

## **Appendix 4.1-F**

### **Preliminary Traffic Signal Warrant Analysis**

# 2003 MUTCD

## TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

**Intersection:** Anawan / Broadway  
**Major Street Direction:** Northbound-Southbound ▼

**Year:**                      **Condition:**      **Future**

**Operating speed on major roadway:**      40 mph                      **Required**  
**Number of approaches:**                      3                                      **approach volumes**

<b>Warrant 1</b>	<b><u>EIGHT-HOUR VEHICULAR VOLUME</u></b>	Minimum*	Adjusted Minimum**
<b>Warrant 1A</b> MINIMUM VEHICULAR VOLUME (8 hours of day)			
	Major Street :	1 Lane(s) on each approach	500      500
	Minor Street :	1 Lane(s) on each approach	150      150
<b>Warrant 1B</b> INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)			
	Major Street :	1 Lane(s) on each approach	750      750
	Minor Street :	1 Lane(s) on each approach	75      75
<b>80 PERCENT SATISFACTION OF WARRANT 1A AND WARRANT 1B</b>			
	Major Street :	1 Lane(s) on each approach	Warrant 1A      Warrant 1B 400      600
	Minor Street :	1 Lane(s) on each approach	120      60

<b>Warrant 2</b>	<b><u>FOUR HOUR VEHICULAR VOLUME</u></b>
	Major Street : 1 Lane(s) on each approach
	Minor Street : 1 Lane(s) on each approach

If "verify" indicated, see Figure 4C-1 or 4C-2.  
25 = accuracy of regression equations

<b>Warrant 3</b>	<b><u>PEAK HOUR VOLUME</u></b>
	Major Street : 1 Lane(s) on each approach
	Minor Street : 1 Lane(s) on each approach

If "verify" indicated, see Figure 4C-3 or 4C-4.  
25 = accuracy of regression equations

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road		Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants?					
		Northbound	Southbound		1A	1B	80%(1A&1B)	2	3	
6:00 - 7:00 AM				0	No	No	No	No	No	
7:00 - 8:00 AM	375	265	575	840	Yes	Yes	Yes	Yes	Yes	
8:00 - 9:00 AM				0	No	No	No	No	No	
9:00 - 10:00 AM				0	No	No	No	No	No	
10:00 - 11:00 AM				0	No	No	No	No	No	
11:00 - 12:00 AM				0	No	No	No	No	No	
12:00 - 1:00 PM				0	No	No	No	No	No	
1:00 - 2:00 PM				0	No	No	No	No	No	
2:00 - 3:00 PM				0	No	No	No	No	No	
3:00 - 4:00 PM				0	No	No	No	No	No	
4:00 - 5:00 PM	275	260	655	915	Yes	Yes	Yes	Yes	Yes	
5:00 - 6:00 PM				0	No	No	No	No	No	
6:00 - 7:00 PM				0	No	No	No	No	No	
					<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	
					<b>Warrants Met?</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>
						<b>NO</b>		<b>No</b>	<b>Yes</b>	

\*From the criteria described for the warrant in the MUTCD.  
 \*\*If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)  
 +If more than one approach, report the approach that has the higher volume.

### NON-VOLUME-BASED WARRANTS

**Warrant 4, Minimum Pedestrian Volume:** No  
 Peak Four Hour Pedestrian Volumes:  
 (non-concurrent)      0  
    0  
    0  
    0

**Warrant 5, School Crossing:**    
 See MUTCD for details.

**Warrant 6, Coordinated Signal System:**    
 See MUTCD for details.

**Warrant 7, Crash Experience:** No  
 # of accidents "correctable by signalization" occurring in the last 12 months:      0

**Warrant 8, Roadway Network:**    
 See MUTCD for details.

# 2003 MUTCD

## TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

**Intersection:** Central / Davol  
**Major Street Direction:** Northbound-Southbound ▼

**Year:**                      **Condition:**      **Future**

**Operating speed on major roadway:**      40 mph                      **Required**  
**Number of approaches:**                      3                                      **approach volumes**

