

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 4.0 (SEPT 2008)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT  
BY PERMISSION OF THE CONTROLLER OF HMSO

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FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
      TRL SOFTWARE BUREAU
TEL: CROWTHORNE (01344) 770758, FAX: 770356
      EMAIL: Software@trl.co.uk
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THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS  
IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY FOR THE CORRECTNESS OF THE  
SOLUTION

Run with file:-

"C:\Documents and Settings\ubirdi\Desktop\Transport\Working files\Capacity  
Assessments\PICADY\pin\  
2014 AM with comm\2009 AM Peak With Comm.vpi"

(drive-on-the-left) at 09:50:47 on Wednesday, 5 August 2009

.RUN INFORMATION

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```

RUN TITLE       : 2019 AM Peak Base+dev+MRF (July)
LOCATION          : Severn Road / A403 (Existing Junction)
DATE            : 02/02/09
CLIENT          :
ENUMERATOR      :
JOB NUMBER      : 402.0036.00374
STATUS          :
DESCRIPTION     :

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.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

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INPUT DATA

-----

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

I  
I  
I  
I  
I  
I

MINOR ROAD (ARM B)

ARM A IS A403 North

ARM B IS Severn Road  
ARM C IS A403 South

.STREAM LABELLING CONVENTION

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

.GEOMETRIC DATA

-----  
-----  
I DATA ITEM I MINOR ROAD  
B I  
-----  
-----  
I TOTAL MAJOR ROAD CARRIAGEWAY WIDTH I ( W ) 7.33  
M. I  
I CENTRAL RESERVE WIDTH I (WCR ) 0.00  
M. I  
I  
I MAJOR ROAD RIGHT TURN - WIDTH I (WC-B) 2.20  
M. I  
I - VISIBILITY I (VC-B) 80.00  
M. I  
I - BLOCKS TRAFFIC I YES  
I  
I  
I MINOR ROAD - VISIBILITY TO LEFT I (VB-C) 80.0  
M. I  
I - VISIBILITY TO RIGHT I (VB-A) 160.0  
M. I  
I - LANE 1 WIDTH I (WB-C) -  
I  
I - LANE 2 WIDTH I (WB-A) -  
I  
I WIDTH AT 0 M FROM JUNCTION I 10.00  
M. I  
I WIDTH AT 5 M FROM JUNCTION I 5.69  
M. I  
I WIDTH AT 10 M FROM JUNCTION I 4.69  
M. I  
I WIDTH AT 15 M FROM JUNCTION I 4.11  
M. I  
I WIDTH AT 20 M FROM JUNCTION I 3.58  
M. I  
I - LENGTH OF FLARED SECTION I DERIVED: 2  
PCU I  
-----  
-----

.SLOPES AND INTERCEPT

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



```

-----
I ARM A I      15.00 I      45.00 I      75.00 I      7.31 I      10.97 I      7.31
I
I ARM B I      15.00 I      45.00 I      75.00 I      2.09 I      3.13 I      2.09
I
I ARM C I      15.00 I      45.00 I      75.00 I      4.21 I      6.32 I      4.21
I
-----

```

.Demand set: Severn Road / A403

```

-----
I          I          TURNING PROPORTIONS          I
I          I          TURNING COUNTS              I
I          I          (PERCENTAGE OF H.V.S)        I
I          I          -----
I          TIME          I FROM/TO I ARM  A I ARM  B I ARM  C I
-----
I  07.15 - 07.30      I          I          I          I          I
I          I ARM  A I  0.000 I  0.173 I  0.827 I
I          I          I  0.0 I  101.0 I  484.0 I
I          I          I ( 0.0) I ( 8.9) I ( 15.0) I
I          I          I          I          I          I
I          I ARM  B I  0.395 I  0.000 I  0.605 I
I          I          I  66.0 I  0.0 I  101.0 I
I          I          I ( 12.1) I ( 0.0) I ( 14.9) I
I          I          I          I          I          I
I          I ARM  C I  0.822 I  0.178 I  0.000 I
I          I          I  277.0 I  60.0 I  0.0 I
I          I          I ( 25.6) I ( 26.7) I ( 0.0) I
I          I          I          I          I          I
-----

