

## **APPENDIX L**

### **Traffic Signal Warrant**

**Newtown Street Road (S.R. 252) &  
Cedar Grove Road (S.R. 1024)**

## STUDY AND ANALYSIS INFORMATION

Municipality: Marple Township  
 County: Delaware County  
 PennDOT Engineering District: 6

Analysis Date: 10/27/2015  
 Conducted By: TML  
 Agency/Company Name: McMahon

## Analysis Information

Data Collection Date: 10/22/2015  
 Day of the Week: Thursday

## 2015 Existing Traffic Volumes

Is the intersection in a built-up area of an isolated community of <10,000 population? No

## Major Street Information

Major Street Name and Route Number: Newtown Street Road (SR 252)

Major Street Approach #1 Direction: N-Bound

Major Street Approach #2 Direction: S-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach: 1 LANE(S)  
 Speed Limit or 85th Percentile Speed on the Major Street: 45 MPH

## Minor Street Information

Minor Street Name and Route Number: Cedar Grove Road (SR 1024)

Minor Street Approach #1 Direction: W-Bound

Minor Street Approach #2 Direction: E-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach: 1 LANE(S)

## TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

|                                               | Applicable? | Warrant Met? |
|-----------------------------------------------|-------------|--------------|
| Warrant 1, Eight-Hour Vehicular Volume        | No          | N/A          |
| Warrant 2, Four-Hour Vehicular Volume         | Yes         | Yes          |
| Warrant 3, Peak Hour                          | Yes         | No           |
| Warrant 4, Pedestrian Volume                  | No          | N/A          |
| Warrant 5, School Crossing                    | No          | N/A          |
| Warrant 6, Coordinated Signal System          | No          | N/A          |
| Warrant 7, Crash Experience                   | No          | N/A          |
| Warrant 8, Roadway Network                    | No          | N/A          |
| Warrant 9, Intersection Near a Grade Crossing | No          | N/A          |
| Warrant PA-1, ADT Volume Warrant              | No          | N/A          |
| Warrant PA-2, Midblock and Trail Crossings    | No          | N/A          |

### ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

| Time Interval |          | Major Street Approach #1<br>(N-Bound) | Major Street Approach #2<br>(S-Bound) | Major Street Combined | Minor Street Approach #1<br>(W-Bound) | Minor Street Approach #2<br>(E-Bound) |
|---------------|----------|---------------------------------------|---------------------------------------|-----------------------|---------------------------------------|---------------------------------------|
| Begin At      | End Of   | Volume                                | Volume                                | Total Volume          | Volume                                | Volume                                |
| 12:00 AM      | 12:14 AM |                                       |                                       | 0                     |                                       |                                       |
| 12:15 AM      | 12:29 AM |                                       |                                       | 0                     |                                       |                                       |
| 12:30 AM      | 12:44 AM |                                       |                                       | 0                     |                                       |                                       |
| 12:45 AM      | 12:59 AM |                                       |                                       | 0                     |                                       |                                       |
| 1:00 AM       | 1:14 AM  |                                       |                                       | 0                     |                                       |                                       |
| 1:15 AM       | 1:29 AM  |                                       |                                       | 0                     |                                       |                                       |
| 1:30 AM       | 1:44 AM  |                                       |                                       | 0                     |                                       |                                       |
| 1:45 AM       | 1:59 AM  |                                       |                                       | 0                     |                                       |                                       |
| 2:00 AM       | 2:14 AM  |                                       |                                       | 0                     |                                       |                                       |
| 2:15 AM       | 2:29 AM  |                                       |                                       | 0                     |                                       |                                       |
| 2:30 AM       | 2:44 AM  |                                       |                                       | 0                     |                                       |                                       |
| 2:45 AM       | 2:59 AM  |                                       |                                       | 0                     |                                       |                                       |
| 3:00 AM       | 3:14 AM  |                                       |                                       | 0                     |                                       |                                       |
| 3:15 AM       | 3:29 AM  |                                       |                                       | 0                     |                                       |                                       |
| 3:30 AM       | 3:44 AM  |                                       |                                       | 0                     |                                       |                                       |
| 3:45 AM       | 3:59 AM  |                                       |                                       | 0                     |                                       |                                       |
| 4:00 AM       | 4:14 AM  |                                       |                                       | 0                     |                                       |                                       |
| 4:15 AM       | 4:29 AM  |                                       |                                       | 0                     |                                       |                                       |
| 4:30 AM       | 4:44 AM  |                                       |                                       | 0                     |                                       |                                       |
| 4:45 AM       | 4:59 AM  |                                       |                                       | 0                     |                                       |                                       |
| 5:00 AM       | 5:14 AM  |                                       |                                       | 0                     |                                       |                                       |
| 5:15 AM       | 5:29 AM  |                                       |                                       | 0                     |                                       |                                       |
| 5:30 AM       | 5:44 AM  |                                       |                                       | 0                     |                                       |                                       |
| 5:45 AM       | 5:59 AM  |                                       |                                       | 0                     |                                       |                                       |
| 6:00 AM       | 6:14 AM  |                                       |                                       | 0                     |                                       |                                       |
| 6:15 AM       | 6:29 AM  |                                       |                                       | 0                     |                                       |                                       |
| 6:30 AM       | 6:44 AM  |                                       |                                       | 0                     |                                       |                                       |
| 6:45 AM       | 6:59 AM  |                                       |                                       | 0                     |                                       |                                       |
| 7:00 AM       | 7:14 AM  | 1163                                  | 598                                   | 1761                  | 161                                   |                                       |
| 7:15 AM       | 7:29 AM  |                                       |                                       | 0                     |                                       |                                       |
| 7:30 AM       | 7:44 AM  |                                       |                                       | 0                     |                                       |                                       |
| 7:45 AM       | 7:59 AM  |                                       |                                       | 0                     |                                       |                                       |
| 8:00 AM       | 8:14 AM  | 1136                                  | 622                                   | 1758                  | 170                                   |                                       |
| 8:15 AM       | 8:29 AM  |                                       |                                       | 0                     |                                       |                                       |
| 8:30 AM       | 8:44 AM  |                                       |                                       | 0                     |                                       |                                       |
| 8:45 AM       | 8:59 AM  |                                       |                                       | 0                     |                                       |                                       |
| 9:00 AM       | 9:14 AM  |                                       |                                       | 0                     |                                       |                                       |
| 9:15 AM       | 9:29 AM  |                                       |                                       | 0                     |                                       |                                       |
| 9:30 AM       | 9:44 AM  |                                       |                                       | 0                     |                                       |                                       |
| 9:45 AM       | 9:59 AM  |                                       |                                       | 0                     |                                       |                                       |
| 10:00 AM      | 10:14 AM |                                       |                                       | 0                     |                                       |                                       |
| 10:15 AM      | 10:29 AM |                                       |                                       | 0                     |                                       |                                       |
| 10:30 AM      | 10:44 AM |                                       |                                       | 0                     |                                       |                                       |
| 10:45 AM      | 10:59 AM |                                       |                                       | 0                     |                                       |                                       |
| 11:00 AM      | 11:14 AM |                                       |                                       | 0                     |                                       |                                       |
| 11:15 AM      | 11:29 AM |                                       |                                       | 0                     |                                       |                                       |
| 11:30 AM      | 11:44 AM |                                       |                                       | 0                     |                                       |                                       |
| 11:45 AM      | 11:59 AM |                                       |                                       | 0                     |                                       |                                       |



### ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

| Time Interval |          | Major Street<br>Approach #1<br>(N-Bound) | Major Street<br>Approach #2<br>(S-Bound) | Major Street<br>Combined | Minor Street<br>Approach #1<br>(W-Bound) | Minor Street<br>Approach #2<br>(E-Bound) |
|---------------|----------|------------------------------------------|------------------------------------------|--------------------------|------------------------------------------|------------------------------------------|
| Begin At      | End Of   | Volume                                   | Volume                                   | Total Volume             | Volume                                   | Volume                                   |
| 12:00 PM      | 12:14 PM |                                          |                                          | 0                        |                                          |                                          |
| 12:15 PM      | 12:29 PM |                                          |                                          | 0                        |                                          |                                          |
| 12:30 PM      | 12:44 PM |                                          |                                          | 0                        |                                          |                                          |
| 12:45 PM      | 12:59 PM |                                          |                                          | 0                        |                                          |                                          |
| 1:00 PM       | 1:14 PM  |                                          |                                          | 0                        |                                          |                                          |
| 1:15 PM       | 1:29 PM  |                                          |                                          | 0                        |                                          |                                          |
| 1:30 PM       | 1:44 PM  |                                          |                                          | 0                        |                                          |                                          |
| 1:45 PM       | 1:59 PM  |                                          |                                          | 0                        |                                          |                                          |
| 2:00 PM       | 2:14 PM  |                                          |                                          | 0                        |                                          |                                          |
| 2:15 PM       | 2:29 PM  |                                          |                                          | 0                        |                                          |                                          |
| 2:30 PM       | 2:44 PM  |                                          |                                          | 0                        |                                          |                                          |
| 2:45 PM       | 2:59 PM  |                                          |                                          | 0                        |                                          |                                          |
| 3:00 PM       | 3:14 PM  |                                          |                                          | 0                        |                                          |                                          |
| 3:15 PM       | 3:29 PM  |                                          |                                          | 0                        |                                          |                                          |
| 3:30 PM       | 3:44 PM  |                                          |                                          | 0                        |                                          |                                          |
| 3:45 PM       | 3:59 PM  |                                          |                                          | 0                        |                                          |                                          |
| 4:00 PM       | 4:14 PM  | 821                                      | 1025                                     | 1846                     | 97                                       |                                          |
| 4:15 PM       | 4:29 PM  |                                          |                                          | 0                        |                                          |                                          |
| 4:30 PM       | 4:44 PM  |                                          |                                          | 0                        |                                          |                                          |
| 4:45 PM       | 4:59 PM  |                                          |                                          | 0                        |                                          |                                          |
| 5:00 PM       | 5:14 PM  | 954                                      | 1071                                     | 2025                     | 127                                      |                                          |
| 5:15 PM       | 5:29 PM  |                                          |                                          | 0                        |                                          |                                          |
| 5:30 PM       | 5:44 PM  |                                          |                                          | 0                        |                                          |                                          |
| 5:45 PM       | 5:59 PM  |                                          |                                          | 0                        |                                          |                                          |
| 6:00 PM       | 6:14 PM  |                                          |                                          | 0                        |                                          |                                          |
| 6:15 PM       | 6:29 PM  |                                          |                                          | 0                        |                                          |                                          |
| 6:30 PM       | 6:44 PM  |                                          |                                          | 0                        |                                          |                                          |
| 6:45 PM       | 6:59 PM  |                                          |                                          | 0                        |                                          |                                          |
| 7:00 PM       | 7:14 PM  |                                          |                                          | 0                        |                                          |                                          |
| 7:15 PM       | 7:29 PM  |                                          |                                          | 0                        |                                          |                                          |
| 7:30 PM       | 7:44 PM  |                                          |                                          | 0                        |                                          |                                          |
| 7:45 PM       | 7:59 PM  |                                          |                                          | 0                        |                                          |                                          |
| 8:00 PM       | 8:14 PM  |                                          |                                          | 0                        |                                          |                                          |
| 8:15 PM       | 8:29 PM  |                                          |                                          | 0                        |                                          |                                          |
| 8:30 PM       | 8:44 PM  |                                          |                                          | 0                        |                                          |                                          |
| 8:45 PM       | 8:59 PM  |                                          |                                          | 0                        |                                          |                                          |
| 9:00 PM       | 9:14 PM  |                                          |                                          | 0                        |                                          |                                          |
| 9:15 PM       | 9:29 PM  |                                          |                                          | 0                        |                                          |                                          |
| 9:30 PM       | 9:44 PM  |                                          |                                          | 0                        |                                          |                                          |
| 9:45 PM       | 9:59 PM  |                                          |                                          | 0                        |                                          |                                          |
| 10:00 PM      | 10:14 PM |                                          |                                          | 0                        |                                          |                                          |
| 10:15 PM      | 10:29 PM |                                          |                                          | 0                        |                                          |                                          |
| 10:30 PM      | 10:44 PM |                                          |                                          | 0                        |                                          |                                          |
| 10:45 PM      | 10:59 PM |                                          |                                          | 0                        |                                          |                                          |
| 11:00 PM      | 11:14 PM |                                          |                                          | 0                        |                                          |                                          |
| 11:15 PM      | 11:29 PM |                                          |                                          | 0                        |                                          |                                          |
| 11:30 PM      | 11:44 PM |                                          |                                          | 0                        |                                          |                                          |
| 11:45 PM      | 11:59 PM |                                          |                                          | 0                        |                                          |                                          |

| ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH |        |                                          |                                          |                          |                                          |                                          |
|--------------------------------------------------------|--------|------------------------------------------|------------------------------------------|--------------------------|------------------------------------------|------------------------------------------|
| Time Interval                                          |        | Major Street<br>Approach #1<br>(N-Bound) | Major Street<br>Approach #2<br>(S-Bound) | Major Street<br>Combined | Minor Street<br>Approach #1<br>(W-Bound) | Minor Street<br>Approach #2<br>(E-Bound) |
| Begin At                                               | End Of | Volume                                   | Volume                                   | Total Volume             | Volume                                   | Volume                                   |
| Approach Totals:                                       |        | 4074                                     | 3316                                     | 7390                     | 555                                      | 0                                        |

## MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

| Number of Lanes for Moving Traffic on Each Approach |        |
|-----------------------------------------------------|--------|
| Major Street:                                       | 1 Lane |
| Minor Street:                                       | 1 Lane |

| Total Number of Unique Hours Met<br>On Figure 4C-2 |
|----------------------------------------------------|
| <b>4</b>                                           |

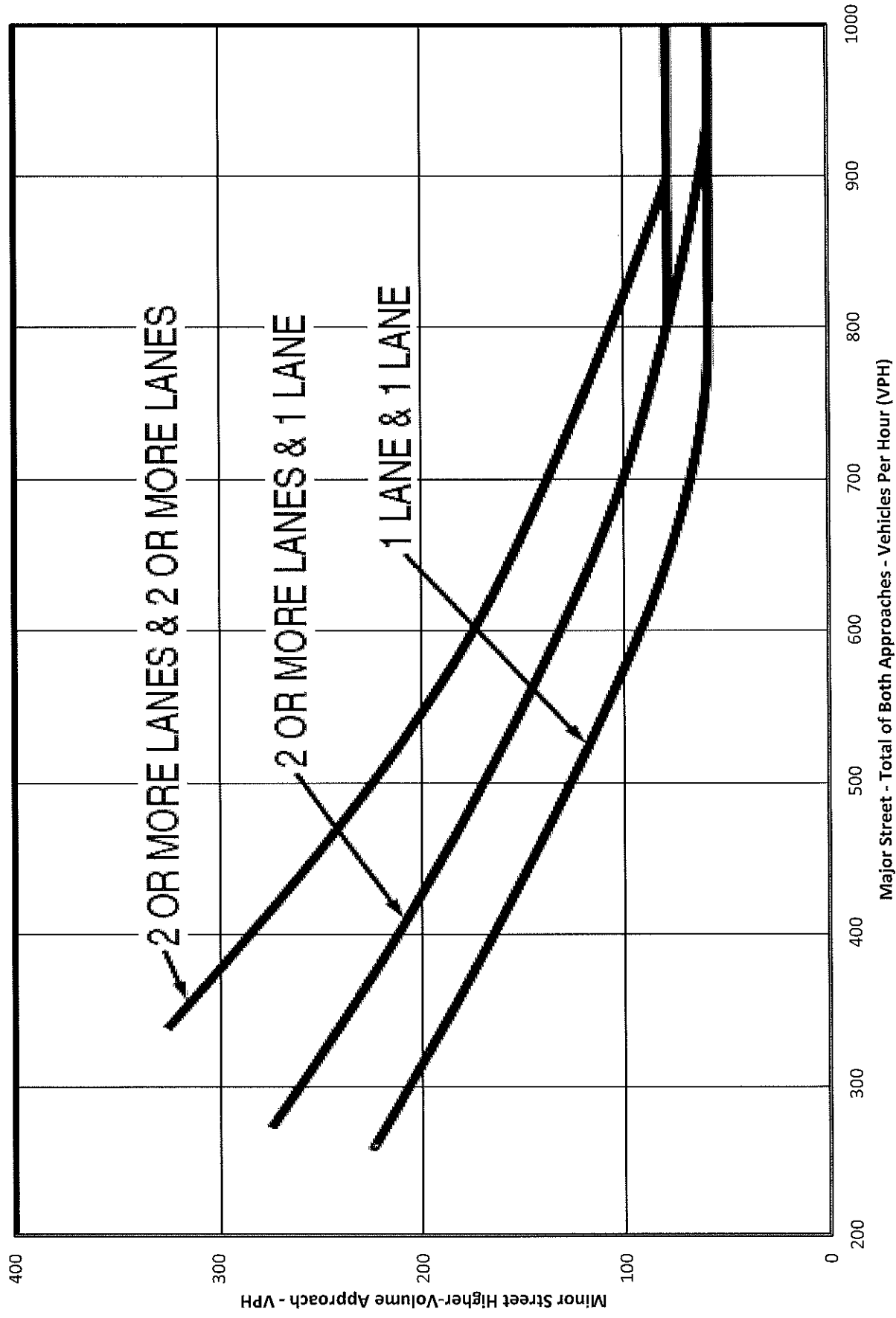
|                                                                                               |     |
|-----------------------------------------------------------------------------------------------|-----|
| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | Yes |
|-----------------------------------------------------------------------------------------------|-----|