<b>Warrant 1</b>	<b><u>EIGHT-HOUR VEHICULAR VOLUME</u></b>	Minimum*	Adjusted Minimum**
<b>Warrant 1A</b> MINIMUM VEHICULAR VOLUME (8 hours of day)			
	Major Street :	1 Lane(s) on each approach	500      500
	Minor Street :	2 Lane(s) on each approach	200      200
<b>Warrant 1B</b> INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)			
	Major Street :	1 Lane(s) on each approach	750      750
	Minor Street :	2 Lane(s) on each approach	100      100
<b>80 PERCENT SATISFACTION OF WARRANT 1A AND WARRANT 1B</b>			
	Major Street :	1 Lane(s) on each approach	Warrant 1A      Warrant 1B 400      600
	Minor Street :	2 Lane(s) on each approach	160      80

<b>Warrant 2</b>	<b><u>FOUR HOUR VEHICULAR VOLUME</u></b>	Major Street : 1 Lane(s) on each approach Minor Street : 2 Lane(s) on each approach	If "verify" indicated, see Figure 4C-1 or 4C-2. 25 = accuracy of regression equations
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<b>Warrant 3</b>	<b><u>PEAK HOUR VOLUME</u></b>	Major Street : 1 Lane(s) on each approach Minor Street : 2 Lane(s) on each approach	If "verify" indicated, see Figure 4C-3 or 4C-4. 25 = accuracy of regression equations
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Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road		Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants?					
		Northbound	Southbound		1A	1B	80%(1A&1B)	2	3	
6:00 - 7:00 AM				0	No	No	No	No	No	
7:00 - 8:00 AM	224	327	560	887	Yes	Yes	Yes	Yes	No	
8:00 - 9:00 AM				0	No	No	No	No	No	
9:00 - 10:00 AM				0	No	No	No	No	No	
10:00 - 11:00 AM				0	No	No	No	No	No	
11:00 - 12:00 AM				0	No	No	No	No	No	
12:00 - 1:00 PM				0	No	No	No	No	No	
1:00 - 2:00 PM				0	No	No	No	No	No	
2:00 - 3:00 PM				0	No	No	No	No	No	
3:00 - 4:00 PM				0	No	No	No	No	No	
4:00 - 5:00 PM	300	348	596	944	Yes	Yes	Yes	Yes	Verify	
5:00 - 6:00 PM				0	No	No	No	No	No	
6:00 - 7:00 PM				0	No	No	No	No	No	
					<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Verify</b>	
					<b>Warrants Met?</b>	<b>1</b>	<b>2</b>	<b>3</b>		
						<b>NO</b>		<b>No</b>	<b>Verify</b>	

\*From the criteria described for the warrant in the MUTCD.  
 \*\*If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)  
 +If more than one approach, report the approach that has the higher volume.

### NON-VOLUME-BASED WARRANTS

**Warrant 4, Minimum Pedestrian Volume:** No  
 Peak Four Hour Pedestrian Volumes:  
 (non-concurrent)      0  
    0  
    0  
    0

**Warrant 5, School Crossing:**   
 See MUTCD for details.

**Warrant 6, Coordinated Signal System:**   
 See MUTCD for details.

**Warrant 7, Crash Experience:** No  
 # of accidents "correctable by  
 signalization" occurring in the last 12 months:      0

**Warrant 8, Roadway Network:**   
 See MUTCD for details.

# 2003 MUTCD

## TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

**Intersection:** Davol Street NB / Station Driveway

**Major Street Direction:** Northbound-Southbound ▼

**Year:**                      **Condition:**      **Future**

**Operating speed on major roadway:**      **40 mph**  
**Number of approaches:**                      **3**

**Required approach volumes**

<b>Warrant 1</b>	<b><u>EIGHT-HOUR VEHICULAR VOLUME</u></b>	Minimum*	Adjusted Minimum**
Warrant 1A	MINIMUM VEHICULAR VOLUME (8 hours of day)		
	Major Street :      2 Lane(s) on each approach	600	600
	Minor Street :      1 Lane(s) on each approach	150	150
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)		
	Major Street :      2 Lane(s) on each approach	900	900
	Minor Street :      1 Lane(s) on each approach	75	75
80 PERCENT SATISFACTION OF WARRANT 1A <b>AND</b> WARRANT 1B		Warrant 1A	Warrant 1B
	Major Street :      2 Lane(s) on each approach	480	720
	Minor Street :      1 Lane(s) on each approach	120	60

