

# APPENDIX F

---

## Intersection Signal Warrant Analysis

TEC Engineering, Inc.  
161 Northland Blvd.  
Cincinnati, Ohio 45246  
(513) 771-8828

City/Twp.    **Kettering**  
Location:    **Location**  
Comments:   **Comments**

Job Number:    **Job Number**  
Count Date:    **Count Date**  
Page number:    **1 of 3**

Start Time	Major Street (major street) HOUR VOLUME	Major Street (major street) HOUR VOLUME	Minor Street (minor street) HOUR VOLUME	Minor Street (minor street) HOUR VOLUME	Intsct. Total
12:00 AM	0	0	0	0	0
1:00 AM	0	0	0	0	0
2:00 AM	0	0	0	0	0
3:00 AM	0	0	0	0	0
4:00 AM	0	0	0	0	0
5:00 AM	0	0	0	0	0
6:00 AM	0	0	0	0	0
7:00 AM	731	750	4	11	1496
8:00 AM	1013	942	33	115	2103
9:00 AM	0	0	0	0	0
10:00 AM	0	0	0	0	0
11:00 AM	0	0	0	0	0
12:00 PM	0	0	0	0	0
1:00 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
3:00 PM	0	0	0	0	0
4:00 PM	906	1094	76	93	2169
5:00 PM	0	0	0	0	0
6:00 PM	0	0	0	0	0
7:00 PM	0	0	0	0	0
8:00 PM	0	0	0	0	0
9:00 PM	0	0	0	0	0
10:00 PM	0	0	0	0	0
11:00 PM	0	0	0	0	0

**Intersection Data**

No. of moving traffic lanes/app. on major st.    **2**  
 No. of moving traffic lanes/app. on minor st.    **1**  
 Number of intersection approaches:            **4**  
 85th percentile major-street speed (mph):    **35**  
 Rural or Urban area? (R or U)                    **u**

## Intersection Signal Warrant Analysis

TEC Engineering, Inc.  
161 Northland Blvd.  
Cincinnati, Ohio 45246  
(513) 771-8828

City/Twp.    Kettering  
Location:    Location  
Comments:    Comments

Job Number:    Job Number  
Count Date:    Count Date  
Page number:    1 of 3

### MUTCD WARRANT ANALYSIS

<b>Warrant 1</b>	
<b>A. Eight-Hour Vehicular Volume</b>	
Major street volume requirement:	600
Minor street volume requirement:	150
Warrant hours required:	8
Warrant hours met:	0
Warrant 1A met?	NO
<b>B. Interruption of Continuous Traffic</b>	
Major street volume requirement:	900
Minor street volume requirement:	75
Warrant hours required:	8
Warrant hours met:	2
Warrant 1B met?	NO
<b>Combinations of Warrants</b>	
Warrant hours required:	8
Warrant hours met:	0
Combination Warrant met?	NO
Warrant 1 met?	NO

<b>Warrant 2 - Four Hour Volumes</b>	
(SEE FOUR HOUR VOLUME WARRANT CURVE)	
Warrant hours required:	4
Warrant hours met:	0
Warrant 2 met?	NO

<b>Warrant 3</b>	
<b>A. Peak Hour Delay</b>	
Total one minor street stopped time delay warr, veh-hr	4
Total one minor street stopped time delay, veh-hr	0
Peak hour minor street approach warrant, vph	100
Peak hour minor street approach volume, vph	115
Total peak hour intersection vol. warrant, vph	800
Total peak hour intersection volume, vph	2103
Warrant 3A met?	NO
<b>B. Peak Hour Volume</b>	
(SEE PEAK HOUR VOLUME WARRANT CURVE)	
Warrant hours required:	1
Warrant hours met:	0
Warrant 3B met?	NO
Warrant 3 met?	NO

<b>Delay Calculations</b>	
*Average stopped delay, s	0
Average stopped delay, veh-hr	0
Number of approach vehicles in hour, veh	115
Total stopped time delay, veh-hr	0
<i>*See attached capacity analysis</i>	

<b>Warrant 4 - Pedestrian Volume</b>	
No. of Peak hour pedestrian crossing	0
No. of hours with 100+ pedestrian crossings	0
Warrant 4 met?	NO

<b>Warrant 5 - School Crossing</b>	
Is this signal near or part of a school crossing? (Y/N)	N
Warrant 5 met?	NO

