Appendix 3 PICADY Junction Capacity Analysis

TRL LIMITED

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

PICADY 4.1 ANALYSIS PROGRAM

RELEASE 4.0 (NOV 2003)

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PROGRAM ADVICE AND MAINTENANCE CONTACT:

TRL SOFTWARE BUREAU

TEL: CROWTHORNE (01344) 770758, FAX: 770864

EMAIL: SoftwareBureau@trl.co.uk

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

Run with file:- "g:\20960\Calculations\PICADY\20960PY03.vpi" (drive-on-the-left) at 08:35:13 on Friday, 6 December 2019

RUN TITLE

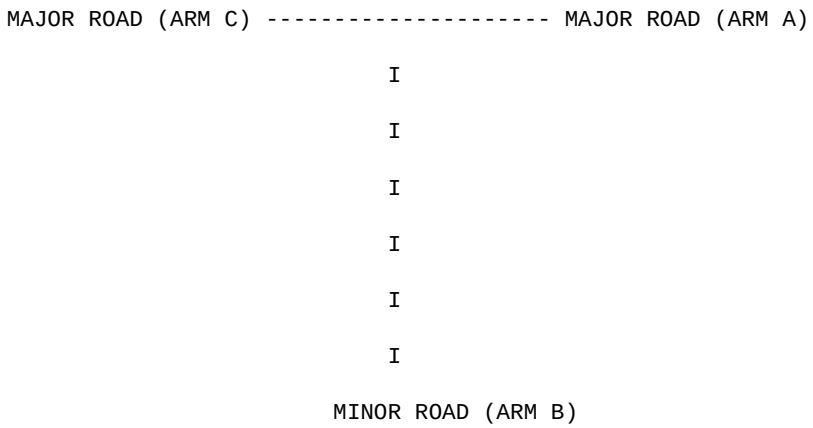
****

R640 Cahir Business Park Access Junction - 2035 Peak Hour with TII High Growth

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

****

INPUT DATA



ARM A IS R640 Tipperary Road

ARM B IS Cahir Park Business Park Access Road

ARM C IS R640 Upper Abbey Street

STREAM LABELLING CONVENTION

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

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

ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 10.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 3.00 M.
- VISIBILITY	(VC-B) 210.0 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 160.0 M.
- VISIBILITY TO RIGHT	(VB-A) 120.0 M.
- LANE 1 WIDTH	(WB-C) 3.50 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

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.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 16.30 AND ENDS 17.30

LENGTH OF TIME PERIOD - 60 MINUTES.

LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

.

		TURNING PROPORTIONS		
		TURNING COUNTS		
		(PERCENTAGE OF H.V.S)		
TIME	FROM/TO	ARM A	ARM B	ARM C
16.30 - 16.45				
	ARM A	0.000	0.121	0.879
		0.0	23.0	167.0
		(0.0)	(8.7)	(0.0)
	ARM B	0.540	0.000	0.460
		54.0	0.0	46.0
		(13.0)	(0.0)	(8.7)
	ARM C	0.870	0.130	0.000
		207.0	31.0	0.0
		(2.9)	(0.0)	(0.0)
16.45 - 17.00				
	ARM A	0.000	0.121	0.879
		0.0	23.0	167.0
		(0.0)	(8.7)	(0.0)
	ARM B	0.540	0.000	0.460
		54.0	0.0	46.0
		(13.0)	(0.0)	(8.7)

	ARM C	0.870	0.130	0.000	
		207.0	31.0	0.0	
		(2.9)	(0.0)	(0.0)	

17.00 - 17.15					
	ARM A	0.000	0.121	0.879	
		0.0	23.0	167.0	
		(0.0)	(8.7)	(0.0)	
	ARM B	0.540	0.000	0.460	
		54.0	0.0	46.0	
		(13.0)	(0.0)	(8.7)	
	ARM C	0.870	0.130	0.000	
		207.0	31.0	0.0	
		(2.9)	(0.0)	(0.0)	

.

