

APPENDIX A5.2
TRANSPORTATION
DETAILED JUNCTION ANALYSIS

Appendix A

Western Distributor Road -
Distributor Link Road Roundabout

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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Run with file:-
"j:\227000\227136-00\4. Internal Project Data\4-03 Design\4-03-02 Consulting\Analysis\
Local Junction Assessments\Western Distributor Road_Osberstown Link Road Roundabout\
Western Distributor Road_M7 Interchange Link Road_AM peak_Rev01.vai"
(drive-on-the-left) at 14:25:02 on Thursday, 11 July 2013

.FILE PROPERTIES

RUN TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout_AM peak
LOCATION: Naas, Kildare, Dublin
DATE: 08/11/12
CLIENT: KCC
ENUMERATOR: abhijit.chatterjee [DUBPC1ZKQZ4J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA

ARM A - Western Distributor Road (East)
ARM B - Unnamed Road (Future Link)
ARM C - Western Distributor Road (West)
ARM D - M7 Interchange Link

.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	T5
I	ARM A	I	4.50	I	7.40	I	16.80	I	55.90	I	53.60	I	20.0	I	0.676	I	34.285	I	
I	ARM B	I	3.70	I	7.00	I	16.70	I	60.00	I	53.60	I	18.0	I	0.642	I	31.039	I	
I	ARM C	I	4.30	I	6.70	I	18.80	I	25.10	I	53.60	I	34.0	I	0.611	I	30.200	I	
I	ARM D	I	7.00	I	7.60	I	1.00	I	56.00	I	53.60	I	22.0	I	0.721	I	38.542	I	

Osberstown Interchange Sallins Bypass

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13			
I	ARM	I FLOW SCALE(%)	I
I	A	I 100	I
I	B	I 100	I
I	C	I 100	I
I	D	I 100	I

TIME PERIOD BEGINS(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

.DEMAND SET TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout 2020 DS1
 T15

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	RATE OF FLOW (VEH/MIN) BEFORE	I	AT TOP	I	AFTER
I	I	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	9.24	I	13.86	I	9.24
I	ARM B	I	15.00	I	45.00	I	75.00	I	0.50	I	0.75	I	0.50
I	ARM C	I	15.00	I	45.00	I	75.00	I	3.34	I	5.01	I	3.34
I	ARM D	I	15.00	I	45.00	I	75.00	I	3.29	I	4.93	I	3.29

DEMAND SET TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout 2020 DS1
 T33

TURNING PROPORTIONS												
TURNING COUNTS												
(PERCENTAGE OF H.V.S)												
I	TIME	I	FROM/T	I	ARM A	I	ARM B	I	ARM C	I	ARM D	I
I	07.45 - 09.15	I	ARM A	I	0.000	I	0.050	I	0.070	I	0.880	I
I		I		I	0.0	I	37.0	I	52.0	I	650.0	I
I		I		I	(10.0)	I	(10.0)	I	(10.0)	I	(10.0)	I
I		I	ARM B	I	0.275	I	0.000	I	0.075	I	0.650	I
I		I		I	11.0	I	0.0	I	3.0	I	26.0	I
I		I		I	(10.0)	I	(10.0)	I	(10.0)	I	(10.0)	I
I		I	ARM C	I	0.749	I	0.251	I	0.000	I	0.000	I
I		I		I	200.0	I	67.0	I	0.0	I	0.0	I
I		I		I	(10.0)	I	(10.0)	I	(10.0)	I	(10.0)	I
I		I		I		I		I		I		I

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I	I	ARM	D	I	0.000	I	0.163	I	0.837	I	0.000	I
I	I			I	0.0	I	43.0	I	220.0	I	0.0	I
I	I			I	(10.0)	I	(10.0)	I	(10.0)	I	(10.0)	I
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)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	07.45-08.00										I
I	ARM A	9.27	28.38	0.327	- -	0.0	0.5	7.1	-		I
I	ARM B	0.50	20.81	0.024	- -	0.0	0.0	0.4	-		I
I	ARM C	3.35	22.21	0.151	- -	0.0	0.2	2.6	-		I
I	ARM D	3.30	32.53	0.101	- -	0.0	0.1	1.7	-		I
I											I
I	08.00-08.15										I
I	ARM A	11.07	27.83	0.398	- -	0.5	0.7	9.7	-		I
I	ARM B	0.60	19.36	0.031	- -	0.0	0.0	0.5	-		I
I	ARM C	4.00	21.17	0.189	- -	0.2	0.2	3.4	-		I
I	ARM D	3.94	32.04	0.123	- -	0.1	0.1	2.1	-		I
I											I
I	08.15-08.30										I
I	ARM A	13.56	27.08	0.501	- -	0.7	1.0	14.5	-		I
I	ARM B	0.73	17.37	0.042	- -	0.0	0.0	0.7	-		I
I	ARM C	4.90	19.76	0.248	- -	0.2	0.3	4.8	-		I
I	ARM D	4.83	31.37	0.154	- -	0.1	0.2	2.7	-		I
I											I
I	08.30-08.45										I
I	ARM A	13.56	27.08	0.501	- -	1.0	1.0	14.9	-		I
I	ARM B	0.73	17.35	0.042	- -	0.0	0.0	0.7	-		I
I	ARM C	4.90	19.75	0.248	- -	0.3	0.3	4.9	-		I
I	ARM D	4.83	31.36	0.154	- -	0.2	0.2	2.7	-		I
I											I
I	08.45-09.00										I
I	ARM A	11.07	27.82	0.398	- -	1.0	0.7	10.2	-		I

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I	ARM B	0.60	19.33	0.031	- -	-	0.0	0.0	0.5	-	I
I	ARM C	4.00	21.15	0.189	- -	-	0.3	0.2	3.6	-	I
I	ARM D	3.94	32.03	0.123	- -	-	0.2	0.1	2.1	-	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15										I
I	ARM A	9.27	28.37	0.327	- -	-	0.7	0.5	7.4	-	I
I	ARM B	0.50	20.78	0.024	- -	-	0.0	0.0	0.4	-	I
I	ARM C	3.35	22.18	0.151	- -	-	0.2	0.2	2.7	-	I
I	ARM D	3.30	32.52	0.101	- -	-	0.1	0.1	1.7	-	I
I											I

.QUEUE AT ARM A

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 B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.2
08.30	0.3
08.45	0.3
09.00	0.2
09.15	0.2

.QUEUE AT ARM D

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TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.1
08.30	0.2
08.45	0.2
09.00	0.1
09.15	0.1

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

I		ARM	I		TOTAL DEMAND	I		* QUEUEING *	I		* INCLUSIVE QUEUEING *	I		
I			I			I		* DELAY *	I		* DELAY *	I		
I			I			I			I			I		
I			I		(VEH)	I		(MIN)	I		(MIN)	I		
I			I		(VEH/H)	I		(MIN/VEH)	I		(MIN/VEH)	I		
I	A	I	1017.2	I	678.1	I	63.9	I	0.06	I	63.9	I	0.06	I
I	B	I	55.1	I	36.7	I	3.0	I	0.05	I	3.0	I	0.05	I
I	C	I	367.5	I	245.0	I	22.1	I	0.06	I	22.1	I	0.06	I
I	D	I	362.0	I	241.3	I	13.0	I	0.04	I	13.0	I	0.04	I
I	ALL	I	1801.7	I	1201.2	I	102.0	I	0.06	I	102.0	I	0.06	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

***** ARCADY 6 run completed.

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_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

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Run with file:-
"j:\227000\227136-00\4. Internal Project Data\4-03 Design\4-03-02 Consulting\Analysis\
Local Junction Assessments\Western Distributor Road_Osberstown Link Road Roundabout\
Western Distributor Road_M7 Interchange Link Road_PM peak_Rev01.vai"
(drive-on-the-left) at 14:28:51 on Thursday, 11 July 2013

.FILE PROPERTIES

RUN TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout_PM peak
LOCATION: Naas, Kildare, Dublin
DATE: 08/11/12
CLIENT: KCC
ENUMERATOR: abhijit.chatterjee [DUBPC1ZKQZ4J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA

ARM A - Millenium Park Link Road (East)
ARM B - Unnamed Road (Future Link)
ARM C - Western Distributor Road (West)
ARM D - M7 Interchange Link