| Hourly Vehicular Volume |                         |                               |           |
|-------------------------|-------------------------|-------------------------------|-----------|
| Hour Interval           | Major Street Combined   | Highest Minor Street Approach | Hour Met? |
| Beginning At            | Vehicles Per Hour (VPH) | Vehicles Per Hour (VPH)       |           |
| 12:00 AM                | 0                       | 0                             |           |
| 12:15 AM                | 0                       | 0                             |           |
| 12:30 AM                | 0                       | 0                             |           |
| 12:45 AM                | 0                       | 0                             |           |
| 1:00 AM                 | 0                       | 0                             |           |
| 1:15 AM                 | 0                       | 0                             |           |
| 1:30 AM                 | 0                       | 0                             |           |
| 1:45 AM                 | 0                       | 0                             |           |
| 2:00 AM                 | 0                       | 0                             |           |
| 2:15 AM                 | 0                       | 0                             |           |
| 2:30 AM                 | 0                       | 0                             |           |
| 2:45 AM                 | 0                       | 0                             |           |
| 3:00 AM                 | 0                       | 0                             |           |
| 3:15 AM                 | 0                       | 0                             |           |
| 3:30 AM                 | 0                       | 0                             |           |
| 3:45 AM                 | 0                       | 0                             |           |
| 4:00 AM                 | 0                       | 0                             |           |
| 4:15 AM                 | 0                       | 0                             |           |
| 4:30 AM                 | 0                       | 0                             |           |
| 4:45 AM                 | 0                       | 0                             |           |
| 5:00 AM                 | 0                       | 0                             |           |
| 5:15 AM                 | 0                       | 0                             |           |
| 5:30 AM                 | 0                       | 0                             |           |
| 5:45 AM                 | 0                       | 0                             |           |
| 6:00 AM                 | 0                       | 0                             |           |
| 6:15 AM                 | 1761                    | 161                           | Met       |
| 6:30 AM                 | 1761                    | 161                           | Met       |
| 6:45 AM                 | 1761                    | 161                           | Met       |
| 7:00 AM                 | 1761                    | 161                           | Met       |
| 7:15 AM                 | 1758                    | 170                           | Met       |
| 7:30 AM                 | 1758                    | 170                           | Met       |
| 7:45 AM                 | 1758                    | 170                           | Met       |
| 8:00 AM                 | 1758                    | 170                           | Met       |
| 8:15 AM                 | 0                       | 0                             |           |
| 8:30 AM                 | 0                       | 0                             |           |
| 8:45 AM                 | 0                       | 0                             |           |
| 9:00 AM                 | 0                       | 0                             |           |
| 9:15 AM                 | 0                       | 0                             |           |
| 9:30 AM                 | 0                       | 0                             |           |
| 9:45 AM                 | 0                       | 0                             |           |
| 10:00 AM                | 0                       | 0                             |           |
| 10:15 AM                | 0                       | 0                             |           |
| 10:30 AM                | 0                       | 0                             |           |
| 10:45 AM                | 0                       | 0                             |           |
| 11:00 AM                | 0                       | 0                             |           |
| 11:15 AM                | 0                       | 0                             |           |
| 11:30 AM                | 0                       | 0                             |           |
| 11:45 AM                | 0                       | 0                             |           |

| Hourly Vehicular Volume |                         |                               |           |
|-------------------------|-------------------------|-------------------------------|-----------|
| Hour Interval           | Major Street Combined   | Highest Minor Street Approach | Hour Met? |
| Beginning At            | Vehicles Per Hour (VPH) | Vehicles Per Hour (VPH)       |           |
| 12:00 PM                | 0                       | 0                             |           |
| 12:15 PM                | 0                       | 0                             |           |
| 12:30 PM                | 0                       | 0                             |           |
| 12:45 PM                | 0                       | 0                             |           |
| 1:00 PM                 | 0                       | 0                             |           |
| 1:15 PM                 | 0                       | 0                             |           |
| 1:30 PM                 | 0                       | 0                             |           |
| 1:45 PM                 | 0                       | 0                             |           |
| 2:00 PM                 | 0                       | 0                             |           |
| 2:15 PM                 | 0                       | 0                             |           |
| 2:30 PM                 | 0                       | 0                             |           |
| 2:45 PM                 | 0                       | 0                             |           |
| 3:00 PM                 | 0                       | 0                             |           |
| 3:15 PM                 | 1846                    | 97                            | Met       |
| 3:30 PM                 | 1846                    | 97                            | Met       |
| 3:45 PM                 | 1846                    | 97                            | Met       |
| 4:00 PM                 | 1846                    | 97                            | Met       |
| 4:15 PM                 | 2025                    | 127                           | Met       |
| 4:30 PM                 | 2025                    | 127                           | Met       |
| 4:45 PM                 | 2025                    | 127                           | Met       |
| 5:00 PM                 | 2025                    | 127                           | Met       |
| 5:15 PM                 | 0                       | 0                             |           |
| 5:30 PM                 | 0                       | 0                             |           |
| 5:45 PM                 | 0                       | 0                             |           |
| 6:00 PM                 | 0                       | 0                             |           |
| 6:15 PM                 | 0                       | 0                             |           |
| 6:30 PM                 | 0                       | 0                             |           |
| 6:45 PM                 | 0                       | 0                             |           |
| 7:00 PM                 | 0                       | 0                             |           |
| 7:15 PM                 | 0                       | 0                             |           |
| 7:30 PM                 | 0                       | 0                             |           |
| 7:45 PM                 | 0                       | 0                             |           |
| 8:00 PM                 | 0                       | 0                             |           |
| 8:15 PM                 | 0                       | 0                             |           |
| 8:30 PM                 | 0                       | 0                             |           |
| 8:45 PM                 | 0                       | 0                             |           |
| 9:00 PM                 | 0                       | 0                             |           |
| 9:15 PM                 | 0                       | 0                             |           |
| 9:30 PM                 | 0                       | 0                             |           |
| 9:45 PM                 | 0                       | 0                             |           |
| 10:00 PM                | 0                       | 0                             |           |
| 10:15 PM                | 0                       | 0                             |           |
| 10:30 PM                | 0                       | 0                             |           |
| 10:45 PM                | 0                       | 0                             |           |
| 11:00 PM                | 0                       | 0                             |           |



MUTCD Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)



## MUTCD WARRANT 3, PEAK HOUR

### Number of Lanes for Moving Traffic on Each Approach

|               |        |
|---------------|--------|
| Major Street: | 1 Lane |
| Minor Street: | 1 Lane |

|                                                                                               |     |
|-----------------------------------------------------------------------------------------------|-----|
| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | Yes |
|-----------------------------------------------------------------------------------------------|-----|

Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?