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

17.15 - 17.30					
	ARM A	0.000	0.121	0.879	
		0.0	23.0	167.0	
		(0.0)	(8.7)	(0.0)	

```
 I                   I         I        I        I        I
 I                   I  ARM B  I  0.540 I  0.000 I  0.460 I
 I                   I         I   54.0 I    0.0 I   46.0 I
 I                   I         I ( 13.0)I (  0.0)I (  8.7)I
 I                   I         I        I        I        I
 I                   I  ARM C  I  0.870 I  0.130 I  0.000 I
 I                   I         I  207.0 I   31.0 I    0.0 I
 I                   I         I (  2.9)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
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TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE TURNING PROPORTIONS USED VARY BETWEEN TIME SEGMENTS

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

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----------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I
 I 16.30-16.45
I
 I   B-AC      1.67      8.98    0.186                0.0    0.2        3.3
I
 I   C-A       3.45
I
 I   C-B       0.52     11.83    0.044                0.0    0.0        0.7
I
 I   A-B       0.38
I
 I   A-C       2.79
I
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 I
I

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----------

 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 16.45-17.00
I

 I   B-AC      1.75      8.92    0.196                0.2    0.2        3.6
I

 I   C-A       3.63
I

 I   C-B       0.54     11.79    0.046                0.0    0.0        0.7
I

 I   A-B       0.40
I

 I   A-C       2.93
I

 I
I

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 17.00-17.15
I

 I   B-AC      1.67      8.99    0.186                0.2    0.2        3.5
I
```

```
 I   C-A       3.37
I

 I   C-B       0.50     11.83    0.043                0.0    0.0        0.7
I

 I   A-B       0.38
I

 I   A-C       2.79
I

 I
I

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 17.15-17.30
I

 I   B-AC      1.59      9.03    0.176                0.2    0.2        3.3
I

 I   C-A       3.28
I

 I   C-B       0.49     11.87    0.041                0.0    0.0        0.7
I

 I   A-B       0.36
I

 I   A-C       2.65
I

 I
I

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.

 QUEUE FOR STREAM   B-AC

 -------------------------

 TIME SEGMENT    NO. OF

   ENDING      VEHICLES
```

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

.

QUEUE FOR STREAM C-B

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

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-AC	100.2	100.2	13.6	0.14	13.6	0.14
C-A	205.9	205.9				
C-B	30.8	30.8	2.7	0.09	2.7	0.09
A-B	23.0	23.0				
A-C	167.2	167.2				
ALL	527.1	527.1	16.3	0.03	16.3	0.03

```
 * DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .

 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER
THE END OF THE TIME PERIOD.

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




 END OF JOB


 ****** PICADY 4 run completed.

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TRL LIMITED

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

PICADY 4.1 ANALYSIS PROGRAM

RELEASE 4.0 (NOV 2003)

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EMAIL: SoftwareBureau@trl.co.uk

Run with file:- "g:\20960\Calculations\PICADY\20960PY04.vpi" (drive-on-the-left) at 08:46:32 on Friday, 6 December 2019

RUN TITLE

****

R640 Cahir Business Park Access Junction - 2020 Peak Hour with Construction

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

****

INPUT DATA

MAJOR ROAD (ARM C) ---------- MAJOR ROAD (ARM A)

I

I

I

I

I

I

MINOR ROAD (ARM B)

ARM A IS R640 Tipperary Road

ARM B IS Cahir Park Business Park Access Road

ARM C IS R640 Upper Abbey Street

STREAM LABELLING CONVENTION

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

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

ETC.

.GEOMETRIC DATA

DATA ITEM		MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	10.00 M.
CENTRAL RESERVE WIDTH	(WCR)	0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	3.00 M.
- VISIBILITY	(VC-B)	210.0 M.
- BLOCKS TRAFFIC		NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	160.0 M.
- VISIBILITY TO RIGHT	(VB-A)	120.0 M.
- LANE 1 WIDTH	(WB-C)	3.50 M.
- LANE 2 WIDTH	(WB-A)	0.00 M.

.

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 16.30 AND ENDS 17.30

LENGTH OF TIME PERIOD - 60 MINUTES.

LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

.

		TURNING PROPORTIONS		
		TURNING COUNTS		
		(PERCENTAGE OF H.V.S)		
TIME	FROM/TO	ARM A	ARM B	ARM C
16.30 - 16.45				
	ARM A	0.000	0.115	0.885
		0.0	19.0	146.0
		(0.0)	(5.3)	(0.0)
	ARM B	0.538	0.000	0.462
		49.0	0.0	42.0
		(10.9)	(0.0)	(5.1)
	ARM C	0.869	0.131	0.000
		179.0	27.0	0.0
		(2.2)	(0.0)	(0.0)
16.45 - 17.00				
	ARM A	0.000	0.115	0.885
		0.0	19.0	146.0
		(0.0)	(5.3)	(0.0)
	ARM B	0.538	0.000	0.462
		49.0	0.0	42.0
		(10.9)	(0.0)	(5.1)
	ARM C	0.869	0.131	0.000
		179.0	27.0	0.0

			(2.2)	(0.0)	(0.0)
17.00 - 17.15					
	ARM A	0.000	0.115	0.885	
		0.0	19.0	146.0	
		(0.0)	(5.3)	(0.0)	
	ARM B	0.538	0.000	0.462	
		49.0	0.0	42.0	
		(10.9)	(0.0)	(5.1)	
	ARM C	0.869	0.131	0.000	
		179.0	27.0	0.0	
		(2.2)	(0.0)	(0.0)	

.

TURNING PROPORTIONS			
TURNING COUNTS			
(PERCENTAGE OF H.V.S)			
TIME	FROM/TO	ARM A	ARM B	ARM C
17.15 - 17.30				
	ARM A	0.000	0.115	0.885
		0.0	19.0	146.0
		(0.0)	(5.3)	(0.0)
	ARM B	0.538	0.000	0.462
		49.0	0.0	42.0