.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	4.50	I	7.40	I	16.80	I	55.90	I	53.60	I	20.0	I	0.676	I	34.285	I
I	ARM	B	I	3.70	I	7.00	I	16.70	I	60.00	I	53.60	I	18.0	I	0.642	I	31.039	I
I	ARM	C	I	4.30	I	6.70	I	18.80	I	25.10	I	53.60	I	34.0	I	0.611	I	30.200	I

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I ARM D I 7.00 I 7.60 I 1.00 I 56.00 I 53.60 I 22.0 I 0.721 I 38.542 I

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

----- T13

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

TIME PERIOD BEGINS(16.45)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 TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout 2020 DS1
 T15

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK IS REACHED	I	FLOW STOPS FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	8.45	I	12.67	I	8.45
I	ARM B	I	15.00	I	45.00	I	75.00	I	0.59	I	0.88	I	0.59
I	ARM C	I	15.00	I	45.00	I	75.00	I	1.26	I	1.89	I	1.26
I	ARM D	I	15.00	I	45.00	I	75.00	I	6.13	I	9.19	I	6.13

DEMAND SET TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout 2020 DS1
 T33

		TURNING PROPORTIONS			
		TURNING COUNTS			
		(PERCENTAGE OF H.V.S)			
I	TIME	I	FROM/T	I	ARM A I ARM B I ARM C I ARM D I
I	16.45 - 18.15	I	ARM A	I	0.000 I 0.041 I 0.214 I 0.744 I
I		I		I	0.0 I 28.0 I 145.0 I 503.0 I
I		I		I	(10.0)I (10.0)I (10.0)I (10.0)I
I		I	ARM B	I	0.128 I 0.000 I 0.319 I 0.553 I
I		I		I	6.0 I 0.0 I 15.0 I 26.0 I
I		I		I	(10.0)I (10.0)I (10.0)I (10.0)I
I		I	ARM C	I	0.861 I 0.139 I 0.000 I 0.000 I
I		I		I	87.0 I 14.0 I 0.0 I 0.0 I

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I		I (10.0)	I (10.0)	I (10.0)	I (10.0)	I
I		I	I	I	I	I
I	ARM D	0.000	0.135	0.865	0.000	I
I		0.0	66.0	424.0	0.0	I
I		I (10.0)	I (10.0)	I (10.0)	I (10.0)	I
I		I	I	I	I	I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	16.45-17.00										I
I	ARM A	8.48	26.91	0.315	- -	0.0	0.5	6.7	-		I
I	ARM B	0.59	19.61	0.030	- -	0.0	0.0	0.5	-		I
I	ARM C	1.27	23.37	0.054	- -	0.0	0.1	0.8	-		I
I	ARM D	6.15	34.07	0.180	- -	0.0	0.2	3.2	-		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.00-17.15										I
I	ARM A	10.13	26.07	0.389	- -	0.5	0.6	9.3	-		I
I	ARM B	0.70	17.91	0.039	- -	0.0	0.0	0.6	-		I
I	ARM C	1.51	22.56	0.067	- -	0.1	0.1	1.1	-		I
I	ARM D	7.34	33.88	0.217	- -	0.2	0.3	4.1	-		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.15-17.30										I
I	ARM A	12.40	24.92	0.498	- -	0.6	1.0	14.3	-		I
I	ARM B	0.86	15.60	0.055	- -	0.0	0.1	0.9	-		I
I	ARM C	1.85	21.47	0.086	- -	0.1	0.1	1.4	-		I
I	ARM D	8.99	33.62	0.267	- -	0.3	0.4	5.4	-		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.30-17.45										I
I	ARM A	12.40	24.92	0.498	- -	1.0	1.0	14.8	-		I
I	ARM B	0.86	15.59	0.055	- -	0.1	0.1	0.9	-		I
I	ARM C	1.85	21.46	0.086	- -	0.1	0.1	1.4	-		I
I	ARM D	8.99	33.62	0.267	- -	0.4	0.4	5.5	-		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I											I

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TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	10.13	26.06	0.389	-	1.0	0.6	9.8	-	
ARM B	0.70	17.89	0.039	-	0.1	0.0	0.6	-	
ARM C	1.51	22.55	0.067	-	0.1	0.1	1.1	-	
ARM D	7.34	33.88	0.217	-	0.4	0.3	4.2	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
ARM A	8.48	26.89	0.315	-	0.6	0.5	7.1	-	
ARM B	0.59	19.57	0.030	-	0.0	0.0	0.5	-	
ARM C	1.27	23.35	0.054	-	0.1	0.1	0.9	-	
ARM D	6.15	34.07	0.180	-	0.3	0.2	3.3	-	

.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	0.0
17.15	0.0
17.30	0.1
17.45	0.1
18.00	0.0
18.15	0.0

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.1

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.QUEUE AT ARM D

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

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I	* DELAY *	I	* DELAY *	I
I		I		I		I		I
I		I	(VEH)	I	(MIN)	I	(MIN)	I
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I
I	A	I	930.5	I	62.0	I	62.0	I
I	B	I	64.7	I	3.9	I	3.9	I
I	C	I	139.0	I	6.7	I	6.7	I
I	D	I	674.4	I	25.8	I	25.8	I
I	ALL	I	1808.6	I	98.3	I	98.3	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

***** ARCADY 6 run completed.

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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

Run with file:-
"j:\227000\227136-00\4. Internal Project Data\4-03 Design\4-03-02 Consulting\Analysis\
Local Junction Assessments\Western Distributor Road_Osberstown Link Road Roundabout\
Western Distributor Road_M7 Interchange Link Road_AM peak_Rev01.vai"
(drive-on-the-left) at 14:25:56 on Thursday, 11 July 2013

.FILE PROPERTIES

RUN TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout_AM peak
LOCATION: Naas, Kildare, Dublin
DATE: 08/11/12
CLIENT: KCC
ENUMERATOR: abhijit.chatterjee [DUBPC1ZKQZ4J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA

ARM A - Western Distributor Road (East)
ARM B - Unnamed Road (Future Link)
ARM C - Western Distributor Road (West)
ARM D - M7 Interchange Link

.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	T5
I	ARM A	I	4.50	I	7.40	I	16.80	I	55.90	I	53.60	I	20.0	I	0.676	I	34.285	I	
I	ARM B	I	3.70	I	7.00	I	16.70	I	60.00	I	53.60	I	18.0	I	0.642	I	31.039	I	
I	ARM C	I	4.30	I	6.70	I	18.80	I	25.10	I	53.60	I	34.0	I	0.611	I	30.200	I	

Osberstown Interchange Sallins Bypass

I ARM D I 7.00 I 7.60 I 1.00 I 56.00 I 53.60 I 22.0 I 0.721 I 38.542 I

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

----- T13

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

.DEMAND SET TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout 2030 DS2 T15

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK IS REACHED	I	FLOW STOPS FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	7.56	I	11.34	I	7.56
I	ARM B	I	15.00	I	45.00	I	75.00	I	1.69	I	2.53	I	1.69
I	ARM C	I	15.00	I	45.00	I	75.00	I	2.80	I	4.20	I	2.80
I	ARM D	I	15.00	I	45.00	I	75.00	I	5.76	I	8.64	I	5.76

DEMAND SET TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout 2030 DS2 T33

I	TIME	I	FROM/T	I	ARM A	I	ARM B	I	ARM C	I	ARM D
I	07.45 - 09.15	I	ARM A	I	0.000	I	0.069	I	0.064	I	0.866
I		I		I	0.0	I	42.0	I	39.0	I	524.0
I		I		I	(10.0)	I	(10.0)	I	(10.0)	I	(10.0)
I		I	ARM B	I	0.511	I	0.000	I	0.044	I	0.444
I		I		I	69.0	I	0.0	I	6.0	I	60.0
I		I		I	(10.0)	I	(10.0)	I	(10.0)	I	(10.0)
I		I	ARM C	I	0.513	I	0.487	I	0.000	I	0.000
I		I		I	115.0	I	109.0	I	0.0	I	0.0

Osberstown Interchange Sallins Bypass

I	I	I (10.0)	I (10.0)	I (10.0)	I (10.0)	I
I	I	I	I	I	I	I
I	I ARM D	I 0.000	I 0.254	I 0.746	I 0.000	I
I	I	I 0.0	I 117.0	I 344.0	I 0.0	I
I	I	I (10.0)	I (10.0)	I (10.0)	I (10.0)	I
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)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	07.45-08.00										I
I	ARM A	7.59	26.35	0.288	- -	0.0	0.4	5.9	-		I
I	ARM B	1.69	20.93	0.081	- -	0.0	0.1	1.3	-		I
I	ARM C	2.81	22.47	0.125	- -	0.0	0.1	2.1	-		I
I	ARM D	5.78	32.40	0.179	- -	0.0	0.2	3.2	-		I