N/A

### Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present\*

|                                                                                                                                                                                                                                              |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach? | N/A |
| Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?                                                   | N/A |
| Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?                                | N/A |

*\*If applicable, attach all supporting calculations and documentation.*

Total Number of Unique Hours Met  
On Figure 4C-4

4

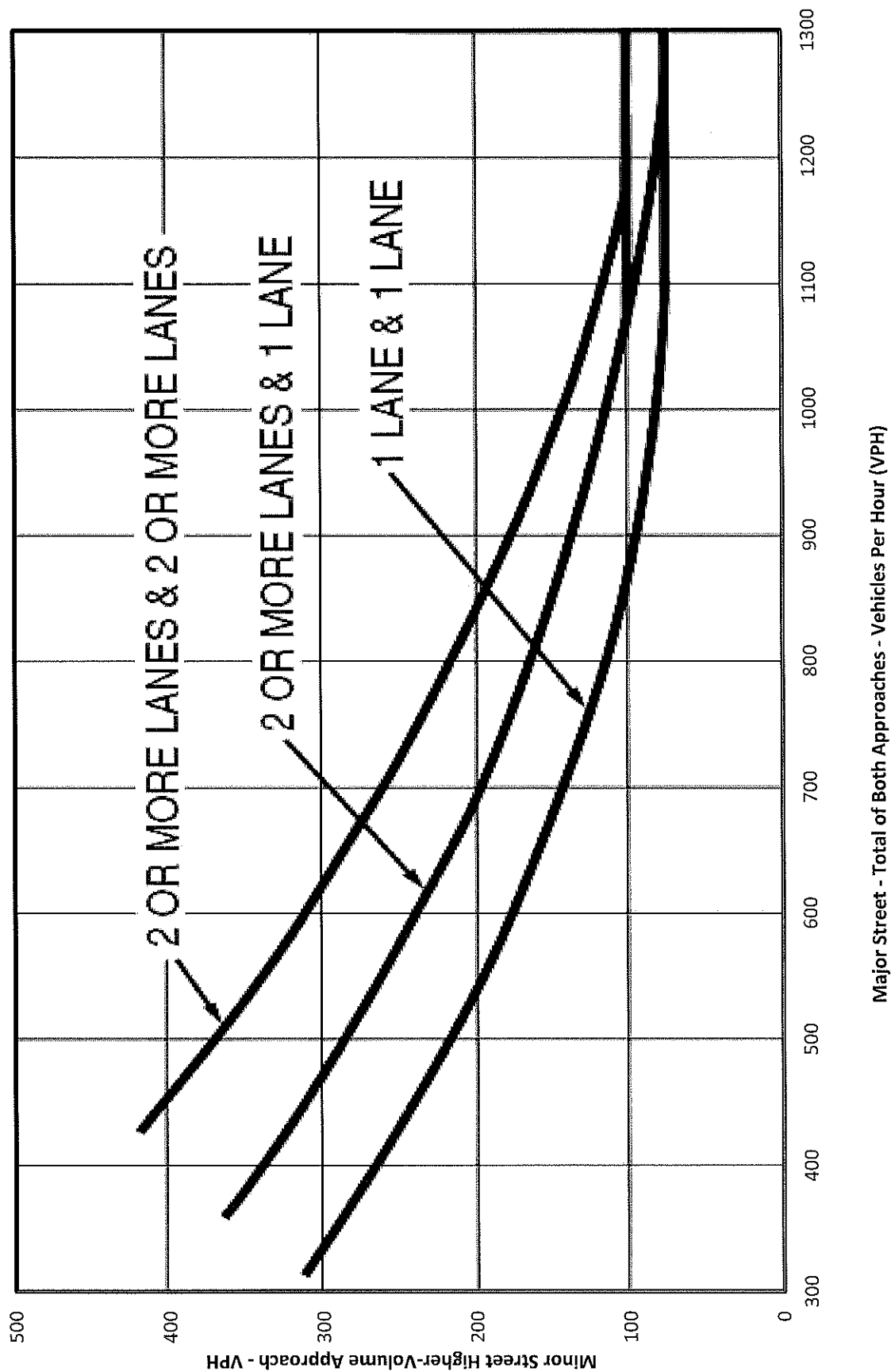
| Hourly Vehicular Volume |                         |                               |           |
|-------------------------|-------------------------|-------------------------------|-----------|
| Hour Interval           | Major Street Combined   | Highest Minor Street Approach | Hour Met? |
| Beginning At            | Vehicles Per Hour (VPH) | Vehicles Per Hour (VPH)       |           |
| 12:00 AM                | 0                       | 0                             |           |
| 12:15 AM                | 0                       | 0                             |           |
| 12:30 AM                | 0                       | 0                             |           |
| 12:45 AM                | 0                       | 0                             |           |
| 1:00 AM                 | 0                       | 0                             |           |
| 1:15 AM                 | 0                       | 0                             |           |
| 1:30 AM                 | 0                       | 0                             |           |
| 1:45 AM                 | 0                       | 0                             |           |
| 2:00 AM                 | 0                       | 0                             |           |
| 2:15 AM                 | 0                       | 0                             |           |
| 2:30 AM                 | 0                       | 0                             |           |
| 2:45 AM                 | 0                       | 0                             |           |
| 3:00 AM                 | 0                       | 0                             |           |
| 3:15 AM                 | 0                       | 0                             |           |
| 3:30 AM                 | 0                       | 0                             |           |
| 3:45 AM                 | 0                       | 0                             |           |
| 4:00 AM                 | 0                       | 0                             |           |
| 4:15 AM                 | 0                       | 0                             |           |
| 4:30 AM                 | 0                       | 0                             |           |
| 4:45 AM                 | 0                       | 0                             |           |
| 5:00 AM                 | 0                       | 0                             |           |
| 5:15 AM                 | 0                       | 0                             |           |
| 5:30 AM                 | 0                       | 0                             |           |
| 5:45 AM                 | 0                       | 0                             |           |
| 6:00 AM                 | 0                       | 0                             |           |
| 6:15 AM                 | 1761                    | 161                           | Met       |
| 6:30 AM                 | 1761                    | 161                           | Met       |
| 6:45 AM                 | 1761                    | 161                           | Met       |
| 7:00 AM                 | 1761                    | 161                           | Met       |
| 7:15 AM                 | 1758                    | 170                           | Met       |
| 7:30 AM                 | 1758                    | 170                           | Met       |
| 7:45 AM                 | 1758                    | 170                           | Met       |
| 8:00 AM                 | 1758                    | 170                           | Met       |

| Hourly Vehicular Volume |                         |                               |           |
|-------------------------|-------------------------|-------------------------------|-----------|
| Hour Interval           | Major Street Combined   | Highest Minor Street Approach | Hour Met? |
| Beginning At            | Vehicles Per Hour (VPH) | Vehicles Per Hour (VPH)       |           |
| 8:15 AM                 | 0                       | 0                             |           |