```
 I                   I         I ( 10.9)I (  0.0)I (  5.1)I
 I                   I         I        I        I        I
 I                   I  ARM C  I  0.869 I  0.131 I  0.000 I
 I                   I         I  179.0 I   27.0 I    0.0 I
 I                   I         I (  2.2)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
 ------------------------------------------------------
```

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE TURNING PROPORTIONS USED VARY BETWEEN TIME SEGMENTS

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.30-16.45								
B-AC	1.52	9.35	0.163		0.0	0.2	2.8	
C-A	2.98							
C-B	0.45	11.93	0.038		0.0	0.0	0.6	
A-B	0.32							
A-C	2.43							

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 16.45-17.00
I

 I   B-AC      1.59      9.30    0.171                0.2    0.2        3.0
I

 I   C-A       3.14
I

 I   C-B       0.47     11.90    0.040                0.0    0.0        0.6
I

 I   A-B       0.33
I

 I   A-C       2.56
I

 I
I

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 17.00-17.15
I

 I   B-AC      1.52      9.35    0.163                0.2    0.2        3.0
I

 I   C-A       2.98
I

 I   C-B       0.45     11.93    0.038                0.0    0.0        0.6
I

 I   A-B       0.32
I
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```
 I   A-C       2.43
I

 I
I

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 I  TIME      DEMAND   CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 17.15-17.30
I

 I   B-AC      1.44      9.38    0.154                0.2    0.2        2.8
I

 I   C-A       2.98
I

 I   C-B       0.45     11.97    0.038                0.0    0.0        0.6
I

 I   A-B       0.30
I

 I   A-C       2.31
I

 I
I

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----------

.

 QUEUE FOR STREAM   B-AC

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 TIME SEGMENT    NO. OF

   ENDING      VEHICLES

               IN QUEUE

   16.45           0.2

   17.00           0.2

   17.15           0.2
```

17.30 0.2

.

QUEUE FOR STREAM C-B

TIME SEGMENT NO. OF

ENDING VEHICLES

IN QUEUE

16.45 0.0

17.00 0.0

17.15 0.0

17.30 0.0

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

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STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-AC	91.1	91.1	11.5	0.13	11.6	0.13
C-A	181.2	181.2				
C-B	27.3	27.3	2.4	0.09	2.4	0.09
A-B	19.0	19.0				
A-C	146.0	146.0				
ALL	464.6	464.6	13.9	0.03	13.9	0.03

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .

* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.

