

TRL LIMITED

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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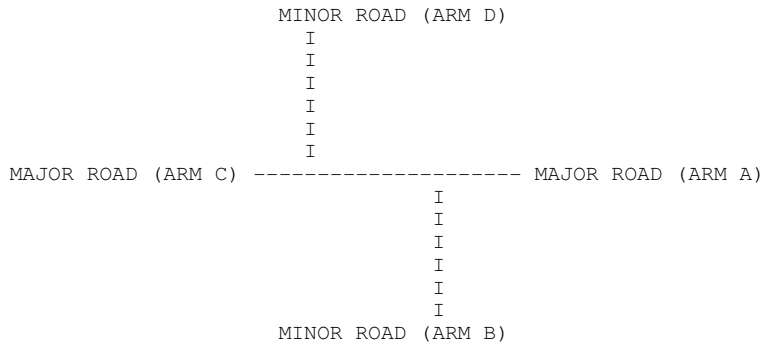
Run with file:- "C:\Users\schoak\Desktop\130216_403.00842.00004_AM-PEAK-RUNS.vpi" (drive-on-the-left) at 16:40:57 on Saturday

RUN INFORMATION

RUN TITLE : AM Peak Scenarios
LOCATION : A30 / A327 Junction
DATE : 14/02/13
CLIENT :
ENUMERATOR : Stuart Choak
JOB NUMBER : 403.00842.00004
STATUS :
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A30 - EAST
ARM B IS BLACKBUSHES ROAD
ARM C IS A30 - WEST
ARM D IS A327

STREAM LABELLING CONVENTION

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

 GEOMETRIC DATA

I	DATA ITEM	I	MINOR ROAD B	I	MINOR ROAD D	I
I	TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	I	(W) 10.50 M.	I	(W) 9.20 M.	I
I	CENTRAL RESERVE WIDTH	I	(WCR) 6.00 M.	I	(WCR) 10.00 M.	I
I		I		I		I
I	MAJOR ROAD RIGHT TURN - WIDTH	I	(WC-B) 4.80 M.	I	(WA-D) 4.40 M.	I
I	- VISIBILITY	I	(VC-B) 250.00 M.	I	(VA-D) 250.00 M.	I
I	- BLOCKS TRAFFIC (SPACES)	I	YES (8)	I	YES (12)	I
I		I		I		I
I	MINOR ROAD - VISIBILITY TO LEFT	I	(VB-C) 215.0 M.	I	(VD-A) 215.0 M.	I
I	- VISIBILITY TO RIGHT	I	(VB-A) 215.0 M.	I	(VD-C) 215.0 M.	I
I	- LANE 1 WIDTH	I	(WB-C) 5.00 M.	I	(WD-A) 5.00 M.	I
I	- LANE 2 WIDTH	I	(WB-A) 3.00 M.	I	(WD-C) 3.25 M.	I

 .SLOPES AND INTERCEPT

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

STREAM B-A

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	STREAM B-A	STREAM A-C	STREAM A-D	STREAM A-B	STREAM C-A	I
I	752.89	0.25	0.25	0.10	0.15	I

I	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	STREAM D-A	STREAM C-B	STREAM D-B	STREAM D-B	I
I	0.15	0.35	0.35	0.35	I

STREAM D-C

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	STREAM D-C	STREAM C-A	STREAM C-B	STREAM C-D	STREAM A-C	I
I	832.52	0.27	0.27	0.11	0.17	I

I	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	STREAM B-C	STREAM A-D	STREAM B-D	STREAM B-D	I
I	0.17	0.39	0.39	0.39	I

STREAM CD-B

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	STREAM CD-B	STREAM A-B	STREAM A-C	STREAM A-D	STREAM A-C	I
I	890.83	0.29	0.29	0.25		I

STREAM AB-D

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	STREAM AB-D	STREAM C-D	STREAM C-A	STREAM C-B	STREAM C-B	I
I	890.83	0.30	0.30	0.27		I

STREAM B-CD

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	STREAM B-CD	STREAM A-C	STREAM A-D	STREAM A-B	STREAM A-B	I
I	911.32	0.28	0.28	0.11		I