```

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS  
AND FOR TIME PERIOD 1

```

-----
I TIME          DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY
GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/
(VEH.MIN/ PER ARRIVING I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME
SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 07.15-07.30
I
I B-C          1.27          9.10          0.139          0.00          0.16          2.3
0.13          I
I B-A          0.83          6.08          0.136          0.00          0.16          2.2
0.19          I
I C-AB         0.75          6.66          0.113          0.00          0.13          2.0
0.17          I
I A-B          1.27
I
I A-C          6.07
I

```

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SOLUTION

Run with file:-

"C:\Documents and Settings\ubirdi\Desktop\Transport\Working files\Capacity  
Assessments\PICADY\pin\  
2009 PM with comm\2009 PM Peak.vpi"

(drive-on-the-left) at 10:31:51 on Wednesday, 5 August 2009

.RUN INFORMATION

\*\*\*\*\*

```

RUN TITLE       : 2019 AM Peak Base+dev+MRF (July)
LOCATION         : Severn Road / A403 (Existing Junction)
DATE           : 02/02/09
CLIENT         :
ENUMERATOR     :
JOB NUMBER     : 402.0036.00374
STATUS        :
DESCRIPTION    :

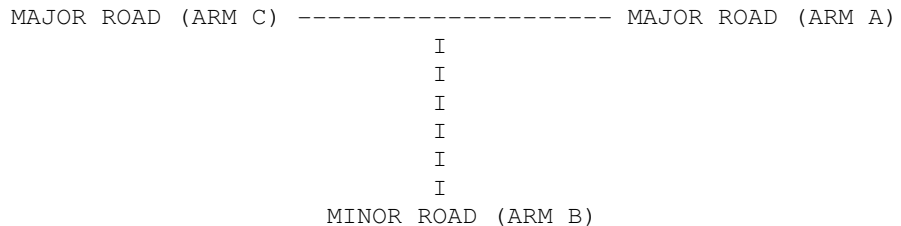
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.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

\*\*\*\*\*

INPUT DATA

-----



ARM A IS A403 North

ARM B IS Severn Road  
ARM C IS A403 South

.STREAM LABELLING CONVENTION

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

.GEOMETRIC DATA

-----  
-----  
I DATA ITEM I MINOR ROAD  
B I  
-----  
-----  
I TOTAL MAJOR ROAD CARRIAGEWAY WIDTH I ( W ) 7.33  
M. I  
I CENTRAL RESERVE WIDTH I (WCR ) 0.00  
M. I  
I  
I MAJOR ROAD RIGHT TURN - WIDTH I (WC-B) 2.20  
M. I  
I - VISIBILITY I (VC-B) 80.00  
M. I  
I - BLOCKS TRAFFIC I YES  
I  
I  
I MINOR ROAD - VISIBILITY TO LEFT I (VB-C) 80.0  
M. I  
I - VISIBILITY TO RIGHT I (VB-A) 160.0  
M. I  
I - LANE 1 WIDTH I (WB-C) -  
I  
I - LANE 2 WIDTH I (WB-A) -  
I  
I WIDTH AT 0 M FROM JUNCTION I 10.00  
M. I  
I WIDTH AT 5 M FROM JUNCTION I 5.69  
M. I  
I WIDTH AT 10 M FROM JUNCTION I 4.69  
M. I  
I WIDTH AT 15 M FROM JUNCTION I 4.11  
M. I  
I WIDTH AT 20 M FROM JUNCTION I 3.58  
M. I  
I - LENGTH OF FLARED SECTION I DERIVED: 2  
PCU I  
-----  
-----

.SLOPES AND INTERCEPT

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



```

-----
I ARM A I      15.00 I      45.00 I      75.00 I      4.55 I      6.83 I      4.55
I
I ARM B I      15.00 I      45.00 I      75.00 I      1.76 I      2.64 I      1.76
I
I ARM C I      15.00 I      45.00 I      75.00 I      7.65 I     11.48 I      7.65
I
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.Demand set: Severn Road / A403