<b>Warrant 2</b>	<b><u>FOUR HOUR VEHICULAR VOLUME</u></b>	Major Street :      2 Lane(s) on each approach Minor Street :      1 Lane(s) on each approach	If "verify" indicated, see Figure 4C-1 or 4C-2. 25 = accuracy of regression equations
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<b>Warrant 3</b>	<b><u>PEAK HOUR VOLUME</u></b>	Major Street :      2 Lane(s) on each approach Minor Street :      1 Lane(s) on each approach	If "verify" indicated, see Figure 4C-3 or 4C-4. 25 = accuracy of regression equations
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Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road		Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants?					
		Northbound	Southbound		1A	1B	80%(1A&1B)	2	3	
6:00 - 7:00 AM				0	No	No	No	No	No	
7:00 - 8:00 AM	50	975		975	No	No	No	No	No	
8:00 - 9:00 AM				0	No	No	No	No	No	
9:00 - 10:00 AM				0	No	No	No	No	No	
10:00 - 11:00 AM				0	No	No	No	No	No	
11:00 - 12:00 AM				0	No	No	No	No	No	
12:00 - 1:00 PM				0	No	No	No	No	No	
1:00 - 2:00 PM				0	No	No	No	No	No	
2:00 - 3:00 PM				0	No	No	No	No	No	
3:00 - 4:00 PM				0	No	No	No	No	No	
4:00 - 5:00 PM	190	910		910	Yes	Yes	Yes	Verify	No	
5:00 - 6:00 PM				0	No	No	No	No	No	
6:00 - 7:00 PM				0	No	No	No	No	No	
					<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	
<b>Warrants Met?</b>								<b>1</b>	<b>2</b>	<b>3</b>
								<b>NO</b>	<b>No</b>	<b>No</b>

\*From the criteria described for the warrant in the MUTCD.

\*\*If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)

+If more than one approach, report the approach that has the higher volume.

### NON-VOLUME-BASED WARRANTS

**Warrant 4, Minimum Pedestrian Volume:** No  
 Peak Four Hour Pedestrian Volumes:  
 (non-concurrent)

0  
0  
0  
0

**Warrant 5, School Crossing:**   
 See MUTCD for details.

**Warrant 6, Coordinated Signal System:**   
 See MUTCD for details.

**Warrant 7, Crash Experience:** No  
 # of accidents "correctable by  
 signalization" occurring in the last 12 months:      0

**Warrant 8, Roadway Network:**   
 See MUTCD for details.

**Source:** Manual on Uniform Traffic Control Devices (MUTCD); 2003 Edition [2003]

# 2003 MUTCD

## TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

**Intersection:** South Main St / High Street  
**Major Street Direction:** Northbound-Southbound ▼

**Year:**                      **Condition:**      **Future**

**Operating speed on major roadway:**      40 mph                      **Required**  
**Number of approaches:**                      4                                      **approach volumes**

<b>Warrant 1</b>	<b><u>EIGHT-HOUR VEHICULAR VOLUME</u></b>	Minimum*	Adjusted Minimum**
<b>Warrant 1A</b> MINIMUM VEHICULAR VOLUME (8 hours of day)			
	Major Street :	1 Lane(s) on each approach	500      500
	Minor Street :	1 Lane(s) on each approach	150      150
<b>Warrant 1B</b> INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)			
	Major Street :	1 Lane(s) on each approach	750      750
	Minor Street :	1 Lane(s) on each approach	75      75
<b>80 PERCENT SATISFACTION OF WARRANT 1A AND WARRANT 1B</b>			
	Major Street :	1 Lane(s) on each approach	Warrant 1A      Warrant 1B 400      600
	Minor Street :	1 Lane(s) on each approach	120      60