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




 END OF JOB


 ****** PICADY 4 run completed.

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Run with file:- "g:\20960\Calculations\PICADY\20960PY05.vpi" (drive-on-the-left) at 08:58:41 on Friday, 6 December 2019

RUN TITLE

****

R640 Cahir Business Park Access Junction - 2020 Pk Hr with Proposed Development

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

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 ****************************************

 INPUT DATA

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                    MAJOR ROAD (ARM C) ---------------------- MAJOR ROAD (ARM A)

                                                  I

                                                  I

                                                  I

                                                  I

                                                  I

                                                  I

                                               MINOR ROAD (ARM B)

ARM A IS R640 Tipperary Road

ARM B IS Cahir Park Business Park Access Road

ARM C IS R640 Upper Abbey Street



STREAM LABELLING CONVENTION

---------------------------

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


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


       ETC.




.GEOMETRIC DATA

 --------------
```

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 10.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 3.00 M.
- VISIBILITY	(VC-B) 210.0 M.
- BLOCKS TRAFFIC	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 160.0 M.
- VISIBILITY TO RIGHT	(VB-A) 120.0 M.
- LANE 1 WIDTH	(WB-C) 3.50 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 16.30 AND ENDS 17.30

LENGTH OF TIME PERIOD - 60 MINUTES.

LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

.

		TURNING PROPORTIONS		
		TURNING COUNTS		
		(PERCENTAGE OF H.V.S)		
TIME	FROM/TO	ARM A	ARM B	ARM C
16.30 - 16.45				
	ARM A	0.000	0.146	0.854
		0.0	25.0	146.0
		(0.0)	(5.3)	(0.0)
	ARM B	0.540	0.000	0.460
		54.0	0.0	46.0
		(10.9)	(0.0)	(5.1)
	ARM C	0.833	0.167	0.000
		179.0	36.0	0.0
		(2.2)	(0.0)	(0.0)
16.45 - 17.00				
	ARM A	0.000	0.146	0.854
		0.0	25.0	146.0
		(0.0)	(5.3)	(0.0)
	ARM B	0.540	0.000	0.460
		54.0	0.0	46.0
		(10.9)	(0.0)	(5.1)
	ARM C	0.833	0.167	0.000
		179.0	36.0	0.0

			(2.2)	(0.0)	(0.0)
17.00 - 17.15					
	ARM A	0.000	0.146	0.854	
		0.0	25.0	146.0	
		(0.0)	(5.3)	(0.0)	
	ARM B	0.540	0.000	0.460	
		54.0	0.0	46.0	
		(10.9)	(0.0)	(5.1)	
	ARM C	0.833	0.167	0.000	
		179.0	36.0	0.0	
		(2.2)	(0.0)	(0.0)	

.

TURNING PROPORTIONS			
TURNING COUNTS			
(PERCENTAGE OF H.V.S)			
TIME	FROM/TO	ARM A	ARM B	ARM C
17.15 - 17.30				
	ARM A	0.000	0.146	0.854
		0.0	25.0	146.0
		(0.0)	(5.3)	(0.0)
	ARM B	0.540	0.000	0.460
		54.0	0.0	46.0

```
 I                   I         I ( 10.9)I (  0.0)I (  5.1)I
 I                   I         I        I        I        I
 I                   I  ARM C  I  0.833 I  0.167 I  0.000 I
 I                   I         I  179.0 I   36.0 I    0.0 I
 I                   I         I (  2.2)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
 ------------------------------------------------------
```

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE TURNING PROPORTIONS USED VARY BETWEEN TIME SEGMENTS

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.30-16.45								
B-AC	1.67	9.31	0.179		0.0	0.2	3.1	
C-A	2.98							
C-B	0.60	11.91	0.050		0.0	0.1	0.8	
A-B	0.42							
A-C	2.43							

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 16.45-17.00
I

 I   B-AC      1.75      9.26    0.189                0.2    0.2        3.4
I

 I   C-A       3.13
I

 I   C-B       0.63     11.87    0.053                0.1    0.1        0.8
I

 I   A-B       0.44
I

 I   A-C       2.56
I

 I
I

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 17.00-17.15
I

 I   B-AC      1.67      9.31    0.179                0.2    0.2        3.3
I

 I   C-A       2.98
I

 I   C-B       0.60     11.91    0.050                0.1    0.1        0.8
I

 I   A-B       0.42
I
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```
 I   A-C       2.43
I

 I
I

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 17.15-17.30
I

 I   B-AC      1.59      9.35    0.170                0.2    0.2        3.1
I

 I   C-A       2.84
I

 I   C-B       0.57     11.94    0.048                0.1    0.1        0.8
I

 I   A-B       0.40
I

 I   A-C       2.31
I

 I
I

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 QUEUE FOR STREAM   B-AC

 -------------------------

 TIME SEGMENT    NO. OF

   ENDING      VEHICLES

               IN QUEUE

   16.45           0.2

   17.00           0.2

   17.15           0.2
```

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.30	0.2

.

