
Memorandum

The City of Traverse City
Engineering Department



TO: Timothy J. Lodge, P.E., City Engineer
FROM: Abhishek Deora, Seasonal Engineering Aide
DATE: Thursday, August 17th, 2017
SUBJECT: 24 Hour Speed and Volume of 19th St between High St and West Lane

City Engineering performed a 24 hour speed study on 19th St between High St and West Lane beginning on Tuesday, August 15th, 2017 concluded Wednesday, August 16th, 2017. This memo is to formalize City Engineering's initial data observations and findings with to the speed statistics and volume of vehicular traffic on 19th St.

The data was gathered using a JAMAR Radar Recorder, this data recorder collects both vehicle speed and volume using radar sensors in both Northbound and Southbound lanes. The raw data compiled and analyzed using TraxPro and reported vehicle speed count for every hour during the study in the increments of 5 miles per hour. The TraxPro software also compiled a report to be sent Traverse City Police Department to evaluate the possible percentage of enforceable violations. This data is organized into a small colored meter where red means there is a high enforcement potential and green equates to a low amount of speed infractions are occurring. For this report, the enforceable minimum speed a vehicle would need to be traveling is 5 miles per hour over the posted speed limit of 25 miles per hour.

During this 24 hour study, 86 vehicles were recorded. The average (mean) speed of the 86 vehicles is 13 miles per hour, with 5.4% of all vehicles traveling at speeds greater than the posted limit of 25 miles per hour. Giving motorist an extra 5 miles per hour over the posted speed limit for enforcement tolerance, the number of vehicles speeding is 4.5%.

Summary (Combined):

- **Mean Speed:** 13 MPH
- **Number of Vehicles above Posted Speed Limit** 5.4%
- **85th Percentile of Speed:** 20 MPH
- **95th Percentile of Speed:** 24 MPH

Enclosed:

Detailed TraxPro Speed Reports (Combined and Directional)
TraxPro Police Enforcement Reports

19th St
Btw High St and West Lane
Speed

Site Code: 00000001
Station ID:

Latitude: 0' 0.0000 South

A=Eastbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Pace Speed	Number in Pace
08/15/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	1
13:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	11-20	3
14:00	5	0	1	0	1	0	0	0	0	0	0	0	0	0	7	7-16	3
15:00	2	1	1	0	0	0	0	0	0	0	0	0	0	0	4	9-18	2
16:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	9-18	1
17:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8-17	1
18:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	1
19:00	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	*	2
20:00	4	1	0	0	0	0	0	0	0	0	0	0	0	0	5	1-10	3
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
23:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	1
Total	19	6	2	0	1	0	0	0	0	0	0	0	0	0	28		
Percent	67.9%	21.4%	7.1%	0.0%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	14:00	13:00	14:00		14:00										14:00		
	5	3	1		1										7		

19th St
Btw High St and West Lane
Speed

Site Code: 00000001
Station ID:

Latitude: 0' 0.0000 South

B=Westbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	76	999	Total	Pace Speed	Number in Pace
08/15/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	4	19-28	2
13:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	24-33	1
14:00	5	3	0	0	0	0	0	0	0	0	0	0	0	1	9	11-20	5	
15:00	4	3	0	0	0	0	0	0	0	0	0	0	0	0	7	12-21	4	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
17:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	*	1
18:00	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1-10	*	3
19:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	*	*	1
20:00	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1-10	*	3
21:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	9-18	*	1
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	*
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	*
Total	20	7	2	1	2	0	0	0	0	0	0	0	0	1	33			
Percent	60.6%	21.2%	6.1%	3.0%	6.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%				
AM Peak Vol.																		
PM Peak Vol.	14:00	14:00	12:00	12:00	12:00									14:00	14:00			
	5	3	1	1	1									1	9			

19th St
Btw High St and West Lane
Speed

Site Code: 00000001
Station ID:

Latitude: 0' 0.0000 South

A=Eastbound, B=Westbound

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999			
08/15/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	2	0	1	1	1	0	0	0	0	0	0	0	0	0	5	26-35	2
13:00	0	3	0	0	1	0	0	0	0	0	0	0	0	0	4	11-20	3
14:00	10	3	1	0	1	0	0	0	0	0	0	0	0	1	16	1-10	7
15:00	6	4	1	0	0	0	0	0	0	0	0	0	0	0	11	10-19	6
16:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	9-18	1
17:00	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	*	2
18:00	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	6-15	3
19:00	4	0	1	0	0	0	0	0	0	0	0	0	0	0	5	1-10	3
20:00	8	1	0	0	0	0	0	0	0	0	0	0	0	0	9	6-15	5
21:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	9-18	1
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
23:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	1
Total	39	13	4	1	3	0	0	0	0	0	0	0	0	1	61		
Percent	63.9%	21.3%	6.6%	1.6%	4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%			
AM Peak Vol.																	
PM Peak Vol.	14:00	15:00	12:00	12:00	12:00									14:00	14:00		
	10	4	1	1	1									1	16		

19th St
Btw High St and West Lane
Speed

Site Code: 00000001
Station ID:

Latitude: 0' 0.0000 South

A=Eastbound, B=Westbound

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
	15	20	25	30	35	40	45	50	55	60	65	70	75	999			
08/16/17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8-17	1
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
06:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	14-23	2
07:00	2	3	1	0	0	0	0	0	0	0	0	0	0	0	6	16-25	4
08:00	6	1	2	0	0	0	0	0	0	0	0	0	0	0	9	6-15	4
09:00	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3	15-24	2
10:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	*	1
11:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	14-23	2
12 PM	1	1	1	0	0	0	0	0	0	0	0	0	0	0	3	13-22	2
13:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	14-23	2
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	14	10	8	0	0	0	0	0	0	0	0	0	0	0	32		
Percent	43.8%	31.3%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	07:00	08:00												08:00		
Vol.	6	3	2												9		
PM Peak	12:00	12:00	12:00												12:00		
Vol.	1	1	1												3		
Total	53	23	12	1	3	0	0	0	0	0	0	0	0	1	93		
Percent	57.0%	24.7%	12.9%	1.1%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%			

15th Percentile : 3 MPH
50th Percentile : 13 MPH
85th Percentile : 20 MPH
95th Percentile : 24 MPH

Stats
10 MPH Pace Speed : 11-20 MPH
Number in Pace : 41
Percent in Pace : 44.1%
Number of Vehicles > 25 MPH : 5
Percent of Vehicles > 25 MPH : 5.4%
Mean Speed(Average) : 13 MPH

19th St
Btw High St and West Lane
Speed

Site Code: 0000001
Station ID:

Latitude: 0' 0.0000 South

Start Time	14-Aug-17 Mon	15-Aug-17 Tue	16-Aug-17 Wed	17-Aug-17 Thu	18-Aug-17 Fri	Weekday Average	19-Aug-17 Sat	20-Aug-17 Sun
12:00 AM	*	*	1	*	*	1	*	*
01:00	*	*	0	*	*	0	*	*
02:00	*	*	0	*	*	0	*	*
03:00	*	*	0	*	*	0	*	*
04:00	*	*	2	*	*	2	*	*
05:00	*	*	0	*	*	0	*	*
06:00	*	*	2	*	*	2	*	*
07:00	*	*	6	*	*	6	*	*
08:00	*	*	9	*	*	9	*	*
09:00	*	*	3	*	*	3	*	*
10:00	*	*	2	*	*	2	*	*
11:00	*	*	2	*	*	2	*	*
12:00 PM	*	5	3	*	*	4	*	*
01:00	*	4	2	*	*	3	*	*
02:00	*	16	*	*	*	16	*	*
03:00	*	11	*	*	*	11	*	*
04:00	*	1	*	*	*	1	*	*
05:00	*	3	*	*	*	3	*	*
06:00	*	5	*	*	*	5	*	*
07:00	*	5	*	*	*	5	*	*
08:00	*	9	*	*	*	9	*	*
09:00	*	1	*	*	*	1	*	*
10:00	*	0	*	*	*	0	*	*
11:00	*	1	*	*	*	1	*	*
Total	0	61	32	0	0		0	0
Percentage	0.0%	70.9%	37.2%	0.0%	0.0%		0.0%	0.0%
AM Peak	-	-	08:00	-	-	-	-	-
Vol.	-	-	9	-	-	-	-	-
PM Peak	-	14:00	12:00	-	-	-	-	-
Vol.	-	16	3	-	-	-	-	-
Total		61	32					

Speed Enforcement Evaluator

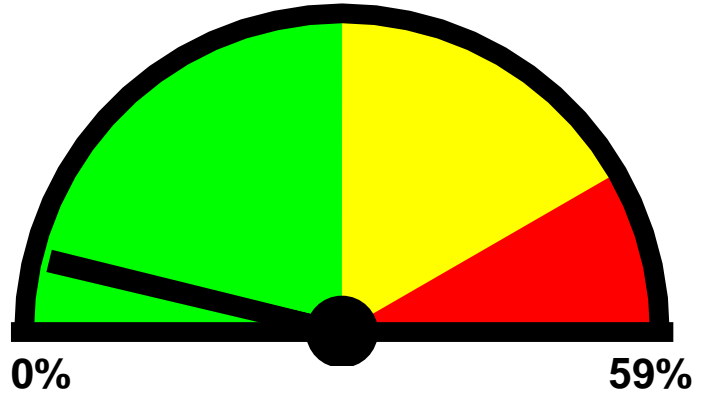
Location:
19th St

Total Percentage of Enforceable Violations

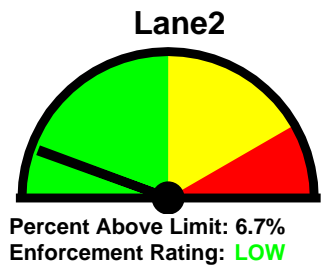
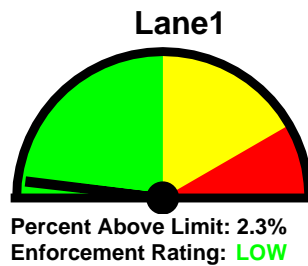
Closest Cross Street:
Btw High St & West Lane

Analysis Dates:
Tuesday, August 15, 2017
Wednesday, August 16, 2017

Equipment Used:



0% **59%**
Posted Speed Limit: 25 MPH
Enforcement Tolerance: 5 MPH
Enforcement Limit: 31 MPH & Up
Percentage Above Limit: 4.5%
Enforcement Rating: **LOW**



Combined

1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65
0	8	40	23	12	1	3	0	0	0	0	0	0	1

85 percentile = 20

Lane1

1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65
0	8	18	11	5	0	1	0	0	0	0	0	0	0

85 percentile = 18

Lane2

1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65
0	0	22	12	7	1	2	0	0	0	0	0	0	1

85 percentile = 21