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-----
I          I          TURNING PROPORTIONS          I
I          I          TURNING COUNTS              I
I          I          (PERCENTAGE OF H.V.S)        I
I          I          -----
I          TIME          I FROM/TO I ARM  A I ARM  B I ARM  C I
-----
I  16.15 - 16.30      I          I          I          I          I
I          I ARM  A I  0.000 I  0.288 I  0.712 I
I          I          I  0.0 I  105.0 I  259.0 I
I          I          I ( 0.0) I ( 6.7) I ( 15.8) I
I          I          I          I          I          I
I          I ARM  B I  0.610 I  0.000 I  0.390 I
I          I          I  86.0 I   0.0 I  55.0 I
I          I          I ( 7.0) I ( 0.0) I ( 5.5) I
I          I          I          I          I          I
I          I ARM  C I  0.817 I  0.183 I  0.000 I
I          I          I  500.0 I  112.0 I   0.0 I
I          I          I ( 17.6) I ( 1.8) I ( 0.0) I
I          I          I          I          I          I
-----

```

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

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS  
AND FOR TIME PERIOD 1

```

-----
I TIME          DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY
GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/
(VEH.MIN/ PER ARRIVING I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME
SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
I 16.15-16.30
I
I B-C          0.69          9.98          0.069          0.00          0.07          1.1
0.11 I
I B-A          1.08          7.00          0.154          0.00          0.18          2.6
0.17 I
I C-AB        1.41          9.01          0.156          0.00          0.20          3.0
0.13 I
I A-B          1.32
I
I A-C          3.25
I

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I  
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| I          | TIME        | DEMAND     | CAPACITY | DEMAND/ | PEDESTRIAN | START  | END    | DELAY      |
|------------|-------------|------------|----------|---------|------------|--------|--------|------------|
| GEOMETRIC  | DELAY       | AVERAGE    | DELAY    | I       |            |        |        |            |
| I          | (VEH./MIN)  | (VEH./MIN) | CAPACITY |         | FLOW       | QUEUE  | QUEUE  | (VEH./MIN/ |
| (VEH./MIN/ | PER         | ARRIVING   | I        | (RFC)   | (PEDS/MIN) | (VEHS) | (VEHS) | TIME       |
| SEGMENT)   | TIME        | SEGMENT)   | VEHICLE  | (MIN)   | I          |        |        |            |
| I          | 16.30-16.45 |            |          |         |            |        |        |            |
| I          |             |            |          |         |            |        |        |            |
| I          | B-C         | 0.82       | 9.65     | 0.085   |            | 0.07   | 0.09   | 1.4        |
| 0.11       | I           |            |          |         |            |        |        |            |
| I          | B-A         | 1.29       | 6.45     | 0.200   |            | 0.18   | 0.25   | 3.6        |
| 0.19       | I           |            |          |         |            |        |        |            |
| I          | C-AB        | 1.68       | 8.78     | 0.191   |            | 0.20   | 0.27   | 4.1        |
| 0.14       | I           |            |          |         |            |        |        |            |
| I          | A-B         | 1.57       |          |         |            |        |        |            |
| I          |             |            |          |         |            |        |        |            |
| I          | A-C         | 3.88       |          |         |            |        |        |            |
| I          |             |            |          |         |            |        |        |            |
| I          |             |            |          |         |            |        |        |            |
| I          |             |            |          |         |            |        |        |            |