| Hourly Vehicular Volume |                         |                               |           |
|-------------------------|-------------------------|-------------------------------|-----------|
| Hour Interval           | Major Street Combined   | Highest Minor Street Approach | Hour Met? |
| Beginning At            | Vehicles Per Hour (VPH) | Vehicles Per Hour (VPH)       |           |
| 8:30 AM                 | 0                       | 0                             |           |
| 8:45 AM                 | 0                       | 0                             |           |
| 9:00 AM                 | 0                       | 0                             |           |
| 9:15 AM                 | 0                       | 0                             |           |
| 9:30 AM                 | 0                       | 0                             |           |
| 9:45 AM                 | 0                       | 0                             |           |
| 10:00 AM                | 0                       | 0                             |           |
| 10:15 AM                | 0                       | 0                             |           |
| 10:30 AM                | 0                       | 0                             |           |
| 10:45 AM                | 0                       | 0                             |           |
| 11:00 AM                | 0                       | 0                             |           |
| 11:15 AM                | 0                       | 0                             |           |
| 11:30 AM                | 0                       | 0                             |           |
| 11:45 AM                | 0                       | 0                             |           |
| 12:00 PM                | 0                       | 0                             |           |
| 12:15 PM                | 0                       | 0                             |           |
| 12:30 PM                | 0                       | 0                             |           |
| 12:45 PM                | 0                       | 0                             |           |
| 1:00 PM                 | 0                       | 0                             |           |
| 1:15 PM                 | 0                       | 0                             |           |
| 1:30 PM                 | 0                       | 0                             |           |
| 1:45 PM                 | 0                       | 0                             |           |
| 2:00 PM                 | 0                       | 0                             |           |
| 2:15 PM                 | 0                       | 0                             |           |
| 2:30 PM                 | 0                       | 0                             |           |
| 2:45 PM                 | 0                       | 0                             |           |
| 3:00 PM                 | 0                       | 0                             |           |
| 3:15 PM                 | 1846                    | 97                            | Met       |
| 3:30 PM                 | 1846                    | 97                            | Met       |
| 3:45 PM                 | 1846                    | 97                            | Met       |
| 4:00 PM                 | 1846                    | 97                            | Met       |
| 4:15 PM                 | 2025                    | 127                           | Met       |
| 4:30 PM                 | 2025                    | 127                           | Met       |
| 4:45 PM                 | 2025                    | 127                           | Met       |
| 5:00 PM                 | 2025                    | 127                           | Met       |
| 5:15 PM                 | 0                       | 0                             |           |
| 5:30 PM                 | 0                       | 0                             |           |
| 5:45 PM                 | 0                       | 0                             |           |
| 6:00 PM                 | 0                       | 0                             |           |
| 6:15 PM                 | 0                       | 0                             |           |
| 6:30 PM                 | 0                       | 0                             |           |
| 6:45 PM                 | 0                       | 0                             |           |
| 7:00 PM                 | 0                       | 0                             |           |
| 7:15 PM                 | 0                       | 0                             |           |
| 7:30 PM                 | 0                       | 0                             |           |
| 7:45 PM                 | 0                       | 0                             |           |
| 8:00 PM                 | 0                       | 0                             |           |
| 8:15 PM                 | 0                       | 0                             |           |
| 8:30 PM                 | 0                       | 0                             |           |
| 8:45 PM                 | 0                       | 0                             |           |
| 9:00 PM                 | 0                       | 0                             |           |
| 9:15 PM                 | 0                       | 0                             |           |
| 9:30 PM                 | 0                       | 0                             |           |
| 9:45 PM                 | 0                       | 0                             |           |
| 10:00 PM                | 0                       | 0                             |           |
| 10:15 PM                | 0                       | 0                             |           |
| 10:30 PM                | 0                       | 0                             |           |
| 10:45 PM                | 0                       | 0                             |           |
| 11:00 PM                | 0                       | 0                             |           |



MUTCD Figure 4C-4. Warrant 3, Peak Hour (70% Factor)



**Newtown Street Road (S.R. 252) &  
Palmers Mill Road (S.R. 1022)**

## STUDY AND ANALYSIS INFORMATION

Municipality: Marple Township  
 County: Delaware County  
 PennDOT Engineering District: 6

Analysis Date: 10/27/2015  
 Conducted By: TML  
 Agency/Company Name: McMahon

## Analysis Information

Data Collection Date: 10/22/2015  
 Day of the Week: Thursday

## 2015 Existing Traffic Volumes

Is the intersection in a built-up area of an isolated community of <10,000 population? No

## Major Street Information

Major Street Name and Route Number: Newtown Street Road (SR 252)  
 Major Street Approach #1 Direction: N-Bound  
 Major Street Approach #2 Direction: S-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach: 1 LANE(S)  
 Speed Limit or 85th Percentile Speed on the Major Street: 35 MPH

## Minor Street Information

Minor Street Name and Route Number: Palmers Mill Road (SR 1022)  
 Minor Street Approach #1 Direction: W-Bound  
 Minor Street Approach #2 Direction: E-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach: 1 LANE(S)

## TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

|                                               | Applicable? | Warrant Met? |
|-----------------------------------------------|-------------|--------------|
| Warrant 1, Eight-Hour Vehicular Volume        | No          | N/A          |
| Warrant 2, Four-Hour Vehicular Volume         | Yes         | Yes          |
| Warrant 3, Peak Hour                          | Yes         | No           |
| Warrant 4, Pedestrian Volume                  | No          | N/A          |
| Warrant 5, School Crossing                    | No          | N/A          |
| Warrant 6, Coordinated Signal System          | No          | N/A          |
| Warrant 7, Crash Experience                   | No          | N/A          |
| Warrant 8, Roadway Network                    | No          | N/A          |
| Warrant 9, Intersection Near a Grade Crossing | No          | N/A          |
| Warrant PA-1, ADT Volume Warrant              | No          | N/A          |
| Warrant PA-2, Midblock and Trail Crossings    | No          | N/A          |

### ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

| Time Interval |          | Major Street<br>Approach #1<br>(N-Bound) | Major Street<br>Approach #2<br>(S-Bound) | Major Street<br>Combined | Minor Street<br>Approach #1<br>(W-Bound) | Minor Street<br>Approach #2<br>(E-Bound) |
|---------------|----------|------------------------------------------|------------------------------------------|--------------------------|------------------------------------------|------------------------------------------|
| Begin At      | End Of   | Volume                                   | Volume                                   | Total Volume             | Volume                                   | Volume                                   |
| 12:00 AM      | 12:14 AM |                                          |                                          | 0                        |                                          |                                          |
| 12:15 AM      | 12:29 AM |                                          |                                          | 0                        |                                          |                                          |
| 12:30 AM      | 12:44 AM |                                          |                                          | 0                        |                                          |                                          |
| 12:45 AM      | 12:59 AM |                                          |                                          | 0                        |                                          |                                          |
| 1:00 AM       | 1:14 AM  |                                          |                                          | 0                        |                                          |                                          |
| 1:15 AM       | 1:29 AM  |                                          |                                          | 0                        |                                          |                                          |
| 1:30 AM       | 1:44 AM  |                                          |                                          | 0                        |                                          |                                          |
| 1:45 AM       | 1:59 AM  |                                          |                                          | 0                        |                                          |                                          |
| 2:00 AM       | 2:14 AM  |                                          |                                          | 0                        |                                          |                                          |
| 2:15 AM       | 2:29 AM  |                                          |                                          | 0                        |                                          |                                          |
| 2:30 AM       | 2:44 AM  |                                          |                                          | 0                        |                                          |                                          |
| 2:45 AM       | 2:59 AM  |                                          |                                          | 0                        |                                          |                                          |
| 3:00 AM       | 3:14 AM  |                                          |                                          | 0                        |                                          |                                          |
| 3:15 AM       | 3:29 AM  |                                          |                                          | 0                        |                                          |                                          |
| 3:30 AM       | 3:44 AM  |                                          |                                          | 0                        |                                          |                                          |
| 3:45 AM       | 3:59 AM  |                                          |                                          | 0                        |                                          |                                          |
| 4:00 AM       | 4:14 AM  |                                          |                                          | 0                        |                                          |                                          |
| 4:15 AM       | 4:29 AM  |                                          |                                          | 0                        |                                          |                                          |
| 4:30 AM       | 4:44 AM  |                                          |                                          | 0                        |                                          |                                          |
| 4:45 AM       | 4:59 AM  |                                          |                                          | 0                        |                                          |                                          |
| 5:00 AM       | 5:14 AM  |                                          |                                          | 0                        |                                          |                                          |
| 5:15 AM       | 5:29 AM  |                                          |                                          | 0                        |                                          |                                          |
| 5:30 AM       | 5:44 AM  |                                          |                                          | 0                        |                                          |                                          |
| 5:45 AM       | 5:59 AM  |                                          |                                          | 0                        |                                          |                                          |
| 6:00 AM       | 6:14 AM  |                                          |                                          | 0                        |                                          |                                          |
| 6:15 AM       | 6:29 AM  |                                          |                                          | 0                        |                                          |                                          |
| 6:30 AM       | 6:44 AM  |                                          |                                          | 0                        |                                          |                                          |
| 6:45 AM       | 6:59 AM  |                                          |                                          | 0                        |                                          |                                          |
| 7:00 AM       | 7:14 AM  | 1207                                     | 668                                      | 1875                     | 103                                      |                                          |
| 7:15 AM       | 7:29 AM  |                                          |                                          | 0                        |                                          |                                          |
| 7:30 AM       | 7:44 AM  |                                          |                                          | 0                        |                                          |                                          |
| 7:45 AM       | 7:59 AM  |                                          |                                          | 0                        |                                          |                                          |
| 8:00 AM       | 8:14 AM  | 1157                                     | 684                                      | 1841                     | 117                                      |                                          |
| 8:15 AM       | 8:29 AM  |                                          |                                          | 0                        |                                          |                                          |
| 8:30 AM       | 8:44 AM  |                                          |                                          | 0                        |                                          |                                          |
| 8:45 AM       | 8:59 AM  |                                          |                                          | 0                        |                                          |                                          |
| 9:00 AM       | 9:14 AM  |                                          |                                          | 0                        |                                          |                                          |
| 9:15 AM       | 9:29 AM  |                                          |                                          | 0                        |                                          |                                          |
| 9:30 AM       | 9:44 AM  |                                          |                                          | 0                        |                                          |                                          |
| 9:45 AM       | 9:59 AM  |                                          |                                          | 0                        |                                          |                                          |
| 10:00 AM      | 10:14 AM |                                          |                                          | 0                        |                                          |                                          |
| 10:15 AM      | 10:29 AM |                                          |                                          | 0                        |                                          |                                          |
| 10:30 AM      | 10:44 AM |                                          |                                          | 0                        |                                          |                                          |
| 10:45 AM      | 10:59 AM |                                          |                                          | 0                        |                                          |                                          |
| 11:00 AM      | 11:14 AM |                                          |                                          | 0                        |                                          |                                          |
| 11:15 AM      | 11:29 AM |                                          |                                          | 0                        |                                          |                                          |
| 11:30 AM      | 11:44 AM |                                          |                                          | 0                        |                                          |                                          |
| 11:45 AM      | 11:59 AM |                                          |                                          | 0                        |                                          |                                          |



# ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

| Time Interval |          | Major Street Approach #1 (N-Bound) | Major Street Approach #2 (S-Bound) | Major Street Combined | Minor Street Approach #1 (W-Bound) | Minor Street Approach #2 (E-Bound) |
|---------------|----------|------------------------------------|------------------------------------|-----------------------|------------------------------------|------------------------------------|
| Begin At      | End Of   | Volume                             | Volume                             | Total Volume          | Volume                             | Volume                             |
| 12:00 PM      | 12:14 PM |                                    |                                    | 0                     |                                    |                                    |
| 12:15 PM      | 12:29 PM |                                    |                                    | 0                     |                                    |                                    |
| 12:30 PM      | 12:44 PM |                                    |                                    | 0                     |                                    |                                    |
| 12:45 PM      | 12:59 PM |                                    |                                    | 0                     |                                    |                                    |
| 1:00 PM       | 1:14 PM  |                                    |                                    | 0                     |                                    |                                    |
| 1:15 PM       | 1:29 PM  |                                    |                                    | 0                     |                                    |                                    |
| 1:30 PM       | 1:44 PM  |                                    |                                    | 0                     |                                    |                                    |
| 1:45 PM       | 1:59 PM  |                                    |                                    | 0                     |                                    |                                    |
| 2:00 PM       | 2:14 PM  |                                    |                                    | 0                     |                                    |                                    |
| 2:15 PM       | 2:29 PM  |                                    |                                    | 0                     |                                    |                                    |
| 2:30 PM       | 2:44 PM  |                                    |                                    | 0                     |                                    |                                    |
| 2:45 PM       | 2:59 PM  |                                    |                                    | 0                     |                                    |                                    |
| 3:00 PM       | 3:14 PM  |                                    |                                    | 0                     |                                    |                                    |
| 3:15 PM       | 3:29 PM  |                                    |                                    | 0                     |                                    |                                    |
| 3:30 PM       | 3:44 PM  |                                    |                                    | 0                     |                                    |                                    |
| 3:45 PM       | 3:59 PM  |                                    |                                    | 0                     |                                    |                                    |
| 4:00 PM       | 4:14 PM  | 764                                | 1012                               | 1776                  | 128                                |                                    |
| 4:15 PM       | 4:29 PM  |                                    |                                    | 0                     |                                    |                                    |
| 4:30 PM       | 4:44 PM  |                                    |                                    | 0                     |                                    |                                    |
| 4:45 PM       | 4:59 PM  |                                    |                                    | 0                     |                                    |                                    |
| 5:00 PM       | 5:14 PM  | 925                                | 1063                               | 1988                  | 114                                |                                    |
| 5:15 PM       | 5:29 PM  |                                    |                                    | 0                     |                                    |                                    |
| 5:30 PM       | 5:44 PM  |                                    |                                    | 0                     |                                    |                                    |
| 5:45 PM       | 5:59 PM  |                                    |                                    | 0                     |                                    |                                    |
| 6:00 PM       | 6:14 PM  |                                    |                                    | 0                     |                                    |                                    |
| 6:15 PM       | 6:29 PM  |                                    |                                    | 0                     |                                    |                                    |
| 6:30 PM       | 6:44 PM  |                                    |                                    | 0                     |                                    |                                    |
| 6:45 PM       | 6:59 PM  |                                    |                                    | 0                     |                                    |                                    |
| 7:00 PM       | 7:14 PM  |                                    |                                    | 0                     |                                    |                                    |
| 7:15 PM       | 7:29 PM  |                                    |                                    | 0                     |                                    |                                    |
| 7:30 PM       | 7:44 PM  |                                    |                                    | 0                     |                                    |                                    |
| 7:45 PM       | 7:59 PM  |                                    |                                    | 0                     |                                    |                                    |
| 8:00 PM       | 8:14 PM  |                                    |                                    | 0                     |                                    |                                    |
| 8:15 PM       | 8:29 PM  |                                    |                                    | 0                     |                                    |                                    |
| 8:30 PM       | 8:44 PM  |                                    |                                    | 0                     |                                    |                                    |
| 8:45 PM       | 8:59 PM  |                                    |                                    | 0                     |                                    |                                    |
| 9:00 PM       | 9:14 PM  |                                    |                                    | 0                     |                                    |                                    |
| 9:15 PM       | 9:29 PM  |                                    |                                    | 0                     |                                    |                                    |
| 9:30 PM       | 9:44 PM  |                                    |                                    | 0                     |                                    |                                    |
| 9:45 PM       | 9:59 PM  |                                    |                                    | 0                     |                                    |                                    |
| 10:00 PM      | 10:14 PM |                                    |                                    | 0                     |                                    |                                    |
| 10:15 PM      | 10:29 PM |                                    |                                    | 0                     |                                    |                                    |
| 10:30 PM      | 10:44 PM |                                    |                                    | 0                     |                                    |                                    |
| 10:45 PM      | 10:59 PM |                                    |                                    | 0                     |                                    |                                    |
| 11:00 PM      | 11:14 PM |                                    |                                    | 0                     |                                    |                                    |
| 11:15 PM      | 11:29 PM |                                    |                                    | 0                     |                                    |                                    |
| 11:30 PM      | 11:44 PM |                                    |                                    | 0                     |                                    |                                    |
| 11:45 PM      | 11:59 PM |                                    |                                    | 0                     |                                    |                                    |



| ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH |        |                                          |                                          |                          |                                          |                                          |
|--------------------------------------------------------|--------|------------------------------------------|------------------------------------------|--------------------------|------------------------------------------|------------------------------------------|
| Time Interval                                          |        | Major Street<br>Approach #1<br>(N-Bound) | Major Street<br>Approach #2<br>(S-Bound) | Major Street<br>Combined | Minor Street<br>Approach #1<br>(W-Bound) | Minor Street<br>Approach #2<br>(E-Bound) |
| Begin At                                               | End Of | Volume                                   | Volume                                   | Total Volume             | Volume                                   | Volume                                   |
| Approach Totals:                                       |        | 4053                                     | 3427                                     | 7480                     | 462                                      | 0                                        |

## MUTCD WARRANT 3, PEAK HOUR

| Number of Lanes for Moving Traffic on Each Approach |        |
|-----------------------------------------------------|--------|
| Major Street:                                       | 1 Lane |
| Minor Street:                                       | 1 Lane |

|                                                                                               |    |
|-----------------------------------------------------------------------------------------------|----|
| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
|-----------------------------------------------------------------------------------------------|----|

Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?

