77	0.403	-	1.0	0.7	10.5	0.081

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	6.86	14.04	0.489	-	1.5	1.0	15.2	0.141
ARM B	7.52	14.35	0.524	-	2.0	1.1	17.7	0.149
ARM C	7.01	20.94	0.335	-	0.7	0.5	7.8	0.072

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.9 *
17.15	1.4 *
17.30	2.7 ***
17.45	2.8 ***
18.00	1.5 **
18.15	1.0 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.1 *
17.15	1.9 **
17.30	5.4 *****
17.45	6.0 *****
18.00	2.0 **
18.15	1.1 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.5
17.15	0.7 *
17.30	1.0 *
17.45	1.0 *
18.00	0.7 *
18.15	0.5 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	752.9	152.4	0.20
B	824.5	247.4	0.30
C	769.4	64.3	0.08
ALL	2346.8	464.2	0.20

* 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 =====

ARCADY 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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Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Queensway Whalley Road AM.vai"
 (drive-on-the-left) at 16:04:32 on Friday, 5 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 NUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

PVI DATA

 ARM A - Whalley Rd N
 ARM B - Queensway
 ARM C - Whalley Rd S

ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

ARM	I	V (M)	I	E (M)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I
	I		I		I		I		I		I		I		I		I	(PCU/MIN)	I
ARM A	I	4.00	I	5.90	I	10.00	I	4.00	I	10.00	I	7.10	I	0.00	I	0.503	I	15.331	I
ARM B	I	3.40	I	4.00	I	5.00	I	3.50	I	20.00	I	19.00	I	0.00	I	0.787	I	18.259	I
ARM C	I	4.35	I	4.35	I	0.00	I	4.35	I	18.50	I	19.00	I	0.00	I	0.810	I	21.705	I

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

LOADING FACTORS

----- I13

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

TIME PERIOD BEGINS (07 45) AND ENDS (09 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SET TITLE: 2017 Base

----- I15									
I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)			I	
I	ARM	I	I	I	I	I	I	I	I
I	I	I	I	I	I	I	I	I	I
I	I	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK	I	I
I	ARM A	I 15.00	I 45.00	I 75.00	I 7.13	I 10.69	I 7.13	I	I
I	ARM B	I 15.00	I 45.00	I 75.00	I 5.36	I 8.04	I 5.36	I	I
I	ARM C	I 15.00	I 45.00	I 75.00	I 7.80	I 11.70	I 7.80	I	I

DEMAND SET TITLE: 2017 Base

----- I33									
I	TURNING PROPORTIONS				I				
I	TURNING COUNTS				I				
I	(PERCENTAGE OF H.V.S)				I				
I	-----								
I	TIME	FROM/TO	ARM A	ARM B	ARM C	I			
I	07.45 - 09.15	I	I	I	I	I			
I	ARM A	I 0.000	I 0.305	I 0.695	I				
I	I	I 0.0	I 174.0	I 396.0	I				
I	I	I (0.0)	I (0.0)	I (0.0)	I				
I	ARM B	I 0.051	I 0.000	I 0.949	I				
I	I	I 22.0	I 0.0	I 407.0	I				
I	I	I (0.0)	I (0.0)	I (0.0)	I				
I	ARM C	I 0.566	I 0.434	I 0.000	I				
I	I	I 353.0	I 271.0	I 0.0	I				
I	I	I (0.0)	I (0.0)	I (0.0)	I				
I	I	I	I	I	I				

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

----- I70									
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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	07.45-08.00								
I	ARM A	7.15	13.63	0.525	--	0.0	1.1	15.3	0.151
I	ARM B	5.38	14.39	0.374	--	0.0	0.6	8.5	0.110
I	ARM C	7.83	21.48	0.364	--	0.0	0.6	8.3	0.073

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.00-08.15								
I	ARM A	8.54	13.29	0.643	--	1.1	1.7	24.5	0.207
I	ARM B	6.43	13.61	0.472	--	0.6	0.9	12.7	0.138
I	ARM C	9.35	21.44	0.436	--	0.6	0.8	11.2	0.083

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.15-08.30								
I	ARM A	10.46	12.84	0.815	--	1.7	3.9	50.9	0.376
I	ARM B	7.87	12.62	0.624	--	0.9	1.6	22.5	0.207
I	ARM C	11.45	21.38	0.536	--	0.8	1.1	16.5	0.100

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.30-08.45								
I	ARM A	10.46	12.83	0.815	--	3.9	4.1	60.4	0.412
I	ARM B	7.87	12.55	0.627	--	1.6	1.6	24.5	0.213
I	ARM C	11.45	21.38	0.536	--	1.1	1.1	17.1	0.101

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.45-09.00								
I	ARM A	8.54	13.28	0.643	--	4.1	1.9	30.7	0.224
I	ARM B	6.43	13.51	0.476	--	1.6	0.9	14.5	0.143
I	ARM C	9.35	21.44	0.436	--	1.1	0.8	12.0	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	7.15	13.62	0.525	-	1.9	1.1	17.8	0.157
ARM B	5.38	14.22	0.376	-	0.9	0.6	9.4	0.112
ARM C	7.83	21.48	0.365	-	0.8	0.6	8.9	0.073

EUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.1 *
08.15	1.7 **
08.30	3.9 ****
08.45	4.1 ****
09.00	1.9 **
09.15	1.1 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.6 *
08.15	0.9 *
08.30	1.6 **
08.45	1.6 **
09.00	0.9 *
09.15	0.6 *

EUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.6 *
08.15	0.8 *
08.30	1.1 *
08.45	1.1 *
09.00	0.8 *
09.15	0.6 *

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
I	I	I	I
I	(VEH)	(MIN)	(MIN)
A	784.6	199.5	199.6
B	590.5	92.1	92.2
C	858.9	74.1	74.1
ALL	2233.9	365.7	365.8

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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DIPC\Post Appeal 250912\ARCADY\Queensway Whalley Road PM vao (drive-on-the-left) at 16:14:48 on Friday, 5 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Whalley Rd N
 ARM B - Queensway
 ARM C - Whalley Rd S

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (M)	I	E (M)	I	Lm (M)	I	Vm (M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
I	ARM A	I	4.00	I	5.90	I	10.00	I	4.00	I	10.00	I	7.10	I	0.00	I	0.503	I	15.331	I	
I	ARM B	I	3.40	I	4.00	I	5.00	I	3.50	I	20.00	I	19.00	I	0.00	I	0.787	I	18.259	I	
I	ARM C	I	4.35	I	4.35	I	0.00	I	4.35	I	18.50	I	19.00	I	0.00	I	0.810	I	21.705	I	

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

----- I13

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SEI TITLE: 2017 Base

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	ARM	I	I	I	I	I	I
I		I	I	I	I	I	I
I		I	I	I	I	I	I
I		I	I	I	I	I	I
	ARM A	15.00	45.00	75.00	7.15	10.73	7.15
	ARM B	15.00	45.00	75.00	7.82	11.74	7.82
	ARM C	15.00	45.00	75.00	7.30	10.95	7.30

DEMAND SEI TITLE: 2017 Base

I	I	TURNING PROPORTIONS			
		I	I	I	
I	I	TURNING COUNTS			
		I	I	I	
I	I	(PERCENTAGE OF H.V.S)			
		I	I	I	
I	TIME	I	ARM A	ARM B	ARM C
	16.45 - 16.15				
	ARM A	0.000	0.280	0.720	
	ARM B	0.00	160.0	412.0	
	ARM C	0.00	0.00	0.00	
	ARM B	0.125	0.000	0.875	
	ARM C	0.635	0.365	0.000	

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QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00								
ARM A	7.18	13.99	0.513	-	0.0	1.0	14.6	0.144
ARM B	7.85	14.23	0.552	-	0.0	1.2	17.0	0.153
ARM C	7.33	20.92	0.350	-	0.0	0.5	7.8	0.073

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15								
ARM A	8.57	13.73	0.624	-	1.0	1.6	22.8	0.191
ARM B	9.38	13.42	0.699	-	1.2	2.2	30.6	0.240
ARM C	8.75	20.76	0.421	-	0.5	0.7	10.6	0.083

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30								
ARM A	10.50	13.37	0.785	-	1.6	3.3	44.5	0.322
ARM B	11.49	12.38	0.928	-	2.2	7.9	90.9	0.650
ARM C	10.72	20.58	0.521	-	0.7	1.1	15.6	0.101

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45								
ARM A	10.50	13.37	0.785	-	3.3	3.5	51.3	0.343
ARM B	11.49	12.32	0.933	-	7.9	9.6	133.3	0.898
ARM C	10.72	20.56	0.521	-	1.1	1.1	16.2	0.102

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00								
ARM A	8.57	13.72	0.625	-	3.5	1.7	27.8	0.203
ARM B	9.38	13.34	0.703	-	9.6	2.5	49.3	0.321
ARM C	8.75	20.71	0.422	-	1.1	0.7	11.4	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	7.18	13.98	0.513	-	1.7	1.1	16.9	0.149
ARM B	7.85	14.17	0.554	-	2.5	1.3	20.2	0.162
ARM C	7.33	20.90	0.351	-	0.7	0.5	8.3	0.074

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.0 *
17.15	1.6 **
17.30	3.3 ***
17.45	3.5 ***
18.00	1.7 **
18.15	1.1 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.2 *
17.15	2.2 **
17.30	7.9 *****
17.45	9.6 *****
18.00	2.5 ***
18.15	1.3 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.5 *
17.15	0.7 *
17.30	1.1 *
17.45	1.1 *
18.00	0.7 *
18.15	0.5 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	QUEUEING * DELAY *	INCLUSIVE QUEUEING * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN)
A	787.3	524.9	177.9
B	861.6	574.4	341.3
C	803.8	535.9	69.8
ALL	2452.8	1635.2	589.0

* 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Run with file:-
 a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Queensway Whalley Road AM vai
 (drive-on-the-left) at 16:05:47 on Friday, 5 October 2012

LE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 NUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

FUI DATA

ARM A - Whalley Rd N
 ARM B - Queensway
 ARM C - Whalley Rd S

NI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

ARM	I	V (M)	I	E (M)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
ARM A	I	4.00	I	5.90	I	10.00	I	4.00	I	10.00	I	7.10	I	0.00	I	0.503	I	15.331	I
ARM B	I	3.40	I	4.00	I	5.00	I	3.50	I	20.00	I	19.00	I	0.00	I	0.787	I	18.259	I
ARM C	I	4.35	I	4.35	I	0.00	I	4.35	I	18.50	I	19.00	I	0.00	I	0.810	I	21.705	I

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

AFFIC DEMAND DATA

Only sets included in the current run are shown

AIING FACTORS

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

ME PERIOD BEGINS (07 45) AND ENDS (09 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

MAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SET TITLE: 2012 Base + Dev

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)								
		I	I	I	I	I	I						
I	I	I	I	I	I	I	I						
I	I	I	I	I	I	I	I						
I	I	I	I	I	I	I	I						
I	I	I	I	I	I	I	I						
I	ARM A	I	15 00	I	45 00	I	75 00	I	7.25	I	10.88	I	7.25
I	ARM B	I	15 00	I	45 00	I	75 00	I	5.65	I	8.48	I	5.65
I	ARM C	I	15 00	I	45 00	I	75 00	I	7.70	I	11.55	I	7.70

DEMAND SET TITLE: 2012 Base + Dev

I	I	TURNING PROPORTIONS							
		I	I	I					
I	I	I	I	I					
I	I	I	I	I					
I	I	I	I	I					
I	I	I	I	I					
I	TIME	I	FROM/TO	I	ARM A	I	ARM B	I	ARM C
I	07.45 - 09.15	I		I		I		I	
I		I	ARM A	I	0.000	I	0.319	I	0.681
I		I		I	0.0	I	185.0	I	395.0
I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)
I		I		I		I		I	
I		I	ARM B	I	0.055	I	0.000	I	0.945
I		I		I	25.0	I	0.0	I	427.0
I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)
I		I		I		I		I	
I		I	ARM C	I	0.565	I	0.435	I	0.000
I		I		I	348.0	I	268.0	I	0.0
I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)
I		I		I		I		I	

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN. TIME SEGMENT

I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	TIME	I	DEMAND	I	CAPACITY	I	DEMAND/	I	PEDESTRIAN	I	START	I	END	I	DELAY	I	AVERAGE DELAY
I		I	(VEH/MIN)	I	(VEH/MIN)	I	CAPACITY	I	FLOW	I	QUEUE	I	QUEUE	I	(VEH.MIN/	I	PER ARRIVING
I		I		I		I	(RFC)	I	(PEDS/MIN)	I	(VEHS)	I	(VEHS)	I	TIME SEGMENT)	I	VEHICLE (MIN)
I		I		I		I		I		I		I		I		I	
I	07.45-08.00	I		I		I		I		I		I		I		I	
I	ARM A	I	7.28	I	13.65	I	0.533	I	--	I	0.0	I	1.1	I	15.8	I	0.153
I	ARM B	I	5.67	I	14.40	I	0.394	I	--	I	0.0	I	0.6	I	9.2	I	0.113
I	ARM C	I	7.73	I	21.45	I	0.360	I	--	I	0.0	I	0.6	I	8.1	I	0.072

I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	TIME	I	DEMAND	I	CAPACITY	I	DEMAND/	I	PEDESTRIAN	I	START	I	END	I	DELAY	I	AVERAGE DELAY
I		I	(VEH/MIN)	I	(VEH/MIN)	I	CAPACITY	I	FLOW	I	QUEUE	I	QUEUE	I	(VEH.MIN/	I	PER ARRIVING
I		I		I		I	(RFC)	I	(PEDS/MIN)	I	(VEHS)	I	(VEHS)	I	TIME SEGMENT)	I	VEHICLE (MIN)
I		I		I		I		I		I		I		I		I	
I	08.00-08.15	I		I		I		I		I		I		I		I	
I	ARM A	I	8.69	I	13.31	I	0.653	I	--	I	1.1	I	1.8	I	25.5	I	0.212
I	ARM B	I	6.77	I	13.63	I	0.497	I	--	I	0.6	I	1.0	I	14.0	I	0.145
I	ARM C	I	9.23	I	21.40	I	0.431	I	--	I	0.6	I	0.8	I	11.0	I	0.082

I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	TIME	I	DEMAND	I	CAPACITY	I	DEMAND/	I	PEDESTRIAN	I	START	I	END	I	DELAY	I	AVERAGE DELAY
I		I	(VEH/MIN)	I	(VEH/MIN)	I	CAPACITY	I	FLOW	I	QUEUE	I	QUEUE	I	(VEH.MIN/	I	PER ARRIVING
I		I		I		I	(RFC)	I	(PEDS/MIN)	I	(VEHS)	I	(VEHS)	I	TIME SEGMENT)	I	VEHICLE (MIN)
I		I		I		I		I		I		I		I		I	
I	08.15-08.30	I		I		I		I		I		I		I		I	
I	ARM A	I	10.64	I	12.86	I	0.827	I	--	I	1.8	I	4.2	I	54.1	I	0.395
I	ARM B	I	8.29	I	12.64	I	0.656	I	--	I	1.0	I	1.8	I	25.5	I	0.224
I	ARM C	I	11.30	I	21.34	I	0.530	I	--	I	0.8	I	1.1	I	16.1	I	0.099

I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	TIME	I	DEMAND	I	CAPACITY	I	DEMAND/	I	PEDESTRIAN	I	START	I	END	I	DELAY	I	AVERAGE DELAY
I		I	(VEH/MIN)	I	(VEH/MIN)	I	CAPACITY	I	FLOW	I	QUEUE	I	QUEUE	I	(VEH.MIN/	I	PER ARRIVING
I		I		I		I	(RFC)	I	(PEDS/MIN)	I	(VEHS)	I	(VEHS)	I	TIME SEGMENT)	I	VEHICLE (MIN)
I		I		I		I		I		I		I		I		I	
I	08.30-08.45	I		I		I		I		I		I		I		I	
I	ARM A	I	10.64	I	12.86	I	0.828	I	--	I	4.2	I	4.4	I	65.1	I	0.440
I	ARM B	I	8.29	I	12.57	I	0.660	I	--	I	1.8	I	1.9	I	28.0	I	0.233
I	ARM C	I	11.30	I	21.33	I	0.530	I	--	I	1.1	I	1.1	I	16.7	I	0.100

I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	I	I	I	I	I	I	I	I	I	I							
I	TIME	I	DEMAND	I	CAPACITY	I	DEMAND/	I	PEDESTRIAN	I	START	I	END	I	DELAY	I	AVERAGE DELAY
I		I	(VEH/MIN)	I	(VEH/MIN)	I	CAPACITY	I	FLOW	I	QUEUE	I	QUEUE	I	(VEH.MIN/	I	PER ARRIVING
I		I		I		I	(RFC)	I	(PEDS/MIN)	I	(VEHS)	I	(VEHS)	I	TIME SEGMENT)	I	VEHICLE (MIN)
I		I		I		I		I		I		I		I		I	
I	08.45-09.00	I		I		I		I		I		I		I		I	
I	ARM A	I	8.69	I	13.31	I	0.653	I	--	I	4.4	I	2.0	I	32.3	I	0.232
I	ARM B	I	6.77	I	13.51	I	0.501	I	--	I	1.9	I	1.0	I	16.2	I	0.151
I	ARM C	I	9.23	I	21.40	I	0.431	I	--	I	1.1	I	0.8	I	11.8	I	0.082

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	7.28	13.64	0.534	-	2.0	1.2	18.5	0.160
ARM B	5.67	14.33	0.396	-	1.0	0.7	10.3	0.116
ARM C	7.73	21.45	0.360	-	0.8	0.6	8.7	0.073

EUE AT ARM A

TIME ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.1 *
08.15	1.8 **
08.30	4.2 ****
08.45	4.4 ****
09.00	2.0 **
09.15	1.2 *

QUEUE AT ARM B

TIME ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.6 *
08.15	1.0 *
08.30	1.8 **
08.45	1.9 **
09.00	1.0 *
09.15	0.7 *

EUE AT ARM C

TIME ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.6 *
08.15	0.8 *
08.30	1.1 *
08.45	1.1 *
09.00	0.8 *
09.15	0.6 *

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * DELAY	* INCLUSIVE QUEUEING * DELAY
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	798.3	532.2	0.26
B	622.1	414.8	0.17
C	847.9	565.3	0.09
ALL	2268.4	1512.2	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
 ===== end of file =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Queensway Whalley Road PM.vao"
 (drive-on-the-left) at 16:16:01 on Friday, 5 October 2012

FILE PROPERTIES

 RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

 ARM A - Whalley Rd N
 ARM B - Queensway
 ARM C - Whalley Rd S

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

I ARM	I V (M)	I E (M)	I Lm(M)	I Vm(M)	I A (M)	I K (M)	I G (%)	I SLOPE	I INTERCEPT
I	I	I	I	I	I	I	I	I	I (PCU/MIN)
I ARM A	I 4.00	I 5.90	I 10.00	I 4.00	I 10.00	I 7.10	I 0.00	I 0.503	I 15.331
I ARM B	I 3.40	I 4.00	I 5.00	I 3.50	I 20.00	I 19.00	I 0.00	I 0.787	I 18.259
I ARM C	I 4.35	I 4.35	I 0.00	I 4.35	I 18.50	I 19.00	I 0.00	I 0.810	I 21.705

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

----- I13

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SEI TITLE: 2012 Base + Dev

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	ARM	I	I	I	I	I	I
I		I	I	I	I	I	I
I		I	I	I	I	I	I
I		I	I	I	I	I	I
	ARM A	15.00	45.00	75.00	7.03	10.54	7.03
	ARM B	15.00	45.00	75.00	7.90	11.85	7.90
	ARM C	15.00	45.00	75.00	7.64	11.46	7.64

MAND SEI TITLE: 2012 Base + Dev

I	I	TURNING PROPORTIONS			I
		I	I	I	
I	I	TURNING COUNTS			I
		I	I	I	
I	I	(PERCENTAGE OF H.V.S)			I
		I	I	I	
I	I	TIME			I
		I	I	I	
	ARM A	0.000	0.288	0.712	
	ARM B	0.138	0.000	0.862	
	ARM C	0.637	0.363	0.000	

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QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