<b>Warrant 2</b>	<b><u>FOUR HOUR VEHICULAR VOLUME</u></b>	
	Major Street :	1 Lane(s) on each approach
	Minor Street :	1 Lane(s) on each approach
If "verify" indicated, see Figure 4C-1 or 4C-2. 25 = accuracy of regression equations		

<b>Warrant 3</b>	<b><u>PEAK HOUR VOLUME</u></b>	
	Major Street :	1 Lane(s) on each approach
	Minor Street :	1 Lane(s) on each approach
If "verify" indicated, see Figure 4C-3 or 4C-4. 25 = accuracy of regression equations		

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road		Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants?				
		Northbound	Southbound		1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM				0	No	No	No	No	No
7:00 - 8:00 AM				0	No	No	No	No	No
8:00 - 9:00 AM	63	555	1250	1805	No	No	No	No	No
9:00 - 10:00 AM				0	No	No	No	No	No
10:00 - 11:00 AM				0	No	No	No	No	No
11:00 - 12:00 AM				0	No	No	No	No	No
12:00 - 1:00 PM				0	No	No	No	No	No
1:00 - 2:00 PM				0	No	No	No	No	No
2:00 - 3:00 PM				0	No	No	No	No	No
3:00 - 4:00 PM				0	No	No	No	No	No
4:00 - 5:00 PM				0	No	No	No	No	No
5:00 - 6:00 PM	14	1433	719	2152	No	No	No	No	No
6:00 - 7:00 PM				0	No	No	No	No	No
					<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
					<b>Warrants Met?</b>	<b>1</b>	<b>2</b>	<b>3</b>	
						<b>NO</b>	<b>No</b>	<b>No</b>	<b>No</b>

\*From the criteria described for the warrant in the MUTCD.  
 \*\*If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)  
 +If more than one approach, report the approach that has the higher volume.

### NON-VOLUME-BASED WARRANTS

**Warrant 4, Minimum Pedestrian Volume:** No  
 Peak Four Hour Pedestrian Volumes:  
 (non-concurrent)      0  
    0  
    0  
    0

**Warrant 5, School Crossing:**   
 See MUTCD for details.

**Warrant 6, Coordinated Signal System:**   
 See MUTCD for details.

**Warrant 7, Crash Experience:** No  
 # of accidents "correctable by  
 signalization" occurring in the last 12 months:      0

**Warrant 8, Roadway Network:**   
 See MUTCD for details.

# 2003 MUTCD

## TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

**Intersection:** South Main St / Ridge Hill Road

**Major Street Direction:** Northbound-Southbound ▼

**Year:**                      **Condition:**      **Future**

**Operating speed on major roadway:**      40 mph  
**Number of approaches:**                      4

**Required approach volumes**

<b>Warrant 1</b>	<b>EIGHT-HOUR VEHICULAR VOLUME</b>	Minimum*	Adjusted Minimum**
Warrant 1A	MINIMUM VEHICULAR VOLUME (8 hours of day)		
	Major Street :	500	500
	Minor Street :	150	150
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)		
	Major Street :	750	750
	Minor Street :	75	75
80 PERCENT SATISFACTION OF WARRANT 1A <b>AND</b> WARRANT 1B		Warrant 1A	Warrant 1B
	Major Street :	400	600
	Minor Street :	120	60

<b>Warrant 2</b>	<b>FOUR HOUR VEHICULAR VOLUME</b>	
	Major Street :	1 Lane(s) on each approach
	Minor Street :	1 Lane(s) on each approach
		If "verify" indicated, see Figure 4C-1 or 4C-2. 25 = accuracy of regression equations