T70

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.00-08.15										I
I	ARM A	9.06	25.40	0.357	- -	0.4	0.6	8.1	-		I
I	ARM B	2.02	19.50	0.104	- -	0.1	0.1	1.7	-		I
I	ARM C	3.36	21.48	0.156	- -	0.1	0.2	2.7	-		I
I	ARM D	6.91	31.88	0.217	- -	0.2	0.3	4.1	-		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.15-08.30										I
I	ARM A	11.10	24.11	0.461	- -	0.6	0.8	12.4	-		I
I	ARM B	2.48	17.55	0.141	- -	0.1	0.2	2.4	-		I
I	ARM C	4.11	20.15	0.204	- -	0.2	0.3	3.8	-		I
I	ARM D	8.46	31.17	0.271	- -	0.3	0.4	5.5	-		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.30-08.45										I
I	ARM A	11.10	24.10	0.461	- -	0.8	0.8	12.7	-		I
I	ARM B	2.48	17.53	0.141	- -	0.2	0.2	2.5	-		I
I	ARM C	4.11	20.13	0.204	- -	0.3	0.3	3.8	-		I
I	ARM D	8.46	31.16	0.271	- -	0.4	0.4	5.6	-		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I											I

Osberstown Interchange Sallins Bypass

TIME	ARM	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00										
	ARM A	9.06	25.39	0.357	-	0.8	0.6	8.6	-	
	ARM B	2.02	19.48	0.104	-	0.2	0.1	1.8	-	
	ARM C	3.36	21.46	0.156	-	0.3	0.2	2.8	-	
	ARM D	6.91	31.87	0.217	-	0.4	0.3	4.2	-	

TIME	ARM	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15										
	ARM A	7.59	26.33	0.288	-	0.6	0.4	6.2	-	
	ARM B	1.69	20.90	0.081	-	0.1	0.1	1.3	-	
	ARM C	2.81	22.44	0.125	-	0.2	0.1	2.2	-	
	ARM D	5.78	32.39	0.179	-	0.3	0.2	3.3	-	

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.4
08.15	0.6 *
08.30	0.8 *
08.45	0.8 *
09.00	0.6 *
09.15	0.4

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.1
08.30	0.2
08.45	0.2
09.00	0.1
09.15	0.1

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.2
08.30	0.3
08.45	0.3
09.00	0.2
09.15	0.1

Osberstown Interchange Sallins Bypass

.QUEUE AT ARM D

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-----
TIME SEGMENT NO. OF
ENDING      VEHICLES
            IN QUEUE

08.00      0.2
08.15      0.3
08.30      0.4
08.45      0.4
09.00      0.3
09.15      0.2
    