I	I	I	I	I	I	I	I	I	I	I
I	TIME	DEMAND	CAPACITY	DEMAND/CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY	AVERAGE DELAY	I
I		(VEH/MIN)	(VEH/MIN)	(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	(VEH.MIN/TIME SEGMENT)	PER ARRIVING	I
I									VEHICLE (MIN)	I
	16.45-17.00									
	ARM A	7.05	13.94	0.506	-	0.0	1.0	14.2	0.142	
	ARM B	7.93	14.35	0.553	-	0.0	1.2	17.0	0.152	
	ARM C	7.67	20.83	0.368	-	0.0	0.6	8.4	0.076	

I	I	I	I	I	I	I	I	I	I	I
I	TIME	DEMAND	CAPACITY	DEMAND/CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY	AVERAGE DELAY	I
I		(VEH/MIN)	(VEH/MIN)	(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	(VEH.MIN/TIME SEGMENT)	PER ARRIVING	I
I									VEHICLE (MIN)	I
	17.00-17.15									
	ARM A	8.42	13.66	0.616	-	1.0	1.6	22.1	0.188	
	ARM B	9.47	13.56	0.698	-	1.2	2.2	30.5	0.236	
	ARM C	9.15	20.66	0.443	-	0.6	0.8	11.5	0.087	

I	I	I	I	I	I	I	I	I	I	I
I	TIME	DEMAND	CAPACITY	DEMAND/CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY	AVERAGE DELAY	I
I		(VEH/MIN)	(VEH/MIN)	(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	(VEH.MIN/TIME SEGMENT)	PER ARRIVING	I
I									VEHICLE (MIN)	I
	17.15-17.30									
	ARM A	10.31	13.29	0.776	-	1.6	3.2	42.7	0.314	
	ARM B	11.60	12.54	0.925	-	2.2	7.7	89.5	0.635	
	ARM C	11.21	20.45	0.548	-	0.8	1.2	17.3	0.108	

I	I	I	I	I	I	I	I	I	I	I
I	TIME	DEMAND	CAPACITY	DEMAND/CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY	AVERAGE DELAY	I
I		(VEH/MIN)	(VEH/MIN)	(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	(VEH.MIN/TIME SEGMENT)	PER ARRIVING	I
I									VEHICLE (MIN)	I
	17.30-17.45									
	ARM A	10.31	13.28	0.776	-	3.2	3.3	48.9	0.333	
	ARM B	11.60	12.49	0.929	-	7.7	9.3	129.5	0.861	
	ARM C	11.21	20.42	0.549	-	1.2	1.2	18.0	0.109	

I	I	I	I	I	I	I	I	I	I	I
I	TIME	DEMAND	CAPACITY	DEMAND/CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY	AVERAGE DELAY	I
I		(VEH/MIN)	(VEH/MIN)	(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	(VEH.MIN/TIME SEGMENT)	PER ARRIVING	I
I									VEHICLE (MIN)	I
	17.45-18.00									
	ARM A	8.42	13.65	0.617	-	3.3	1.7	26.7	0.199	
	ARM B	9.47	13.48	0.702	-	9.3	2.5	48.3	0.312	
	ARM C	9.15	20.60	0.444	-	1.2	0.8	12.5	0.088	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	7.05	13.93	0.506	-	-	1.7	1.0	16.4
ARM B	7.93	14.29	0.555	-	-	2.5	1.3	20.3
ARM C	7.67	20.81	0.368	-	-	0.8	0.6	9.0

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.0 *
17.15	1.6 **
17.30	3.2 ***
17.45	3.3 ***
18.00	1.7 **
18.15	1.0 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.2 *
17.15	2.2 **
17.30	7.7 *****
17.45	9.3 *****
18.00	2.5 **
18.15	1.3 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.6 *
17.15	0.8 *
17.30	1.2 *
17.45	1.2 *
18.00	0.8 *
18.15	0.6 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	773.6	171.1	0.22
B	869.9	335.1	0.39
C	841.0	76.8	0.09
ALL	2484.4	583.0	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

===== end of file =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Queensway Whalley Road AM.vao"
 (drive-on-the-left) at 16:07:29 on Friday, 5 October 2012

LE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 NUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

PUT DATA

ARM A - Whalley Rd N
 ARM B - Queensway
 ARM C - Whalley Rd S

NI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

ARM	I	V (M)	I	E (M)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
ARM A	I	4.00	I	5.90	I	10.00	I	4.00	I	10.00	I	7.10	I	0.00	I	0.503	I	15.331	I
ARM B	I	3.40	I	4.00	I	5.00	I	3.50	I	20.00	I	19.00	I	0.00	I	0.787	I	18.259	I
ARM C	I	4.35	I	4.35	I	0.00	I	4.35	I	18.50	I	19.00	I	0.00	I	0.810	I	21.705	I

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

LOADING FACTORS

113

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

ME PERIOD BEGINS (07 45) AND ENDS (09 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

320120913P

DEMAND SET IIIIE: 2017 Base + Dev

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	ARM	FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER
I	I	I	I	I	I	I	I
I	I	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
I	ARM A	15.00	45.00	75.00	7.55	11.33	7.55
I	ARM B	15.00	45.00	75.00	5.98	8.81	5.88
I	ARM C	15.00	45.00	75.00	8.02	12.04	8.02

DEMAND SET IIIIE: 2017 Base + Dev

I	I	TURNING PROPORTIONS			
		I	I	I	I
I	I	TURNING COUNTS			
I	I	(PERCENTAGE OF H.V.S)			
I	I				
I	TIME	FROM/TO	ARM A	ARM B	ARM C
I	07.45 - 09.15				
I	ARM A	0.000	0.318	0.682	
I		0.0	192.0	412.0	
I		(0.0)	(0.0)	(0.0)	
I	ARM B	0.055	0.000	0.945	
I		26.0	0.0	444.0	
I		(0.0)	(0.0)	(0.0)	
I	ARM C	0.565	0.435	0.000	
I		363.0	279.0	0.0	
I		(0.0)	(0.0)	(0.0)	

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	07.45-08.00								
I	ARM A	7.58	13.58	0.558	-	0.0	1.2	17.3	0.162
I	ARM B	5.90	14.24	0.414	-	0.0	0.7	10.0	0.119
I	ARM C	8.06	21.44	0.376	-	0.0	0.6	8.7	0.074

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.00-08.15								
I	ARM A	9.05	13.23	0.684	-	1.2	2.1	28.8	0.233
I	ARM B	7.04	13.43	0.524	-	0.7	1.1	15.5	0.155
I	ARM C	9.62	21.39	0.450	-	0.6	0.8	11.8	0.085

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.15-08.30								
I	ARM A	11.08	12.76	0.868	-	2.1	5.3	66.6	0.479
I	ARM B	8.62	12.43	0.694	-	1.1	2.2	29.7	0.254
I	ARM C	11.78	21.32	0.553	-	0.8	1.2	17.6	0.104

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.30-08.45								
I	ARM A	11.08	12.76	0.869	-	5.3	5.8	84.5	0.560
I	ARM B	8.62	12.33	0.700	-	2.2	2.3	33.2	0.269
I	ARM C	11.78	21.32	0.553	-	1.2	1.2	18.3	0.105

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.45-09.00								
I	ARM A	9.05	13.22	0.684	-	5.8	2.3	38.9	0.267
I	ARM B	7.04	13.27	0.531	-	2.3	1.2	18.3	0.165
I	ARM C	9.62	21.39	0.450	-	1.2	0.8	12.7	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	7.58	13.57	0.559	-	2.3	1.3	20.6	0.171
ARM B	5.90	14.16	0.417	-	1.2	0.7	11.3	0.122
ARM C	8.06	21.44	0.376	-	0.8	0.6	9.3	0.075

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.2 *
08.15	2.1 **
08.30	5.3 *****
08.45	5.8 *****
09.00	2.3 **
09.15	1.3 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.7 *
08.15	1.1 *
08.30	2.2 **
08.45	2.3 **
09.00	1.2 *
09.15	0.7 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.6 *
08.15	0.8 *
08.30	1.2 *
08.45	1.2 *
09.00	0.8 *
09.15	0.6 *

320120913P

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
I	I (VEH)	I (MIN)	I (MIN)
A	831.4	256.7	256.8
B	646.9	118.0	118.0
C	883.7	78.5	78.5
ALL	2361.9	453.2	453.3

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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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 RG40 3GA UK

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

Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Queensway Whalley Road PM vao (drive-on-the-left) at 16:19:31 on Friday, 5 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

ARM A - Whalley Rd N
 ARM B - Queensway
 ARM C - Whalley Rd S

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (M)	I	E (M)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
I	ARM A	I	4.00	I	5.90	I	10.00	I	4.00	I	10.00	I	7.10	I	0.00	I	0.503	I	15.331	I	I
I	ARM B	I	3.40	I	4.00	I	5.00	I	3.50	I	20.00	I	19.00	I	0.00	I	0.787	I	18.259	I	I
I	ARM C	I	4.35	I	4.35	I	0.00	I	4.35	I	18.50	I	19.00	I	0.00	I	0.810	I	21.705	I	I

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

----- I13

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

TIME PERIOD BEGINS(16 45)AND ENDS(18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SEI IIIIE: 2017 Base + Dev

115

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	MINUTES FROM START WHEN FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.34	11.01	7.34
ARM B	15.00	45.00	75.00	8.24	12.36	8.24
ARM C	15.00	45.00	75.00	7.95	11.92	7.95

MAND SEI IIIIE: 2017 Base + Dev

133

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.288	0.712
		0.0	169.0	418.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.137	0.000	0.863
		90.0	0.0	569.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.637	0.363	0.000
		405.0	231.0	0.0
		(0.0)	(0.0)	(0.0)

320120913P

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

170

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH./MIN./TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00								
ARM A	7.37	13.88	0.531	-	0.0	1.1	15.6	0.150
ARM B	8.27	14.17	0.583	-	0.0	1.4	19.1	0.164
ARM C	7.98	20.80	0.384	-	0.0	0.6	9.0	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15								
ARM A	8.80	13.59	0.647	-	1.1	1.8	24.9	0.205
ARM B	9.87	13.36	0.739	-	1.4	2.7	36.3	0.274
ARM C	9.53	20.62	0.462	-	0.6	0.8	12.4	0.090

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH./MIN./TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30								
ARM A	10.77	13.20	0.816	-	1.8	3.9	51.4	0.370
ARM B	12.09	12.30	0.983	-	2.7	11.8	125.2	0.873
ARM C	11.67	20.43	0.571	-	0.8	1.3	18.9	0.113

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH./MIN./TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45								
ARM A	10.77	13.20	0.816	-	3.9	4.1	60.9	0.403
ARM B	12.09	12.23	0.989	-	11.8	16.5	215.2	1.396
ARM C	11.67	20.40	0.572	-	1.3	1.3	19.8	0.114

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH./MIN./TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00								
ARM A	8.80	13.59	0.647	-	4.1	1.9	31.2	0.221
ARM B	9.87	13.25	0.745	-	16.5	3.2	84.5	0.513
ARM C	9.53	20.51	0.465	-	1.3	0.9	13.6	0.092

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PRDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	7.37	13.87	0.531	-	1.9	1.2	18.2	0.156
ARM B	8.27	14.10	0.586	-	3.2	1.5	23.4	0.178
ARM C	7.98	20.78	0.384	-	0.9	0.6	9.7	0.078

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.1 *
17.15	1.8 **
17.30	3.9 ****
17.45	4.1 ****
18.00	1.9 **
18.15	1.2 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.4 *
17.15	2.7 ***
17.30	11.8 *****
17.45	16.5 *****
18.00	3.2 ***
18.15	1.5 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.6 *
17.15	0.8 *
17.30	1.3 *
17.45	1.3 *
18.00	0.9 *
18.15	0.6 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	INCLUSIVE QUEUEING DELAY (MIN)	EXCLUSIVE QUEUEING DELAY (MIN/VEH)
A	808.0	202.2	0.25
B	907.1	503.7	0.56
C	875.4	83.3	0.10
ALL	2590.4	789.2	0.30

* 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 =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5 0 (JANUARY 2009)

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run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Whalley Road Queensway\Queensway Whalley Road AM With Improvements.vai"
 (---ive-on-the-left) at 10:27:58 on Sunday, 7 October 2012

FILE PROPERTIES

 RUN TITLE: Clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

320120913P

PUT DATA

 ARM A - Whalley Rd N
 ARM B - Queensway
 ARM C - Whalley Rd S

UNI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 GRADING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

ARM	I	V (M)	E (M)	Lm (M)	Vm (M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT	PCU/MIN
ARM A	I	4.00	7.50	20.00	4.00	10.00	7.10	0.00	0.556	19.066	I
ARM B	I	3.40	6.50	15.00	3.50	20.00	19.00	0.00	0.859	23.360	I
ARM C	I	4.35	7.00	15.00	4.35	18.50	19.00	0.00	0.895	27.659	I

V = approach half-width Lm = effective flare length A = distance between arms
 C = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

ly sets included in the current run are shown

ALING FACTORS

113

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

ME PERIOD BEGINS (07 45) AND ENDS (09 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

MAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2017 Base + Dev

ARM	NUMBER OF FLOW STARTS	MINUTES FROM TOP OF PEAK TO RISE	MINUTES FROM START WHEN TOP OF PEAK IS REACHED	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	7.79	11.68	7.79	
ARM B	15.00	45.00	75.00	5.88	8.81	5.88	
ARM C	15.00	45.00	75.00	8.00	12.00	8.00	

DEMAND SET TITLE: 2017 Base + Dev

TIME	FROM/TO	ARM A	ARM B	ARM C	TURNING PROPORTIONS	TURNING COUNTS	(PERCENTAGE OF H.V.S)
07.45 - 09.15	ARM A	0.000	0.308	0.692	0.0	192.0	431.0
	ARM B	0.055	0.000	0.945	26.0	0.0	444.0
	ARM C	0.566	0.434	0.000	362.0	278.0	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00	7.82	17.13	0.456	-	0.0	0.8	11.9	0.106
ARM B	5.90	18.75	0.315	-	0.0	0.5	6.6	0.077
ARM C	8.03	27.37	0.293	-	0.0	0.4	6.1	0.052

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15	9.33	16.75	0.557	-	0.8	1.2	17.8	0.134
ARM B	7.04	17.83	0.395	-	0.5	0.6	9.5	0.093
ARM C	9.59	27.31	0.351	-	0.4	0.5	7.9	0.056

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30	11.43	16.23	0.704	-	1.2	2.3	31.8	0.202
ARM B	8.62	16.60	0.519	-	0.6	1.1	15.3	0.124
ARM C	11.74	27.23	0.431	-	0.5	0.8	11.1	0.064

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45	11.43	16.23	0.704	-	2.3	2.3	34.7	0.208
ARM B	8.62	16.56	0.521	-	1.1	1.1	16.1	0.126
ARM C	11.74	27.23	0.431	-	0.8	0.8	11.3	0.065

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00	9.33	16.75	0.557	-	2.3	1.3	20.3	0.137
ARM B	7.04	17.77	0.396	-	1.1	0.7	10.3	0.094
ARM C	9.59	27.31	0.351	-	0.8	0.5	8.3	0.057

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	7.82	17.12	0.456	-	1.3	0.9	13.2	0.108
ARM B	5.90	18.70	0.315	-	0.7	0.5	7.1	0.078
ARM C	8.03	27.37	0.293	-	0.5	0.4	6.4	0.052

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.8 *
08.15	1.2 *
08.30	2.3 **
08.45	2.3 **
09.00	1.3 *
09.15	0.9 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5
08.15	0.6 *
08.30	1.1 *
08.45	1.1 *
09.00	0.7 *
09.15	0.5

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.4
08.15	0.5 *
08.30	0.8 *
08.45	0.8 *
09.00	0.5 *
09.15	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
I	I	I	I
I	(VEH)	(MIN)	(MIN)
A	857.5	129.6	129.6
B	646.9	64.9	64.9
C	880.9	51.1	51.1
ALL	2385.3	245.5	245.5

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 =====

320120913P

ARCADY 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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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Whalley Road Queensway\
Queensway Whalley Road PM With Improvments.vai"
(drive-on-the-left) at 10:26:18 on Sunday 7 October 2012

FILE PROPERTIES

RUN TITLE: Clitheroe
LOCATION:
DATE: 05/10/12
CLIENT:
ENUMERATOR: Administrator
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Whalley Rd N
ARM B - Queensway
ARM C - Whalley Rd S

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

ARM	V (M)	E (M)	Lm (M)	Vm (M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.00	7.50	20.00	4.00	10.00	7.10	0.00	0.556	19.066
ARM B	3.40	6.50	15.00	3.50	20.00	19.00	0.00	0.859	23.360
ARM C	4.35	7.00	15.00	4.35	18.50	19.00	0.00	0.895	27.659

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

I13

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

TIME PERIOD BEGINS (16 45) AND ENDS (18 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SET IIIIE: 2017 Base + Dev

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	MINUTES FROM START WHEN FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.46	11.19	7.46
ARM B	15.00	45.00	75.00	8.30	12.45	8.30
ARM C	15.00	45.00	75.00	7.84	11.76	7.84

MAND SET IIIIE: 2017 Base + Dev

T33

TIME	ARM A	ARM B	ARM C
16.45 - 18.15	0.000	0.136	0.636
	0.283	0.000	0.364
	0.717	0.000	0.000

320120913P

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00								
ARM A	7.49	17.48	0.429	-	0.0	0.7	10.7	0.099
ARM B	8.33	18.78	0.444	-	0.0	0.8	11.4	0.095
ARM C	7.87	26.65	0.295	-	0.0	0.4	6.1	0.053

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15								
ARM A	8.94	17.17	0.521	-	0.7	1.1	15.5	0.121
ARM B	9.95	17.86	0.557	-	0.8	1.2	17.8	0.125
ARM C	9.39	26.46	0.355	-	0.4	0.5	8.1	0.059

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30								
ARM A	10.96	16.74	0.654	-	1.1	1.8	25.9	0.170
ARM B	12.18	16.64	0.732	-	1.2	2.6	35.8	0.215
ARM C	11.51	26.19	0.439	-	0.5	0.8	11.4	0.068

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45								
ARM A	10.96	16.74	0.654	-	1.8	1.9	27.8	0.172
ARM B	12.18	16.61	0.734	-	2.6	2.7	39.7	0.225
ARM C	11.51	26.18	0.439	-	0.8	0.8	11.7	0.068

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00								
ARM A	8.94	17.16	0.521	-	1.9	1.1	17.3	0.123
ARM B	9.95	17.82	0.558	-	2.7	1.3	20.4	0.130
ARM C	9.39	26.44	0.355	-	0.8	0.6	8.5	0.059

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	7.49	17.47	0.429	-	1.1	0.8	11.7	0.101
ARM B	8.33	18.73	0.445	-	1.3	0.8	12.6	0.097
ARM C	7.87	26.64	0.295	-	0.6	0.4	6.4	0.053

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.7 *
17.15	1.1 *
17.30	1.8 **
17.45	1.9 **
18.00	1.1 *
18.15	0.8 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.8 *
17.15	1.2 *
17.30	2.6 ***
17.45	2.7 ***
18.00	1.3 *
18.15	0.8 *

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.4
17.15	0.5 *
17.30	0.8 *
17.45	0.8 *
18.00	0.6 *
18.15	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	821.7	547.8	109.0
B	913.9	609.3	137.5
C	863.0	575.3	52.2
ALL	2598.7	1732.5	298.7

* 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 =====

ARCADY 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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Run with file:-
 a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Shawbridge Street Waterloo Road\
 Shawbridge Street Waterloo Road 2017 Base Plus Improvements AM and PM.vai
 (drive-on-the-left) at 09:43:42 on Monday, 8 October 2012

FILE PROPERTIES

RUN TITLE: clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 NUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

PUT DATA

 ARM A - Shawbridge St
 ARM B - Waterloo Road S
 ARM C - Waterloo Road N

NI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 SIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

ARM	I	V (M)	E (M)	Lm (M)	Vm (M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	I	4.35	5.50	2.60	4.35	11.80	8.30	0.00	0.486	14.352
ARM B	I	3.65	5.80	5.80	3.65	18.00	19.00	0.00	0.825	23.430
ARM C	I	3.65	5.20	7.60	3.65	10.50	4.30	0.00	0.473	16.595

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

LOADING FACTORS

113

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

TIME PERIOD BEGINS (07 45) AND ENDS (09 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

MAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

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DEMAND SET IIIIE: 2017 AM Base + Dev