<b>Warrant 6 - Coordinated Signal System</b>	
Is this signal to be used to control progressive movement throughout a system? (Y/N)	N
Warrant 6 met?	NO

<b>Warrant 7 - Crash Experience</b>	
<b>A. Adequate trial of alternatives</b>	
Adequate trial of alternatives with enforcement has failed to reduce crash frequency:	N
<b>B. Crash Experience</b>	
No. of intersection accidents within a one-year period susceptible to correction by a traffic signal:	0
<b>C. 80% Volumes</b>	
Warrant hours required:	8
Warrant hours met:	2
Combination Warrant met?	NO
Warrant 7 met?	NO

<b>Warrant 8 - Roadway Network</b>	
Is this signal to be used to control progressive movement throughout a system? (Y/N)	N
Warrant 8 met?	NO



## Warrant 2 Graph

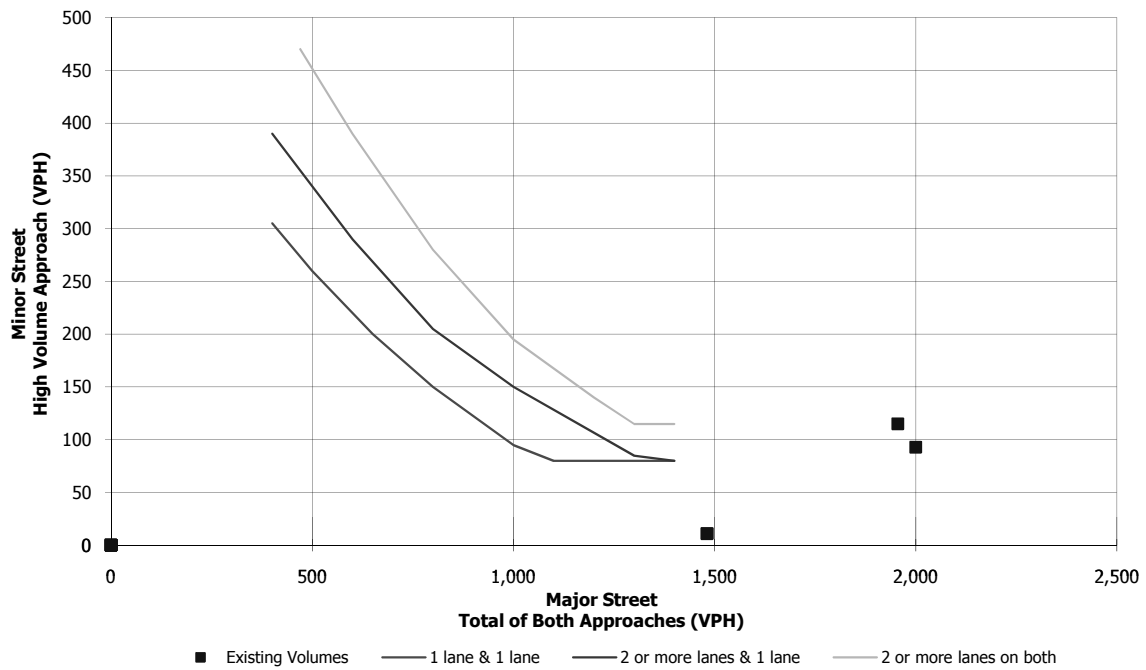
**FIGURE A: NORMAL CONDITIONS**

The Four Hour Volume Warrant is satisfied when each of any four hours of an average day plotted on a chart for the major street (both directions) and the higher volume of one direction of the minor street all fall above the curve.

The charts below are for the major street and the minor street.

This figure can not be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within the built-up area of an isolated community having a population less than 10,000.