```

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

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-----
I ARM I TOTAL DEMAND I * QUEUEING * I * INCLUSIVE QUEUEING * I T75
I I I I I * DELAY * I I * DELAY * I I
I I I I I I I I I I I I
I I I (VEH) (VEH/H) I (MIN) (MIN/VEH) I (MIN) (MIN/VEH) I I
-----
I A I 832.7 I 555.2 I 53.9 I 0.06 I 53.9 I 0.06 I I
I B I 185.8 I 123.9 I 11.0 I 0.06 I 11.0 I 0.06 I I
I C I 308.3 I 205.5 I 17.4 I 0.06 I 17.4 I 0.06 I I
I D I 634.5 I 423.0 I 25.9 I 0.04 I 25.9 I 0.04 I I
-----
I ALL I 1961.4 I 1307.6 I 108.2 I 0.06 I 108.2 I 0.06 I 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

***** ARCADY 6 run completed.

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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

Run with file:-
"j:\227000\227136-00\4. Internal Project Data\4-03 Design\4-03-02 Consulting\Analysis\
Local Junction Assessments\Western Distributor Road_Osberstown Link Road Roundabout\
Western Distributor Road_M7 Interchange Link Road_PM peak_Rev01.vai"
(drive-on-the-left) at 14:29:57 on Thursday, 11 July 2013

.FILE PROPERTIES

RUN TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout_PM peak
LOCATION: Naas, Kildare, Dublin
DATE: 08/11/12
CLIENT: KCC
ENUMERATOR: abhijit.chatterjee [DUBPC1ZKQZ4J]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA

ARM A - Millenium Park Link Road (East)
ARM B - Unnamed Road (Future Link)
ARM C - Western Distributor Road (West)
ARM D - M7 Interchange Link

.GEOMETRIC DATA

-----															T5				
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	4.50	I	7.40	I	16.80	I	55.90	I	53.60	I	20.0	I	0.676	I	34.285	I
I	ARM	B	I	3.70	I	7.00	I	16.70	I	60.00	I	53.60	I	18.0	I	0.642	I	31.039	I
I	ARM	C	I	4.30	I	6.70	I	18.80	I	25.10	I	53.60	I	34.0	I	0.611	I	30.200	I
I	ARM	D	I	7.00	I	7.60	I	1.00	I	56.00	I	53.60	I	22.0	I	0.721	I	38.542	I

Osberstown Interchange Sallins Bypass

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

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

----- T13			
I	ARM	I FLOW SCALE(%)	I
I	A	I 100	I
I	B	I 100	I
I	C	I 100	I
I	D	I 100	I

.TIME PERIOD BEGINS(16.45)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 TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout 2030 DS2
 T15

I	ARM	I NUMBER OF MINUTES FROM START WHEN			I RATE OF FLOW (VEH/MIN) I		
		I FLOW STARTS	I TOP OF PEAK	I FLOW STOPS	I BEFORE	I AT TOP	I AFTER
I	I	I TO RISE	I IS REACHED	I FALLING	I PEAK	I OF PEAK	I PEAK
I	ARM A	I 15.00	I 45.00	I 75.00	I 6.74	I 10.11	I 6.74
I	ARM B	I 15.00	I 45.00	I 75.00	I 1.77	I 2.66	I 1.77
I	ARM C	I 15.00	I 45.00	I 75.00	I 1.31	I 1.97	I 1.31
I	ARM D	I 15.00	I 45.00	I 75.00	I 9.44	I 14.16	I 9.44

DEMAND SET TITLE: Millenium Park Link Road_M7 Interchange Link Road roundabout 2030 DS2
 T33

I	TIME	I TURNING PROPORTIONS			
		I FROM/T	I ARM A	I ARM B	I ARM C
I	I	I	I	I	I
I	16.45 - 18.15	I	I	I	I
I		I ARM A	I 0.000	I 0.046	I 0.141
I		I	I 0.0	I 25.0	I 76.0
I		I	I (10.0)	I (10.0)	I (10.0)
I		I	I	I	I
I		I ARM B	I 0.486	I 0.000	I 0.162
I		I	I 69.0	I 0.0	I 23.0
I		I	I (10.0)	I (10.0)	I (10.0)
I		I	I	I	I
I		I ARM C	I 0.829	I 0.171	I 0.000
I		I	I 87.0	I 18.0	I 0.0
I		I	I (10.0)	I (10.0)	I (10.0)
I		I	I	I	I

Osberstown Interchange Sallins Bypass

I I ARM D I 0.000 I 0.223 I 0.777 I 0.000 I
 I I I I 0.0 I 168.0 I 587.0 I 0.0 I
 I I I (10.0)I (10.0)I (10.0)I (10.0)I
 I 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)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	16.45-17.00										I
I	ARM A	6.76	24.63	0.275	- -	0.0	0.4	5.5	-		I
I	ARM B	1.78	19.38	0.092	- -	0.0	0.1	1.5	-		I
I	ARM C	1.32	23.20	0.057	- -	0.0	0.1	0.9	-		I
I	ARM D	9.47	33.47	0.283	- -	0.0	0.4	5.8	-		I
I											I
I	17.00-17.15										I
I	ARM A	8.08	23.35	0.346	- -	0.4	0.5	7.7	-		I
I	ARM B	2.13	17.64	0.121	- -	0.1	0.1	2.0	-		I
I	ARM C	1.57	22.36	0.070	- -	0.1	0.1	1.1	-		I
I	ARM D	11.31	33.16	0.341	- -	0.4	0.5	7.6	-		I
I											I
I	17.15-17.30										I
I	ARM A	9.89	21.59	0.458	- -	0.5	0.8	12.2	-		I
I	ARM B	2.61	15.26	0.171	- -	0.1	0.2	3.0	-		I
I	ARM C	1.93	21.22	0.091	- -	0.1	0.1	1.5	-		I
I	ARM D	13.85	32.74	0.423	- -	0.5	0.7	10.7	-		I
I											I
I	17.30-17.45										I
I	ARM A	9.89	21.58	0.458	- -	0.8	0.8	12.6	-		I
I	ARM B	2.61	15.25	0.171	- -	0.2	0.2	3.1	-		I
I	ARM C	1.93	21.21	0.091	- -	0.1	0.1	1.5	-		I
I	ARM D	13.85	32.74	0.423	- -	0.7	0.7	11.0	-		I
I											I
I	17.45-18.00										I
I	ARM A	8.08	23.33	0.346	- -	0.8	0.5	8.2	-		I

Osberstown Interchange Sallins Bypass

I ARM B	2.13	17.61	0.121	- -	-	0.2	0.1	2.1	-	I
I ARM C	1.57	22.34	0.070	- -	-	0.1	0.1	1.2	-	I
I ARM D	11.31	33.16	0.341	- -	-	0.7	0.5	7.9	-	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	18.00-18.15										I
I	ARM A	6.76	24.61	0.275	- -	0.5	0.4	5.8	-		I
I	ARM B	1.78	19.34	0.092	- -	0.1	0.1	1.6	-		I
I	ARM C	1.32	23.18	0.057	- -	0.1	0.1	0.9	-		I
I	ARM D	9.47	33.46	0.283	- -	0.5	0.4	6.0	-		I
I											I

.QUEUE AT ARM A

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

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.2