STREAM D-AB

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	STREAM D-AB	STREAM C-A	STREAM C-B	STREAM C-D	STREAM C-D	I
I	911.32	0.30	0.30	0.11		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)
07.45-08.00									
B-CD	4.67	11.65	0.401		0.66	0.66	9.9		0.14
B-A	0.55	6.09	0.090		0.10	0.10	1.5		0.18
A-B	0.32								
A-C	5.78								
A-D	4.30								
AB-CD	(8.60)	11.82	0.728		0.72	0.73	10.9		0.29
AB-C	(6.15)								
D-AB	9.07	10.31	0.880		5.32	6.09	86.6		0.72
D-C	3.98	7.01	0.568		1.25	1.28	19.0		0.33
C-D	0.32								
C-A	7.59								
C-B	0.77								
CD-AB	(4.83)	11.98	0.403		0.39	0.40	6.0		0.14
CD-A	(12.54)								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
B-CD	4.67	11.65	0.401		0.66	0.67	10.0		0.14
B-A	0.55	6.08	0.090		0.10	0.10	1.5		0.18
A-B	0.32								
A-C	5.78								
A-D	4.30								
AB-CD	(8.60)	11.82	0.728		0.73	0.73	10.9		0.29
AB-C	(6.15)								
D-AB	9.07	10.31	0.880		6.09	6.43	94.2		0.75
D-C	3.98	7.01	0.568		1.28	1.29	19.3		0.33
C-D	0.32								
C-A	7.59								
C-B	0.77								
CD-AB	(4.84)	11.98	0.404		0.40	0.40	6.1		0.14
CD-A	(12.56)								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-CD	4.67	11.65	0.401		0.67	0.67	10.0		0.14
B-A	0.55	6.08	0.091		0.10	0.10	1.5		0.18
A-B	0.32								
A-C	5.78								
A-D	4.30								
AB-CD	(8.60)	11.82	0.728		0.73	0.73	10.9		0.29
AB-C	(6.15)								
D-AB	9.07	10.31	0.880		6.43	6.62	98.0		0.77
D-C	3.98	7.01	0.568		1.29	1.30	19.5		0.33
C-D	0.32								
C-A	7.59								
C-B	0.77								
CD-AB	(4.84)	11.98	0.404		0.40	0.40	6.1		0.14
CD-A	(12.56)								

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

QUEUE FOR STREAM B-CD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.7	*
08.00	0.7	*
08.15	0.7	*
08.30	0.7	*

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.45	0.1
08.00	0.1
08.15	0.1
08.30	0.1

QUEUE FOR STREAM AB-CD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.7	*
08.00	0.7	*
08.15	0.7	*
08.30	0.7	*

QUEUE FOR STREAM D-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	5.3	*****
08.00	6.1	*****
08.15	6.4	*****
08.30	6.6	*****

QUEUE FOR STREAM D-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	1.2	*
08.00	1.3	*
08.15	1.3	*
08.30	1.3	*

QUEUE FOR STREAM CD-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.45	0.4
08.00	0.4
08.15	0.4
08.30	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
B-CD	280.2	39.3	0.14
B-A	33.0	5.8	0.18
A-B	19.0		
A-C	347.0		
A-D	258.0		
AB-CD	515.6	43.5	0.08
AB-C	369.0		
D-AB	544.0	341.0	0.63
D-C	239.0	74.7	0.31
C-D	19.0		
C-A	455.2		
C-B	46.0		
CD-AB	288.0	24.0	0.08
CD-A	750.5		
ALL	2240.4	528.3	0.24

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

*****END OF RUN*****

.SLOPES AND INTERCEPT

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

STREAM B-A

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM B-A	STREAM A-C	STREAM A-D	STREAM A-B	STREAM C-A
752.89	0.25	0.25	0.10	0.15
Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	
STREAM D-A	STREAM C-B	STREAM D-B		
0.15	0.35	0.35		

STREAM D-C

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM D-C	STREAM C-A	STREAM C-B	STREAM C-D	STREAM A-C
832.52	0.27	0.27	0.11	0.17
Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	
STREAM B-C	STREAM A-D	STREAM B-D		
0.17	0.39	0.39		

STREAM CD-B

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM CD-B	STREAM A-B	STREAM A-C	STREAM A-D	
890.83	0.29	0.29	0.25	

STREAM AB-D

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM AB-D	STREAM C-D	STREAM C-A	STREAM C-B	
890.83	0.30	0.30	0.27	