<b>Warrant 3</b>	<b>PEAK HOUR VOLUME</b>	
	Major Street :	1 Lane(s) on each approach
	Minor Street :	1 Lane(s) on each approach
		If "verify" indicated, see Figure 4C-3 or 4C-4. 25 = accuracy of regression equations

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road		Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants?				
		Northbound	Southbound		1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM				0	No	No	No	No	No
7:00 - 8:00 AM				0	No	No	No	No	No
8:00 - 9:00 AM	76	848	1292	2140	No	Yes	No	No	No
9:00 - 10:00 AM				0	No	No	No	No	No
10:00 - 11:00 AM				0	No	No	No	No	No
11:00 - 12:00 AM				0	No	No	No	No	No
12:00 - 1:00 PM				0	No	No	No	No	No
1:00 - 2:00 PM				0	No	No	No	No	No
2:00 - 3:00 PM				0	No	No	No	No	No
3:00 - 4:00 PM				0	No	No	No	No	No
4:00 - 5:00 PM				0	No	No	No	No	No
5:00 - 6:00 PM	281	1513	700	2213	Yes	Yes	Yes	Yes	Yes
6:00 - 7:00 PM				0	No	No	No	No	No
					<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Yes</b>
					<b>Warrants Met?</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>3</b>
						<b>NO</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

\*From the criteria described for the warrant in the MUTCD.

\*\*If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)

+If more than one approach, report the approach that has the higher volume.

### NON-VOLUME-BASED WARRANTS

**Warrant 4, Minimum Pedestrian Volume:** No  
 Peak Four Hour Pedestrian Volumes:  
 (non-concurrent)

0  
0  
0  
0

**Warrant 5, School Crossing:**    
 See MUTCD for details.

**Warrant 6, Coordinated Signal System:**    
 See MUTCD for details.

**Warrant 7, Crash Experience:** No  
 # of accidents "correctable by signalization" occurring in the last 12 months:      0

**Warrant 8, Roadway Network:**    
 See MUTCD for details.

**Source:** Manual on Uniform Traffic Control Devices (MUTCD); 2003 Edition [2003]





# 2003 MUTCD

## TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

**Intersection:** Coggleshall St at North Front Street

**Major Street Direction:** Eastbound-Westbound ▼

**Year:**                      **Condition:**      **Future**

**Operating speed on major roadway:**      40 mph  
**Number of approaches:**                      3

**Required approach volumes**

<b>Warrant 1</b>	<b><u>EIGHT-HOUR VEHICULAR VOLUME</u></b>	Minimum*	Adjusted Minimum**
Warrant 1A	MINIMUM VEHICULAR VOLUME (8 hours of day)		
	Major Street :	500	500
	Minor Street :	150	150
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)		
	Major Street :	750	750
	Minor Street :	75	75
80 PERCENT SATISFACTION OF WARRANT 1A <b>AND</b> WARRANT 1B		Warrant 1A	Warrant 1B
	Major Street :	400	600
	Minor Street :	120	60

<b>Warrant 2</b>	<b><u>FOUR HOUR VEHICULAR VOLUME</u></b>	
	Major Street :	1 Lane(s) on each approach
	Minor Street :	1 Lane(s) on each approach
		If "verify" indicated, see Figure 4C-1 or 4C-2. 25 = accuracy of regression equations

<b>Warrant 3</b>	<b><u>PEAK HOUR VOLUME</u></b>	
	Major Street :	1 Lane(s) on each approach
	Minor Street :	1 Lane(s) on each approach
		If "verify" indicated, see Figure 4C-3 or 4C-4. 25 = accuracy of regression equations

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road		Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants?				
		Eastbound	Westbound		1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM				0	No	No	No	No	No
7:00 - 8:00 AM	150	495	490	985	No	Yes	Yes	Yes	No
8:00 - 9:00 AM				0	No	No	No	No	No
9:00 - 10:00 AM				0	No	No	No	No	No
10:00 - 11:00 AM				0	No	No	No	No	No
11:00 - 12:00 AM				0	No	No	No	No	No
12:00 - 1:00 PM				0	No	No	No	No	No
1:00 - 2:00 PM				0	No	No	No	No	No
2:00 - 3:00 PM				0	No	No	No	No	No
3:00 - 4:00 PM				0	No	No	No	No	No
4:00 - 5:00 PM				0	No	No	No	No	No
5:00 - 6:00 PM	275	550	435	985	Yes	Yes	Yes	Yes	Yes
6:00 - 7:00 PM				0	No	No	No	No	No
					No	No	No	No	Yes
					<b>Warrants Met?</b>	1	2	3	
						NO	No	Yes	

\*From the criteria described for the warrant in the MUTCD.