17.45	0.2
18.00	0.1
18.15	0.1

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.1

.QUEUE AT ARM D

Osberstown Interchange Sallins Bypass

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

T75

		TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
I	ARM	I	I	I	I	I	I
		(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
I	A	I 741.9	I 494.6	I 52.0	I 0.07	I 52.0	I 0.07
I	B	I 195.5	I 130.3	I 13.2	I 0.07	I 13.2	I 0.07
I	C	I 144.5	I 96.3	I 7.0	I 0.05	I 7.0	I 0.05
I	D	I 1039.2	I 692.8	I 49.1	I 0.05	I 49.1	I 0.05
I	ALL	I 2121.1	I 1414.0	I 121.4	I 0.06	I 121.4	I 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

***** ARCADY 6 run completed.

Appendix B

Proposed R407 Sallins Bypass -

R407 Clane Road Roundabout

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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Run with file:-
"j:\227000\227136-00\4. Internal Project Data\4-03 Design\4-03-02 Consulting\Analysis\
Local Junction Assessments\Sallins Bypass_Sallins Road Roundabout\
Sallins Bypass and Sallins Road R407 Roudnabout_AM Peak.vai"
(drive-on-the-left) at 14:33:23 on Friday, 21 June 2013

FILE PROPERTIES

RUN TITLE: Sallins Bypass and Sallins Road R407 Roudnabout-AM Peak
LOCATION: Sallins
DATE: 21/06/13
CLIENT: KCC
ENUMERATOR: abhijit.chatterjee [DUBPC275PG5J]
JOB NUMBER: 227136-00
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Sallins Road Northern Approach
ARM B - Sallins Road Southern Approach
ARM C - Sallins Bypass

 GEOMETRIC DATA

														T5					
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	3.50	I	7.00	I	30.00	I	25.00	I	55.00	I	22.6	I	0.630	I	31.628	I
I	ARM	B	I	3.50	I	7.00	I	30.00	I	25.20	I	55.00	I	37.0	I	0.600	I	30.111	I
I	ARM	C	I	3.80	I	7.00	I	30.00	I	25.00	I	55.00	I	33.0	I	0.616	I	31.218	I

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

 TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

				T13
I	ARM	I	FLOW SCALE (%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

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

DEMAND SET TITLE: Sallins Bypass and Sallins Road R407 Roudnabout-2030 DS

										T15				
I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	RATE OF FLOW (VEH/MIN) BEFORE	I	AT TOP	I	AFTER	
I		I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK	
I	ARM	A	I	15.00	I	45.00	I	75.00	I	14.30	I	21.45	I	14.30
I	ARM	B	I	15.00	I	45.00	I	75.00	I	9.32	I	13.99	I	9.32
I	ARM	C	I	15.00	I	45.00	I	75.00	I	6.26	I	9.39	I	6.26

DEMAND SET TITLE: Sallins Bypass and Sallins Road R407 Roudnabout-2030 DS

T33

		TURNING PROPORTIONS					
		TURNING COUNTS					
		(PERCENTAGE OF H.V.S)					
TIME	FROM/T	ARM A	ARM B	ARM C			
07.45 - 09.15	ARM A	0.000	0.575	0.425			
		0.0	658.0	486.0			
		(10.0)	(10.0)	(10.0)			
	ARM B	0.866	0.000	0.134			
		646.0	0.0	100.0			
		(10.0)	(10.0)	(10.0)			
	ARM C	0.800	0.200	0.000			
		401.0	100.0	0.0			
		(10.0)	(10.0)	(10.0)			

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
ARM A	14.35	27.97	0.513	--	0.0	1.0	15.1	-	
ARM B	9.36	23.73	0.394	--	0.0	0.6	9.4	-	
ARM C	6.29	23.41	0.268	--	0.0	0.4	5.4	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
ARM A	17.14	27.81	0.616	--	1.0	1.6	22.9	-	
ARM B	11.18	23.02	0.486	--	0.6	0.9	13.6	-	
ARM C	7.51	22.43	0.335	--	0.4	0.5	7.4	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
ARM A	20.99	27.60	0.761	--	1.6	3.1	42.7	-	
ARM B	13.69	22.05	0.621	--	0.9	1.6	23.0	-	
ARM C	9.19	21.11	0.436	--	0.5	0.8	11.2	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
ARM A	20.99	27.60	0.761	--	3.1	3.1	46.4	-	
ARM B	13.69	22.03	0.622	--	1.6	1.6	24.3	-	
ARM C	9.19	21.08	0.436	--	0.8	0.8	11.5	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
ARM A	17.14	27.81	0.616	--	3.1	1.6	25.6	-	
ARM B	11.18	22.98	0.486	--	1.6	1.0	14.8	-	
ARM C	7.51	22.40	0.335	--	0.8	0.5	7.8	-	

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)
09.00-09.15									
ARM A	14.35	27.96	0.513	--	1.6	1.1	16.5	-	
ARM B	9.36	23.71	0.395	--	1.0	0.7	10.1	-	
ARM C	6.29	23.38	0.269	--	0.5	0.4	5.6	-	

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.0 *
08.15	1.6 **
08.30	3.1 ***
08.45	3.1 ***
09.00	1.6 **
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	1.0	*
09.15	0.7	*

 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

										T75
I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I		I
I	I	I	I	I	* DELAY *	I	* DELAY *	I		I
I	I	I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)		I
I	A	I	1574.6	I	1049.8	I	169.1	I	0.11	I
I	B	I	1026.8	I	684.5	I	95.2	I	0.09	I
I	C	I	689.6	I	459.7	I	48.8	I	0.07	I
I	ALL	I	3291.0	I	2194.0	I	313.2	I	0.10	I

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

***** ARCADY 6 run completed.

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

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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Run with file:-
"j:\227000\227136-00\4. Internal Project Data\4-03 Design\4-03-02 Consulting\Analysis\
Local Junction Assessments\Sallins Bypass_Sallins Road Roundabout\
