



Multi-Way Stop for the Intersection of  
N. Madison St. and Randolph St.  
City Engineering Department  
May 2015

**Criteria for Multi-Way Stop Installation**

Based on MUTCD 2009 Edition Standards

**Criterion 1: Crash Experience**

This criterion is **not satisfied** because there were only two (2) accidents at this intersection in the past 12 months that could have been prevented by a Multi-Way Stop.

**Criterion 2: 8-hour Vehicular Volume**

This criterion is **not satisfied** because the vehicles per hour entering the intersection of N. Madison St. and Randolph St. coming from Randolph St. is 103, which does not exceed the required minimum 300 vehicles per hour for any 8 hours of an average day. The vehicles per hour entering the intersection from N. Madison St. is 43 with an average delay to vehicular traffic of less than 4 seconds, which does not exceed the required minimum 200 vehicles per hour for the same 8 hours and the minimum average delay time of 30 seconds per vehicle during the peak hour.

**Criterion 3: Major Road Approach Speed**

This criterion is **not satisfied** because the 85<sup>th</sup>-percentile approach speed of traffic on Randolph St. does not exceed the required minimum of 40 mph.

**Additional Notes**

The level of service of the intersection was found to be a **level A** with an average control delay of less than 4 seconds per vehicle.

The Traverse City Police Department recommends a multi-way stop be installed at this intersection to help increase the health and safety of pedestrians and motorists at this intersection. Increasing driver awareness of this intersection is particularly important for this intersection due to the steep hill on the west leg of the intersection, which potentially causes some line of sight issues for crossing pedestrians and motorists on Madison St.

Prepared By:

Date: 8-25-2015

Reviewed By:

Date: 8-25-2015

Encl: Madison and Randolph Field Observations



Location	N. Madison St. and Randolph St.
Day, Date	Tuesday, May 26th, 2015
Conditions	Partly cloudy, 70's
Time	11:30am - 12:30pm
Gap Length	10.5
Observer	Nick Tafelsky

G= W/4 + 3  
 About 12' per lane  
 8' for parking

### STOP WARRANT FIELD OBSERVATIONS

PEDESTRIANS	SCHOOL CHILDREN	HANDICAP
7 pedestrians - 3 of which were on bikes	N/A	N/A

GAPS	Notes	Blown Stops	LINE OF CARS WAITING LONGER THAN 5 CARS
42		9	N/A

### STOP TIME DELAY

1	2	0						
1	1	1						
1	5	1						
1	1	1						
0	2	1						
4	1	2						
5	2	0						
3	2	1						
1	1	1						
2	1	2						
1	2	0						
1	1	1						
2	2	1						
1	0	1						
1	2	1						
11	0	0						
0	0	1						
1	1	1						
1	1	2						
0	1	1						
0	1	6						
1	1	1						
0	0	2						
4	1	1						

Stop Time Delay:	103
Number of Stops:	72
Average Stop Delay:	1.43055556

Multi-Way Stop Crash Experience  
N Madison St and Randolph St

Time	Date	Type	Area	Alcohol Related	Commercial Vehicles	Pedestrian	Bicycle	Location	Distance	Direction
13:11	1/10/2015	Angle	Intersection	No	No	No	No	N MADISON ST @ RANDOLPH ST	5	North
15:36	12/13/2014	Rear End	Intersection	No	No	No	No	N MADISON ST @ RANDOLPH ST	1	South