I	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
		I	I	I	I	I	I
I	ARM	FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER
I	I	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
I	ARM A	15 00	45 00	75 00	5 15	7 73	5 15
I	ARM B	15 00	45 00	75 00	5 20	7 80	5 20
I	ARM C	15 00	45 00	75 00	9 91	14 87	9 91

DEMAND SET IIIIE: 2017 AM Base + Dev

I	I	TURNING PROPORTIONS			
		I	I	I	
I	I	TURNING COUNTS			
I	I	(PERCENTAGE OF H.V.S)			
I	I				
I	TIME	FROM/TO	ARM A	ARM B	ARM C
I	07 45 - 09 15				
I		ARM A	0 000	0 189	0 811
I			0 0	78 0	334 0
I			(0 0)	(0 0)	(0 0)
I		ARM B	0 252	0 000	0 748
I			105 0	0 0	311 0
I			(0 0)	(0 0)	(0 0)
I		ARM C	0 386	0 614	0 000
I			306 0	487 0	0 0
I			(0 0)	(0 0)	(0 0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	07.45-08 00								
I	ARM A	5 17	11 41	0 453	-	0 0	0 8	11 5	0 158
I	ARM B	5 22	20 01	0 261	-	0 0	0 4	5 1	0 067
I	ARM C	9 95	15 98	0 623	-	0 0	1 6	22 4	0 160

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.00-08 15								
I	ARM A	6 17	10 83	0 570	-	0 8	1 3	18 2	0 212
I	ARM B	6 23	19 32	0 323	-	0 4	0 5	6 9	0 076
I	ARM C	11 88	15 85	0 750	-	1 6	2 8	38 8	0 242

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.15-08 30								
I	ARM A	7 56	10 12	0 747	-	1 3	2 7	36 2	0 364
I	ARM B	7 63	18 45	0 414	-	0 5	0 7	10 2	0 092
I	ARM C	14 55	15 69	0 928	-	2 8	8 4	99 4	0 558

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.30-08 45								
I	ARM A	7 56	10 04	0 753	-	2 7	2 9	42 2	0 397
I	ARM B	7 63	18 39	0 415	-	0 7	0 7	10 5	0 093
I	ARM C	14 55	15 68	0 928	-	8 4	9 8	138 2	0 722

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	08.45-09 00								
I	ARM A	6 17	10 67	0 578	-	2 9	1 4	22 9	0 232
I	ARM B	6 23	19 24	0 324	-	0 7	0 5	7 4	0 077
I	ARM C	11 88	15 85	0 750	-	9 8	3 2	59 5	0 314

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDSTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	5.17	11.35	0.455	-	1.4	0.9	13.4	0.164
ARM B	5.22	19.95	0.262	-	0.5	0.4	5.4	0.068
ARM C	9.95	15.97	0.623	-	3.2	1.7	27.1	0.172

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.8 *
08.15	1.3 *
08.30	2.7 ***
08.45	2.9 ***
09.00	1.4 *
09.15	0.9 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.4
08.15	0.5
08.30	0.7 *
08.45	0.7 *
09.00	0.5
09.15	0.4

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.6 **
08.15	2.8 ***
08.30	8.4 *****
08.45	9.8 *****
09.00	3.2 ***
09.15	1.7 **

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	QUEUEING * DELAY *	INCLUSIVE QUEUEING * DELAY *
I	(VEH) (VEH/H)	(MIN) (MIN/VEH)	(MIN) (MIN/VEH)
A	567.1 I 378.1 I	144.4 I 0.25 I	144.5 I 0.25 I
B	572.6 I 381.7 I	45.7 I 0.08 I	45.7 I 0.08 I
C	1091.5 I 727.7 I	385.5 I 0.35 I	385.6 I 0.35 I
ALL	2231.2 I 1487.5 I	575.6 I 0.26 I	575.8 I 0.26 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
 ===== end of file =====

ARCADY 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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Run with file:-
 "a:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\ARCADY\Shawbridge Street Waterloo Road\ Shawbridge Street Waterloo Road 2017 Base Plus Improvements AM and PM vao"
 (drive-on-the-left) at 09:46:34 on Monday, 8 October 2012

FILE PROPERTIES

RUN TITLE: clitheroe
 LOCATION:
 DATE: 05/10/12
 CLIENT:
 ENUMERATOR: Administrator
 JOB NUMBER:
 STATUS:
 DESCRIPTION:

INPUT DATA

 ARM A - Shawbridge St
 ARM B - Waterloo Road S
 ARM C - Waterloo Road N

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
 LIGHTING CONDITIONS : NORMAL
 ROAD SURFACE CONDITION: NORMAL

ARM	V (M)	E (M)	Lm (M)	Vm (M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.35	5.50	2.60	4.35	11.80	8.30	0.00	0.486	14.352
ARM B	3.65	5.80	5.80	3.65	18.00	19.00	0.00	0.825	23.430
ARM C	3.65	5.20	7.60	3.65	10.50	4.30	0.00	0.473	16.595

V = approach half-width Lm = effective flare length A = distance between arms
 E = entry width Vm = minimum approach half-width K = entry corner kerb line G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

113

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

TIME PERIOD BEGINS (07 45) AND ENDS (09 15)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

MAND SET TITLE: 2017 PM Base + Dev

ARM	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
	FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER
ARM A	15.00	45.00	75.00	4.99	7.48	4.99
ARM B	15.00	45.00	75.00	5.16	7.74	5.16
ARM C	15.00	45.00	75.00	11.29	16.93	11.29

MAND SET TITLE: 2017 PM Base + Dev

TIME	TURNING PROPORTIONS			TURNING COUNTS			(PERCENTAGE OF H.V.S)		
	FROM/TO	ARM A	ARM B	ARM C	FROM/TO	ARM A	ARM B	ARM C	
07.45 - 09.15	ARM A	0.000	0.338	0.662	0	135	0	264	
	ARM B	0.228	0.000	0.772	94	0	0	319	
	ARM C	0.383	0.617	0.000	346	557	0	0	

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QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RPC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00	ARM A: 5.01	11.00	0.455	-	0.0	0.8	11.6	0.164
	ARM B: 5.18	20.73	0.250	-	0.0	0.3	4.9	0.064
	ARM C: 11.33	16.04	0.706	-	0.0	2.3	31.3	0.200
08.00-08.15	ARM A: 5.98	10.35	0.578	-	0.8	1.3	18.7	0.225
	ARM B: 6.19	20.19	0.307	-	0.3	0.4	6.5	0.071
	ARM C: 13.53	15.93	0.849	-	2.3	4.9	63.5	0.365
08.15-08.30	ARM A: 7.32	9.76	0.750	-	1.3	2.7	36.6	0.380
	ARM B: 7.58	19.49	0.389	-	0.4	0.6	9.2	0.084
	ARM C: 16.57	15.78	1.050	-	4.9	23.5	227.3	1.159
08.30-08.45	ARM A: 7.32	9.67	0.757	-	2.7	2.9	42.9	0.418
	ARM B: 7.58	19.44	0.390	-	0.6	0.6	9.5	0.084
	ARM C: 16.57	15.78	1.050	-	23.5	37.6	460.5	2.147
08.45-09.00	ARM A: 5.98	9.71	0.616	-	2.9	1.7	27.1	0.280
	ARM B: 6.19	20.12	0.307	-	0.6	0.4	6.8	0.072
	ARM C: 13.53	15.93	0.849	-	37.6	8.4	340.5	1.587

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09:00-09:15								
ARM A	5.01	10.84	0.462	-	1.7	0.9	13.9	0.175
ARM B	5.18	20.67	0.251	-	0.4	0.3	5.1	0.065
ARM C	11.33	16.04	0.707	-	8.4	2.5	45.8	0.251

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08:00	0.8 *
08:15	1.3 *
08:30	2.7 ***
08:45	2.9 ***
09:00	1.7 **
09:15	0.9 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08:00	0.3
08:15	0.4
08:30	0.6 *
08:45	0.6 *
09:00	0.4
09:15	0.3

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08:00	2.3 **
08:15	4.9 *****
08:30	23.5 *****
08:45	37.6 *****
09:00	8.4 *****
09:15	2.5 ***

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * DELAY	* INCLUSIVE QUEUEING * DELAY
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	549.2	150.7	0.27
B	568.5	42.0	0.07
C	1242.9	1168.8	0.94
ALL	2360.6	1361.6	0.58


* 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 -----

320120913P

Appendix G

OSCADY PRO		
GUI Version: 1.3 [16/04/09] Analysis Program Version: v1.3 23/03/2009		
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File: A:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Oscady Pro\Castle View Signals\Castle View Bawdlands Parsons Lane Signals.osc
 Report generation date: 07/10/2012 12:44:20

Summary

File Description

Title	(untitled)
Date	05/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	Yes
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Parsons Lane	50.0	10	10	80	0
2	Castle View	50.0	10	10	80	0
3	Bawdlands	50.0	10	10	80	0

Traffic Streams

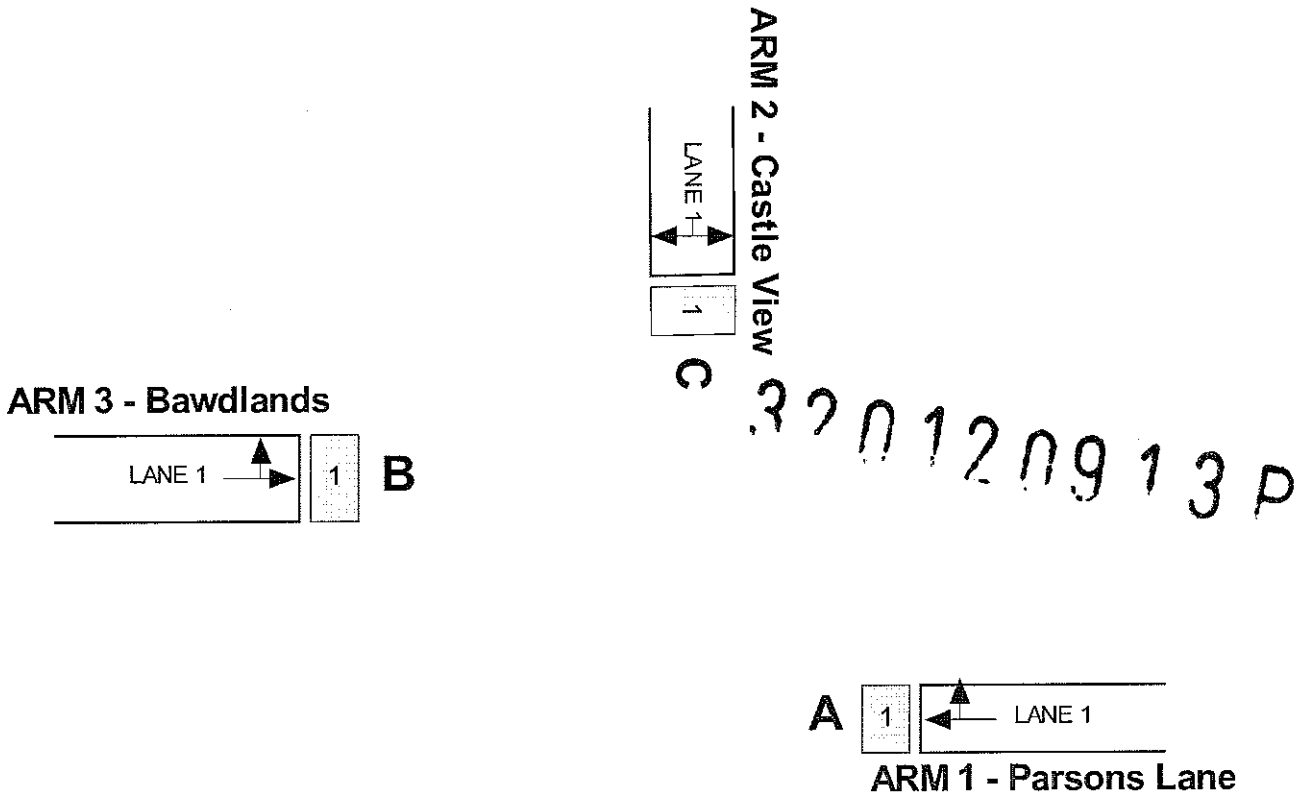
Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1859	Yes	0	A	-
2	1	Traffic		1572	Yes	0	C	-
3	1	Traffic		1968	Yes	0	B	-

Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	IsNearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1			3	2	0.09	7	Yes	2.80	0.0	0
2	1	1		1		3	1.00	6	Yes	3.50	0.0	0
3	1	1		2	1		0.04	16	Yes	3.60	0.0	0

Junction Diagram



Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No

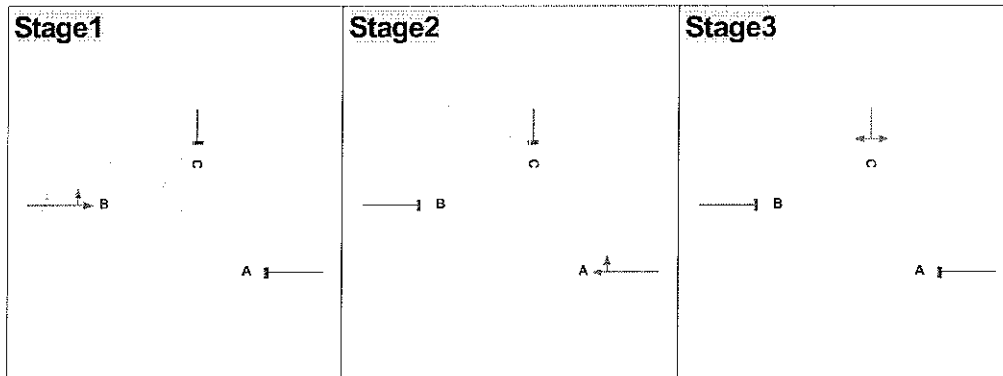
Intergreen Matrix

		To		
		A	B	C
From	A	-	8	8
	B	5	-	5
	C	5	5	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	B	Yes
2	7.0	A	Yes
3	7.0	C	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2,3

Constraints

(No constraints)

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2012 AM Base	Yes	08:00	09:00	FLAT	No	D1
2012 PM Base	No	08:00	09:00	FLAT	No	D1
2017 AM Base	No	08:00	09:00	FLAT	No	D1
2017 PM Base	No	08:00	09:00	FLAT	No	D1
2012 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2012 PM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	No	08:00	09:00	FLAT	No	D1

Demand Set1 - 2012 AM Base

Traffic flows (PCU/hr)

Arm	Traffic Stream	Phase	08:00-09:00
1 - Parsons Lane	1	A	319
2 - Castle View	1	C	90
3 - Bawdlands	1	B	430

Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Parsons Lane	-	91	9
2 - Castle View	54	-	46
3 - Bawdlands	4	96	-

320120913P

Results

Note: Duplicate solutions are not shown

Sequence1; Objective: CRITICAL CYCLE TIME

Errors and Warnings

Code	Description
W6	The option to optimise for critical cycle time only has been selected.

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
41.0	5.49	8.85	8.85	17.0

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective
- PRC is the lowest value encountered over all streams.
- Rate of delay is the sum of each stream's rate of delay

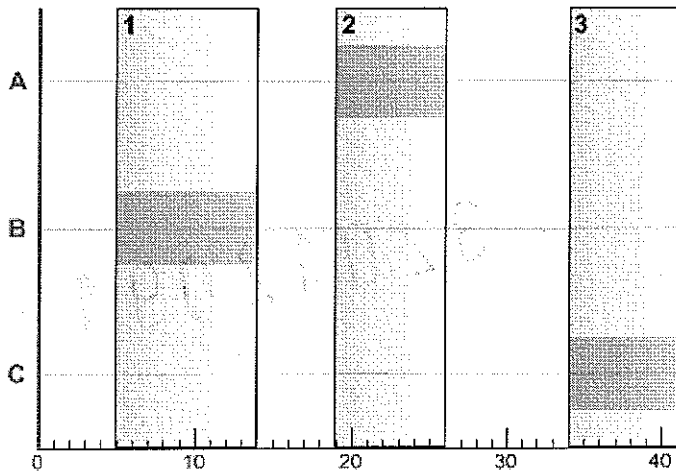
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	5.0	9.0	14.0
2	19.0	7.0	26.0
3	34.0	7.0	41.0

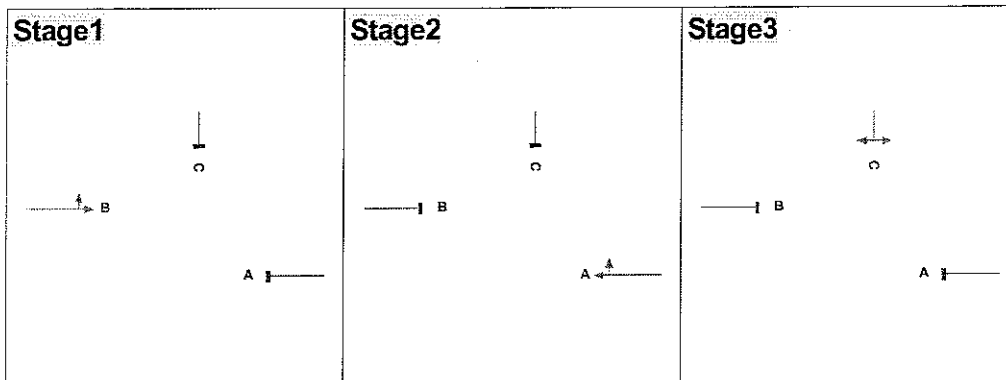
Phase Timings

Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	19	7.0	26						
B	5	9.0	14						
C	34	7.0	41						

Phase Timings Diagram




Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	319	A	8.50	42.37	3.75	82.77	8.73	2.66	5.74	3.08	5.50
2	1	90	C	8.50	16.43	0.41	27.62	225.90	0.07	0.90	0.83	3.60
3	1	430	B	10.50	39.20	4.68	85.32	5.49	3.39	7.37	3.99	7.90

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File: A:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Oscady Pro\Castle View Signals\Castle View Bawdlands Parsons Lane Signals osc
Report generation date: 07/10/2012 12:45:45

Summary

File Description

Title	(untitled)
Date	05/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	Yes
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Parsons Lane	50.0	10	10	80	0
2	Castle View	50.0	10	10	80	0
3	Bawdlands	50.0	10	10	80	0

Traffic Streams

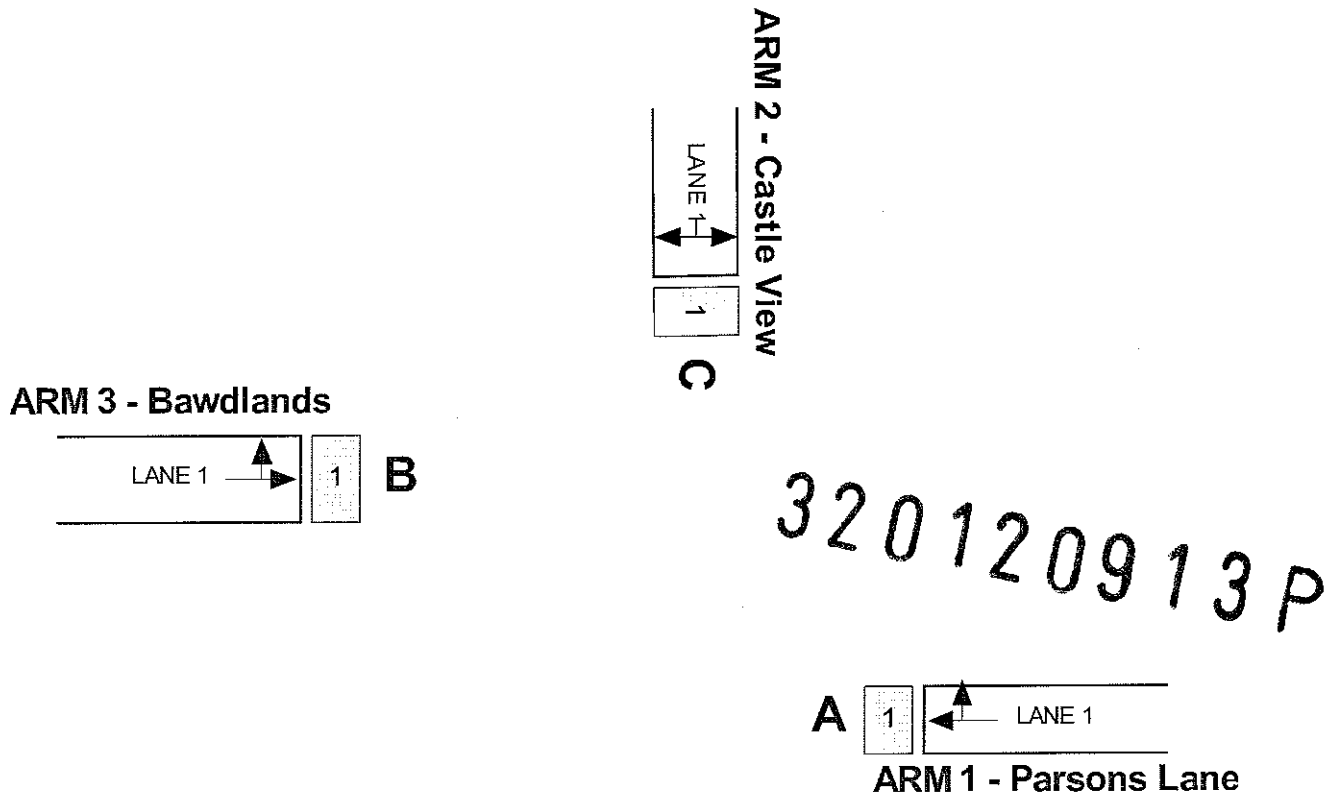
Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1859	Yes	0	A	-
2	1	Traffic		1572	Yes	0	C	-
3	1	Traffic		1968	Yes	0	B	-

Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	IsNearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1			3	2	0.09	7	Yes	2.80	0.0	0
2	1	1		1		3	1.00	6	Yes	3.50	0.0	0
3	1	1		2	1		0.04	16	Yes	3.60	0.0	0

Junction Diagram



Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No

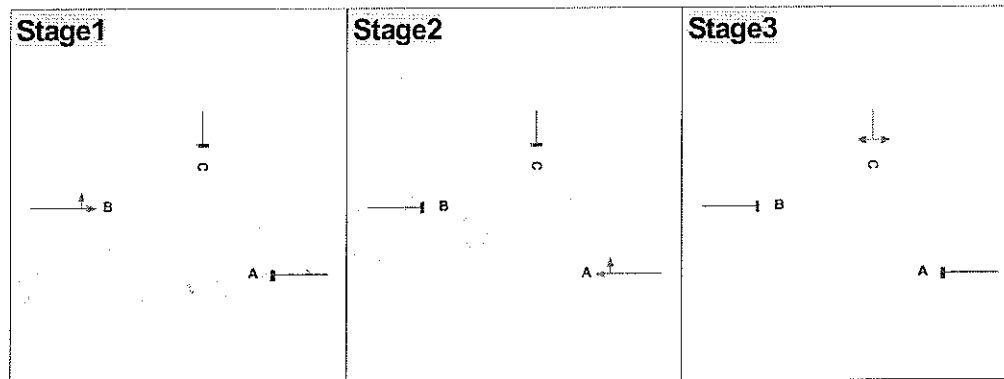
Intergreen Matrix

		To		
		A	B	C
From	A	-	8	8
	B	5	-	5
	C	5	5	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	B	Yes
2	7.0	A	Yes
3	7.0	C	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2,3

Constraints

(No constraints)

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables.

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2012 AM Base	No	08:00	09:00	FLAT	No	D1
2012 PM Base	Yes	08:00	09:00	FLAT	No	D1
2017 AM Base	No	08:00	09:00	FLAT	No	D1
2017 PM Base	No	08:00	09:00	FLAT	No	D1
2012 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2012 PM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	No	08:00	09:00	FLAT	No	D1

Demand Set2 - 2012 PM Base

Traffic flows (PCU/hr)

Arm	Traffic Stream	Phase	08:00-09:00
1 - Parsons Lane	1	A	555
2 - Castle View	1	C	74
3 - Bawdlands	1	B	363

Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Parsons Lane	-	87	13
2 - Castle View	58	-	42
3 - Bawdlands	7	93	-

320120913P

Results

Note: Duplicate solutions are not shown

Sequence 1; Objective: CRITICAL CYCLE TIME

Errors and Warnings

Code	Description
W6	The option to optimise for critical cycle time only has been selected.

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
49.0	1.51	11.73	11.73	19.5

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective
- PRC is the lowest value encountered over all streams
- Rate of delay is the sum of each stream's rate of delay

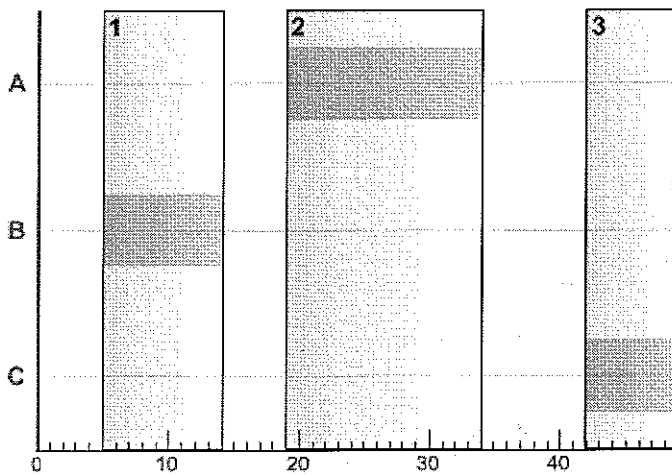
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	5.0	9.0	14.0
2	19.0	15.0	34.0
3	42.0	7.0	0.0

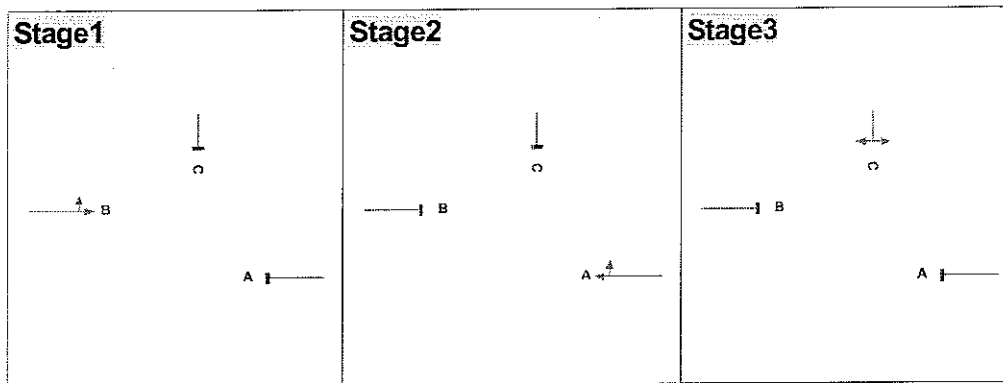
Phase Timings

Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	19	15.0	34						
B	5	9.0	14						
C	42	7.0	0						

Phase Timings Diagram




Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	555	A	16.50	41.28	6.36	88.66	1.51	4.78	10.42	5.64	11.10
2	1	74	C	8.50	20.80	0.43	27.14	231.65	0.07	0.91	0.85	2.60
3	1	363	B	10.50	49.02	4.94	86.08	4.56	3.52	7.71	4.19	5.80

320120913P

OSCADY PRO		
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File: A:\Project_008_02 Clitheroe DTTC\Post Appeal 250912\Oscady Pro\Castle View Signals\Castle View Bawdlands Parsons Lane Signals osc
 Report generation date: 07/10/2012 12:47:44

Summary

File Description

Title	(untitled)
Date	05/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	Yes
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Parsons Lane	50.0	10	10	80	0
2	Castle View	50.0	10	10	80	0
3	Bawdlands	50.0	10	10	80	0

Traffic Streams

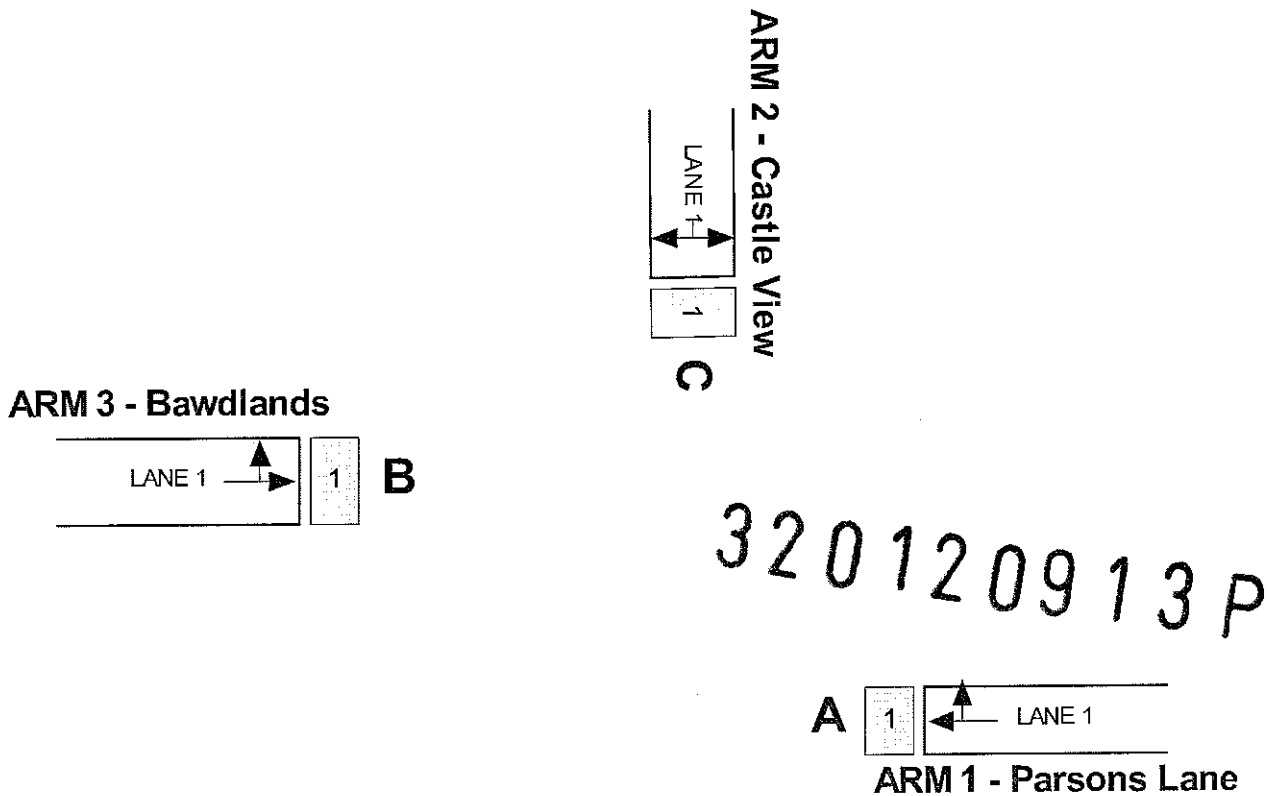
Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1859	Yes	0	A	-
2	1	Traffic		1572	Yes	0	C	-
3	1	Traffic		1968	Yes	0	B	-

Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	IsNearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1			3	2	0.09	7	Yes	2.80	0.0	0
2	1	1		1		3	1.00	6	Yes	3.50	0.0	0
3	1	1		2	1		0.04	16	Yes	3.60	0.0	0

Junction Diagram



Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No

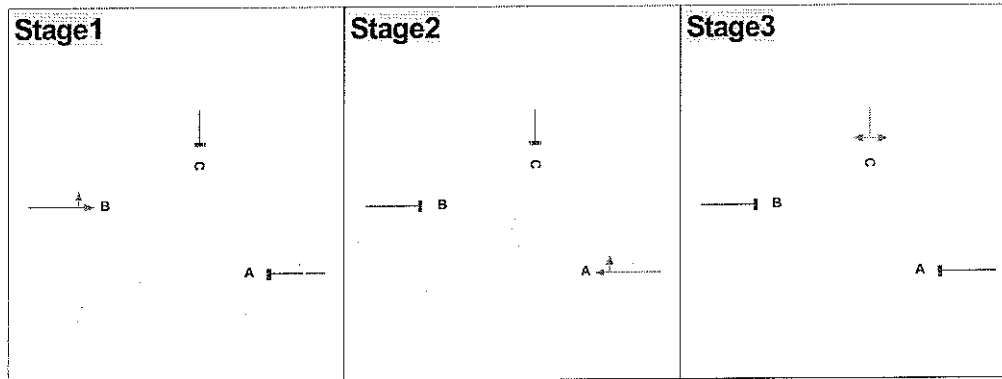
Intergreen Matrix

		To		
		A	B	C
From	A	-	8	8
	B	5	-	5
	C	5	5	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	B	Yes
2	7.0	A	Yes
3	7.0	C	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2,3

Constraints

(No constraints)

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2012 AM Base	No	08:00	09:00	FLAT	No	D1
2012 PM Base	No	08:00	09:00	FLAT	No	D1
2017 AM Base	Yes	08:00	09:00	FLAT	No	D1
2017 PM Base	No	08:00	09:00	FLAT	No	D1
2012 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2012 PM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	No	08:00	09:00	FLAT	No	D1

Demand Set3 - 2017 AM Base

Traffic flows (PCU/hr)

Arm	Traffic Stream	Phase	08:00-09:00
1 - Parsons Lane	1	A	333
2 - Castle View	1	C	94
3 - Bawdlands	1	B	447

Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Parsons Lane	-	91	9
2 - Castle View	54	-	46
3 - Bawdlands	4	96	-

320120913P

Results

Note: Duplicate solutions are not shown

Sequence 1; Objective: CRITICAL CYCLE TIME

Errors and Warnings

Code	Description
W6	The option to optimise for critical cycle time only has been selected.

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
41.0	1.48	10.73	10.73	16.3

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective
- PRC is the lowest value encountered over all streams.
- Rate of delay is the sum of each stream's rate of delay

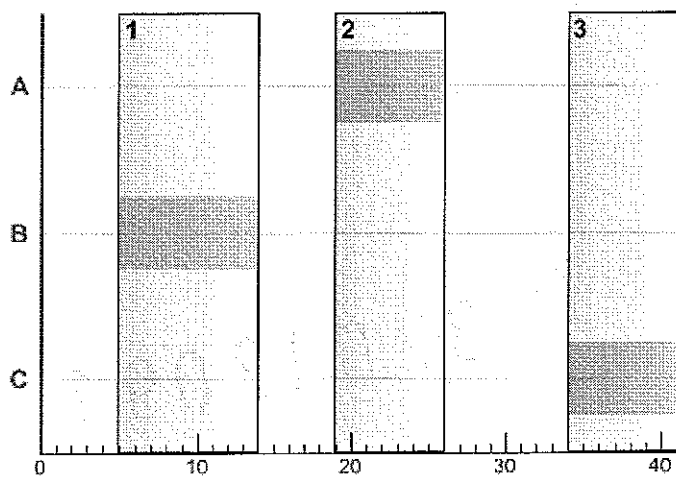
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	5.0	9.0	14.0
2	19.0	7.0	26.0
3	34.0	7.0	41.0

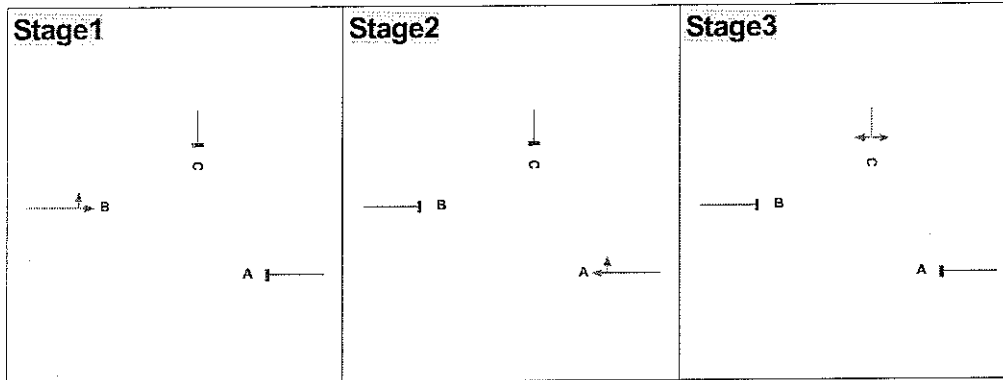
Phase Timings

Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	19	7.0	26						
B	5	9.0	14						
C	34	7.0	41						

Phase Timings Diagram




Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	333	A	8.50	49.40	4.57	86.40	4.16	3.58	6.80	3.22	5.20
2	1	94	C	8.50	16.64	0.43	28.84	212.03	0.08	0.94	0.86	3.80
3	1	447	B	10.50	46.08	5.72	88.69	1.48	4.61	8.77	4.16	7.30

320120913P

OSCADY PRO		
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The user of this computer program for the solution of an engineering problem is in no way relieved of their responsibility for the correctness of the solution		

File: A:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Oscady Pro\Castle View Signals\Castle View Bawdlands Parsons Lane Signals osc
 Report generation date: 07/10/2012 12:49:59

Summary

File Description

Title	(untitled)
Date	05/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	Yes
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Parsons Lane	50.0	10	10	80	0
2	Castle View	50.0	10	10	80	0
3	Bawdlands	50.0	10	10	80	0

Traffic Streams

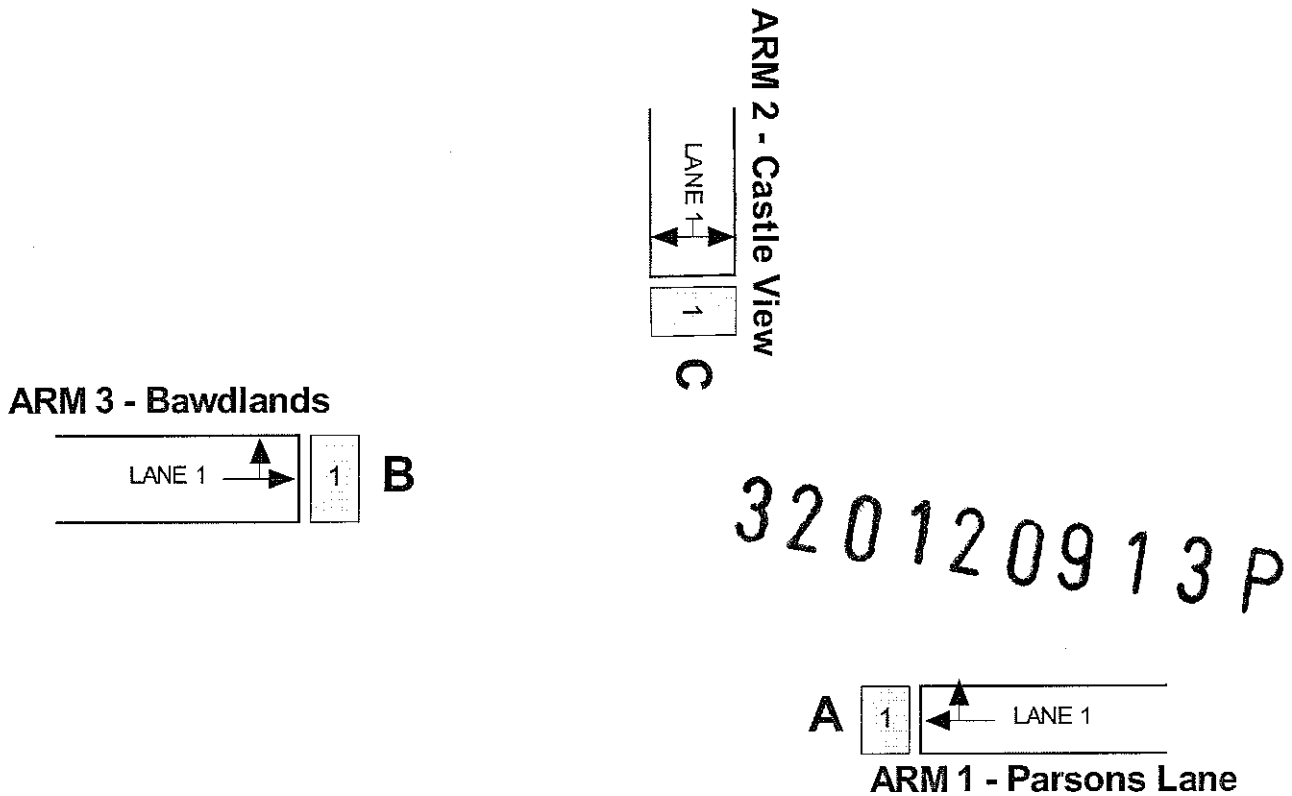
Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1859	Yes	0	A	-
2	1	Traffic		1572	Yes	0	C	-
3	1	Traffic		1968	Yes	0	B	-

Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	IsNearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1			3	2	0.09	7	Yes	2.80	0.0	0
2	1	1		1		3	1.00	6	Yes	3.50	0.0	0
3	1	1		2	1		0.04	16	Yes	3.60	0.0	0

Junction Diagram



Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No

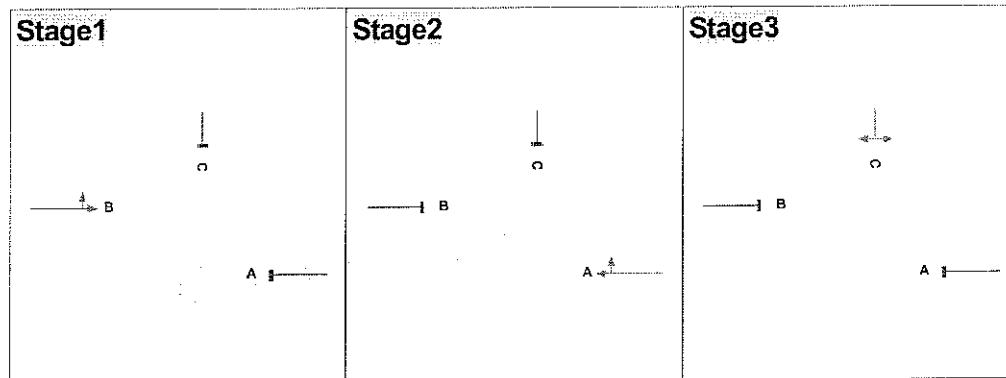
Intergreen Matrix

From	To		
	A	B	C
A	-	8	8
B	5	-	5
C	5	5	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	B	Yes
2	7.0	A	Yes
3	7.0	C	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2,3

Constraints

(No constraints)

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables.