N/A

**Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present\***

|                                                                                                                                                                                                                                              |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach? | N/A |
| Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?                                                   | N/A |
| Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?                                | N/A |

*\*If applicable, attach all supporting calculations and documentation.*

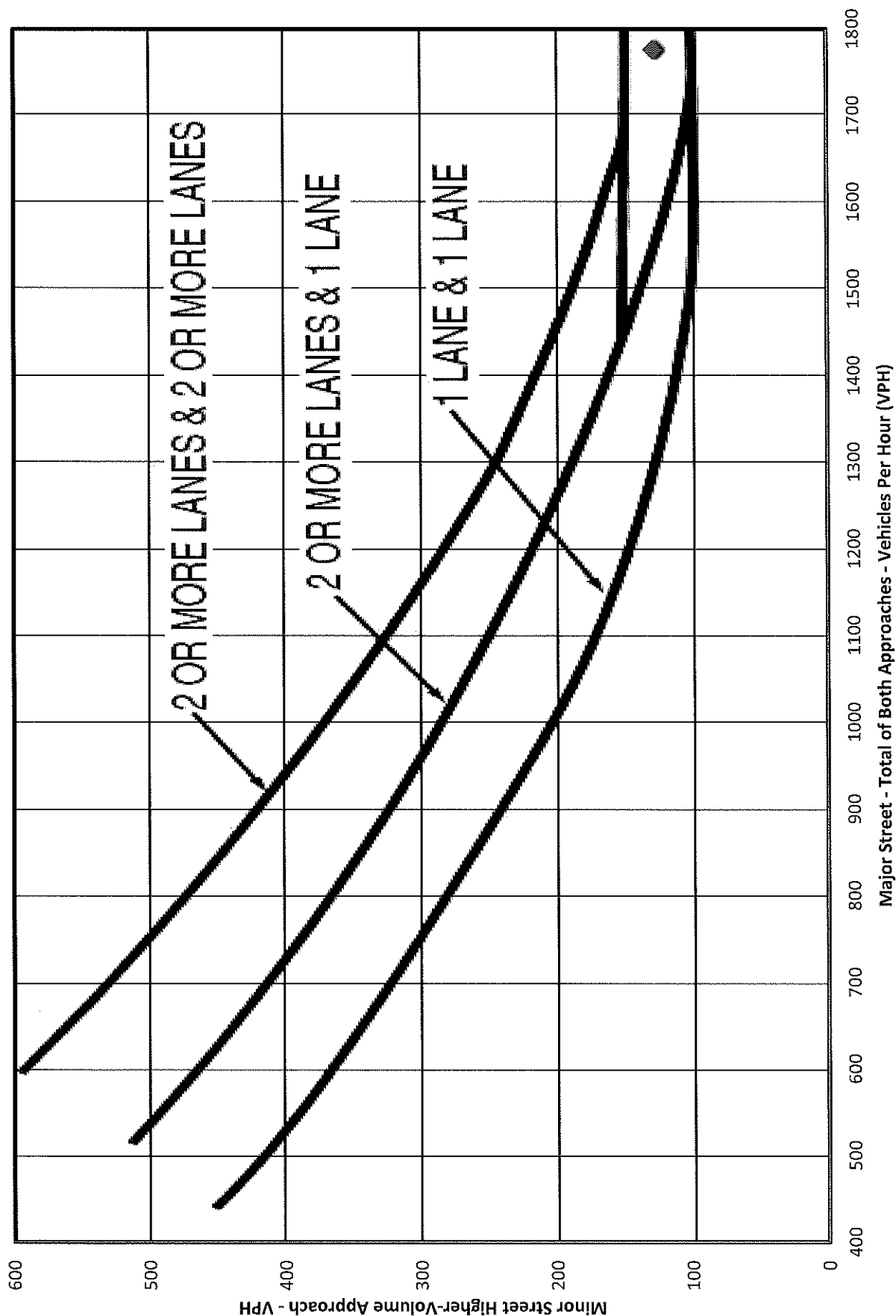
|                                                 |
|-------------------------------------------------|
| Total Number of Unique Hours Met On Figure 4C-3 |
| <b>4</b>                                        |

| Hourly Vehicular Volume |                         |                               |           |
|-------------------------|-------------------------|-------------------------------|-----------|
| Hour Interval           | Major Street Combined   | Highest Minor Street Approach | Hour Met? |
| Beginning At            | Vehicles Per Hour (VPH) | Vehicles Per Hour (VPH)       |           |
| 12:00 AM                | 0                       | 0                             |           |
| 12:15 AM                | 0                       | 0                             |           |
| 12:30 AM                | 0                       | 0                             |           |
| 12:45 AM                | 0                       | 0                             |           |
| 1:00 AM                 | 0                       | 0                             |           |
| 1:15 AM                 | 0                       | 0                             |           |
| 1:30 AM                 | 0                       | 0                             |           |
| 1:45 AM                 | 0                       | 0                             |           |
| 2:00 AM                 | 0                       | 0                             |           |
| 2:15 AM                 | 0                       | 0                             |           |
| 2:30 AM                 | 0                       | 0                             |           |
| 2:45 AM                 | 0                       | 0                             |           |
| 3:00 AM                 | 0                       | 0                             |           |
| 3:15 AM                 | 0                       | 0                             |           |
| 3:30 AM                 | 0                       | 0                             |           |
| 3:45 AM                 | 0                       | 0                             |           |
| 4:00 AM                 | 0                       | 0                             |           |
| 4:15 AM                 | 0                       | 0                             |           |
| 4:30 AM                 | 0                       | 0                             |           |
| 4:45 AM                 | 0                       | 0                             |           |
| 5:00 AM                 | 0                       | 0                             |           |
| 5:15 AM                 | 0                       | 0                             |           |
| 5:30 AM                 | 0                       | 0                             |           |
| 5:45 AM                 | 0                       | 0                             |           |
| 6:00 AM                 | 0                       | 0                             |           |
| 6:15 AM                 | 1875                    | 103                           | Met       |
| 6:30 AM                 | 1875                    | 103                           | Met       |
| 6:45 AM                 | 1875                    | 103                           | Met       |
| 7:00 AM                 | 1875                    | 103                           | Met       |
| 7:15 AM                 | 1841                    | 117                           | Met       |
| 7:30 AM                 | 1841                    | 117                           | Met       |
| 7:45 AM                 | 1841                    | 117                           | Met       |
| 8:00 AM                 | 1841                    | 117                           | Met       |

| Hourly Vehicular Volume |                         |                               |           |
|-------------------------|-------------------------|-------------------------------|-----------|
| Hour Interval           | Major Street Combined   | Highest Minor Street Approach | Hour Met? |
| Beginning At            | Vehicles Per Hour (VPH) | Vehicles Per Hour (VPH)       |           |
| 8:15 AM                 | 0                       | 0                             |           |

| Hourly Vehicular Volume |                         |                               |           |
|-------------------------|-------------------------|-------------------------------|-----------|
| Hour Interval           | Major Street Combined   | Highest Minor Street Approach | Hour Met? |
| Beginning At            | Vehicles Per Hour (VPH) | Vehicles Per Hour (VPH)       |           |
| 8:30 AM                 | 0                       | 0                             |           |
| 8:45 AM                 | 0                       | 0                             |           |
| 9:00 AM                 | 0                       | 0                             |           |
| 9:15 AM                 | 0                       | 0                             |           |
| 9:30 AM                 | 0                       | 0                             |           |
| 9:45 AM                 | 0                       | 0                             |           |
| 10:00 AM                | 0                       | 0                             |           |
| 10:15 AM                | 0                       | 0                             |           |
| 10:30 AM                | 0                       | 0                             |           |
| 10:45 AM                | 0                       | 0                             |           |
| 11:00 AM                | 0                       | 0                             |           |
| 11:15 AM                | 0                       | 0                             |           |
| 11:30 AM                | 0                       | 0                             |           |
| 11:45 AM                | 0                       | 0                             |           |
| 12:00 PM                | 0                       | 0                             |           |
| 12:15 PM                | 0                       | 0                             |           |
| 12:30 PM                | 0                       | 0                             |           |
| 12:45 PM                | 0                       | 0                             |           |
| 1:00 PM                 | 0                       | 0                             |           |
| 1:15 PM                 | 0                       | 0                             |           |
| 1:30 PM                 | 0                       | 0                             |           |
| 1:45 PM                 | 0                       | 0                             |           |
| 2:00 PM                 | 0                       | 0                             |           |
| 2:15 PM                 | 0                       | 0                             |           |
| 2:30 PM                 | 0                       | 0                             |           |
| 2:45 PM                 | 0                       | 0                             |           |
| 3:00 PM                 | 0                       | 0                             |           |
| 3:15 PM                 | 1776                    | 128                           | Met       |
| 3:30 PM                 | 1776                    | 128                           | Met       |
| 3:45 PM                 | 1776                    | 128                           | Met       |
| 4:00 PM                 | 1776                    | 128                           | Met       |
| 4:15 PM                 | 1988                    | 114                           | Met       |
| 4:30 PM                 | 1988                    | 114                           | Met       |
| 4:45 PM                 | 1988                    | 114                           | Met       |
| 5:00 PM                 | 1988                    | 114                           | Met       |
| 5:15 PM                 | 0                       | 0                             |           |
| 5:30 PM                 | 0                       | 0                             |           |
| 5:45 PM                 | 0                       | 0                             |           |
| 6:00 PM                 | 0                       | 0                             |           |
| 6:15 PM                 | 0                       | 0                             |           |
| 6:30 PM                 | 0                       | 0                             |           |
| 6:45 PM                 | 0                       | 0                             |           |
| 7:00 PM                 | 0                       | 0                             |           |
| 7:15 PM                 | 0                       | 0                             |           |
| 7:30 PM                 | 0                       | 0                             |           |
| 7:45 PM                 | 0                       | 0                             |           |
| 8:00 PM                 | 0                       | 0                             |           |
| 8:15 PM                 | 0                       | 0                             |           |
| 8:30 PM                 | 0                       | 0                             |           |
| 8:45 PM                 | 0                       | 0                             |           |
| 9:00 PM                 | 0                       | 0                             |           |
| 9:15 PM                 | 0                       | 0                             |           |
| 9:30 PM                 | 0                       | 0                             |           |
| 9:45 PM                 | 0                       | 0                             |           |
| 10:00 PM                | 0                       | 0                             |           |
| 10:15 PM                | 0                       | 0                             |           |
| 10:30 PM                | 0                       | 0                             |           |
| 10:45 PM                | 0                       | 0                             |           |
| 11:00 PM                | 0                       | 0                             |           |