STREAM B-CD

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
B-CD	4.65	11.69	0.398		0.65	0.66	9.8		0.14
B-A	0.55	6.19	0.089		0.09	0.10	1.4		0.18
A-B	0.32								
A-C	5.79								
A-D	4.22								
AB-CD (	8.50)	11.88	0.716		0.71	0.71	10.7		0.28
AB-C (	6.15)								
D-AB	8.96	10.43	0.860		4.75	5.32	76.3		0.63
D-C	3.97	6.95	0.571		1.26	1.29	19.2		0.33
C-D	0.32								
C-A	7.59								
C-B	0.77								
CD-AB (	4.82)	12.19	0.395		0.38	0.39	5.9		0.13
CD-A (	12.46)								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
B-CD	4.65	11.69	0.398		0.66	0.66	9.8		0.14
B-A	0.55	6.18	0.089		0.10	0.10	1.5		0.18
A-B	0.32								
A-C	5.79								
A-D	4.22								
AB-CD (	8.50)	11.88	0.716		0.71	0.71	10.7		0.28
AB-C (	6.15)								
D-AB	8.96	10.43	0.860		5.32	5.56	81.8		0.65
D-C	3.97	6.95	0.571		1.29	1.31	19.5		0.33
C-D	0.32								
C-A	7.59								
C-B	0.77								
CD-AB (	4.83)	12.19	0.396		0.39	0.39	5.9		0.14
CD-A (	12.48)								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-CD	4.65	11.69	0.398		0.66	0.66	9.9		0.14
B-A	0.55	6.17	0.089		0.10	0.10	1.5		0.18
A-B	0.32								
A-C	5.79								
A-D	4.22								
AB-CD (	8.50)	11.88	0.716		0.71	0.71	10.7		0.28
AB-C (	6.15)								
D-AB	8.96	10.43	0.860		5.56	5.69	84.4		0.66
D-C	3.97	6.95	0.571		1.31	1.31	19.7		0.34
C-D	0.32								
C-A	7.59								
C-B	0.77								
CD-AB (	4.83)	12.19	0.396		0.39	0.40	5.9		0.14
CD-A (	12.48)								

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

QUEUE FOR STREAM B-CD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.6	*
08.00	0.7	*
08.15	0.7	*
08.30	0.7	*

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.45	0.1
08.00	0.1
08.15	0.1
08.30	0.1

QUEUE FOR STREAM AB-CD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.7	*
08.00	0.7	*
08.15	0.7	*
08.30	0.7	*

QUEUE FOR STREAM D-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	4.7	*****
08.00	5.3	*****
08.15	5.6	*****
08.30	5.7	*****

QUEUE FOR STREAM D-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	1.3	*
08.00	1.3	*
08.15	1.3	*
08.30	1.3	*

QUEUE FOR STREAM CD-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.45	0.4
08.00	0.4
08.15	0.4
08.30	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
B-CD	279.0	38.8	0.14
B-A	33.0	5.7	0.17
A-B	19.0		
A-C	347.1		
A-D	253.1		
AB-CD	509.5	42.8	0.08
AB-C	369.1		
D-AB	537.9	299.3	0.56
D-C	237.9	75.4	0.32
C-D	19.0		
C-A	455.2		
C-B	46.0		
CD-AB	287.4	23.5	0.08
CD-A	746.0		
ALL	2227.2	485.5	0.22

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

*****END OF RUN*****

.SLOPES AND INTERCEPT

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

STREAM B-A

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM B-A	STREAM A-C	STREAM A-D	STREAM A-B	STREAM C-A
752.89	0.25	0.25	0.10	0.15
Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	
STREAM D-A	STREAM C-B	STREAM D-B		
0.15	0.35	0.35		

STREAM D-C

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM D-C	STREAM C-A	STREAM C-B	STREAM C-D	STREAM A-C
832.52	0.27	0.27	0.11	0.17
Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	
STREAM B-C	STREAM A-D	STREAM B-D		
0.17	0.39	0.39		

STREAM CD-B

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM CD-B	STREAM A-B	STREAM A-C	STREAM A-D	
890.83	0.29	0.29	0.25	

STREAM AB-D

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM AB-D	STREAM C-D	STREAM C-A	STREAM C-B	
890.83	0.30	0.30	0.27	