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| I          | TIME        | DEMAND     | CAPACITY | DEMAND/ | PEDESTRIAN | START  | END    | DELAY      |
|------------|-------------|------------|----------|---------|------------|--------|--------|------------|
| GEOMETRIC  | DELAY       | AVERAGE    | DELAY    | I       |            |        |        |            |
| I          | (VEH./MIN)  | (VEH./MIN) | CAPACITY |         | FLOW       | QUEUE  | QUEUE  | (VEH./MIN/ |
| (VEH./MIN/ | PER         | ARRIVING   | I        | (RFC)   | (PEDS/MIN) | (VEHS) | (VEHS) | TIME       |
| SEGMENT)   | TIME        | SEGMENT)   | VEHICLE  | (MIN)   | I          |        |        |            |
| I          | 16.45-17.00 |            |          |         |            |        |        |            |
| I          |             |            |          |         |            |        |        |            |
| I          | B-C         | 1.01       | 9.15     | 0.110   |            | 0.09   | 0.12   | 1.8        |
| 0.12       | I           |            |          |         |            |        |        |            |
| I          | B-A         | 1.58       | 5.69     | 0.277   |            | 0.25   | 0.38   | 5.4        |
| 0.24       | I           |            |          |         |            |        |        |            |
| I          | C-AB        | 2.06       | 8.47     | 0.243   |            | 0.27   | 0.40   | 5.9        |
| 0.16       | I           |            |          |         |            |        |        |            |
| I          | A-B         | 1.93       |          |         |            |        |        |            |
| I          |             |            |          |         |            |        |        |            |
| I          | A-C         | 4.75       |          |         |            |        |        |            |
| I          |             |            |          |         |            |        |        |            |
| I          |             |            |          |         |            |        |        |            |
| I          |             |            |          |         |            |        |        |            |

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

| SEGMENT) | TIME        | SEGMENT) | VEHICLE | (RFC) | (PEDS/MIN) | (VEHS) | (VEHS) | TIME |
|----------|-------------|----------|---------|-------|------------|--------|--------|------|
| I        | 17.00-17.15 |          |         |       |            |        |        |      |
| I        | B-C         | 1.01     | 9.14    | 0.110 |            | 0.12   | 0.12   | 1.8  |
| 0.12     | I           |          |         |       |            |        |        |      |
| I        | B-A         | 1.58     | 5.69    | 0.277 |            | 0.38   | 0.38   | 5.7  |
| 0.24     | I           |          |         |       |            |        |        |      |
| I        | C-AB        | 2.06     | 8.47    | 0.243 |            | 0.40   | 0.40   | 6.1  |
| 0.16     | I           |          |         |       |            |        |        |      |
| I        | A-B         | 1.93     |         |       |            |        |        |      |
| I        |             |          |         |       |            |        |        |      |
| I        | A-C         | 4.75     |         |       |            |        |        |      |
| I        |             |          |         |       |            |        |        |      |
| I        |             |          |         |       |            |        |        |      |

| TIME            | DEMAND        | CAPACITY      | DEMAND/ | PEDESTRIAN | START  | END    | DELAY     |     |
|-----------------|---------------|---------------|---------|------------|--------|--------|-----------|-----|
| GEOMETRIC DELAY | AVERAGE DELAY | AVERAGE DELAY | I       | FLOW       | QUEUE  | QUEUE  | (VEH.MIN/ |     |
| (VEH.MIN/       | PER ARRIVING  | I             | (RFC)   | (PEDS/MIN) | (VEHS) | (VEHS) | TIME      |     |
| I               | 17.15-17.30   |               |         |            |        |        |           |     |
| I               | B-C           | 0.82          | 9.64    | 0.085      |        | 0.12   | 0.09      | 1.4 |
| 0.11            | I             |               |         |            |        |        |           |     |
| I               | B-A           | 1.29          | 6.44    | 0.200      |        | 0.38   | 0.25      | 4.0 |
| 0.19            | I             |               |         |            |        |        |           |     |
| I               | C-AB          | 1.68          | 8.78    | 0.191      |        | 0.40   | 0.28      | 4.2 |
| 0.14            | I             |               |         |            |        |        |           |     |
| I               | A-B           | 1.57          |         |            |        |        |           |     |
| I               |               |               |         |            |        |        |           |     |
| I               | A-C           | 3.88          |         |            |        |        |           |     |
| I               |               |               |         |            |        |        |           |     |
| I               |               |               |         |            |        |        |           |     |