**Four Hour volume warrant - Major and Minor Streets  
for Urban Locations**



Is Four Hour Volume Warrant met?      NO

## Warrant 2 Graph

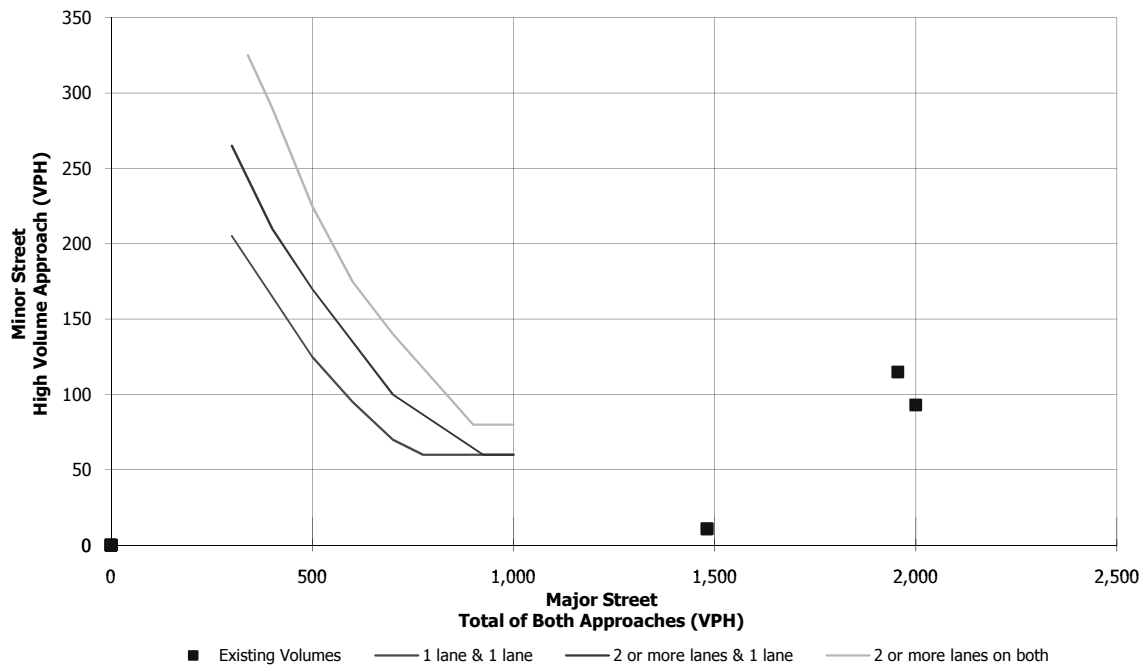
**FIGURE B: MAJOR STREET APPROACH SPEED > 40 MPH OR POPULATION < 10,000 FOR A BUILT-UP AREA WITHIN AN ISOLATED COMMUNITY**

The Four Hour Volume Warrant is satisfied when each of any four hours of an average day plotted on a chart for the major street (both directions) and the higher volume of one direction of the minor street all fall above the curve.

The charts below are for the major street and the minor street.

This figure must be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within the built-up area of an isolated community having a population less than 10,000.