QUEUE FOR STREAM C-B

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

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-AC	100.2	100.2	13.0	0.13	13.0	0.13
C-A	179.0	179.0				
C-B	36.0	36.0	3.2	0.09	3.2	0.09
A-B	25.0	25.0				
A-C	146.1	146.1				
ALL	486.3	486.3	16.2	0.03	16.2	0.03

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .

* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.

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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


 ****** PICADY 4 run completed.

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TRL LIMITED

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

PICADY 4.1 ANALYSIS PROGRAM

RELEASE 4.0 (NOV 2003)

FOR SALES AND DISTRIBUTION INFORMATION,

PROGRAM ADVICE AND MAINTENANCE CONTACT:

TRL SOFTWARE BUREAU

TEL: CROWTHORNE (01344) 770758, FAX: 770864

EMAIL: SoftwareBureau@trl.co.uk

Run with file:- "g:\20960\Calculations\PICADY\20960PY06.vpi" (drive-on-the-left) at 09:02:22 on Friday, 6 December 2019

RUN TITLE

****

R640 Cahir Business Park Access Junction - 2025 Pk Hr with Proposed Development

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

****

INPUT DATA

MAJOR ROAD (ARM C) ---------- MAJOR ROAD (ARM A)

I

I

I

I

I

I

MINOR ROAD (ARM B)

ARM A IS R640 Tipperary Road

ARM B IS Cahir Park Business Park Access Road

ARM C IS R640 Upper Abbey Street

STREAM LABELLING CONVENTION

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

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

ETC.

.GEOMETRIC DATA

DATA ITEM		MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	10.00 M.
CENTRAL RESERVE WIDTH	(WCR)	0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	3.00 M.
- VISIBILITY	(VC-B)	210.0 M.
- BLOCKS TRAFFIC		NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	160.0 M.
- VISIBILITY TO RIGHT	(VB-A)	120.0 M.
- LANE 1 WIDTH	(WB-C)	3.50 M.
- LANE 2 WIDTH	(WB-A)	0.00 M.

.

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 16.30 AND ENDS 17.30

LENGTH OF TIME PERIOD - 60 MINUTES.

LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

.

		TURNING PROPORTIONS		
		TURNING COUNTS		
		(PERCENTAGE OF H.V.S)		
TIME	FROM/TO	ARM A	ARM B	ARM C
16.30 - 16.45				
	ARM A	0.000	0.144	0.856
		0.0	26.0	155.0
		(0.0)	(5.0)	(0.0)
	ARM B	0.543	0.000	0.457
		57.0	0.0	48.0
		(12.2)	(0.0)	(4.9)
	ARM C	0.834	0.166	0.000
		191.0	38.0	0.0
		(2.6)	(0.0)	(0.0)
16.45 - 17.00				
	ARM A	0.000	0.144	0.856
		0.0	26.0	155.0
		(0.0)	(5.0)	(0.0)
	ARM B	0.543	0.000	0.457
		57.0	0.0	48.0
		(12.2)	(0.0)	(4.9)
	ARM C	0.834	0.166	0.000
		191.0	38.0	0.0

			(2.6)	(0.0)	(0.0)
17.00 - 17.15					
	ARM A	0.000	0.144	0.856	
		0.0	26.0	155.0	
		(0.0)	(5.0)	(0.0)	
	ARM B	0.543	0.000	0.457	
		57.0	0.0	48.0	
		(12.2)	(0.0)	(4.9)	
	ARM C	0.834	0.166	0.000	
		191.0	38.0	0.0	
		(2.6)	(0.0)	(0.0)	

.