| TIME            | DEMAND        | CAPACITY      | DEMAND/ | PEDESTRIAN | START  | END    | DELAY     |     |
|-----------------|---------------|---------------|---------|------------|--------|--------|-----------|-----|
| GEOMETRIC DELAY | AVERAGE DELAY | AVERAGE DELAY | I       | FLOW       | QUEUE  | QUEUE  | (VEH.MIN/ |     |
| (VEH.MIN/       | PER ARRIVING  | I             | (RFC)   | (PEDS/MIN) | (VEHS) | (VEHS) | TIME      |     |
| I               | 17.30-17.45   |               |         |            |        |        |           |     |
| I               | B-C           | 0.69          | 9.97    | 0.069      |        | 0.09   | 0.07      | 1.1 |
| 0.11            | I             |               |         |            |        |        |           |     |
| I               | B-A           | 1.08          | 6.99    | 0.154      |        | 0.25   | 0.18      | 2.9 |
| 0.17            | I             |               |         |            |        |        |           |     |
| I               | C-AB          | 1.41          | 9.01    | 0.156      |        | 0.28   | 0.21      | 3.1 |
| 0.13            | I             |               |         |            |        |        |           |     |

I A-B 1.32  
 I  
 I A-C 3.25  
 I  
 I  
 I

-----  
 \*WARNING\* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR  
 .

QUEUE FOR STREAM B-C

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

QUEUE FOR STREAM B-A

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

QUEUE FOR STREAM C-AB

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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

-----  
 I STREAM I TOTAL DEMAND I \* QUEUEING \* I \* INCLUSIVE QUEUEING \* I  
 I I I \* DELAY \* I \* DELAY \* I  
 I I-----I  
 I I (VEH) (VEH/H) I (MIN) (MIN/VEH) I (MIN) (MIN/VEH) I  
 I B-C I 75.7 I 50.5 I 8.7 I 0.11 I 8.7 I 0.11 I  
 I B-A I 118.4 I 78.9 I 24.0 I 0.20 I 24.0 I 0.20 I  
 I C-AB I 154.2 I 102.8 I 26.4 I 0.17 I 26.4 I 0.17 I  
 I A-B I 144.5 I 96.3 I I I I I  
 I A-C I 356.5 I 237.7 I I I I I  
 I ALL I 1537.5 I 1025.0 I 59.1 I 0.04 I 59.1 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 RUN\*\*\*\*\*

I  
I

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

I 07.30-07.45

I

|   |     |      |      |       |  |      |      |     |
|---|-----|------|------|-------|--|------|------|-----|
| I | B-C | 1.51 | 8.67 | 0.175 |  | 0.16 | 0.21 | 3.1 |
|---|-----|------|------|-------|--|------|------|-----|

0.14

|   |     |      |      |       |  |      |      |     |
|---|-----|------|------|-------|--|------|------|-----|
| I | B-A | 0.99 | 5.53 | 0.179 |  | 0.16 | 0.21 | 3.1 |
|---|-----|------|------|-------|--|------|------|-----|

0.22

|   |      |      |      |       |  |      |      |     |
|---|------|------|------|-------|--|------|------|-----|
| I | C-AB | 0.90 | 6.37 | 0.141 |  | 0.13 | 0.18 | 2.6 |
|---|------|------|------|-------|--|------|------|-----|

0.18

|   |     |      |  |  |  |  |  |  |
|---|-----|------|--|--|--|--|--|--|
| I | A-B | 1.51 |  |  |  |  |  |  |
|---|-----|------|--|--|--|--|--|--|

I

|   |     |      |  |  |  |  |  |  |
|---|-----|------|--|--|--|--|--|--|
| I | A-C | 7.25 |  |  |  |  |  |  |
|---|-----|------|--|--|--|--|--|--|

I

I

I

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

I 07.45-08.00

I

|   |     |      |      |       |  |      |      |     |
|---|-----|------|------|-------|--|------|------|-----|
| I | B-C | 1.85 | 8.00 | 0.232 |  | 0.21 | 0.30 | 4.3 |
|---|-----|------|------|-------|--|------|------|-----|