\*\*If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)

+If more than one approach, report the approach that has the higher volume.

### NON-VOLUME-BASED WARRANTS

**Warrant 4, Minimum Pedestrian Volume:** No  
 Peak Four Hour Pedestrian Volumes:  
 (non-concurrent)

0  
0  
0  
0

**Warrant 5, School Crossing:**    
 See MUTCD for details.

**Warrant 6, Coordinated Signal System:**    
 See MUTCD for details.

**Warrant 7, Crash Experience:** No  
 # of accidents "correctable by signalization" occurring in the last 12 months:      0

**Warrant 8, Roadway Network:**    
 See MUTCD for details.







# 2003 MUTCD

## TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

**Intersection:** Route 140 SB Off Ramps at Mr. Pleasant Street

**Major Street Direction:** Northbound-Southbound ▼

**Year:**                      **Condition:**      **Future**

**Operating speed on major roadway:**      **40 mph**  
**Number of approaches:**                      **3**

**Required approach volumes**

<b>Warrant 1</b>	<b><u>EIGHT-HOUR VEHICULAR VOLUME</u></b>	Minimum*	Adjusted Minimum**
Warrant 1A	MINIMUM VEHICULAR VOLUME (8 hours of day)		
	Major Street :	500	500
	Minor Street :	150	150
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)		
	Major Street :	750	750
	Minor Street :	75	75
80 PERCENT SATISFACTION OF WARRANT 1A <b>AND</b> WARRANT 1B		Warrant 1A	Warrant 1B
	Major Street :	400	600
	Minor Street :	120	60

<b>Warrant 2</b>	<b><u>FOUR HOUR VEHICULAR VOLUME</u></b>	
	Major Street :	1 Lane(s) on each approach
	Minor Street :	1 Lane(s) on each approach
		If "verify" indicated, see Figure 4C-1 or 4C-2. 25 = accuracy of regression equations

<b>Warrant 3</b>	<b><u>PEAK HOUR VOLUME</u></b>	
	Major Street :	1 Lane(s) on each approach
	Minor Street :	1 Lane(s) on each approach
		If "verify" indicated, see Figure 4C-3 or 4C-4. 25 = accuracy of regression equations

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road		Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants?				
		Northbound	Southbound		1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM				0	No	No	No	No	No
7:00 - 8:00 AM	167	638	281	919	Yes	Yes	Yes	Yes	No
8:00 - 9:00 AM				0	No	No	No	No	No
9:00 - 10:00 AM				0	No	No	No	No	No
10:00 - 11:00 AM				0	No	No	No	No	No
11:00 - 12:00 AM				0	No	No	No	No	No
12:00 - 1:00 PM				0	No	No	No	No	No
1:00 - 2:00 PM				0	No	No	No	No	No
2:00 - 3:00 PM				0	No	No	No	No	No
3:00 - 4:00 PM				0	No	No	No	No	No
4:00 - 5:00 PM				0	No	No	No	No	No
5:00 - 6:00 PM	257	667	567	1234	Yes	Yes	Yes	Yes	Yes
6:00 - 7:00 PM				0	No	No	No	No	No
					<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Yes</b>
					<b>Warrants Met?</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>3</b>
						<b>NO</b>	<b>No</b>	<b>No</b>	<b>Yes</b>

\*From the criteria described for the warrant in the MUTCD.

\*\*If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)

+If more than one approach, report the approach that has the higher volume.