Sallins Bypass and Sallins Road R407 Roudnabout_PM Peak.vai"
(drive-on-the-left) at 14:36:55 on Friday, 21 June 2013

FILE PROPERTIES

RUN TITLE: Sallins Bypass and Sallins Road R407 Roudnabout-PM Peak
LOCATION: Sallins
DATE: 21/06/13
CLIENT: KCC
ENUMERATOR: abhijit.chatterjee [DUBPC275PG5J]
JOB NUMBER: 227136-00
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Sallins Road Northern Approach
ARM B - Sallins Road Southern Approach
ARM C - Sallins Bypass

 GEOMETRIC DATA

														T5					
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	3.50	I	7.00	I	30.00	I	25.00	I	55.00	I	22.6	I	0.630	I	31.628	I
I	ARM	B	I	3.50	I	7.00	I	30.00	I	25.20	I	55.00	I	37.0	I	0.600	I	30.111	I
I	ARM	C	I	3.80	I	7.00	I	30.00	I	25.00	I	55.00	I	33.0	I	0.616	I	31.218	I

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

 TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

				T13
I	ARM	I	FLOW SCALE (%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

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 TITLE: Sallins Bypass and Sallins Road R407 Roudnabout-2030 DS

										T15				
I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	RATE OF FLOW (VEH/MIN) BEFORE	I	AT TOP	I	AFTER	
I		I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK	
I	ARM	A	I	15.00	I	45.00	I	75.00	I	13.09	I	19.63	I	13.09
I	ARM	B	I	15.00	I	45.00	I	75.00	I	9.07	I	13.61	I	9.07
I	ARM	C	I	15.00	I	45.00	I	75.00	I	5.64	I	8.46	I	5.64

DEMAND SET TITLE: Sallins Bypass and Sallins Road R407 Roudnabout-2030 DS

T33

		TURNING PROPORTIONS					
		TURNING COUNTS					
		(PERCENTAGE OF H.V.S)					
TIME	FROM/T	ARM A	ARM B	ARM C			
16.45 - 18.15	ARM A	0.000	0.542	0.458			
		0.0	567.0	480.0			
		(10.0)	(10.0)	(10.0)			
	ARM B	0.862	0.000	0.138			
		626.0	0.0	100.0			
		(10.0)	(10.0)	(10.0)			
	ARM C	0.778	0.222	0.000			
		351.0	100.0	0.0			
		(10.0)	(10.0)	(10.0)			

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
ARM A	13.14	27.97	0.470	--	0.0	0.9	12.8	-	
ARM B	9.11	23.78	0.383	--	0.0	0.6	9.0	-	
ARM C	5.66	23.57	0.240	--	0.0	0.3	4.6	-	
17.00-17.15									
ARM A	15.69	27.81	0.564	--	0.9	1.3	18.6	-	
ARM B	10.88	23.07	0.472	--	0.6	0.9	12.9	-	
ARM C	6.76	22.62	0.299	--	0.3	0.4	6.2	-	
17.15-17.30									
ARM A	19.21	27.60	0.696	--	1.3	2.2	31.8	-	
ARM B	13.32	22.11	0.603	--	0.9	1.5	21.4	-	
ARM C	8.28	21.33	0.388	--	0.4	0.6	9.2	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
ARM A	19.21	27.60	0.696	--	2.2	2.3	33.8	-	
ARM B	13.32	22.09	0.603	--	1.5	1.5	22.5	-	
ARM C	8.28	21.31	0.388	--	0.6	0.6	9.5	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	15.69	27.81	0.564	--	2.3	1.3	20.4	-	
ARM B	10.88	23.04	0.472	--	1.5	0.9	14.0	-	
ARM C	6.76	22.58	0.299	--	0.6	0.4	6.6	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	13.14	27.96	0.470	--	1.3	0.9	13.7	-	
ARM B	9.11	23.75	0.383	--	0.9	0.6	9.6	-	
ARM C	5.66	23.53	0.240	--	0.4	0.3	4.8	-	

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.9 *
17.15	1.3 *
17.30	2.2 **
17.45	2.3 **
18.00	1.3 *
18.15	0.9 *

 QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.6	*
17.15	0.9	*
17.30	1.5	*
17.45	1.5	**
18.00	0.9	*
18.15	0.6	*

 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	

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

----- T75										
I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I	* DELAY *	I
I	I	I	I	I	* DELAY *	I	* DELAY *	I	I	I
I	I	I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	I	I
I	A	I	1441.1	I	960.7	I	131.1	I	0.09	I
I	B	I	999.3	I	666.2	I	89.4	I	0.09	I
I	C	I	620.8	I	413.8	I	41.0	I	0.07	I
I	ALL	I	3061.2	I	2040.8	I	261.5	I	0.09	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

***** ARCADY 6 run completed.

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

Appendix C

Proposed Sallins Link Road -

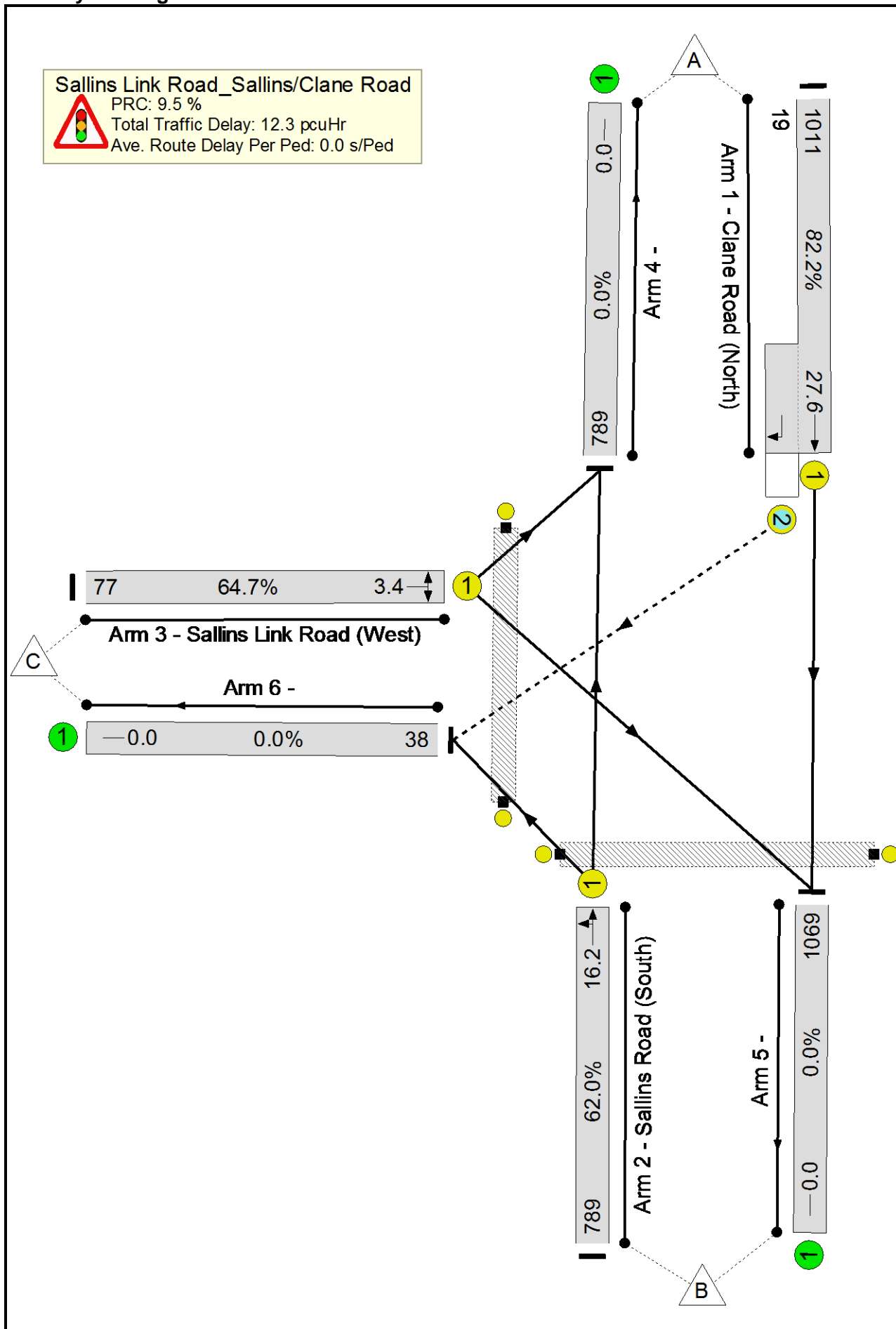
R407 Sallins Road Junction

Basic Results Summary
Basic Results Summary

Project and User Details

Project:	
Title:	
Location:	
File name:	Sallins Link Road_Sallins Road.lsg3x
Author:	
Company:	
Address:	
Notes:	
Linsig Version:	3, 2, 2, 0

Network Layout Diagram

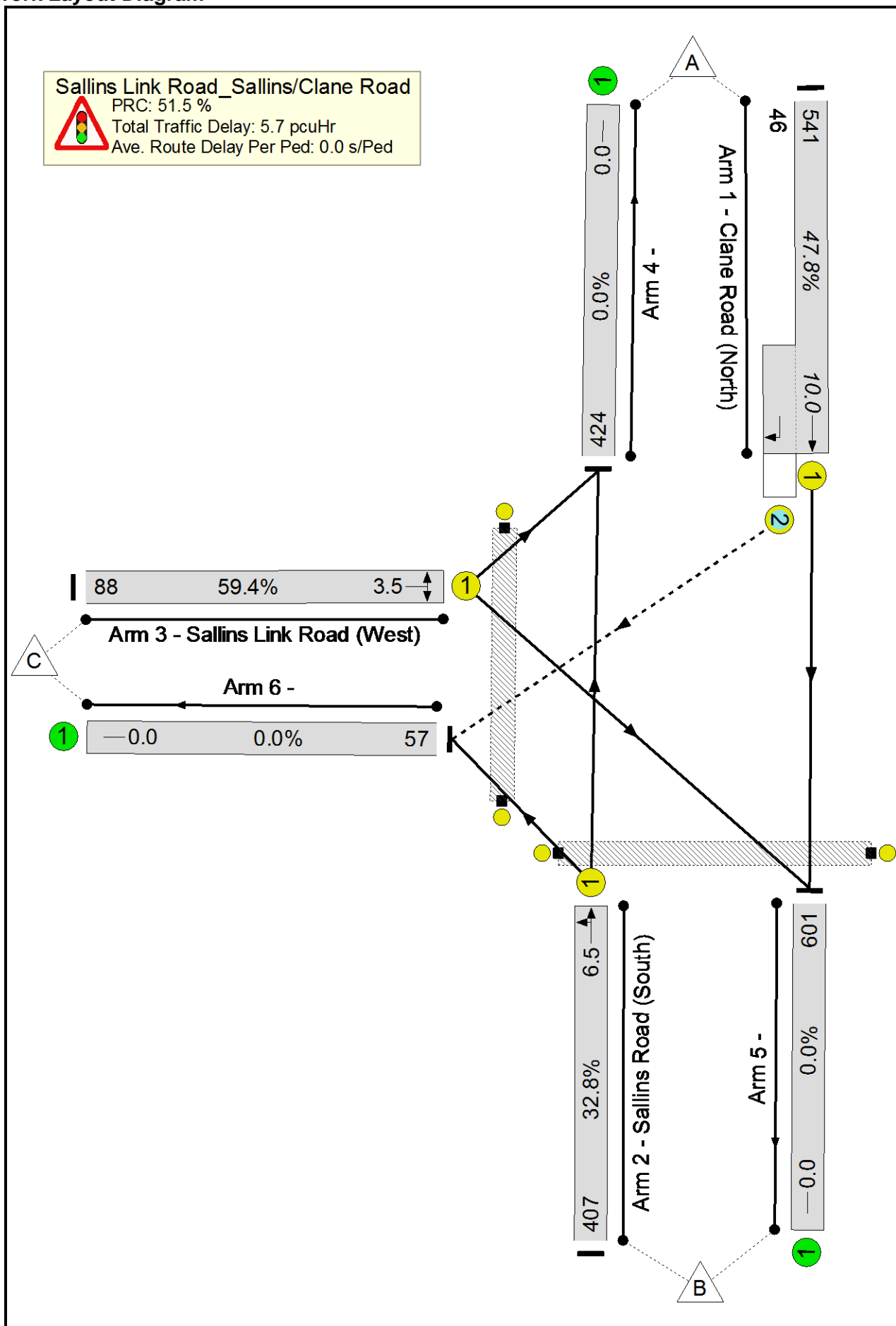


Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	82.2%	12.3	-	-
Sallins Link Road_Sallins/Clane Road	-	-	-	-	-	82.2%	12.3	-	-
1/1+1/2	Clane Road (North) Ahead Right	U+O	1030	1915:1839	1253	82.2%	6.7	23.6	27.6
2/1	Sallins Road (South) Ahead Left	U	789	1959	1273	62.0%	3.5	16.0	16.2
3/1	Sallins Link Road (West) Left Right	U	77	1785	119	64.7%	2.0	95.8	3.4
Ped Link: P1	Unnamed Ped Link	-	0	-	0	0.0%	-	-	-
Ped Link: P2	Unnamed Ped Link	-	0	-	0	0.0%	-	-	-
C1 - Sallins Link Road_Sallins/Clane Road PRC for Signalled Lanes (%): 9.5 Total Delay for Signalled Lanes (pcuHr): 12.30 Cycle Time (s): 120 PRC Over All Lanes (%): 9.5 Total Delay Over All Lanes(pcuHr): 12.30									

Network Layout Diagram

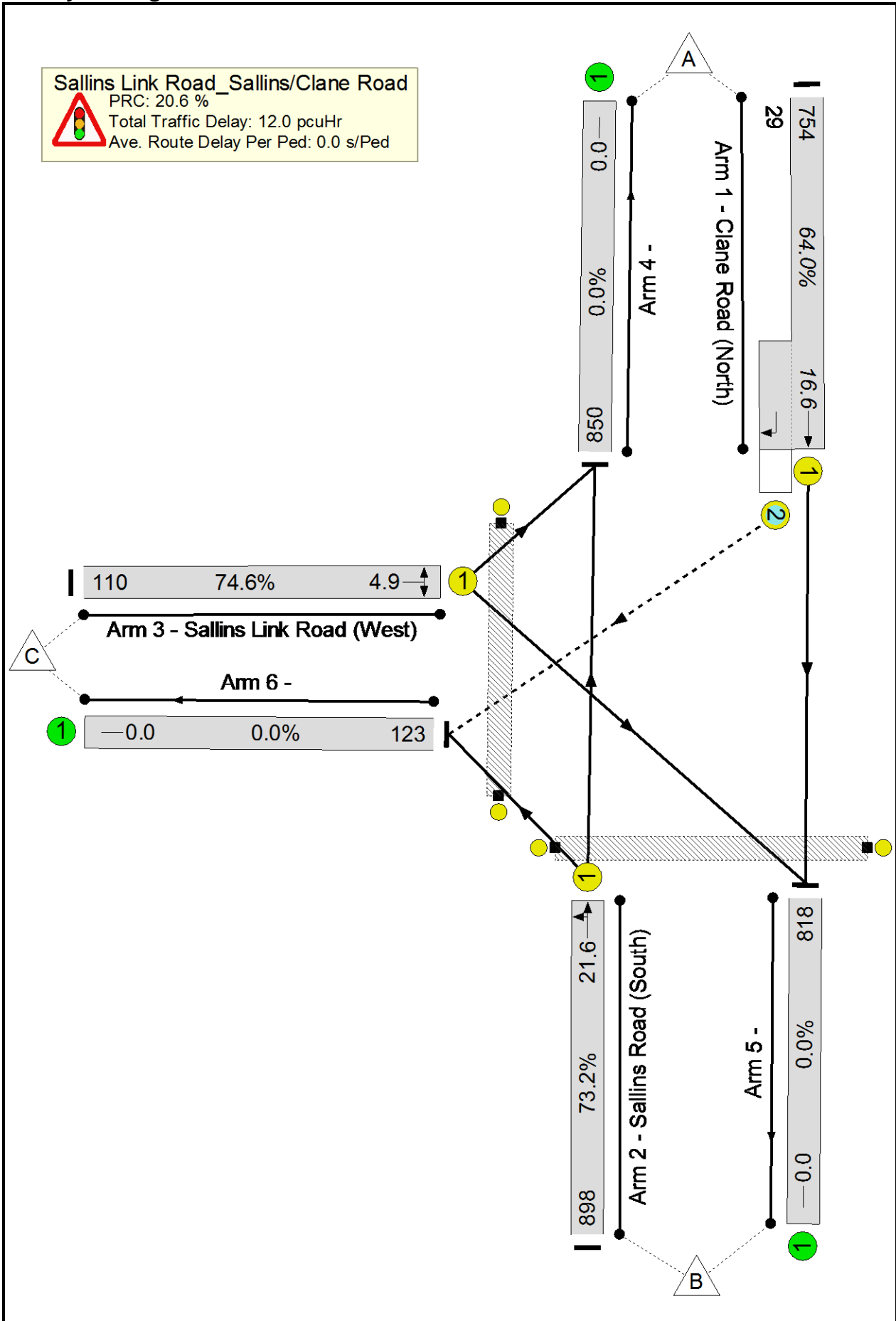


Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	59.4%	5.7	-	-
Sallins Link Road_Sallins/Clane Road	-	-	-	-	-	59.4%	5.7	-	-