0.16

|   |     |      |      |       |  |      |      |     |
|---|-----|------|------|-------|--|------|------|-----|
| I | B-A | 1.21 | 4.78 | 0.253 |  | 0.21 | 0.33 | 4.7 |
|---|-----|------|------|-------|--|------|------|-----|

0.28

|   |      |      |      |       |  |      |      |     |
|---|------|------|------|-------|--|------|------|-----|
| I | C-AB | 1.10 | 5.97 | 0.184 |  | 0.18 | 0.26 | 3.8 |
|---|------|------|------|-------|--|------|------|-----|

0.21

|   |     |      |  |  |  |  |  |  |
|---|-----|------|--|--|--|--|--|--|
| I | A-B | 1.85 |  |  |  |  |  |  |
|---|-----|------|--|--|--|--|--|--|

I

|   |     |      |  |  |  |  |  |  |
|---|-----|------|--|--|--|--|--|--|
| I | A-C | 8.88 |  |  |  |  |  |  |
|---|-----|------|--|--|--|--|--|--|

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I

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| I          | TIME       | DEMAND     | CAPACITY | DEMAND/ | PEDESTRIAN | START | END   | DELAY      |
|------------|------------|------------|----------|---------|------------|-------|-------|------------|
| GEOMETRIC  | DELAY      | AVERAGE    | DELAY    | I       |            |       |       |            |
| I          | (VEH./MIN) | (VEH./MIN) | CAPACITY |         | FLOW       | QUEUE | QUEUE | (VEH./MIN/ |
| (VEH./MIN/ | PER        | ARRIVING   | I        |         |            |       |       |            |

| SEGMENT) | TIME        | SEGMENT) | VEHICLE | (RFC) | (PEDS/MIN) | (VEHS) | (VEHS) | TIME |
|----------|-------------|----------|---------|-------|------------|--------|--------|------|
| I        | 08.00-08.15 |          |         |       |            |        |        |      |
| I        | B-C         | 1.85     | 8.00    | 0.232 |            | 0.30   | 0.30   | 4.5  |
| 0.16     | I           |          |         |       |            |        |        |      |
| I        | B-A         | 1.21     | 4.78    | 0.254 |            | 0.33   | 0.34   | 5.0  |
| 0.28     | I           |          |         |       |            |        |        |      |
| I        | C-AB        | 1.10     | 5.97    | 0.184 |            | 0.26   | 0.26   | 3.9  |
| 0.21     | I           |          |         |       |            |        |        |      |
| I        | A-B         | 1.85     |         |       |            |        |        |      |
| I        |             |          |         |       |            |        |        |      |
| I        | A-C         | 8.88     |         |       |            |        |        |      |
| I        |             |          |         |       |            |        |        |      |
| I        |             |          |         |       |            |        |        |      |

| TIME            | DEMAND        | CAPACITY      | DEMAND/ | PEDESTRIAN | START  | END    | DELAY     |     |
|-----------------|---------------|---------------|---------|------------|--------|--------|-----------|-----|
| GEOMETRIC DELAY | AVERAGE DELAY | AVERAGE DELAY | I       | FLOW       | QUEUE  | QUEUE  | (VEH.MIN/ |     |
| (VEH.MIN/       | PER ARRIVING  | I             | (RFC)   | (PEDS/MIN) | (VEHS) | (VEHS) | TIME      |     |
| I               | 08.15-08.30   |               |         |            |        |        |           |     |
| I               | B-C           | 1.51          | 8.66    | 0.175      |        | 0.30   | 0.21      | 3.3 |
| 0.14            | I             |               |         |            |        |        |           |     |
| I               | B-A           | 0.99          | 5.52    | 0.179      |        | 0.34   | 0.22      | 3.5 |
| 0.22            | I             |               |         |            |        |        |           |     |
| I               | C-AB          | 0.90          | 6.37    | 0.141      |        | 0.26   | 0.18      | 2.7 |
| 0.18            | I             |               |         |            |        |        |           |     |
| I               | A-B           | 1.51          |         |            |        |        |           |     |
| I               |               |               |         |            |        |        |           |     |
| I               | A-C           | 7.25          |         |            |        |        |           |     |
| I               |               |               |         |            |        |        |           |     |
| I               |               |               |         |            |        |        |           |     |