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2012 AM Base	No	08:00	09:00	FLAT	No	D1
2012 PM Base	No	08:00	09:00	FLAT	No	D1
2017 AM Base	No	08:00	09:00	FLAT	No	D1
2017 PM Base	Yes	08:00	09:00	FLAT	No	D1
2012 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2012 PM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	No	08:00	09:00	FLAT	No	D1

Demand Set4 - 2017 PM Base

Traffic flows (PCU/hr)

Arm	Traffic Stream	Phase	08:00-09:00
1 - Parsons Lane	1	A	580
2 - Castle View	1	C	77
3 - Bawdlands	1	B	379

Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Parsons Lane	-	87	13
2 - Castle View	58	-	42
3 - Bawdlands	7	93	-

320120913P

Results

Note: Duplicate solutions are not shown

Sequence 1; Objective: CRITICAL CYCLE TIME

Errors and Warnings

Code	Description
W6	The option to optimise for critical cycle time only has been selected.

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
52.0	2.63	12.10	12.10	21.1

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective
- PRC is the lowest value encountered over all streams.
- Rate of delay is the sum of each stream's rate of delay

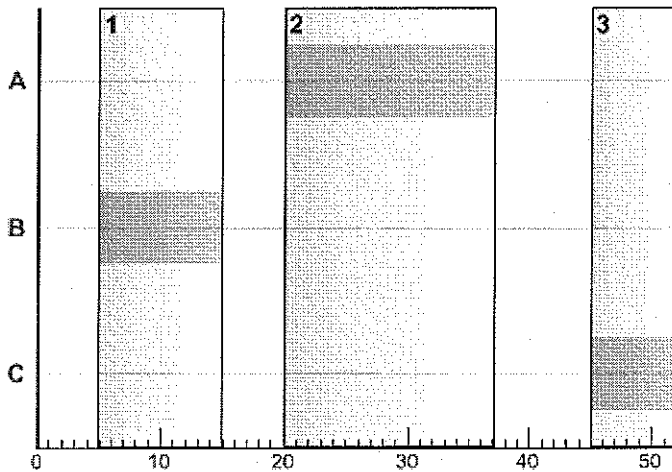
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	5.0	10.0	15.0
2	20.0	17.0	37.0
3	45.0	7.0	52.0

Phase Timings

Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	20	17.0	37						
B	5	10.0	15						
C	45	7.0	52						

Phase Timings Diagram



Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No

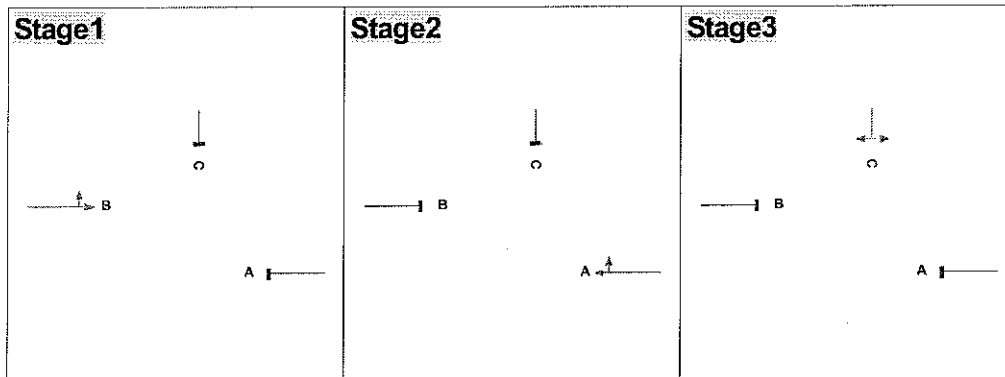
Intergreen Matrix

From	To		
	A	B	C
A	-	8	8
B	5	-	5
C	5	5	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	B	Yes
2	7.0	A	Yes
3	7.0	C	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2,3

Constraints

(No constraints)

320120913P

Traffic Streams

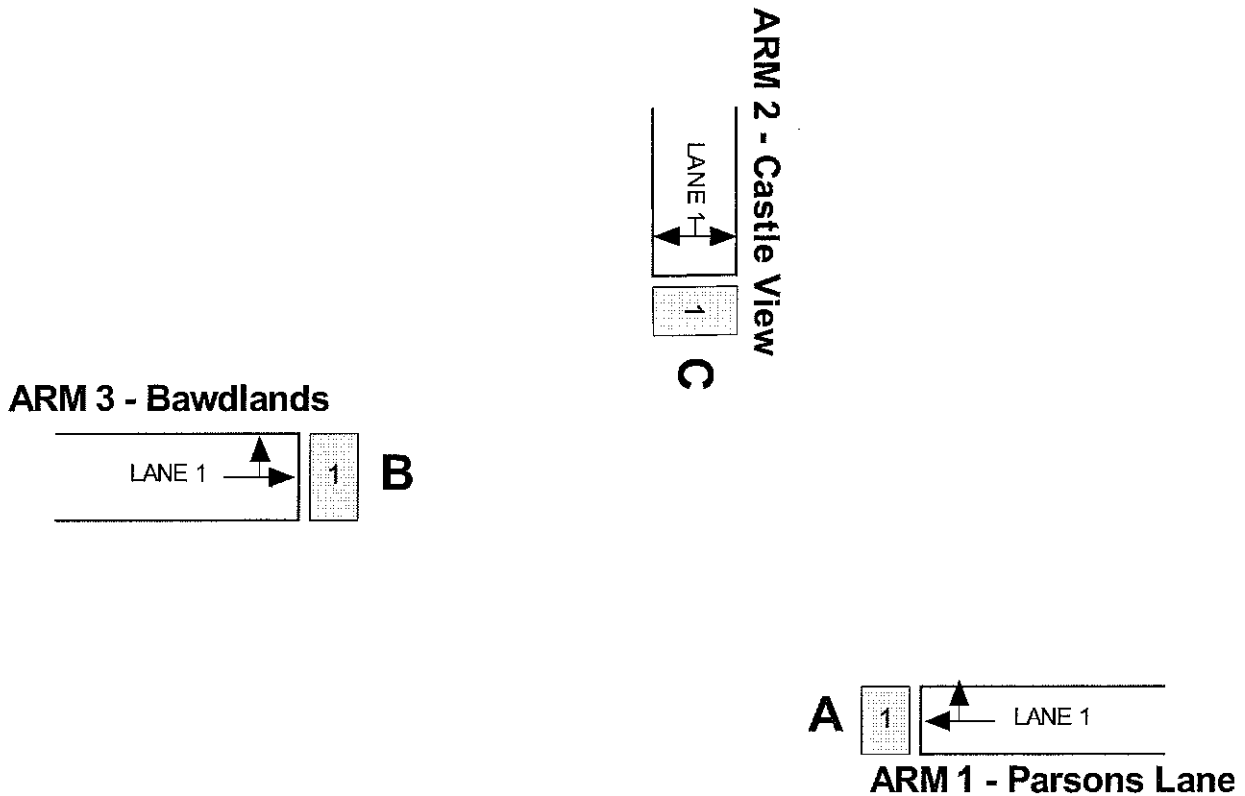
Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1859	Yes	0	A	-
2	1	Traffic		1572	Yes	0	C	-
3	1	Traffic		1968	Yes	0	B	-


Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	IsNearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1			3	2	0.09	7	Yes	2.80	0.0	0
2	1	1		1		3	1.00	6	Yes	3.50	0.0	0
3	1	1		2	1		0.04	16	Yes	3.60	0.0	0

Junction Diagram



OSCADY PRO		
GUI Version: 1.3 [16/04/09] Analysis Program Version: v1.3 23/03/2009		
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File: A:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Oscady Pro\Castle View Signals\Castle View Bawdlands Parsons Lane Signals.osc
 Report generation date: 07/10/2012 12:53:22

Summary

File Description

Title	(untitled)
Date	05/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	Yes
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

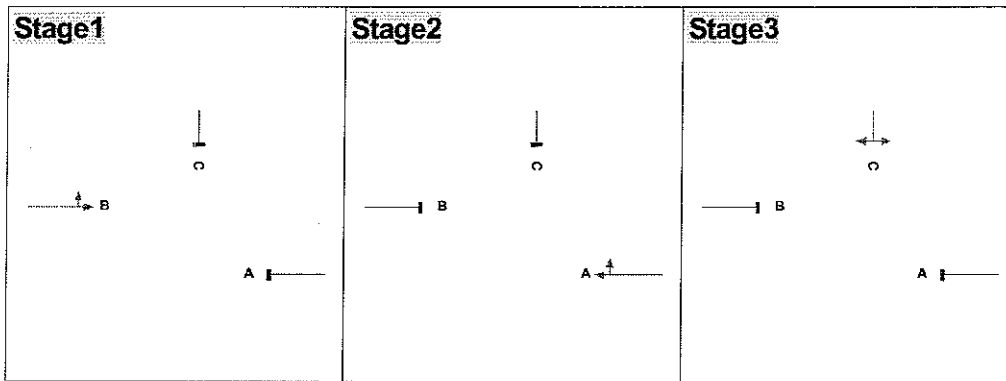
Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Parsons Lane	50.0	10	10	80	0
2	Castle View	50.0	10	10	80	0
3	Bawdlands	50.0	10	10	80	0

320120913P

Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	364	A	9.50	53.46	5.41	88.63	1.55	4.42	8.07	3.65	5.50
2	1	150	C	8.50	22.35	0.93	48.27	86.45	0.30	1.79	1.48	4.70
3	1	452	B	11.50	39.63	4.98	85.88	4.80	3.58	7.93	4.35	8.40

Results

Note: Duplicate solutions are not shown

Sequence1; Objective: CRITICAL CYCLE TIME

Errors and Warnings

Code	Description
W6	The option to optimise for critical cycle time only has been selected.

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
43.0	1.55	11.31	11.31	18.6

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective
- PRC is the lowest value encountered over all streams.
- Rate of delay is the sum of each stream's rate of delay

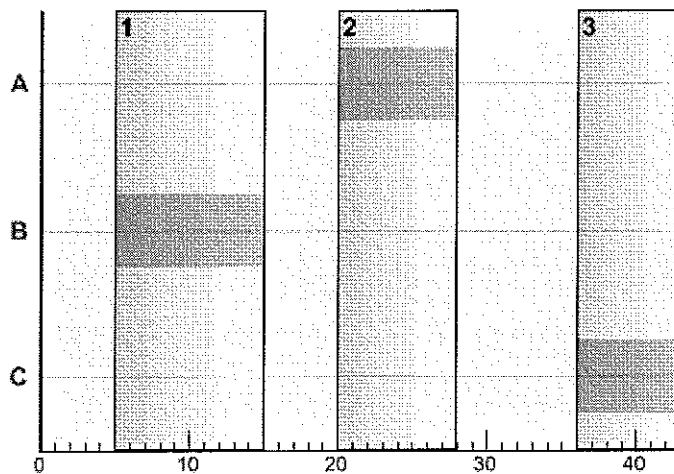
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	5.0	10.0	15.0
2	20.0	8.0	28.0
3	36.0	7.0	0.0

Phase Timings

Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	20	8.0	28						
B	5	10.0	15						
C	36	7.0	0						

Phase Timings Diagram



320120913P

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2012 AM Base	No	08:00	09:00	FLAT	No	D1
2012 PM Base	No	08:00	09:00	FLAT	No	D1
2017 AM Base	No	08:00	09:00	FLAT	No	D1
2017 PM Base	No	08:00	09:00	FLAT	No	D1
2012 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2012 PM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 AM Base + Dev	Yes	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	No	08:00	09:00	FLAT	No	D1

Demand Set7 - 2017 AM Base + Dev

Traffic flows (PCU/hr)

Arm	Traffic Stream	Phase	08:00-09:00
1 - Parsons Lane	1	A	364
2 - Castle View	1	C	150
3 - Bawdlands	1	B	452

Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Parsons Lane	-	90	10
2 - Castle View	41	-	59
3 - Bawdlands	6	94	-

Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No

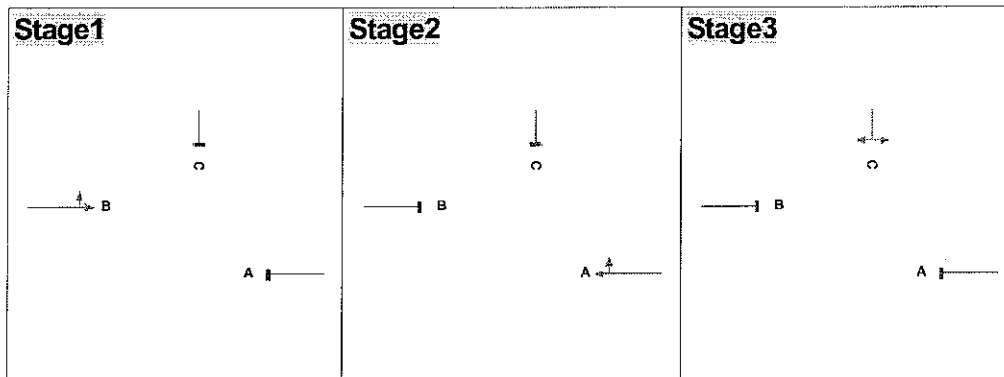
Intergreen Matrix

		To		
		A	B	C
From	A	-	8	8
	B	5	-	5
	C	5	5	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	B	Yes
2	7.0	A	Yes
3	7.0	C	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2,3

Constraints

(No constraints)

320120913P

Traffic Streams

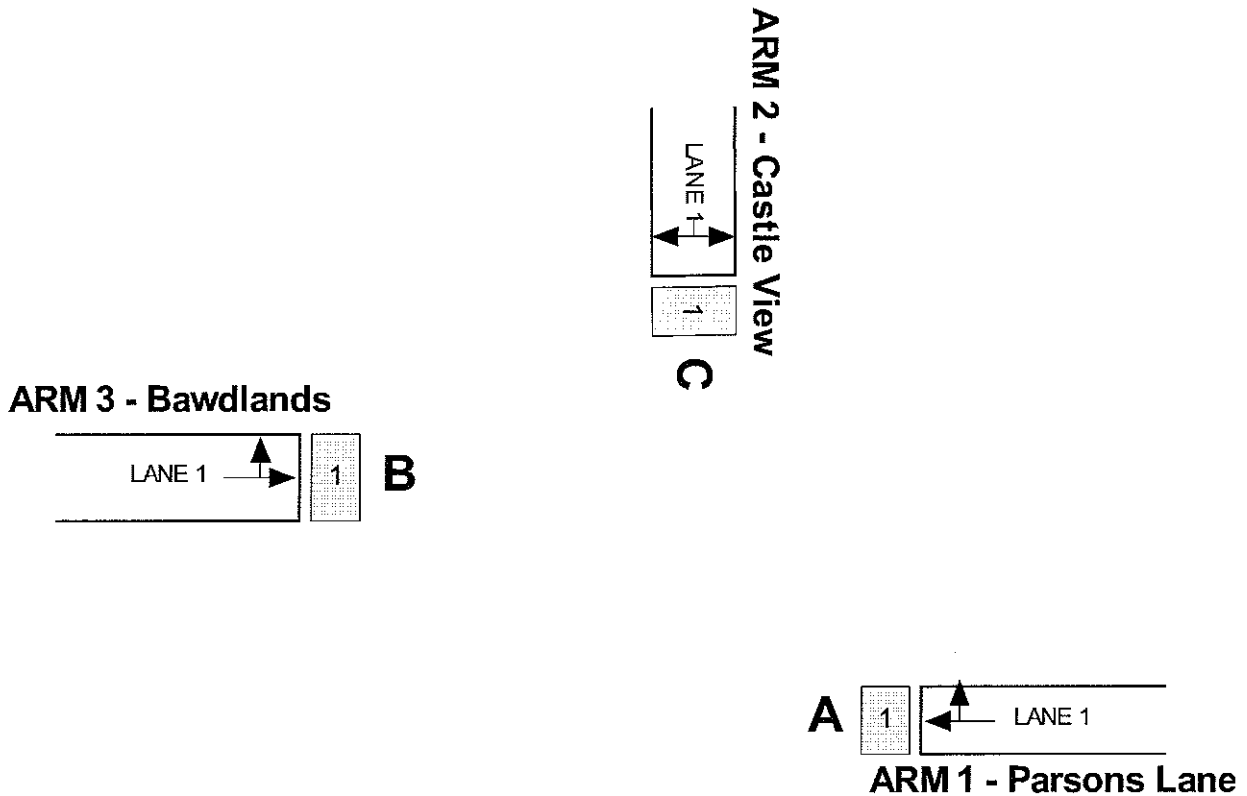
Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1859	Yes	0	A	-
2	1	Traffic		1572	Yes	0	C	-
3	1	Traffic		1968	Yes	0	B	-


Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	IsNearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1			3	2	0.09	7	Yes	2.80	0.0	0
2	1	1		1		3	1.00	6	Yes	3.50	0.0	0
3	1	1		2	1		0.04	16	Yes	3.60	0.0	0

Junction Diagram



OSCADY PRO		
GUI Version: 1.3 [16/04/09] Analysis Program Version: v1.3 23/03/2009		
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File: A:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Oscady Pro\Castle View Signals\Castle View Bawdlands Parsons Lane Signals.osc
 Report generation date: 07/10/2012 12:52:33

Summary

File Description

Title	(untitled)
Date	05/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	Yes
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

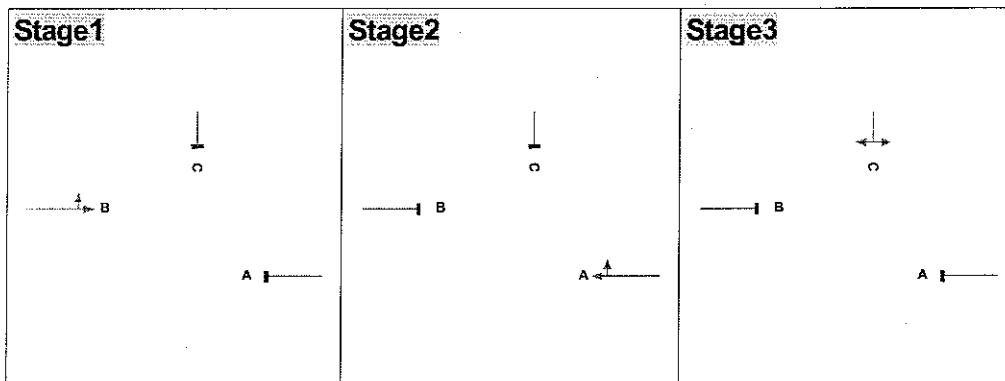
Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Parsons Lane	50.0	10	10	80	0
2	Castle View	50.0	10	10	80	0
3	Bawdlands	50.0	10	10	80	0

320120913P

Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	591	A	18.50	41.94	6.88	89.36	0.72	5.19	11.43	6.24	11.90
2	1	103	C	8.50	25.60	0.73	40.08	124.53	0.18	1.45	1.27	3.00
3	1	375	B	11.50	49.29	5.13	86.16	4.46	3.57	8.13	4.56	6.10

Results

Note: Duplicate solutions are not shown.