		TURNING PROPORTIONS		
		TURNING COUNTS		
		(PERCENTAGE OF H.V.S)		
TIME	FROM/TO	ARM A	ARM B	ARM C
17.15 - 17.30				
	ARM A	0.000	0.144	0.856
		0.0	26.0	155.0
		(0.0)	(5.0)	(0.0)
	ARM B	0.543	0.000	0.457
		57.0	0.0	48.0

```
 I                   I         I ( 12.2)I (  0.0)I (  4.9)I
 I                   I         I        I        I        I
 I                   I  ARM C  I  0.834 I  0.166 I  0.000 I
 I                   I         I  191.0 I   38.0 I    0.0 I
 I                   I         I (  2.6)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
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TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE TURNING PROPORTIONS USED VARY BETWEEN TIME SEGMENTS

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.30-16.45								
B-AC	1.75	9.18	0.191		0.0	0.2	3.4	
C-A	3.19							
C-B	0.63	11.87	0.053		0.0	0.1	0.8	
A-B	0.43							
A-C	2.59							

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 16.45-17.00
I

 I   B-AC      1.84      9.12    0.202                0.2    0.3        3.7
I

 I   C-A       3.34
I

 I   C-B       0.67     11.83    0.056                0.1    0.1        0.9
I

 I   A-B       0.46
I

 I   A-C       2.71
I

 I
I

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 17.00-17.15
I

 I   B-AC      1.75      9.18    0.191                0.3    0.2        3.6
I

 I   C-A       3.19
I

 I   C-B       0.63     11.87    0.053                0.1    0.1        0.9
I

 I   A-B       0.43
I
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```
 I   A-C       2.59
I

 I
I

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 17.15-17.30
I

 I   B-AC      1.66      9.23    0.180                0.2    0.2        3.4
I

 I   C-A       3.03
I

 I   C-B       0.60     11.90    0.051                0.1    0.1        0.8
I

 I   A-B       0.41
I

 I   A-C       2.46
I

 I
I

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----------

.

 QUEUE FOR STREAM   B-AC

 -------------------------

 TIME SEGMENT    NO. OF

   ENDING      VEHICLES

               IN QUEUE

   16.45           0.2

   17.00           0.3

   17.15           0.2
```

17.30	0.2

.

QUEUE FOR STREAM C-B

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

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-AC	105.0	105.0	14.0	0.13	14.0	0.13
C-A	191.2	191.2				
C-B	38.0	38.0	3.4	0.09	3.4	0.09
A-B	26.0	26.0				
A-C	155.2	155.2				
ALL	515.4	515.4	17.4	0.03	17.4	0.03

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .

* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.

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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


 ****** PICADY 4 run completed.

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TRL LIMITED

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

PICADY 4.1 ANALYSIS PROGRAM

RELEASE 4.0 (NOV 2003)

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TRL SOFTWARE BUREAU

TEL: CROWTHORNE (01344) 770758, FAX: 770864

EMAIL: SoftwareBureau@trl.co.uk

Run with file:- "g:\20960\Calculations\PICADY\20960PY07.vpi" (drive-on-the-left) at 09:05:51 on Friday, 6 December 2019

RUN TITLE

****

R640 Cahir Business Park Access Junction - 2035 Pk Hr with Proposed Development

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

****

INPUT DATA

MAJOR ROAD (ARM C) ---------- MAJOR ROAD (ARM A)

I

I

I

I

I

I

MINOR ROAD (ARM B)

ARM A IS R640 Tipperary Road

ARM B IS Cahir Park Business Park Access Road

ARM C IS R640 Upper Abbey Street

STREAM LABELLING CONVENTION

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

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

ETC.

.GEOMETRIC DATA

DATA ITEM		MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	10.00 M.
CENTRAL RESERVE WIDTH	(WCR)	0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	3.00 M.
- VISIBILITY	(VC-B)	210.0 M.
- BLOCKS TRAFFIC		NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	160.0 M.
- VISIBILITY TO RIGHT	(VB-A)	120.0 M.
- LANE 1 WIDTH	(WB-C)	3.50 M.
- LANE 2 WIDTH	(WB-A)	0.00 M.

.

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 16.30 AND ENDS 17.30

LENGTH OF TIME PERIOD - 60 MINUTES.

LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE INPUT DIRECTLY.

.