### NON-VOLUME-BASED WARRANTS

**Warrant 4, Minimum Pedestrian Volume:** No  
 Peak Four Hour Pedestrian Volumes:  
 (non-concurrent)

0  
0  
0  
0

**Warrant 5, School Crossing:**    
 See MUTCD for details.

**Warrant 6, Coordinated Signal System:**    
 See MUTCD for details.

**Warrant 7, Crash Experience:** No  
 # of accidents "correctable by signalization" occurring in the last 12 months:      **0**

**Warrant 8, Roadway Network:**    
 See MUTCD for details.

**Source:** Manual on Uniform Traffic Control Devices (MUTCD); 2003 Edition [2003]











# 2003 MUTCD

## TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

**Intersection:** Station Driveway / S. Worcester Street

**Major Street Direction:** Northbound-Southbound ▼

**Year:**                      **Condition:**      **Future**

**Operating speed on major roadway:**      40 mph  
**Number of approaches:**                      3

**Required approach volumes**

<b>Warrant 1</b>	<b><u>EIGHT-HOUR VEHICULAR VOLUME</u></b>	Minimum*	Adjusted Minimum**
Warrant 1A	MINIMUM VEHICULAR VOLUME (8 hours of day)		
	Major Street :	500	500
	Minor Street :	150	150
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)		
	Major Street :	750	750
	Minor Street :	75	75
80 PERCENT SATISFACTION OF WARRANT 1A <b>AND</b> WARRANT 1B		Warrant 1A	Warrant 1B
	Major Street :	400	600
	Minor Street :	120	60

<b>Warrant 2</b>	<b><u>FOUR HOUR VEHICULAR VOLUME</u></b>	
	Major Street :	1 Lane(s) on each approach
	Minor Street :	1 Lane(s) on each approach
		If "verify" indicated, see Figure 4C-1 or 4C-2. 25 = accuracy of regression equations

<b>Warrant 3</b>	<b><u>PEAK HOUR VOLUME</u></b>	
	Major Street :	1 Lane(s) on each approach
	Minor Street :	1 Lane(s) on each approach
		If "verify" indicated, see Figure 4C-3 or 4C-4. 25 = accuracy of regression equations

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road		Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants?				
		Northbound	Southbound		1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM				0	No	No	No	No	No
7:00 - 8:00 AM				0	No	No	No	No	No
8:00 - 9:00 AM	74	204	255	459	No	No	No	No	No
9:00 - 10:00 AM				0	No	No	No	No	No
10:00 - 11:00 AM				0	No	No	No	No	No
11:00 - 12:00 AM				0	No	No	No	No	No
12:00 - 1:00 PM				0	No	No	No	No	No
1:00 - 2:00 PM				0	No	No	No	No	No
2:00 - 3:00 PM				0	No	No	No	No	No
3:00 - 4:00 PM				0	No	No	No	No	No
4:00 - 5:00 PM				0	No	No	No	No	No
5:00 - 6:00 PM	90	283	160	443	No	No	No	No	No
6:00 - 7:00 PM				0	No	No	No	No	No
					No	No	No	No	No
					<b>Warrants Met?</b>	1	2	3	
						NO	No	No	No

\*From the criteria described for the warrant in the MUTCD.

\*\*If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)

+If more than one approach, report the approach that has the higher volume.

### NON-VOLUME-BASED WARRANTS

**Warrant 4, Minimum Pedestrian Volume:** No  
 Peak Four Hour Pedestrian Volumes:  
 (non-concurrent)

0  
0  
0  
0

**Warrant 5, School Crossing:**   
 See MUTCD for details.

**Warrant 6, Coordinated Signal System:**   
 See MUTCD for details.

**Warrant 7, Crash Experience:** No  
 # of accidents "correctable by  
 signalization" occurring in the last 12 months:      0

**Warrant 8, Roadway Network:**   
 See MUTCD for details.

**Source:** Manual on Uniform Traffic Control Devices (MUTCD); 2003 Edition [2003]