**Four Hour volume warrant - Major and Minor Streets  
for Rural Locations**



Is Four Hour Volume Warrant met?      NO

# Warrant 3B Graph

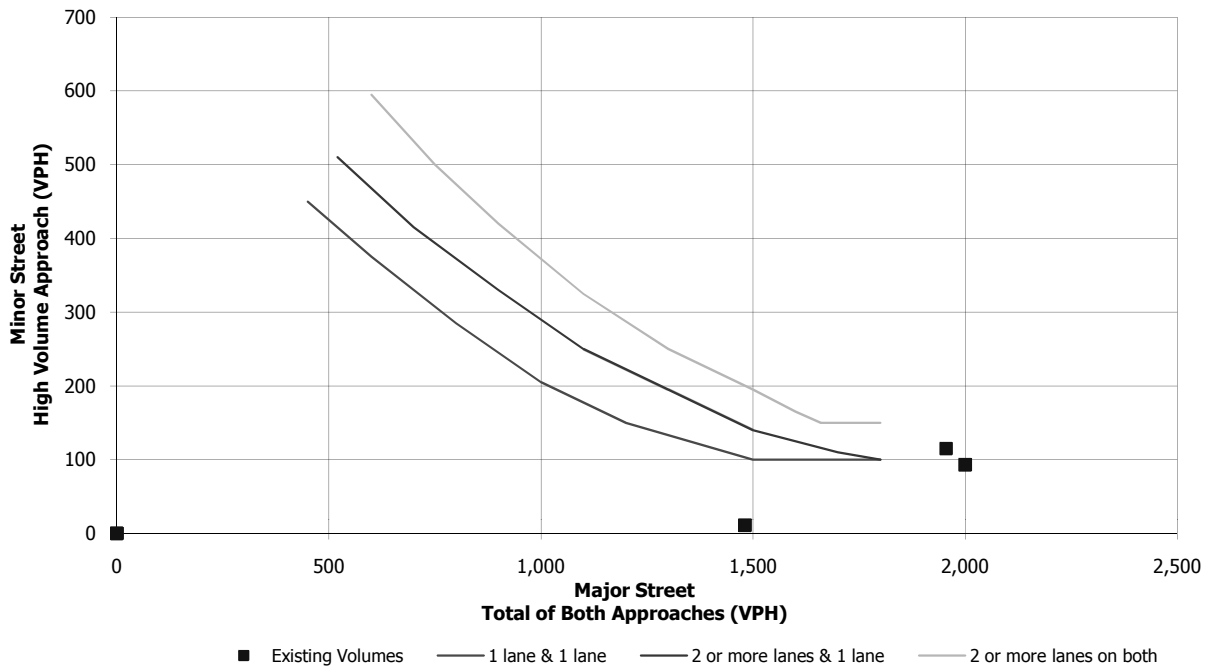
**FIGURE A: NORMAL CONDITIONS**

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve.

This figure can not be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

**Peak Hour volume warrant - Major and Minor Streets  
for Urban Locations**



Is Peak Hour Volume Warrant Met?      NO

## Warrant 3B Graph

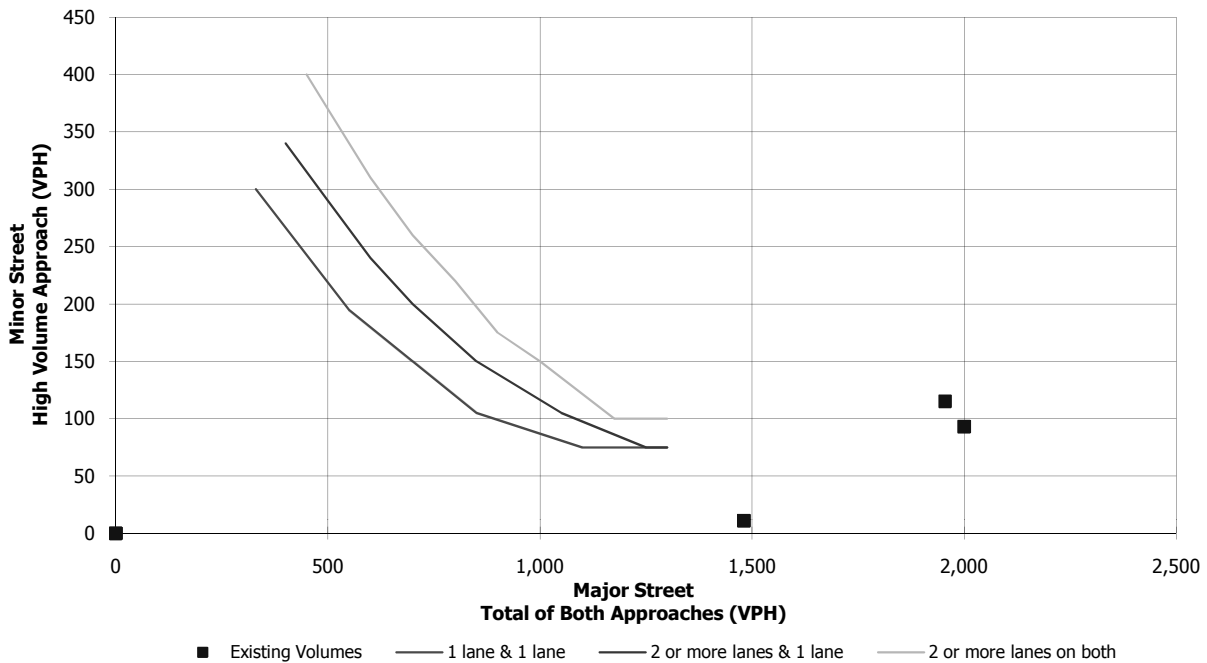
**FIGURE B: MAJOR STREET APPROACH SPEED > 40 MPH OR POPULATION < 10,000 FOR A BUILT-UP AREA WITHIN AN ISOLATED COMMUNITY**

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve.

This figure must be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

**Peak Hour volume warrant - Major and Minor Streets for Non-Urban Locations**



Is Peak Hour Volume Warrant Met?      NO