MUTCD Figure 4C-3. Warrant 3, Peak Hour





## MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

| Number of Lanes for Moving Traffic on Each Approach |        | Total Number of Unique Hours Met On Figure 4C-1 |
|-----------------------------------------------------|--------|-------------------------------------------------|
| Major Street:                                       | 1 Lane | 4                                               |
| Minor Street:                                       | 1 Lane |                                                 |

|                                                                                               |    |
|-----------------------------------------------------------------------------------------------|----|
| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
|-----------------------------------------------------------------------------------------------|----|

| Hourly Vehicular Volume |                         |                               |           |
|-------------------------|-------------------------|-------------------------------|-----------|
| Hour Interval           | Major Street Combined   | Highest Minor Street Approach | Hour Met? |
| Beginning At            | Vehicles Per Hour (VPH) | Vehicles Per Hour (VPH)       |           |
| 12:00 AM                | 0                       | 0                             |           |
| 12:15 AM                | 0                       | 0                             |           |
| 12:30 AM                | 0                       | 0                             |           |
| 12:45 AM                | 0                       | 0                             |           |
| 1:00 AM                 | 0                       | 0                             |           |
| 1:15 AM                 | 0                       | 0                             |           |
| 1:30 AM                 | 0                       | 0                             |           |
| 1:45 AM                 | 0                       | 0                             |           |
| 2:00 AM                 | 0                       | 0                             |           |
| 2:15 AM                 | 0                       | 0                             |           |
| 2:30 AM                 | 0                       | 0                             |           |
| 2:45 AM                 | 0                       | 0                             |           |
| 3:00 AM                 | 0                       | 0                             |           |
| 3:15 AM                 | 0                       | 0                             |           |
| 3:30 AM                 | 0                       | 0                             |           |
| 3:45 AM                 | 0                       | 0                             |           |
| 4:00 AM                 | 0                       | 0                             |           |
| 4:15 AM                 | 0                       | 0                             |           |
| 4:30 AM                 | 0                       | 0                             |           |
| 4:45 AM                 | 0                       | 0                             |           |
| 5:00 AM                 | 0                       | 0                             |           |
| 5:15 AM                 | 0                       | 0                             |           |
| 5:30 AM                 | 0                       | 0                             |           |
| 5:45 AM                 | 0                       | 0                             |           |
| 6:00 AM                 | 0                       | 0                             |           |
| 6:15 AM                 | 1875                    | 103                           | Met       |
| 6:30 AM                 | 1875                    | 103                           | Met       |
| 6:45 AM                 | 1875                    | 103                           | Met       |
| 7:00 AM                 | 1875                    | 103                           | Met       |
| 7:15 AM                 | 1841                    | 117                           | Met       |
| 7:30 AM                 | 1841                    | 117                           | Met       |
| 7:45 AM                 | 1841                    | 117                           | Met       |
| 8:00 AM                 | 1841                    | 117                           | Met       |
| 8:15 AM                 | 0                       | 0                             |           |
| 8:30 AM                 | 0                       | 0                             |           |
| 8:45 AM                 | 0                       | 0                             |           |
| 9:00 AM                 | 0                       | 0                             |           |
| 9:15 AM                 | 0                       | 0                             |           |
| 9:30 AM                 | 0                       | 0                             |           |
| 9:45 AM                 | 0                       | 0                             |           |
| 10:00 AM                | 0                       | 0                             |           |
| 10:15 AM                | 0                       | 0                             |           |
| 10:30 AM                | 0                       | 0                             |           |
| 10:45 AM                | 0                       | 0                             |           |
| 11:00 AM                | 0                       | 0                             |           |
| 11:15 AM                | 0                       | 0                             |           |
| 11:30 AM                | 0                       | 0                             |           |
| 11:45 AM                | 0                       | 0                             |           |

| Hourly Vehicular Volume |                         |                               |           |
|-------------------------|-------------------------|-------------------------------|-----------|
| Hour Interval           | Major Street Combined   | Highest Minor Street Approach | Hour Met? |
| Beginning At            | Vehicles Per Hour (VPH) | Vehicles Per Hour (VPH)       |           |
| 12:00 PM                | 0                       | 0                             |           |
| 12:15 PM                | 0                       | 0                             |           |
| 12:30 PM                | 0                       | 0                             |           |
| 12:45 PM                | 0                       | 0                             |           |
| 1:00 PM                 | 0                       | 0                             |           |
| 1:15 PM                 | 0                       | 0                             |           |
| 1:30 PM                 | 0                       | 0                             |           |
| 1:45 PM                 | 0                       | 0                             |           |
| 2:00 PM                 | 0                       | 0                             |           |
| 2:15 PM                 | 0                       | 0                             |           |
| 2:30 PM                 | 0                       | 0                             |           |
| 2:45 PM                 | 0                       | 0                             |           |
| 3:00 PM                 | 0                       | 0                             |           |
| 3:15 PM                 | 1776                    | 128                           | Met       |
| 3:30 PM                 | 1776                    | 128                           | Met       |
| 3:45 PM                 | 1776                    | 128                           | Met       |
| 4:00 PM                 | 1776                    | 128                           | Met       |
| 4:15 PM                 | 1988                    | 114                           | Met       |
| 4:30 PM                 | 1988                    | 114                           | Met       |
| 4:45 PM                 | 1988                    | 114                           | Met       |
| 5:00 PM                 | 1988                    | 114                           | Met       |
| 5:15 PM                 | 0                       | 0                             |           |
| 5:30 PM                 | 0                       | 0                             |           |
| 5:45 PM                 | 0                       | 0                             |           |
| 6:00 PM                 | 0                       | 0                             |           |
| 6:15 PM                 | 0                       | 0                             |           |
| 6:30 PM                 | 0                       | 0                             |           |
| 6:45 PM                 | 0                       | 0                             |           |
| 7:00 PM                 | 0                       | 0                             |           |
| 7:15 PM                 | 0                       | 0                             |           |
| 7:30 PM                 | 0                       | 0                             |           |
| 7:45 PM                 | 0                       | 0                             |           |
| 8:00 PM                 | 0                       | 0                             |           |
| 8:15 PM                 | 0                       | 0                             |           |
| 8:30 PM                 | 0                       | 0                             |           |
| 8:45 PM                 | 0                       | 0                             |           |
| 9:00 PM                 | 0                       | 0                             |           |
| 9:15 PM                 | 0                       | 0                             |           |
| 9:30 PM                 | 0                       | 0                             |           |
| 9:45 PM                 | 0                       | 0                             |           |
| 10:00 PM                | 0                       | 0                             |           |
| 10:15 PM                | 0                       | 0                             |           |
| 10:30 PM                | 0                       | 0                             |           |
| 10:45 PM                | 0                       | 0                             |           |
| 11:00 PM                | 0                       | 0                             |           |

MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