| TIME            | DEMAND        | CAPACITY      | DEMAND/ | PEDESTRIAN | START  | END    | DELAY     |     |
|-----------------|---------------|---------------|---------|------------|--------|--------|-----------|-----|
| GEOMETRIC DELAY | AVERAGE DELAY | AVERAGE DELAY | I       | FLOW       | QUEUE  | QUEUE  | (VEH.MIN/ |     |
| (VEH.MIN/       | PER ARRIVING  | I             | (RFC)   | (PEDS/MIN) | (VEHS) | (VEHS) | TIME      |     |
| I               | 08.30-08.45   |               |         |            |        |        |           |     |
| I               | B-C           | 1.27          | 9.09    | 0.139      |        | 0.21   | 0.16      | 2.5 |
| 0.13            | I             |               |         |            |        |        |           |     |
| I               | B-A           | 0.83          | 6.07    | 0.136      |        | 0.22   | 0.16      | 2.5 |
| 0.19            | I             |               |         |            |        |        |           |     |
| I               | C-AB          | 0.75          | 6.66    | 0.113      |        | 0.18   | 0.14      | 2.1 |
| 0.17            | I             |               |         |            |        |        |           |     |

I A-B 1.27  
 I  
 I A-C 6.07  
 I  
 I  
 I

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

QUEUE FOR STREAM B-C  
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| TIME SEGMENT ENDING | NO. OF VEHICLES IN QUEUE |
|---------------------|--------------------------|
| 07.30               | 0.2                      |
| 07.45               | 0.2                      |
| 08.00               | 0.3                      |
| 08.15               | 0.3                      |
| 08.30               | 0.2                      |
| 08.45               | 0.2                      |

QUEUE FOR STREAM B-A  
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| TIME SEGMENT ENDING | NO. OF VEHICLES IN QUEUE |
|---------------------|--------------------------|
| 07.30               | 0.2                      |
| 07.45               | 0.2                      |
| 08.00               | 0.3                      |
| 08.15               | 0.3                      |
| 08.30               | 0.2                      |
| 08.45               | 0.2                      |

QUEUE FOR STREAM C-AB  
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| TIME SEGMENT ENDING | NO. OF VEHICLES IN QUEUE |
|---------------------|--------------------------|
| 07.30               | 0.1                      |
| 07.45               | 0.2                      |
| 08.00               | 0.3                      |
| 08.15               | 0.3                      |
| 08.30               | 0.2                      |
| 08.45               | 0.1                      |

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 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD  
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| I STREAM | I | I TOTAL DEMAND | I         | I * QUEUEING * | I           | I * INCLUSIVE QUEUEING * | I           | I |
|----------|---|----------------|-----------|----------------|-------------|--------------------------|-------------|---|
| I        | I | I              | I         | I * DELAY *    | I           | I * DELAY *              | I           | I |
| I        | I | I              | I         | I              | I           | I                        | I           | I |
| I        | I | I (VEH)        | I (VEH/H) | I (MIN)        | I (MIN/VEH) | I (MIN)                  | I (MIN/VEH) | I |
| I B-C    | I | I 139.0        | I 92.7    | I 20.0         | I 0.14      | I 20.0                   | I 0.14      | I |
| I B-A    | I | I 90.8         | I 60.6    | I 21.0         | I 0.23      | I 21.0                   | I 0.23      | I |
| I C-AB   | I | I 82.6         | I 55.1    | I 17.2         | I 0.21      | I 17.2                   | I 0.21      | I |
| I A-B    | I | I 139.0        | I 92.7    | I              | I           | I                        | I           | I |
| I A-C    | I | I 666.2        | I 444.1   | I              | I           | I                        | I           | I |
| I ALL    | I | I 1498.9       | I 999.3   | I 58.2         | I 0.04      | I 58.2                   | I 0.04      | I |

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\* 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\*\*\*\*\*