
Memorandum

The City of Traverse City
Engineering Department



TO: Timothy J. Lodge, P.E., City Engineer
FROM: John Zarafonitis, Seasonal Engineering Aide
DATE: Tuesday, August 5, 2014
SUBJECT: 24 Hour Volume and Speed Study of Elmwood Ave., 200 Block between W. Front St. and Sixth St.

City Engineering performed an on-site 24 hour volume and speed count beginning Tuesday, July 29, 2014 at 1 pm until Wednesday, July 30, 2014 at 2 pm on the 200 block of Elmwood Ave. This memo is to formalize City Engineering's initial findings and observations with regard to the amount and speeds of vehicles on the 200 block of Elmwood Ave.

The data was gathered using a Jamar TRAX Mite which collected traffic data, including vehicle speed, for each lane of traffic (northbound and southbound). This information was then analyzed and the data for each lane compiled into one report using TraxPro. The TraxPro report organized the speeds of the vehicles into groups based on 5 mile per hour increments, starting with 0-15 miles per hour. The report shows how many vehicles were within the specified speed range during the time indicated by the report.

During the 24 hour study, 2,277 vehicles were recorded on this section of Elmwood Ave. with 963 of them traveling southbound. The southbound and northbound vehicles had the same average speed of 25 miles per hour. Pace speeds for the two directions were different by one mile per hour, with about 67 percent of northbound traffic going between 21 and 30 miles per hour and 63 percent of southbound traffic traveling at 22 to 31 miles per hour. 434 of the 963 southbound vehicles, about 45 percent, were recorded going speeds below the posted speed limit of 25 miles per hour. About 52 percent of northbound vehicles were recorded going speeds below the posted speed limit of 25 miles per hour.

Summary:

- Speed Limit: 25 mph
- Number of Recorded Northbound Vehicles (24 hours): 1,314
- Number of Recorded Southbound Vehicles (24 hours): 963
- Percent of Northbound Vehicles Under Speed Limit: 51.7 %
- Percent of Southbound Vehicles Under Speed Limit: 44.9 %
- Average Speed: 25 mph
- 10 Mile Per Hour Northbound Pace Speed: 21-30 mph
- 10 Mile Per Hour Southbound Pace Speed: 22-31 mph
- Northbound 85th Percentile: 29 mph
- Southbound 85th Percentile: 30 mph

Encl.: Detailed TraxPro Volume Report
Detailed TraxPro Speed Report

Elmwood Ave.
(Between W. Front St. and Sixth St.)
Speed (Not Combined)

Start Time	0	15	16	20	21	25	26	30	31	35	36	40	41	45	46	50	51	55	56	60	61	65	66	70	71	75	76	Total	Pace Speed	Number in Pace	
07/30/14	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	19-28	3
01:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
02:00	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	21-30	3	
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	19-28	1	
04:00	0	0	0	0	2	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	16-25	3	
05:00	0	0	0	0	3	4	5	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	20-29	8	
06:00	0	0	0	0	5	4	5	21	15	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	24-33	34	
07:00	0	0	0	0	1	1	1	18	12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	23-32	43	
08:00	0	0	0	0	1	4	4	34	8	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	23-32	41	
09:00	1	1	4	4	18	9	28	30	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	22-31	40	
10:00	1	1	4	4	16	16	30	30	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	22-31	41	
11:00	2	2	7	7	19	19	37	37	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	77	22-31	50	
12 PM	3	3	11	11	34	34	27	27	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	80	20-29	51	
13:00	4	4	6	6	24	24	27	27	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	21-30	42	
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Total	12	46	162	241	69	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	536			
Percent	2.2%	8.6%	30.2%	45.0%	12.9%	0.6%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	11:00			
AM Peak	11:00	11:00	11:00	11:00	06:00	06:00																						11:00			
Vol.	2	7	19	37	15	2																						77			
PM Peak	13:00	12:00	12:00	12:00	13:00																							12:00			
Vol.	4	11	34	27	5	1																						80			
Total	28	98	308	405	115	5																						963			
Percent	2.9%	10.2%	32.0%	42.1%	11.9%	0.5%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	12:00				

Stats

10 MPH Pace Speed : 22-31 MPH
 Number in Pace : 609
 Percent in Pace : 63.4%
 Number of Vehicles > 25 MPH : 529
 Percent of Vehicles > 25 MPH : 55.1%
 Mean Speed(Average) : 25 MPH

Elmwood Ave.
 (Between W. Front St. and Sixth St.)
 Speed (Not Combined)

NB	Start	0	15	16	20	21	25	26	30	31	35	36	40	41	45	46	50	51	55	56	60	61	65	70	71	75	76	Total	Pace	Number		
Time	07/30/14	0	0	1	1	7	7	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9999	14	Speed	In Pace	
	01:00	0	0	0	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	22-31	10	
	02:00	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	21-30	4	
	03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19-28	1
	04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	
	05:00	0	0	1	1	3	3	4	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	26-35	5	
	06:00	0	0	1	1	3	3	5	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	25-34	10	
	07:00	0	0	0	0	6	6	22	22	16	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	25-34	35	
	08:00	0	0	4	4	14	14	20	20	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	22-31	29	
	09:00	3	7	7	7	25	25	23	23	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	65	21-30	40		
	10:00	2	0	0	0	30	30	27	27	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	21-30	50		
	11:00	3	0	13	13	36	36	30	30	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	91	21-30	55		
	12 PM	1	7	7	7	45	45	29	29	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	21-30	64		
	13:00	0	17	17	17	46	46	29	29	6	6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	19-28	65		
	14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	Total	9	52	214	197	64	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	542				
	Percent	1.7%	9.6%	39.5%	36.3%	11.8%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	11.00				
	AM Peak	09:00	11:00	11:00	11:00	07:00	05:00																					11:00				
	Vol.	3	13	36	30	16	1																				2	92				
	PM Peak	12:00	13:00	13:00	12:00	12:00	13:00																					13:00				
	Vol.	1	17	46	29	9	1																				99					
	Total	20	127	535	480	136	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1314				
	Percent	1.5%	9.7%	40.7%	36.5%	10.4%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%						

Stats

10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 872
 Percent in Pace : 66.7%
 Number of Vehicles > 25 MPH : 632
 Percent of Vehicles > 25 MPH : 48.3%
 Mean Speed(Average) : 25 MPH