STREAM B-CD

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
B-CD	4.79	11.61	0.412		0.69	0.70	10.4		0.15
B-A	0.56	6.00	0.094		0.10	0.10	1.5		0.18
A-B	0.33								
A-C	5.95								
A-D	4.33								
AB-CD (	8.74)	11.82	0.739		0.73	0.74	11.1		0.30
AB-C (	6.33)								
D-AB	9.22	10.27	0.897		5.90	6.93	97.4		0.81
D-C	4.08	6.77	0.603		1.42	1.47	21.8		0.37
C-D	0.33								
C-A	7.80								
C-B	0.78								
CD-AB (	4.94)	12.11	0.408		0.39	0.41	6.1		0.14
CD-A (	12.80)								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
B-CD	4.79	11.61	0.412		0.70	0.70	10.4		0.15
B-A	0.56	5.98	0.094		0.10	0.10	1.6		0.18
A-B	0.33								
A-C	5.95								
A-D	4.33								
AB-CD (	8.74)	11.82	0.739		0.74	0.74	11.1		0.30
AB-C (	6.33)								
D-AB	9.22	10.27	0.898		6.93	7.40	107.9		0.86
D-C	4.08	6.77	0.603		1.47	1.49	22.2		0.37
C-D	0.33								
C-A	7.80								
C-B	0.78								
CD-AB (	4.95)	12.11	0.409		0.41	0.41	6.1		0.14
CD-A (	12.82)								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-CD	4.79	11.61	0.412		0.70	0.70	10.5		0.15
B-A	0.56	5.97	0.095		0.10	0.10	1.6		0.19
A-B	0.33								
A-C	5.95								
A-D	4.33								
AB-CD (	8.74)	11.82	0.739		0.74	0.74	11.1		0.30
AB-C (	6.33)								
D-AB	9.22	10.27	0.898		7.40	7.68	113.3		0.88
D-C	4.08	6.77	0.603		1.49	1.50	22.4		0.37
C-D	0.33								
C-A	7.80								
C-B	0.78								
CD-AB (	4.96)	12.11	0.409		0.41	0.41	6.1		0.14
CD-A (	12.83)								

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

QUEUE FOR STREAM B-CD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.7	*
08.00	0.7	*
08.15	0.7	*
08.30	0.7	*

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.45	0.1
08.00	0.1
08.15	0.1
08.30	0.1

QUEUE FOR STREAM AB-CD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.7	*
08.00	0.7	*
08.15	0.7	*
08.30	0.7	*

QUEUE FOR STREAM D-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	5.9	*****
08.00	6.9	*****
08.15	7.4	*****
08.30	7.7	*****

QUEUE FOR STREAM D-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	1.4	*
08.00	1.5	*
08.15	1.5	*
08.30	1.5	*

QUEUE FOR STREAM CD-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.45	0.4
08.00	0.4
08.15	0.4
08.30	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
B-CD	287.1	41.1	0.14
B-A	33.9	6.1	0.18
A-B	20.0		
A-C	357.1		
A-D	260.1		
AB-CD	523.6	44.2	0.08
AB-C	380.0		
D-AB	553.0	386.2	0.70
D-C	245.0	85.3	0.35
C-D	20.0		
C-A	468.2		
C-B	47.0		
CD-AB	294.5	24.3	0.08
CD-A	766.0		
ALL	2291.4	587.1	0.26

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

.SLOPES AND INTERCEPT

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

STREAM B-A

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM B-A	STREAM A-C	STREAM A-D	STREAM A-B	STREAM C-A
752.89	0.25	0.25	0.10	0.15
Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	
STREAM D-A	STREAM C-B	STREAM D-B		
0.15	0.35	0.35		

STREAM D-C

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM D-C	STREAM C-A	STREAM C-B	STREAM C-D	STREAM A-C
832.52	0.27	0.27	0.11	0.17
Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	
STREAM B-C	STREAM A-D	STREAM B-D		
0.17	0.39	0.39		

STREAM CD-B

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM CD-B	STREAM A-B	STREAM A-C	STREAM A-D	
890.83	0.29	0.29	0.25	

STREAM AB-D

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM AB-D	STREAM C-D	STREAM C-A	STREAM C-B	
890.83	0.30	0.30	0.27	