Sequence 1; Objective: CRITICAL CYCLE TIME

Errors and Warnings

Code	Description
W6	The option to optimise for critical cycle time only has been selected.

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
52.0	0.72	12.75	12.75	21.0

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective
- PRC is the lowest value encountered over all streams.
- Rate of delay is the sum of each stream's rate of delay

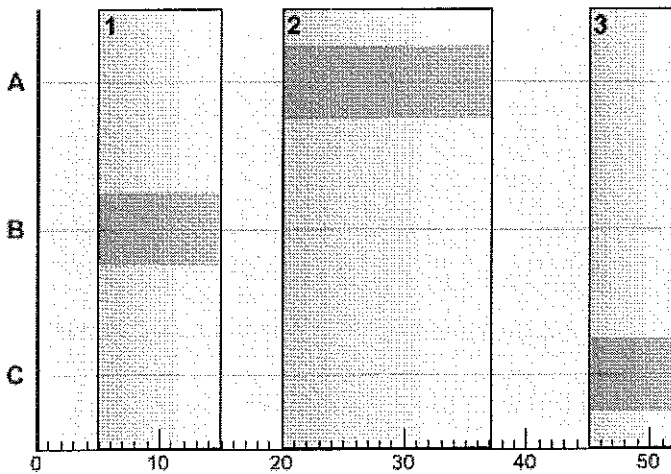
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	5.0	10.0	15.0
2	20.0	17.0	37.0
3	45.0	7.0	0.0

Phase Timings

Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	20	17.0	37						
B	5	10.0	15						
C	45	7.0	0						

Phase Timings Diagram



320120913P

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables.

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2012 AM Base	No	08:00	09:00	FLAT	No	D1
2012 PM Base	No	08:00	09:00	FLAT	No	D1
2017 AM Base	No	08:00	09:00	FLAT	No	D1
2017 PM Base	No	08:00	09:00	FLAT	No	D1
2012 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2012 PM Base + Dev	Yes	08:00	09:00	FLAT	No	D1
2017 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	No	08:00	09:00	FLAT	No	D1

Demand Set6 - 2012 PM Base + Dev

Traffic flows (PCU/hr)

Arm	Traffic Stream	Phase	08:00-09:00
1 - Parsons Lane	1	A	591
2 - Castle View	1	C	103
3 - Bawdlands	1	B	375

Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Parsons Lane	-	84	16
2 - Castle View	50	-	50
3 - Bawdlands	14	86	-

Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No

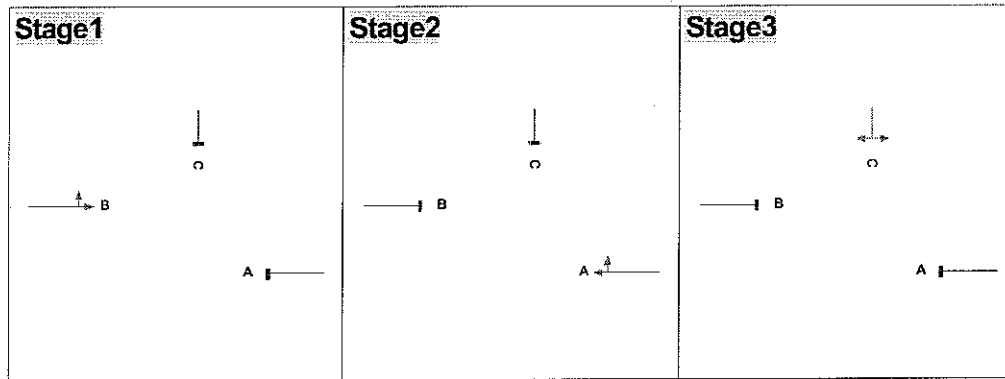
Intergreen Matrix

		To		
		A	B	C
From	A	-	8	8
	B	5	-	5
	C	5	5	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	B	Yes
2	7.0	A	Yes
3	7.0	C	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2,3

Constraints

(No constraints)

320120913P

Traffic Streams

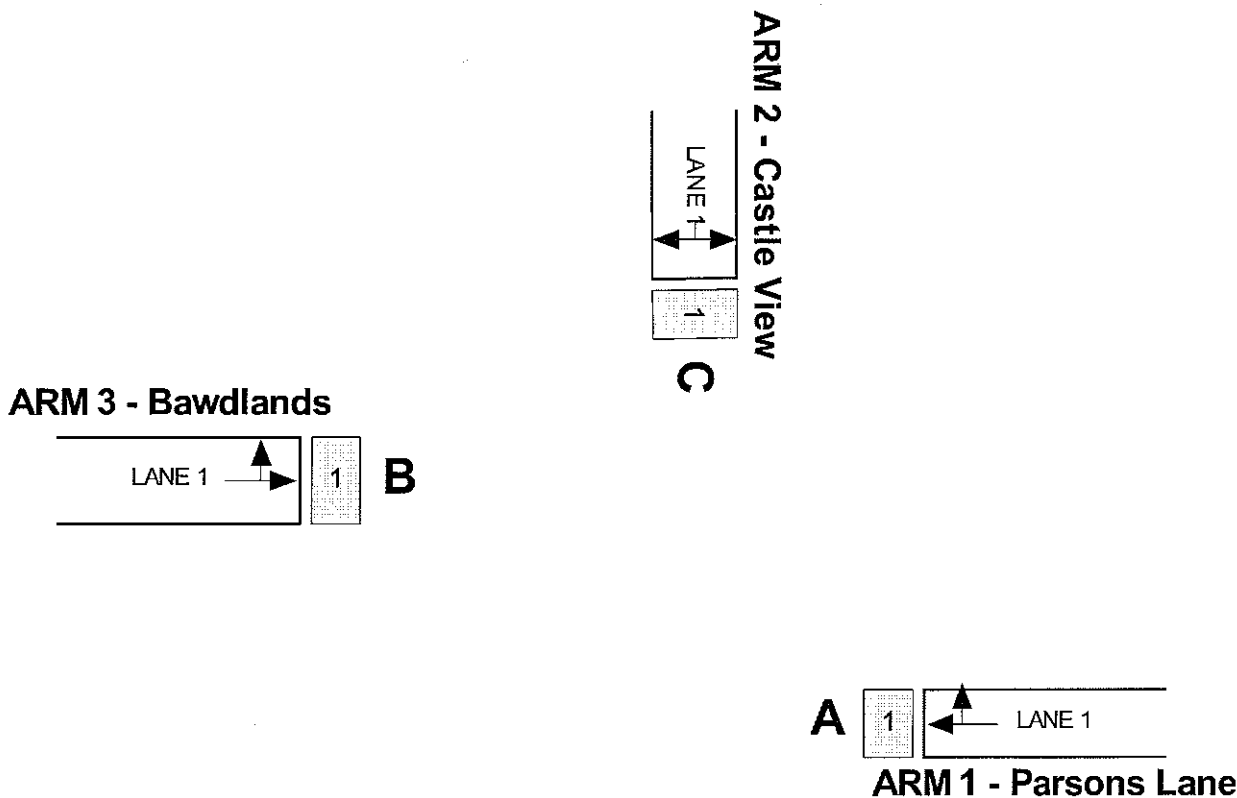
Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1859	Yes	0	A	-
2	1	Traffic		1572	Yes	0	C	-
3	1	Traffic		1968	Yes	0	B	-

Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	IsNearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1			3	2	0.09	7	Yes	2.80	0.0	0
2	1	1		1		3	1.00	6	Yes	3.50	0.0	0
3	1	1		2	1		0.04	16	Yes	3.60	0.0	0

Junction Diagram



OSCADY PRO

GUI Version: 1.3 [16/04/09]
Analysis Program Version: v1.3 23/03/2009

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Web: www.trlsoftware.co.uk

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File: A:\Project_008_02 Clitheroe DTTC\Post Appeal 250912\Oscady Pro\Castle View Signals\Castle View Bawdlands Parsons Lane Signals osc
Report generation date: 07/10/2012 12:51:41

Summary

File Description

Title	(untitled)
Date	05/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	Yes
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

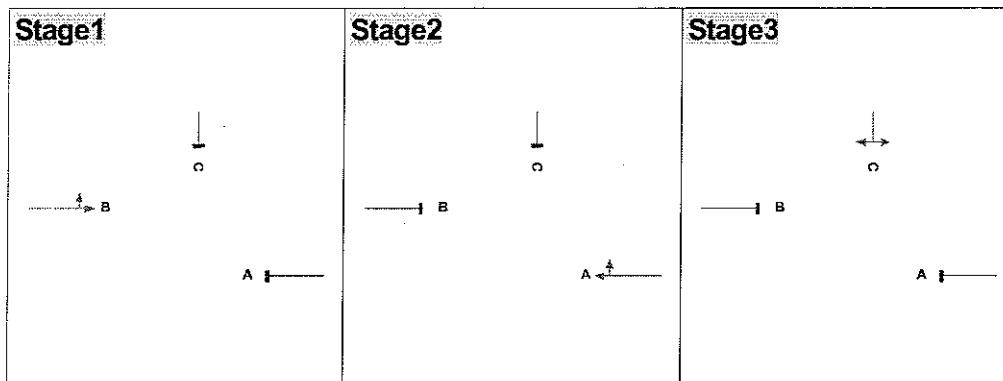
Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Parsons Lane	50.0	10	10	80	0
2	Castle View	50.0	10	10	80	0
3	Bawdlands	50.0	10	10	80	0

320120913P

Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	350	A	9.50	40.97	3.98	83.24	8.13	2.79	6.18	3.40	6.30
2	1	146	C	8.50	21.00	0.85	45.89	96.12	0.26	1.66	1.40	4.80
3	1	435	B	10.50	46.56	5.63	88.41	1.79	4.47	8.64	4.17	7.10

Results

Note: Duplicate solutions are not shown.

Sequence 1; Objective: CRITICAL CYCLE TIME

Errors and Warnings

Code	Description
W6	The option to optimise for critical cycle time only has been selected.

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
42.0	1.79	10.46	10.46	18.2

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective.
- PRC is the lowest value encountered over all streams.
- Rate of delay is the sum of each stream's rate of delay

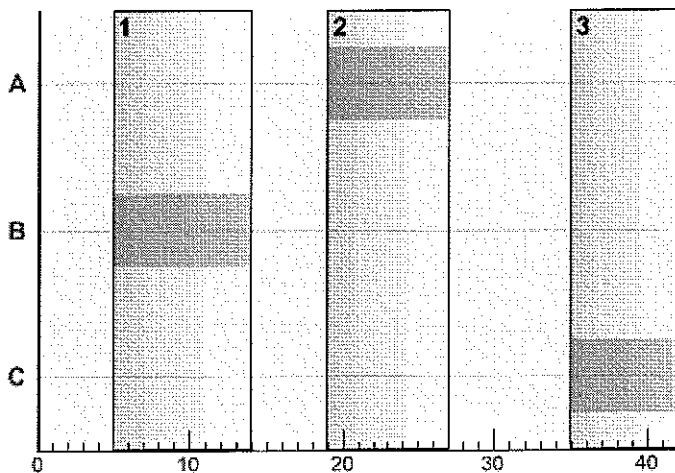
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	5.0	9.0	14.0
2	19.0	8.0	27.0
3	35.0	7.0	42.0

Phase Timings

Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	19	8.0	27						
B	5	9.0	14						
C	35	7.0	42						

Phase Timings Diagram



320120913P

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables.

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2012 AM Base	No	08:00	09:00	FLAT	No	D1
2012 PM Base	No	08:00	09:00	FLAT	No	D1
2017 AM Base	No	08:00	09:00	FLAT	No	D1
2017 PM Base	No	08:00	09:00	FLAT	No	D1
2012 AM Base + Dev	Yes	08:00	09:00	FLAT	No	D1
2012 PM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	No	08:00	09:00	FLAT	No	D1

Demand Set5 - 2012 AM Base + Dev

Traffic flows (PCU/hr)

Arm	Traffic Stream	Phase	08:00-09:00
1 - Parsons Lane	1	A	350
2 - Castle View	1	C	146
3 - Bawdlands	1	B	435

Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Parsons Lane	-	90	10
2 - Castle View	41	-	59
3 - Bawdlands	6	94	-

Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No

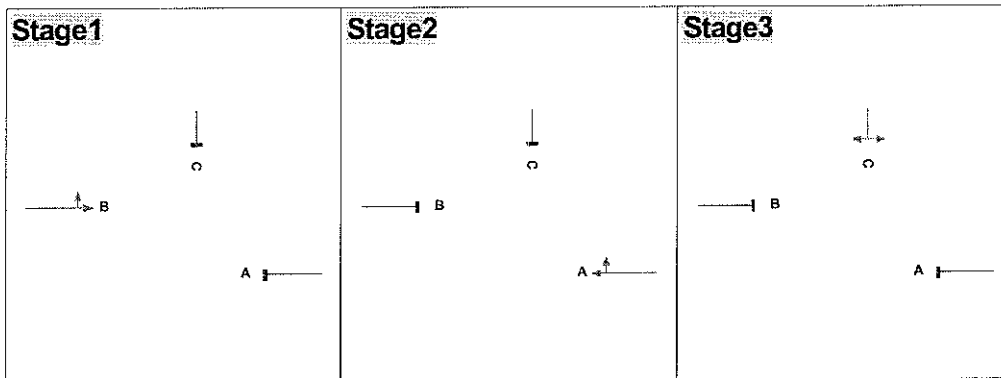
Intergreen Matrix

		To		
		A	B	C
From	A	-	8	8
	B	5	-	5
	C	5	5	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	B	Yes
2	7.0	A	Yes
3	7.0	C	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2,3

Constraints

(No constraints)

320120913P

Traffic Streams

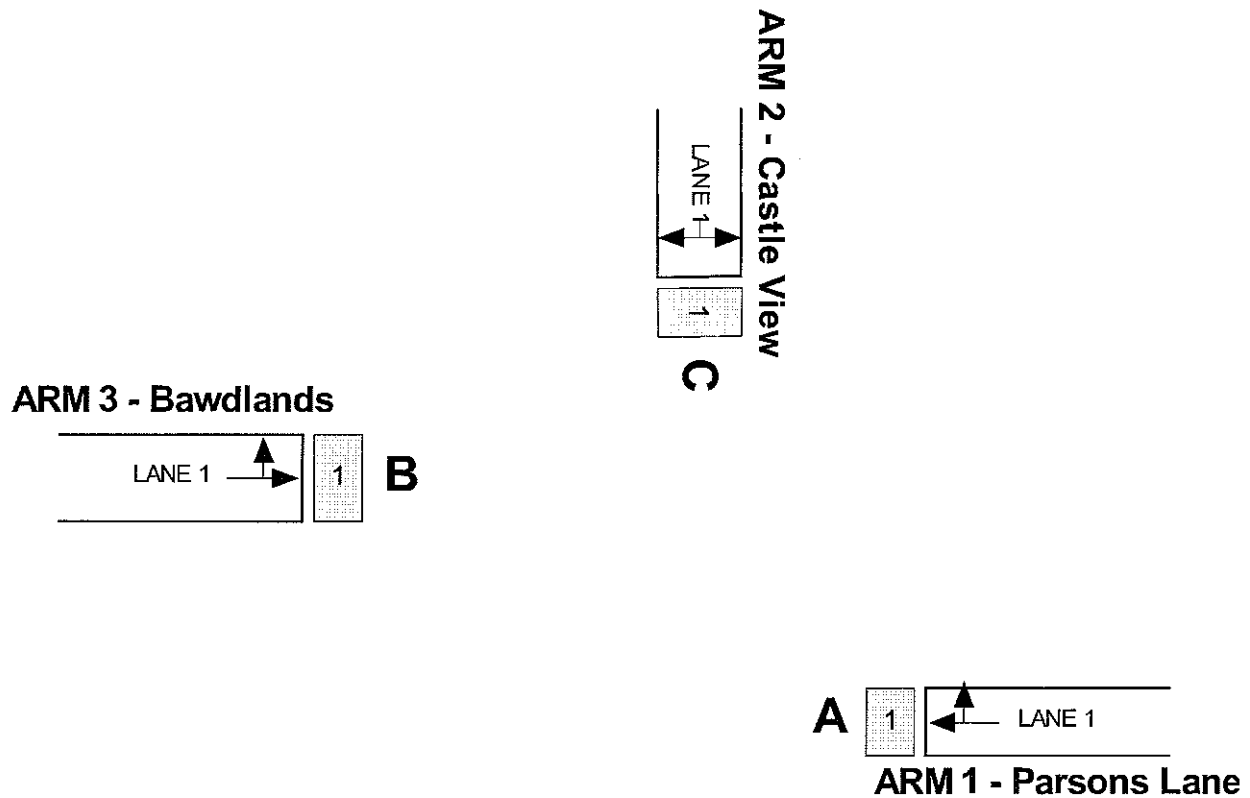
Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1859	Yes	0	A	-
2	1	Traffic		1572	Yes	0	C	-
3	1	Traffic		1968	Yes	0	B	-


Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	IsNearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1			3	2	0.09	7	Yes	2.80	0.0	0
2	1	1		1		3	1.00	6	Yes	3.50	0.0	0
3	1	1		2	1		0.04	16	Yes	3.60	0.0	0

Junction Diagram



OSCADY PRO		
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File: A:\Project_008_02 Clitheroe DTTC\Post Appeal 250912\Oscady Pro\Castle View Signals\Castle View Bawdlands Parsons Lane Signals osc
Report generation date: 07/10/2012 12:50:45

Summary

File Description

Title	(untitled)
Date	05/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	Yes
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

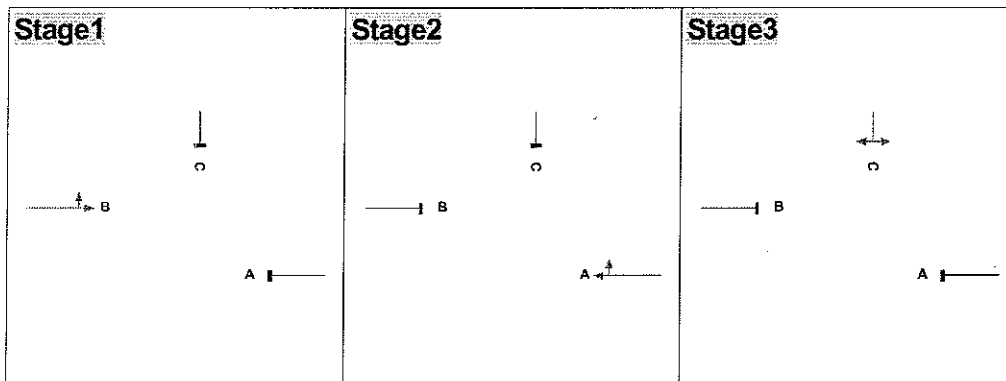
Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Parsons Lane	50.0	10	10	80	0
2	Castle View	50.0	10	10	80	0
3	Bawdlands	50.0	10	10	80	0

320120913P

Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	580	A	18.50	38.57	6.21	87.70	2.63	4.39	10.50	6.11	12.60
2	1	77	C	8.50	23.07	0.49	29.97	200.34	0.09	1.03	0.94	2.50
3	1	379	B	11.50	51.27	5.40	87.08	3.35	3.87	8.48	4.61	6.00

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables.