1/1+1/2	Clane Road (North) Ahead Right	U+O	587	1915:1839	1229	47.8%	2.3	13.9	10.0
2/1	Sallins Road (South) Ahead Left	U	407	1958	1240	32.8%	1.4	12.3	6.5
3/1	Sallins Link Road (West) Left Right	U	88	1778	148	59.4%	2.0	82.3	3.5
Ped Link: P1	Unnamed Ped Link	-	0	-	0	0.0%	-	-	-
Ped Link: P2	Unnamed Ped Link	-	0	-	0	0.0%	-	-	-
C1 - Sallins Link Road_Sallins/Clane Road PRC for Signalled Lanes (%): 51.5 Total Delay for Signalled Lanes (pcuHr): 5.68 Cycle Time (s): 120 PRC Over All Lanes (%): 51.5 Total Delay Over All Lanes(pcuHr): 5.68									

Network Layout Diagram

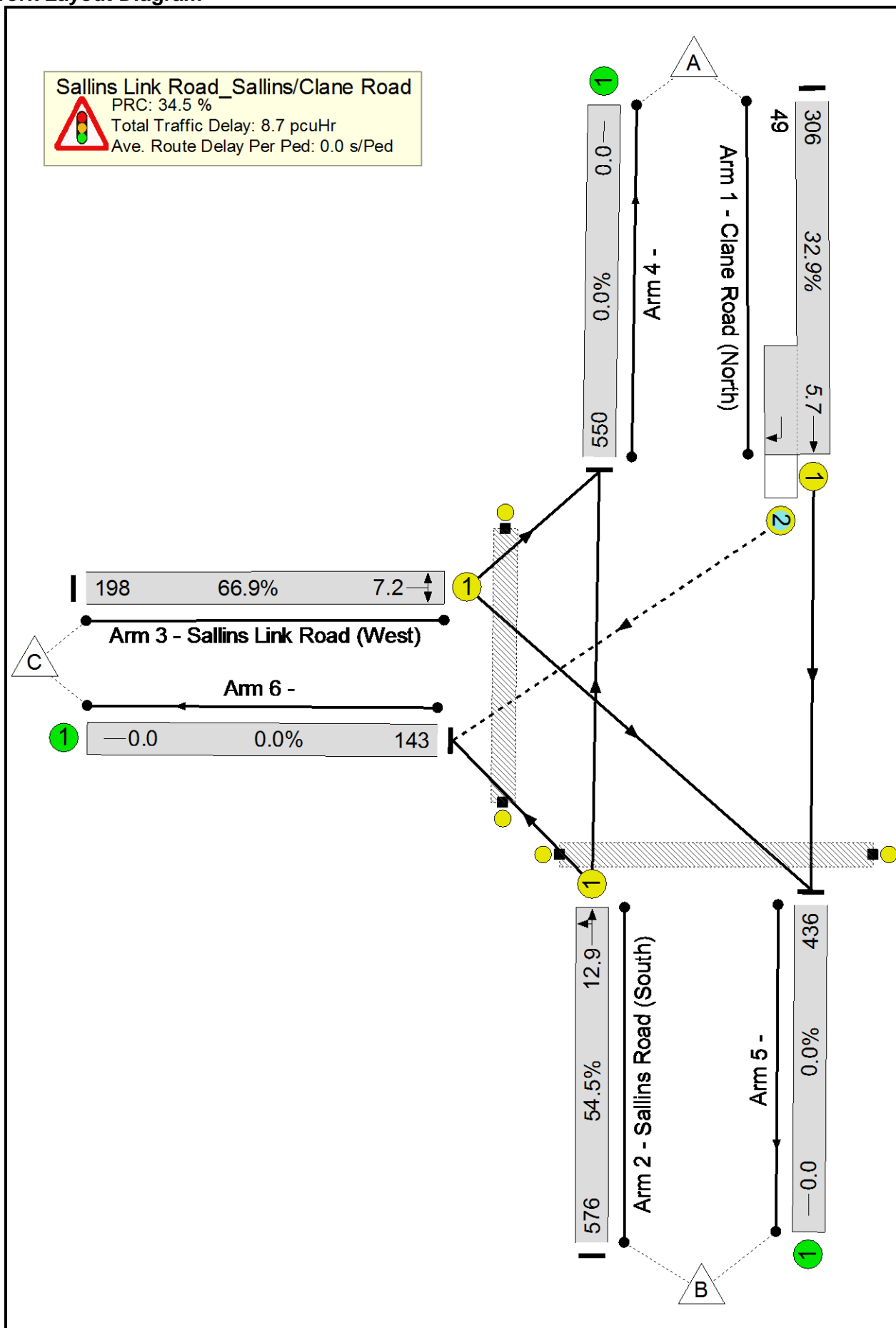


Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	74.6%	12.0	-	-
Sallins Link Road_Sallins/Clane Road	-	-	-	-	-	74.6%	12.0	-	-
1/1+1/2	Clane Road (North) Ahead Right	U+O	783	1915:1839	1223	64.0%	3.9	17.8	16.6
2/1	Sallins Road (South) Ahead Left	U	898	1938	1227	73.2%	5.1	20.5	21.6
3/1	Sallins Link Road (West) Left Right	U	110	1769	147	74.6%	3.0	98.6	4.9
Ped Link: P1	Unnamed Ped Link	-	0	-	0	0.0%	-	-	-
Ped Link: P2	Unnamed Ped Link	-	0	-	0	0.0%	-	-	-
C1 - Sallins Link Road_Sallins/Clane Road PRC for Signalled Lanes (%): 20.6 Total Delay for Signalled Lanes (pcuHr): 11.98 Cycle Time (s): 120 PRC Over All Lanes (%): 20.6 Total Delay Over All Lanes(pcuHr): 11.98									

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	66.9%	8.7	-	-
Sallins Link Road_Sallins/Clane Road	-	-	-	-	-	66.9%	8.7	-	-
1/1+1/2	Clane Road (North) Ahead Right	U+O	355	1915:1839	1078	32.9%	1.7	17.7	5.7
2/1	Sallins Road (South) Ahead Left	U	576	1923	1058	54.5%	3.4	21.1	12.9
3/1	Sallins Link Road (West) Left Right	U	198	1776	296	66.9%	3.6	64.9	7.2
Ped Link: P1	Unnamed Ped Link	-	0	-	0	0.0%	-	-	-
Ped Link: P2	Unnamed Ped Link	-	0	-	0	0.0%	-	-	-
C1 - Sallins Link Road_Sallins/Clane Road PRC for Signalled Lanes (%): 34.5 Total Delay for Signalled Lanes (pcuHr): 8.69 Cycle Time (s): 120 PRC Over All Lanes (%): 34.5 Total Delay Over All Lanes(pcuHr): 8.69									

Appendix D

Proposed R407 Sallins Bypass -

Sallins Link Road Roundabout

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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Run with file:-
"j:\227000\227136-00\4. Internal Project Data\4-03 Design\4-03-02 Consulting\Analysis\
Local Junction Assessments\Sallins Bypass_Sallins Link Road Roundabout\
Sallins Bypass and Sallins Link Road Roudnabout_AM Peak.vai"
(drive-on-the-left) at 15:07:45 on Friday, 21 June 2013

FILE PROPERTIES

RUN TITLE: Sallins Bypass and Sallins Link Road Roudnabout-AM Peak
LOCATION: Sallins
DATE: 21/06/13
CLIENT: KCC
ENUMERATOR: abhijit.chatterjee [DUBPC275PG5J]
JOB NUMBER: 227136-00
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Sallins Bypass Northern Approach
ARM B - Sallins Link Road
ARM C - Sallins Bypass Southern Approach

 GEOMETRIC DATA

														T5					
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	3.70	I	7.00	I	30.00	I	25.00	I	76.00	I	31.0	I	0.510	I	31.207	I
I	ARM	B	I	3.50	I	4.50	I	2.00	I	20.00	I	76.00	I	22.0	I	0.416	I	20.162	I
I	ARM	C	I	7.00	I	7.50	I	2.00	I	25.30	I	76.00	I	27.0	I	0.571	I	37.512	I

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

 TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

				T13
I	ARM	I	FLOW SCALE (%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

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

DEMAND SET TITLE: Sallins Bypass and Sallins Road R407 Roudnabout-2030 DS

										T15				
I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	RATE OF FLOW (VEH/MIN) BEFORE AT TOP	I	AFTER PEAK			
I	ARM	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	6.07	I	9.11	I	6.07
I	ARM	B	I	15.00	I	45.00	I	75.00	I	0.75	I	1.13	I	0.75
I	ARM	C	I	15.00	I	45.00	I	75.00	I	5.56	I	8.34	I	5.56

DEMAND SET TITLE: Sallins Bypass and Sallins Road R407 Roudnabout-2030 DS

T33

		TURNING PROPORTIONS					
		TURNING COUNTS					
		(PERCENTAGE OF H.V.S)					
TIME	FROM/T	ARM A	ARM B	ARM C			
07.45 - 09.15	ARM A	0.000	0.023	0.977			
		0.0	11.0	475.0			
		(10.0)	(10.0)	(10.0)			
	ARM B	0.167	0.000	0.833			
		10.0	0.0	50.0			
		(10.0)	(10.0)	(10.0)			
	ARM C	0.899	0.101	0.000			
		400.0	45.0	0.0			
		(10.0)	(10.0)	(10.0)			

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
ARM A	6.10	28.08	0.217	--	0.0	0.3	4.1	-	
ARM B	0.75	15.85	0.047	--	0.0	0.0	0.7	-	
ARM C	5.58	34.03	0.164	--	0.0	0.2	2.9	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
ARM A	7.28	28.03	0.260	--	0.3	0.3	5.2	-	
ARM B	0.90	15.37	0.058	--	0.0	0.1	0.9	-	
ARM C	6.67	34.02	0.196	--	0.2	0.2	3.6	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
ARM A	8.92	27.95	0.319	--	0.3	0.5	6.9	-	
ARM B	1.10	14.71	0.075	--	0.1	0.1	1.2	-	
ARM C	8.17	34.00	0.240	--	0.2	0.3	4.7	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
ARM A	8.92	27.95	0.319	--	0.5	0.5	7.0	-	
ARM B	1.10	14.71	0.075	--	0.1	0.1	1.2	-	
ARM C	8.17	34.00	0.240	--	0.3	0.3	4.7	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
ARM A	7.28	28.03	0.260	--	0.5	0.4	5.4	-	
ARM B	0.90	15.37	0.058	--	0.1	0.1	1.0	-	