STREAM B-CD

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
B-CD	4.68	11.66	0.401		0.66	0.67	9.9		0.14
B-A	0.55	6.10	0.090		0.10	0.10	1.5		0.18
A-B	0.32								
A-C	5.79								
A-D	4.32								
AB-CD (	8.63)	11.82	0.730		0.72	0.73	10.9		0.29
AB-C (	6.15)								
D-AB	9.12	10.33	0.882		5.40	6.21	88.1		0.73
D-C	3.98	6.88	0.579		1.30	1.34	19.8		0.34
C-D	0.32								
C-A	7.59								
C-B	0.77								
CD-AB (	4.84)	12.15	0.399		0.39	0.40	6.0		0.14
CD-A (	12.57)								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
B-CD	4.68	11.66	0.401		0.67	0.67	10.0		0.14
B-A	0.55	6.09	0.090		0.10	0.10	1.5		0.18
A-B	0.32								
A-C	5.79								
A-D	4.32								
AB-CD (	8.63)	11.82	0.730		0.73	0.73	11.0		0.29
AB-C (	6.15)								
D-AB	9.12	10.33	0.882		6.21	6.57	96.1		0.76
D-C	3.98	6.88	0.579		1.34	1.35	20.2		0.34
C-D	0.32								
C-A	7.59								
C-B	0.77								
CD-AB (	4.86)	12.15	0.400		0.40	0.40	6.0		0.14
CD-A (	12.59)								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-CD	4.68	11.66	0.401		0.67	0.67	10.0		0.14
B-A	0.55	6.08	0.090		0.10	0.10	1.5		0.18
A-B	0.32								
A-C	5.79								
A-D	4.32								
AB-CD (	8.63)	11.82	0.730		0.73	0.73	11.0		0.29
AB-C (	6.15)								
D-AB	9.12	10.33	0.882		6.57	6.77	100.1		0.78
D-C	3.98	6.88	0.579		1.35	1.36	20.3		0.34
C-D	0.32								
C-A	7.59								
C-B	0.77								
CD-AB (	4.86)	12.15	0.400		0.40	0.40	6.0		0.14
CD-A (	12.60)								

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

QUEUE FOR STREAM B-CD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.7	*
08.00	0.7	*
08.15	0.7	*
08.30	0.7	*

QUEUE FOR STREAM B-A

TIME	NO. OF
SEGMENT	VEHICLES
ENDING	IN QUEUE
07.45	0.1
08.00	0.1
08.15	0.1
08.30	0.1

QUEUE FOR STREAM AB-CD

TIME	NO. OF
SEGMENT	VEHICLES
ENDING	IN QUEUE
07.45	0.7 *
08.00	0.7 *
08.15	0.7 *
08.30	0.7 *

QUEUE FOR STREAM D-AB

TIME	NO. OF
SEGMENT	VEHICLES
ENDING	IN QUEUE
07.45	5.4 *****
08.00	6.2 *****
08.15	6.6 *****
08.30	6.8 *****

QUEUE FOR STREAM D-C

TIME	NO. OF
SEGMENT	VEHICLES
ENDING	IN QUEUE
07.45	1.3 *
08.00	1.3 *
08.15	1.3 *
08.30	1.4 *

QUEUE FOR STREAM CD-AB

TIME	NO. OF
SEGMENT	VEHICLES
ENDING	IN QUEUE
07.45	0.4
08.00	0.4
08.15	0.4
08.30	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
B-CD	280.8	39.4	0.14
B-A	33.0	5.8	0.18
A-B	19.0		
A-C	347.1		
A-D	259.1		
AB-CD	517.3	43.6	0.08
AB-C	369.0		
D-AB	547.0	347.4	0.64
D-C	239.0	77.7	0.33
C-D	19.0		
C-A	455.2		
C-B	46.0		
CD-AB	289.0	23.7	0.08
CD-A	752.5		
ALL	2245.2	537.6	0.24

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*****END OF RUN*****

.SLOPES AND INTERCEPT

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

STREAM B-A

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM B-A	STREAM A-C	STREAM A-D	STREAM A-B	STREAM C-A
752.89	0.25	0.25	0.10	0.15
Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	
STREAM D-A	STREAM C-B	STREAM D-B		
0.15	0.35	0.35		

STREAM D-C

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM D-C	STREAM C-A	STREAM C-B	STREAM C-D	STREAM A-C
832.52	0.27	0.27	0.11	0.17
Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	
STREAM B-C	STREAM A-D	STREAM B-D		
0.17	0.39	0.39		