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2012 AM Base	No	08:00	09:00	FLAT	No	D1
2012 PM Base	No	08:00	09:00	FLAT	No	D1
2017 AM Base	No	08:00	09:00	FLAT	No	D1
2017 PM Base	No	08:00	09:00	FLAT	No	D1
2012 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2012 PM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	Yes	08:00	09:00	FLAT	No	D1

Demand Set8 - 2017 PM Base + Dev

Traffic flows (PCU/hr)

Arm	Traffic Stream	Phase	08:00-09:00
1 - Parsons Lane	1	A	616
2 - Castle View	1	C	106
3 - Bawdlands	1	B	391

Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Parsons Lane	-	84	16
2 - Castle View	14	-	86
3 - Bawdlands	50	50	-

320120913P

Results

Note: Duplicate solutions are not shown

Sequence 1; Objective: CRITICAL CYCLE TIME

Errors and Warnings

Code	Description
W6	The option to optimise for critical cycle time only has been selected.

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
55.0	1.24	13.41	13.41	22.3

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective.
- PRC is the lowest value encountered over all streams.
- Rate of delay is the sum of each stream's rate of delay

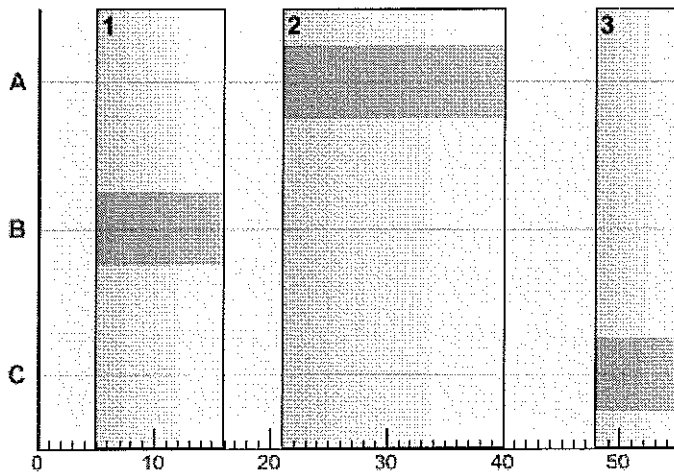
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	5.0	11.0	16.0
2	21.0	19.0	40.0
3	48.0	7.0	55.0

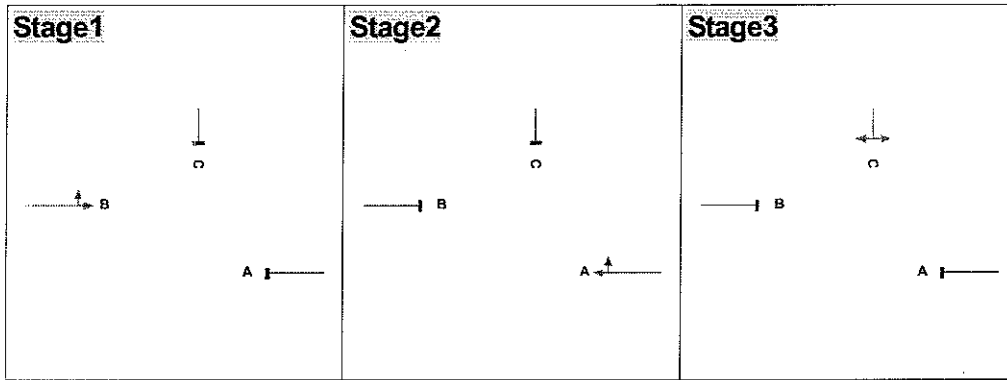
Phase Timings

Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	21	19.0	40						
B	5	11.0	16						
C	48	7.0	55						

Phase Timings Diagram




Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	616	A	20.50	40.33	6.90	88.90	1.24	5.00	11.73	6.73	13.20
2	1	106	C	8.50	28.56	0.84	43.63	106.27	0.23	1.63	1.40	2.90
3	1	391	B	12.50	52.23	5.67	87.42	2.95	4.00	9.01	5.01	6.20

320120913P

OSCADY PRO		
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File: A:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Oscady Pro\Shawbridge Street Signals\Shawbridge Street Waterloo Road osc
 Report generation date: 07/10/2012 13:00:18

Summary

Data Errors and Warnings

Severity	Area	Description
Info	Opposition	100% of the traffic on Arm2, Traffic Stream 1 opposes another traffic stream.
Info	Opposition	Arm3 Traffic Stream 1: proportion of traffic making opposed movement has been calculated as 0.25.

File Description

Title	(untitled)
Date	06/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	No
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Shawbridge Street	50.0	10	10	80	0
2	Waterloo Road N	50.0	10	10	80	0
3	Waterloo Road S	50.0	10	10	80	0

Traffic Streams

Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1864	Yes	0	C	-
2	1	Traffic		1864	Yes	0	A	-
3	1	Traffic		1932	Yes	0	B	-
(Ped)	1	Pedestrian		10000	Yes	0	D	-

Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0
(Ped)	1	0.0	0.0	90	100	0	0.0	-	0

Opposition

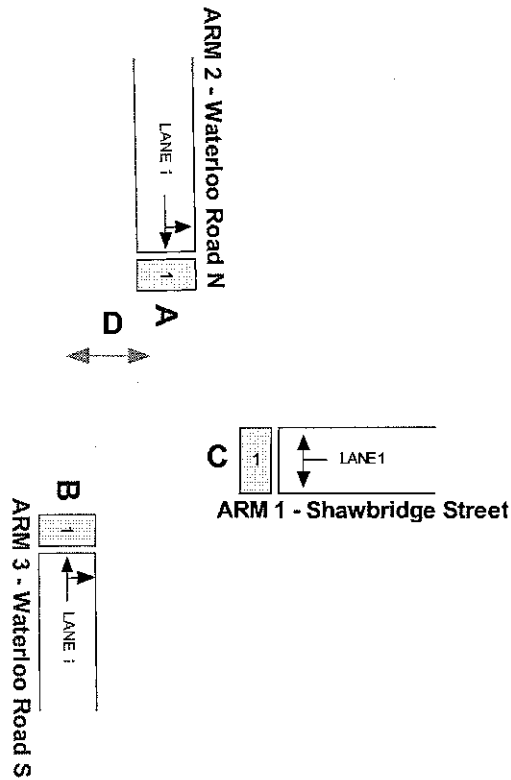
Arm	Traffic Stream	Is Opposed	Opposing Arm	Opposing Traffic Stream	Is Opposed By Nearside Turners	Is Opposed By Straight Aheads	Is Opposed By Offside Turners	Stored Vehicles (PCU)	Clearance Time (s)	Unopposed Displacement (s)	Intergreen From Opposing (s)	Intergreen To Opposing (s)
3	1	Yes	2	1	Yes	Yes	No	1	3	3	1	1

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	Is Nearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1		3		2	1.00	15	Yes	4.35	0.0	0
2	1	1		1	3		0.39	8	Yes	3.85	0.0	0
3	1	1			2	1	0.25	15	Yes	3.65	0.0	0

320120913P

Junction Diagram



Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No
D	(Name)	Pedestrian	-	5.0	0.0	No

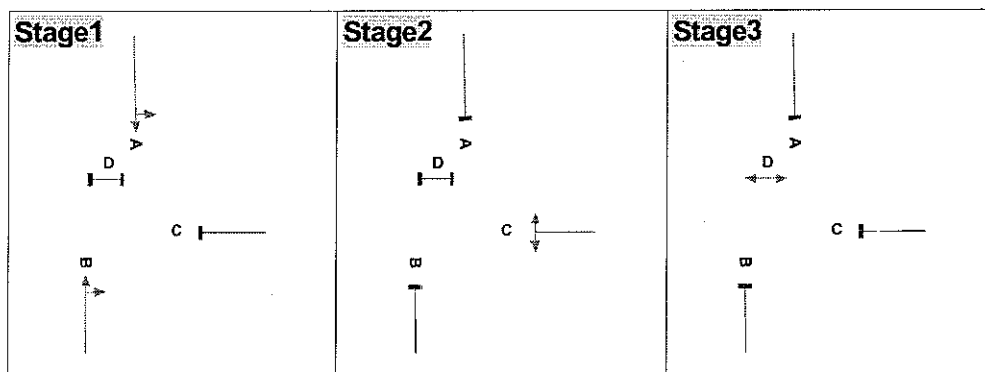
Intergreen Matrix

		To			
		A	B	C	D
From	A	-		5	5
	B		-	5	5
	C	5	5	-	5
	D	8	8	8	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	A,B	Yes
2	7.0	C	Yes
3	5.0	D	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2,3

Constraints

(No constraints)

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2017 AM Base + Dev	Yes	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	No	17:00	18:00	FLAT	No	D1

320120913P

Demand Set1 - 2017 AM Base + Dev**Traffic flows (PCU/hr)**

Arm	Traffic Stream	Phase	08:00-09:00
1 - Shawbridge Street	1	C	412
2 - Waterloo Road N	1	A	793
3 - Waterloo Road S	1	B	416
Pedestrians	1	D	10

Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Shawbridge Street	19	-	81
2 - Waterloo Road N	39	61	-
3 - Waterloo Road S	-	75	25

Results

Note: Duplicate solutions are not shown

Sequence1; Objective: CRITICAL CYCLE TIME

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
102.0	1.80	21.62	21.62	52.7

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective
- PRC is the lowest value encountered over all streams.
- Rate of delay is the sum of each stream's rate of delay

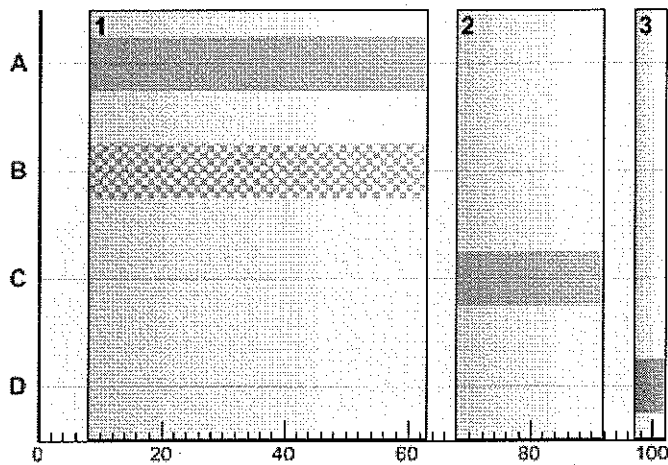
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	8.0	55.0	63.0
2	68.0	24.0	92.0
3	97.0	5.0	0.0

Phase Timings

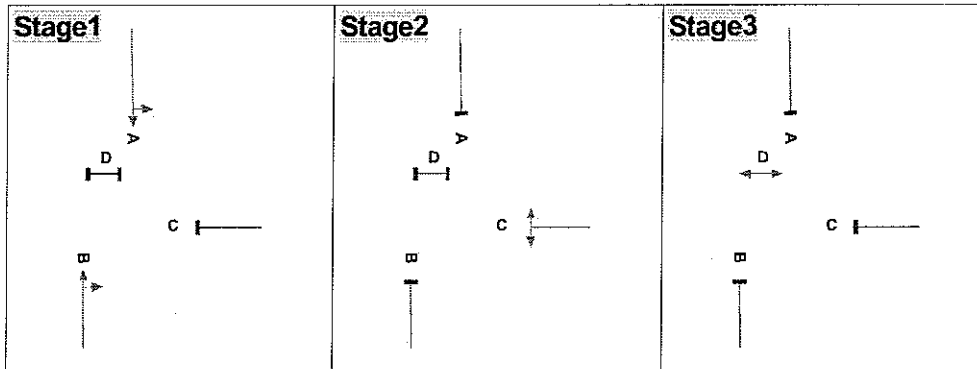
Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	8	55.0	63						
B	8	55.0	63						
C	68	24.0	92						
D	97	5.0	0						

Phase Timings Diagram



320120913P


Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	412	C	25.50	69.73	7.98	88.41	1.80	4.42	13.97	9.54	6.70
2	1	793	A	56.50	25.12	5.53	76.80	17.18	1.97	13.88	11.91	42.50
3	1	416	B	21.61	78.52	9.07	87.27	3.13	3.99	14.12	10.13	3.50
Ped	1	10	D	6.50	44.81	0.12	1.57	9999.00	0.00	0.27	0.27	0.00

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File: A:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Oscady Pro\Shawbridge Street Signals\Shawbridge Street Waterloo Road osc
 Report generation date: 07/10/2012 13:01:14

Summary

Data Errors and Warnings

Severity	Area	Description
Info	Opposition	100% of the traffic on Arm2, Traffic Stream 1 opposes another traffic stream.
Info	Opposition	Arm3 Traffic Stream 1: proportion of traffic making opposed movement has been calculated as 0.23.

File Description

Title	(untitled)
Date	06/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	No
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Shawbridge Street	50.0	10	10	80	0
2	Waterloo Road N	50.0	10	10	80	0
3	Waterloo Road S	50.0	10	10	80	0

Traffic Streams

Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1864	Yes	0	C	-
2	1	Traffic		1864	Yes	0	A	-
3	1	Traffic		1932	Yes	0	B	-
(Ped)	1	Pedestrian		10000	Yes	0	D	-

Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0
(Ped)	1	0.0	0.0	90	100	0	0.0	-	0

Opposition

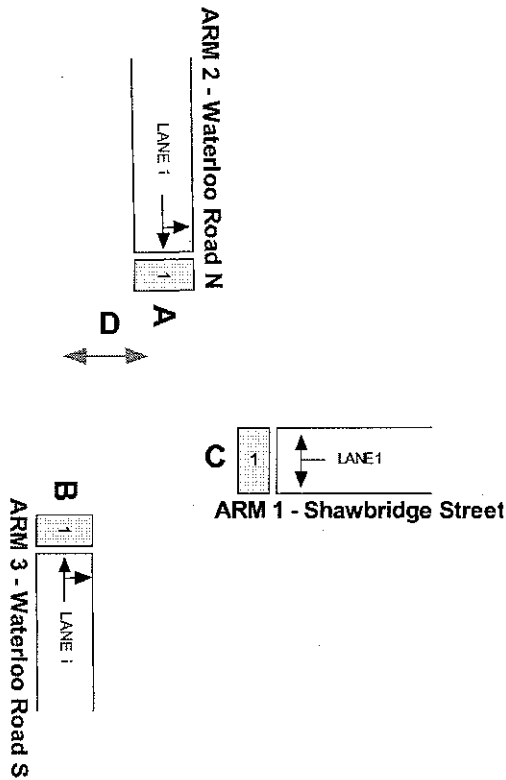
Arm	Traffic Stream	Is Opposed	Opposing Arm	Opposing Traffic Stream	Is Opposed By Nearside Turners	Is Opposed By Straight Aheads	Is Opposed By Offside Turners	Stored Vehicles (PCU)	Clearance Time (s)	Unopposed Displacement (s)	Intergreen From Opposing (s)	Intergreen To Opposing (s)
3	1	Yes	2	1	Yes	Yes	No	1	3	3	1	1

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	Is Nearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1		3		2	1.00	15	Yes	4.35	0.0	0
2	1	1		1	3		0.39	8	Yes	3.85	0.0	0
3	1	1			2	1	0.25	15	Yes	3.65	0.0	0

320120913P

Junction Diagram



Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No
D	(Name)	Pedestrian	-	5.0	0.0	No

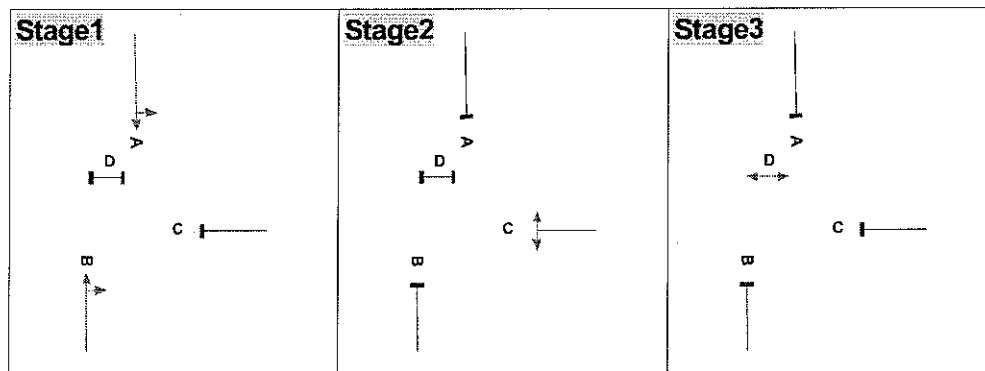
Intergreen Matrix

		To			
		A	B	C	D
From	A	-	-	5	5
	B	-	-	5	5
	C	5	5	-	5
	D	8	8	8	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	A,B	Yes
2	7.0	C	Yes
3	5.0	D	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2,3

Constraints

(No constraints)

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2017 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	Yes	17:00	18:00	FLAT	No	D1

320120913P

Demand Set2 - 2017 PM Base + Dev**Traffic flows (PCU/hr)**

Arm	Traffic Stream	Phase	17:00-18:00
1 - Shawbridge Street	1	C	399
2 - Waterloo Road N	1	A	903
3 - Waterloo Road S	1	B	413
Pedestrians	1	D	10

Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Shawbridge Street	33	-	67
2 - Waterloo Road N	39	61	-
3 - Waterloo Road S	-	77	23

Results

Note: Duplicate solutions are not shown

Sequence1; Objective: CRITICAL CYCLE TIME

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
111.0	0.38	24.67	24.67	51.6

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective
- PRC is the lowest value encountered over all streams.
- Rate of delay is the sum of each stream's rate of delay

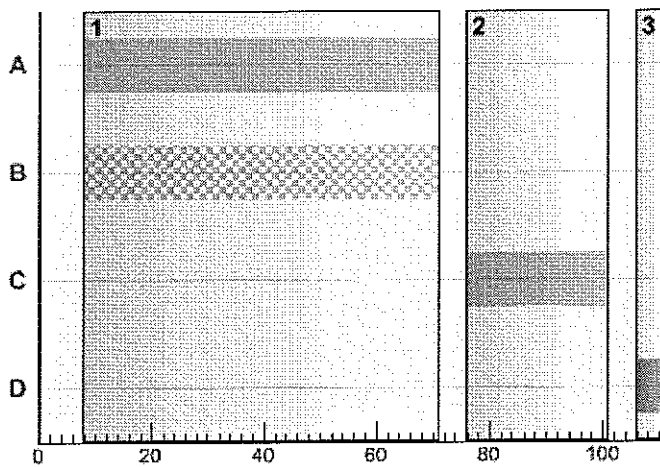
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	8.0	63.0	71.0
2	76.0	25.0	101.0
3	106.0	5.0	0.0

Phase Timings

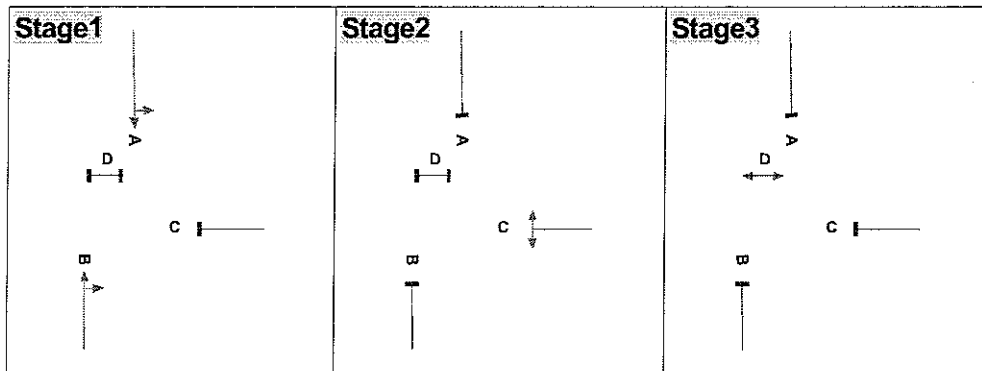
Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	8	63.0	71						
B	8	63.0	71						
C	76	25.0	101						
D	106	5.0	0						

Phase Timings Diagram



320120913P


Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	399	C	26.50	78.51	8.70	89.66	0.38	4.96	15.14	10.18	6.10
2	1	903	A	64.50	29.45	7.39	83.37	7.95	3.30	17.53	14.23	42.00
3	1	413	B	19.51	82.29	9.44	86.81	3.68	3.83	15.27	11.44	3.50
Ped	1	10	D	6.50	49.30	0.14	1.71	9999.00	0.00	0.29	0.29	0.00

320120913P

OSCADY PRO		
GUI Version: 1.3 [16/04/09] Analysis Program Version: v1 3 23/03/2009		
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TRL Limited Crowthorne House Nine Mile Ride Wokingham, Berks RG40 3GA, UK		Tel: +44 (0)1344 770758 Fax: +44 (0)1344 770864 E-mail: software@trl.co.uk Web: www.trlsoftware.co.uk
<small>The user of this computer program for the solution of an engineering problem is in no way relieved of their responsibility for the correctness of the solution</small>		

File: A:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Oscady Pro\Shawbridge Street Signals\Shawbridge Street Waterloo Road No Peds osc
 Report generation date: 08/10/2012 09:17:37

Summary

Data Errors and Warnings

Severity	Area	Description
Info	Opposition	100% of the traffic on Arm2, Traffic Stream 1 opposes another traffic stream.
Info	Opposition	Arm3 Traffic Stream 1: proportion of traffic making opposed movement has been calculated as 0.25.