		TURNING PROPORTIONS		
		TURNING COUNTS		
		(PERCENTAGE OF H.V.S)		
TIME	FROM/TO	ARM A	ARM B	ARM C
16.30 - 16.45				
	ARM A	0.000	0.148	0.852
		0.0	29.0	167.0
		(0.0)	(8.7)	(0.0)
	ARM B	0.539	0.000	0.461
		62.0	0.0	53.0
		(13.0)	(0.0)	(8.7)
	ARM C	0.838	0.162	0.000
		207.0	40.0	0.0
		(2.9)	(0.0)	(0.0)
16.45 - 17.00				
	ARM A	0.000	0.148	0.852
		0.0	29.0	167.0
		(0.0)	(8.7)	(0.0)
	ARM B	0.539	0.000	0.461
		62.0	0.0	53.0
		(13.0)	(0.0)	(8.7)
	ARM C	0.838	0.162	0.000
		207.0	40.0	0.0

			(2.9)	(0.0)	(0.0)
17.00 - 17.15					
	ARM A	0.000	0.148	0.852	
		0.0	29.0	167.0	
		(0.0)	(8.7)	(0.0)	
	ARM B	0.539	0.000	0.461	
		62.0	0.0	53.0	
		(13.0)	(0.0)	(8.7)	
	ARM C	0.838	0.162	0.000	
		207.0	40.0	0.0	
		(2.9)	(0.0)	(0.0)	

.

TURNING PROPORTIONS			
TURNING COUNTS			
(PERCENTAGE OF H.V.S)			
TIME	FROM/TO	ARM A	ARM B	ARM C
17.15 - 17.30				
	ARM A	0.000	0.148	0.852
		0.0	29.0	167.0
		(0.0)	(8.7)	(0.0)
	ARM B	0.539	0.000	0.461
		62.0	0.0	53.0

```
 I                    I         I ( 13.0)I (  0.0)I (  8.7)I

 I                    I         I        I        I        I

 I                    I  ARM C  I  0.838 I  0.162 I  0.000 I

 I                    I         I  207.0 I   40.0 I    0.0 I

 I                    I         I (  2.9)I (  0.0)I (  0.0)I

 I                    I         I        I        I        I

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 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA


 THE TURNING PROPORTIONS USED VARY BETWEEN TIME SEGMENTS


 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS


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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 16.30-16.45
I

 I   B-AC      1.92      8.94    0.215                0.0    0.3        3.9
I

 I   C-A       3.45
I

 I   C-B       0.67     11.80    0.057                0.0    0.1        0.9
I

 I   A-B       0.48
I

 I   A-C       2.79
I

 I
I

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 16.45-17.00
I

 I   B-AC      2.01      8.89    0.226                0.3    0.3        4.3
I

 I   C-A       3.62
I

 I   C-B       0.70     11.76    0.059                0.1    0.1        0.9
I

 I   A-B       0.51
I

 I   A-C       2.92
I

 I
I

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 17.00-17.15
I

 I   B-AC      1.92      8.94    0.215                0.3    0.3        4.2
I

 I   C-A       3.45
I

 I   C-B       0.67     11.80    0.057                0.1    0.1        0.9
I

 I   A-B       0.48
I
```

```
 I   A-C       2.79
I

 I
I

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI

 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/   I

 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME
SEGMENT) I

 I 17.15-17.30
I

 I   B-AC      1.82      8.99    0.202                0.3    0.3        3.9
I

 I   C-A       3.28
I

 I   C-B       0.63     11.84    0.053                0.1    0.1        0.9
I

 I   A-B       0.46
I

 I   A-C       2.65
I

 I
I

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.

 QUEUE FOR STREAM   B-AC

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 TIME SEGMENT    NO. OF

   ENDING      VEHICLES

               IN QUEUE

   16.45           0.3

   17.00           0.3

   17.15           0.3
```

17.30 0.3

. **QUEUE FOR STREAM C-B**

TIME SEGMENT NO. OF

ENDING VEHICLES

IN QUEUE

16.45 0.1

17.00 0.1

17.15 0.1

17.30 0.1

. **QUEUEING DELAY INFORMATION OVER WHOLE PERIOD**

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STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-AC	115.1	115.1	16.3	0.14	16.3	0.14
C-A	207.0	207.0				
C-B	40.0	40.0	3.6	0.09	3.6	0.09
A-B	29.0	29.0				
A-C	167.2	167.2				
ALL	558.3	558.3	19.8	0.04	19.8	0.04

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .

* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.

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

END OF JOB

****** PICADY 4 run completed.