STREAM CD-B

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM CD-B	STREAM A-B	STREAM A-C	STREAM A-D	
890.83	0.29	0.29	0.25	

STREAM AB-D

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing
STREAM AB-D	STREAM C-D	STREAM C-A	STREAM C-B	
890.83	0.30	0.30	0.27	

STREAM B-CD

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
B-CD	4.81	11.57	0.416		0.70	0.71	10.6		0.15
B-A	0.57	5.91	0.096		0.10	0.11	1.6		0.19
A-B	0.33								
A-C	5.94								
A-D	4.43								
AB-CD	(8.86)	11.74	0.755		0.75	0.75	11.3		0.32
AB-C	(6.32)								
D-AB	9.36	10.16	0.920		6.78	8.26	114.3		0.95
D-C	4.09	6.70	0.611		1.46	1.52	22.5		0.38
C-D	0.33								
C-A	7.80								
C-B	0.78								
CD-AB	(4.95)	12.07	0.410		0.40	0.41	6.2		0.14
CD-A	(12.89)								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-CD	4.81	11.56	0.416		0.71	0.71	10.6		0.15
B-A	0.57	5.88	0.096		0.11	0.11	1.6		0.19
A-B	0.33								
A-C	5.94								
A-D	4.43								
AB-CD	(8.86)	11.74	0.755		0.75	0.75	11.3		0.32
AB-C	(6.32)								
D-AB	9.36	10.16	0.920		8.26	9.01	130.0		1.03
D-C	4.09	6.70	0.611		1.52	1.54	22.9		0.38
C-D	0.33								
C-A	7.80								
C-B	0.78								
CD-AB	(4.97)	12.07	0.412		0.41	0.41	6.2		0.14
CD-A	(12.92)								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-CD	4.81	11.56	0.416		0.71	0.71	10.6		0.15
B-A	0.57	5.87	0.096		0.11	0.11	1.6		0.19
A-B	0.33								
A-C	5.94								
A-D	4.43								
AB-CD	(8.86)	11.74	0.755		0.75	0.75	11.3		0.32
AB-C	(6.32)								
D-AB	9.36	10.16	0.921		9.01	9.48	138.9		1.08
D-C	4.09	6.70	0.611		1.54	1.55	23.1		0.38
C-D	0.33								
C-A	7.80								
C-B	0.78								
CD-AB	(4.98)	12.07	0.413		0.41	0.41	6.2		0.14
CD-A	(12.93)								

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

QUEUE FOR STREAM B-CD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.7	*
08.00	0.7	*
08.15	0.7	*
08.30	0.7	*

QUEUE FOR STREAM B-A

TIME	NO. OF
SEGMENT	VEHICLES
ENDING	IN QUEUE
07.45	0.1
08.00	0.1
08.15	0.1
08.30	0.1

QUEUE FOR STREAM AB-CD

TIME	NO. OF
SEGMENT	VEHICLES
ENDING	IN QUEUE
07.45	0.7 *
08.00	0.8 *
08.15	0.8 *
08.30	0.8 *

QUEUE FOR STREAM D-AB

TIME	NO. OF
SEGMENT	VEHICLES
ENDING	IN QUEUE
07.45	6.8 *****
08.00	8.3 *****
08.15	9.0 *****
08.30	9.5 *****

QUEUE FOR STREAM D-C

TIME	NO. OF
SEGMENT	VEHICLES
ENDING	IN QUEUE
07.45	1.5 *
08.00	1.5 **
08.15	1.5 **
08.30	1.5 **

QUEUE FOR STREAM CD-AB

TIME	NO. OF
SEGMENT	VEHICLES
ENDING	IN QUEUE
07.45	0.4
08.00	0.4
08.15	0.4
08.30	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
B-CD	288.8	41.8	0.14
B-A	34.0	6.2	0.18
A-B	20.0		
A-C	356.4		
A-D	265.6		
AB-CD	530.8	45.1	0.08
AB-C	379.4		
D-AB	561.3	458.6	0.82
D-C	245.7	88.0	0.36
C-D	20.0		
C-A	468.2		
C-B	47.0		
CD-AB	295.4	24.4	0.08
CD-A	771.6		
ALL	2307.0	664.2	0.29

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*****END OF RUN*****

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