File Description

Title	(untitled)
Date	06/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	No
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Shawbridge Street	50.0	10	10	80	0
2	Waterloo Road N	50.0	10	10	80	0
3	Waterloo Road S	50.0	10	10	80	0

Traffic Streams

Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1864	Yes	0	C	-
2	1	Traffic		1864	Yes	0	A	-
3	1	Traffic		1932	Yes	0	B	-

Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0

Opposition

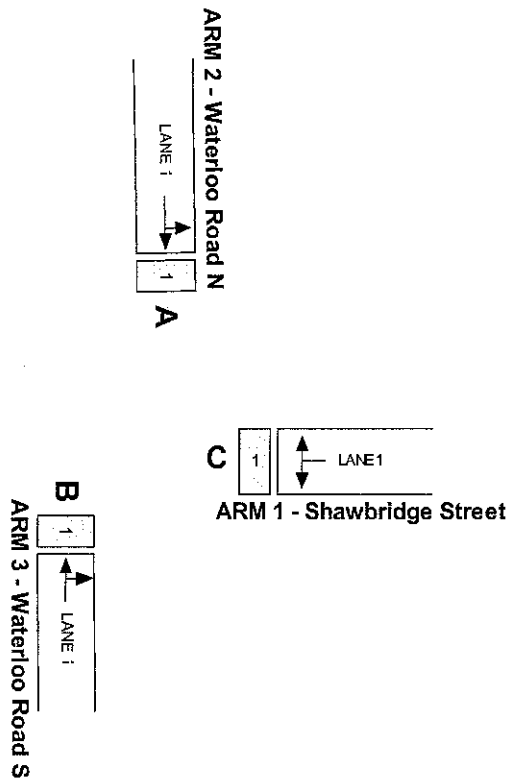
Arm	Traffic Stream	Is Opposed	Opposing Arm	Opposing Traffic Stream	Is Opposed By Nearside Turners	Is Opposed By Straight Aheads	Is Opposed By Offside Turners	Stored Vehicles (PCU)	Clearance Time (s)	Unopposed Displacement (s)	Intergreen From Opposing (s)	Intergreen To Opposing (s)
3	1	Yes	2	1	Yes	Yes	No	1	3	3	1	1

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	Is Nearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1		3		2	1.00	15	Yes	4.35	0.0	0
2	1	1		1	3		0.39	8	Yes	3.85	0.0	0
3	1	1			2	1	0.25	15	Yes	3.65	0.0	0

320120913P

Junction Diagram



Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No

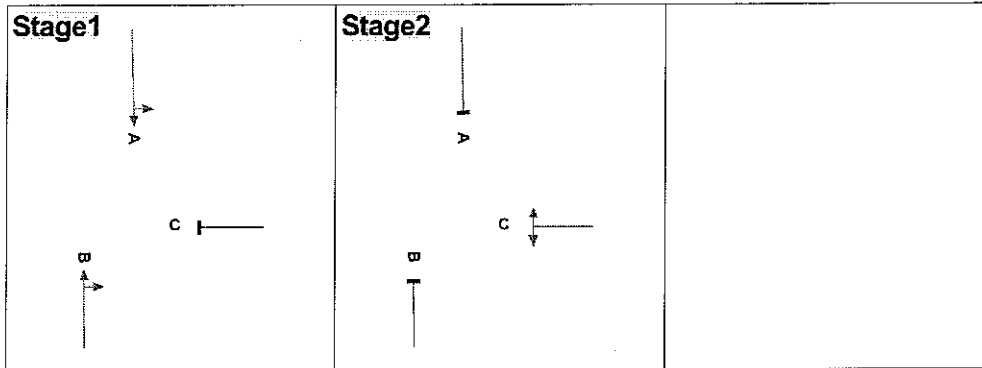
Intergreen Matrix

		To		
		A	B	C
From	A	-		5
	B		-	5
	C	5	5	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	A,B	Yes
2	7.0	C	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2

Constraints

(No constraints)

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables.

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2017 AM Base + Dev	Yes	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	No	17:00	18:00	FLAT	No	D1

Demand Set1 - 2017 AM Base + Dev

Traffic flows (PCU/hr)

Arm	Traffic Stream	Phase	08:00-09:00
1 - Shawbridge Street	1	C	412
2 - Waterloo Road N	1	A	793
3 - Waterloo Road S	1	B	416

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Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Shawbridge Street	19	-	81
2 - Waterloo Road N	39	61	-
3 - Waterloo Road S	-	75	25

Results

Note: Duplicate solutions are not shown

Sequence1; Objective: CRITICAL CYCLE TIME

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
34.0	0.93	13.50	13.50	50.0

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective
- PRC is the lowest value encountered over all streams.
- Rate of delay is the sum of each stream's rate of delay

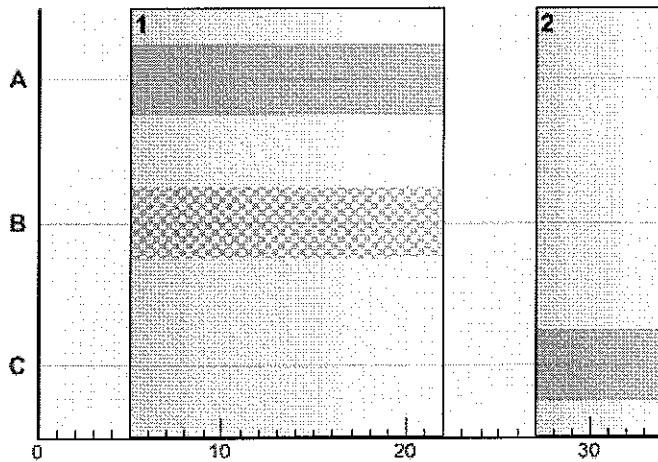
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	5.0	17.0	22.0
2	27.0	7.0	0.0

Phase Timings

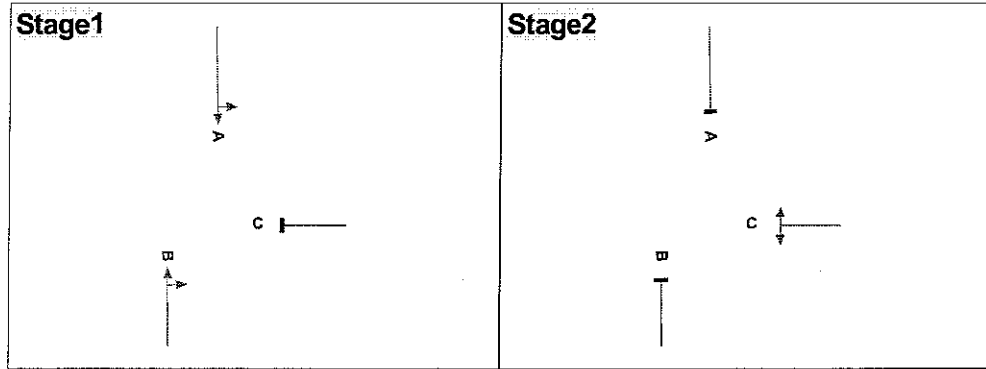
Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	5	17.0	22						
B	5	17.0	22						
C	27	7.0	0						

Phase Timings Diagram



320120913P


Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	412	C	8.50	45.18	5.17	88.41	1.80	4.42	7.60	3.18	6.70
2	1	793	A	18.50	14.34	3.16	78.19	15.11	2.17	6.23	4.06	39.80
3	1	416	B	4.86	48.95	5.66	89.17	0.93	4.77	8.44	3.67	3.50

320120913P

OSCADY PRO		
GUI Version: 1.3 [16/04/09] Analysis Program Version: v1 3 23/03/2009		
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<small>The user of this computer program for the solution of an engineering problem is in no way relieved of their responsibility for the correctness of the solution</small>		

File: A:\Project_008_02 Clitheroe DTPC\Post Appeal 250912\Oscady Pro\Shawbridge Street Signals\Shawbridge Street Waterloo Road No Peds.osc
 Report generation date: 08/10/2012 09:20:33

Summary

Data Errors and Warnings

Severity	Area	Description
Info	Opposition	100% of the traffic on Arm2, Traffic Stream 1 opposes another traffic stream.
Info	Opposition	Arm3 Traffic Stream 1: proportion of traffic making opposed movement has been calculated as 0.23.

File Description

Title	(untitled)
Date	06/10/2012
Location	
Driving Side	Left
Identifier	
Client	
Jobnumber	
Enumerator	Administrator
Status	(new file)
Description	

Run Options

Run Evaluation Set	No
Evaluation Only	No
Optimise Critical Cycle TimeOnly	No
Use Horizontal Queues	Yes
Favour Continuous Green	No
Phase Timings Fuzziness (s)	0.5
Integer Phase Timings	Yes
Phase Snapping Distance (s)	0
Automatic Lane Turning Props	Yes
Automatic Vehicle Props	No

Geometry

Arms

Arm	Name	Exit Width (m)	Approach Speed (kph)	Exit Speed (kph)	Speed Limit (kph)	Stagger Distance (m)
1	Shawbridge Street	50.0	10	10	80	0
2	Waterloo Road N	50.0	10	10	80	0
3	Waterloo Road S	50.0	10	10	80	0

Traffic Streams

Arm	Traffic Stream	Type	Name	Sat Flow (PCU/hr)	Estimate Sat Flow	Sat Flow 2 (PCU/hr)	Green Phase	Arrow Phase
1	1	Traffic		1864	Yes	0	C	-
2	1	Traffic		1864	Yes	0	A	-
3	1	Traffic		1932	Yes	0	B	-

Arm	Traffic Stream	Relative Start Displacement (s)	Relative End Displacement (s)	Max Deg Sat (%)	Delay Weight (%)	Max Queue (PCU)	Initial Queue (PCU)	Average PCU Per Veh	Heavy Vehicles Percentage
1	1	0.0	0.0	90	100	0	0.0	1.10	0
2	1	0.0	0.0	90	100	0	0.0	1.10	0
3	1	0.0	0.0	90	100	0	0.0	1.10	0

Opposition

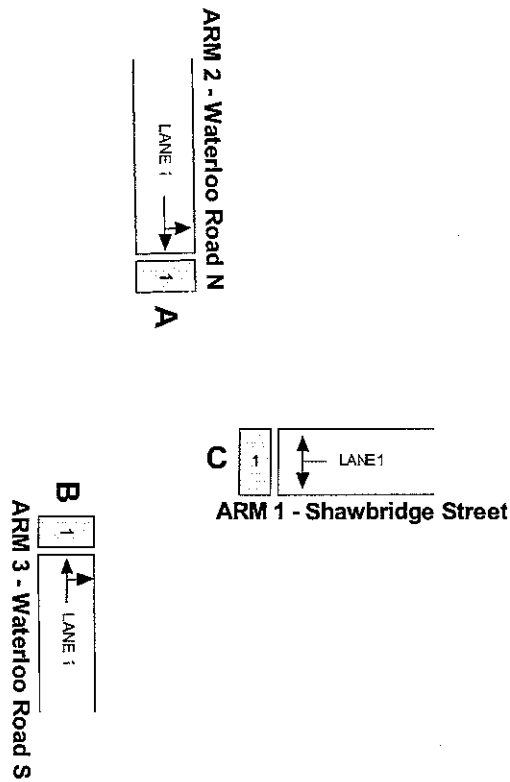
Arm	Traffic Stream	Is Opposed	Opposing Arm	Opposing Traffic Stream	Is Opposed By Nearside Turners	Is Opposed By Straight Aheads	Is Opposed By Offside Turners	Stored Vehicles (PCU)	Clearance Time (s)	Unopposed Displacement (s)	Intergreen From Opposing (s)	Intergreen To Opposing (s)
3	1	Yes	2	1	Yes	Yes	No	1	3	3	1	1

Lanes

Arm	Traffic Stream	Lane	Name	Nearside Dest Arm	Straight Dest Arm	Offside Dest Arm	Proportion That Turn	Turning Radius (m)	Is Nearside Lane	Width (m)	Gradient (%)	Short Lane Storage (PCU)
1	1	1		3		2	1.00	15	Yes	4.35	0.0	0
2	1	1		1	3		0.39	8	Yes	3.85	0.0	0
3	1	1			2	1	0.25	15	Yes	3.65	0.0	0

320120913P

Junction Diagram



Signals

Signals

Max Cycle Time (s)	120
Fixed Cycle Time (s)	0
Evaluation Cycle Time (s)	0
Start Displacement (s)	1.4
End Displacement (s)	2.9

Phases

Phase	Name	Type	Associated Phase	Phase Min Green (s)	Phase Max Green (s)	Double Green
A	(Name)	Traffic	-	7.0	0.0	No
B	(Name)	Traffic	-	7.0	0.0	No
C	(Name)	Traffic	-	7.0	0.0	No

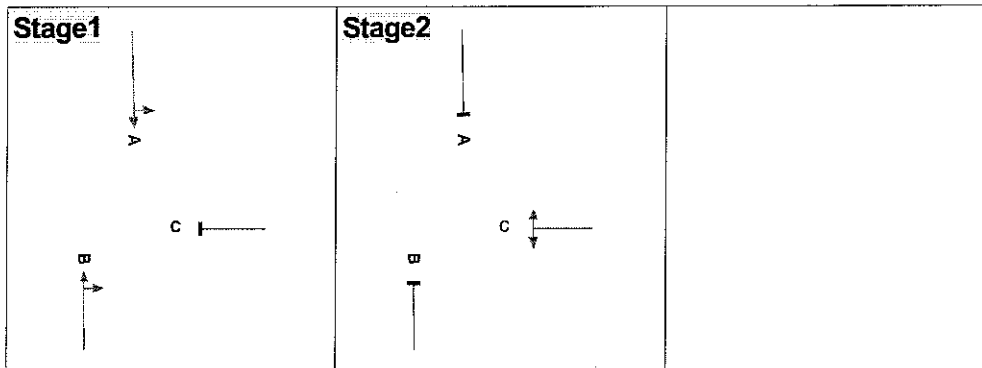
Intergreen Matrix

		To		
		A	B	C
From	A	-		5
	B		-	5
	C	5	5	-

Stages

Stage	Stage Min Green (s)	Phases In This Stage	Use To Generate Sequences
1	7.0	A,B	Yes
2	7.0	C	Yes

Stage Diagrams



Sequences

Sequence	Name	Stages In This Sequence
1		1,2

Constraints

(No constraints)

Traffic

Note: Traffic flows are only shown for selected demand sets. Resultant flows are the sums of the selected demand sets adjusted by the global traffic scaling factor, and are shown as the arrival rates in the final results tables

Configuration

Traffic Scaling Factor	1.00
Time Period (min)	60
Time Segment Length (min)	15
Signal Optimiser Flows	Average
PCUs per Heavy Vehicle	2.00

Demand Sets

Name	Selected	Time Start	Time End	Profile Type	Use Relationship	Relationship
2017 AM Base + Dev	No	08:00	09:00	FLAT	No	D1
2017 PM Base + Dev	Yes	17:00	18:00	FLAT	No	D1

Demand Set2 - 2017 PM Base + Dev

Traffic flows (PCU/hr)

Arm	Traffic Stream	Phase	17:00-18:00
1 - Shawbridge Street	1	C	399
2 - Waterloo Road N	1	A	903
3 - Waterloo Road S	1	B	413

320120913P

Turning Proportions

Arm	Left Movement Percentage	Straight Movement Percentage	Right Movement Percentage
1 - Shawbridge Street	33	-	67
2 - Waterloo Road N	39	61	-
3 - Waterloo Road S	-	77	23

Results

Note: Duplicate solutions are not shown

Sequence1; Objective: CRITICAL CYCLE TIME

Summary

Cycle Time (s)	Practical Reserve Capacity (%)	Rate of Delay (PCU)	Weighted Rate of Delay (PCU)	Geometric Delay (PCU-min)
42.0	5.11	13.34	13.34	53.5

- Cycle Time is the minimum cycle time that meets all safety criteria whilst optimising this objective
- PRC is the lowest value encountered over all streams.
- Rate of delay is the sum of each stream's rate of delay

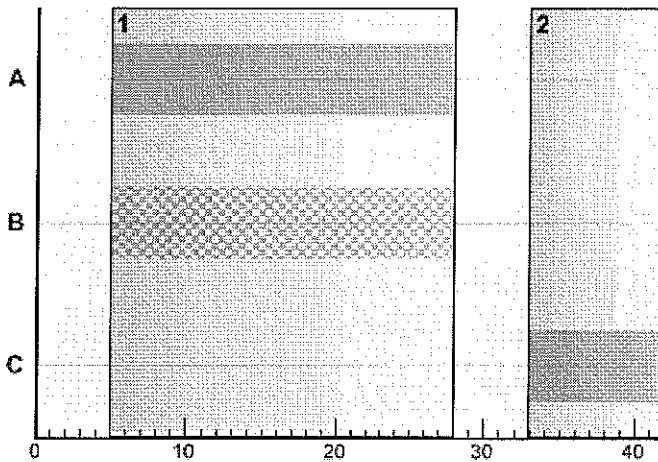
Stage Timings

Stage	Start Time (s)	Duration (s)	End Time (s)
1	5.0	23.0	28.0
2	33.0	9.0	0.0

Phase Timings

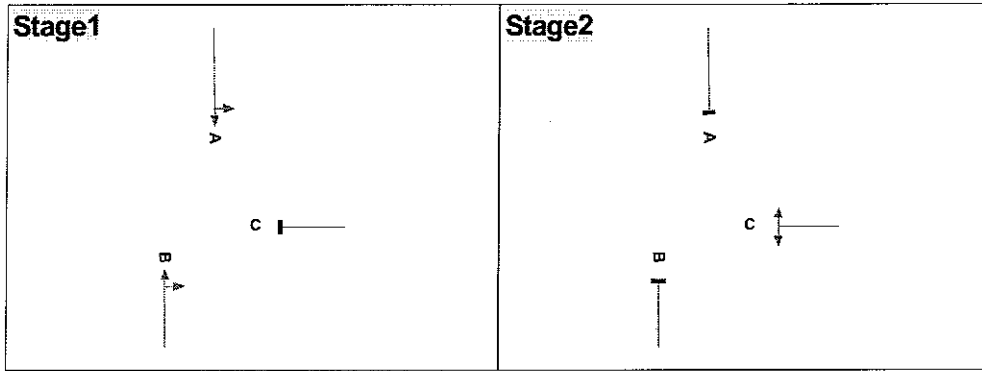
Phase	Start Time (s)	Duration (s)	End Time (s)	Filter Arrow Time (s)	Indicative Arrow Start (s)	Indicative Arrow Duration (s)	Start Time (s) (2nd green)	Duration (s) (2nd green)	End Time (s) (2nd green)
A	5	23.0	28						
B	5	23.0	28						
C	33	9.0	0						

Phase Timings Diagram



320120913P

Final Stage Sequence



Traffic Stream Details

Arm	Traffic Stream	Arrival Rate (PCU/hr)	Controlling Phase	Effective Green (s)	Average Delay (s)	Rate of Delay (PCU)	Degree of Saturation (%)	Practical Reserve Capacity (%)	Queue at End of Green (PCU)	Queue at End of Red (PCU)	Uniform Queue (PCU)	Geometric Delay (PCU-min)
1	1	399	C	10.50	42.07	4.66	85.62	5.11	3.44	7.23	3.79	7.20
2	1	903	A	24.50	17.37	4.36	83.05	8.37	3.21	8.57	5.36	42.80
3	1	413	B	5.93	39.37	4.52	82.21	9.47	2.63	7.14	4.51	3.50

320120913P