ARM C	6.67	34.02	0.196	--	0.3	0.2	3.7	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
ARM A	6.10	28.08	0.217	--	0.4	0.3	4.2	-	
ARM B	0.75	15.84	0.048	--	0.1	0.1	0.8	-	
ARM C	5.58	34.03	0.164	--	0.2	0.2	3.0	-	

QUEUE AT ARM A

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	0.4
09.15	0.3

 QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1

 QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.2
08.30	0.3
08.45	0.3
09.00	0.2
09.15	0.2

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

											T75
I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I	* DELAY *	I	
I	I	I	I	I	* DELAY *	I	* DELAY *	I		I	
I	I	I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)		I	
I	A	I	668.9	I 446.0	I 32.7	I 0.05	I 32.7	I 0.05		I	
I	B	I	82.6	I 55.1	I 5.8	I 0.07	I 5.8	I 0.07		I	
I	C	I	612.5	I 408.3	I 22.6	I 0.04	I 22.6	I 0.04		I	
I	ALL	I	1364.0	I 909.4	I 61.1	I 0.04	I 61.1	I 0.04		I	

 * DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

***** ARCADY 6 run completed.

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

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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Run with file:-
"j:\227000\227136-00\4. Internal Project Data\4-03 Design\4-03-02 Consulting\Analysis\
Local Junction Assessments\Sallins Bypass_Sallins Link Road Roundabout\
Sallins Bypass and Sallins Link Road Roudnabout_PM Peak.vai"
(drive-on-the-left) at 15:10:10 on Friday, 21 June 2013

FILE PROPERTIES

RUN TITLE: Sallins Bypass and Sallins Link Road Roundabout-PM Peak
LOCATION: Sallins
DATE: 21/06/13
CLIENT: KCC
ENUMERATOR: abhijit.chatterjee [DUBPC275PG5J]
JOB NUMBER: 227136-00
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Sallins Bypass Northern Approach
ARM B - Sallins Link Road
ARM C - Sallins Bypass Southern Approach

 GEOMETRIC DATA

														T5					
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	3.70	I	7.00	I	30.00	I	25.00	I	76.00	I	31.0	I	0.510	I	31.207	I
I	ARM	B	I	3.50	I	4.50	I	2.00	I	20.00	I	76.00	I	22.0	I	0.416	I	20.162	I
I	ARM	C	I	7.00	I	7.50	I	2.00	I	25.30	I	76.00	I	27.0	I	0.571	I	37.512	I

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

 TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

				T13
I	ARM	I	FLOW SCALE (%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

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 TITLE: Sallins Bypass and Sallins Road R407 Roudnabout-2030 DS

										T15				
I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	RATE OF FLOW (VEH/MIN) BEFORE	I	AT TOP	I	AFTER	
I		I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK	
I	ARM	A	I	15.00	I	45.00	I	75.00	I	6.10	I	9.15	I	6.10
I	ARM	B	I	15.00	I	45.00	I	75.00	I	0.80	I	1.20	I	0.80
I	ARM	C	I	15.00	I	45.00	I	75.00	I	4.94	I	7.41	I	4.94

DEMAND SET TITLE: Sallins Bypass and Sallins Road R407 Roudnabout-2030 DS

T33

		TURNING PROPORTIONS					
		TURNING COUNTS					
		(PERCENTAGE OF H.V.S)					
TIME	FROM/T	ARM A	ARM B	ARM C			
16.45 - 18.15	ARM A	0.000	0.020	0.980			
		0.0	10.0	478.0			
		(10.0)	(10.0)	(10.0)			
	ARM B	0.203	0.000	0.797			
		13.0	0.0	51.0			
		(10.0)	(10.0)	(10.0)			
	ARM C	0.856	0.144	0.000			
		338.0	57.0	0.0			
		(10.0)	(10.0)	(10.0)			

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
ARM A	6.12	28.00	0.219	--	0.0	0.3	4.1	-	
ARM B	0.80	15.84	0.051	--	0.0	0.1	0.8	-	
ARM C	4.96	34.01	0.146	--	0.0	0.2	2.5	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	7.31	27.93	0.262	--	0.3	0.4	5.2	-	
ARM B	0.96	15.35	0.062	--	0.1	0.1	1.0	-	
ARM C	5.92	33.99	0.174	--	0.2	0.2	3.1	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
ARM A	8.95	27.84	0.322	--	0.4	0.5	7.0	-	
ARM B	1.17	14.69	0.080	--	0.1	0.1	1.3	-	
ARM C	7.25	33.97	0.213	--	0.2	0.3	4.0	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
ARM A	8.95	27.84	0.322	--	0.5	0.5	7.1	-	
ARM B	1.17	14.68	0.080	--	0.1	0.1	1.3	-	
ARM C	7.25	33.97	0.213	--	0.3	0.3	4.1	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	7.31	27.93	0.262	--	0.5	0.4	5.4	-	
ARM B	0.96	15.35	0.062	--	0.1	0.1	1.0	-	
ARM C	5.92	33.99	0.174	--	0.3	0.2	3.2	-	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
ARM A	6.12	28.00	0.219	--	0.4	0.3	4.3	-	
ARM B	0.80	15.83	0.051	--	0.1	0.1	0.8	-	
ARM C	4.96	34.01	0.146	--	0.2	0.2	2.6	-	

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	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.1

 QUEUE AT ARM C

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

 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

											T75
I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I	* DELAY *	I	I
I	I	I	I	I	* DELAY *	I	* DELAY *	I	I	I	I
I	I	I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	I	I	I
I	A	I	671.7	I 447.8	I 33.1	I 0.05	I 33.1	I 0.05	I	I	
I	B	I	88.1	I 58.7	I 6.2	I 0.07	I 6.2	I 0.07	I	I	
I	C	I	543.7	I 362.5	I 19.5	I 0.04	I 19.5	I 0.04	I	I	
I	ALL	I	1303.5	I 869.0	I 58.8	I 0.05	I 58.8	I 0.05	I	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

***** ARCADY 6 run completed.

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