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# Memorandum

The City of Traverse City  
Engineering Department



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TO: Timothy J. Lodge, P.E., City Engineer  
FROM: Jessica Cichowski, Engineering Technician *JCS*  
DATE: Thursday, May 15, 2014  
SUBJECT: Week Long Speed Study of Seventh St, 800 Block

City Engineering performed an on-site week-long speed count beginning Thursday, May 8, 2014 at 11 am until Thursday, May 15, 2014 at 12 pm on the 800 block of Seventh St. This memo is to formalize City Engineering's initial findings and observations with regard to the speeds of vehicles on the 800 block of Seventh St.

The data was gathered using a Jamar Radar Recorder which collected traffic data, including vehicle speed, for each lane of traffic (eastbound and westbound). This information was then analyzed and the data for each lane compiled into one report, regardless of direction, 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 week-long study, 27,327 vehicles were recorded on this section of Seventh St with about 59 percent of the vehicles traveling between 20 and 29 miles per hour and an average speed of 23 miles per hour. 11,561 of these vehicles, about 58 percent, were recorded going speeds at or below the posted speed limit of 25 miles per hour.

A week-long speed study was conducted on this section of Seventh St before the shoulders were striped from August 3, 2012 to August 10, 2012. The average speed of the vehicles recorded during the study was 26 mph. About 35 percent of these vehicles were recorded going speeds at or below the posted speed limit of 25 miles per hour.

The post-striping average speed is 3 mile per hour less than the pre-striping average speed with the percent of vehicles traveling above the speed limit decreased by 23 percent after the improvements were made to Seventh St.

## Summary:

- Speed Limit: 25 mph
- Number of Recorded Vehicles (24 hours): 27,327
- Percent of Vehicles At or Below Speed Limit: 57.7 %
- Average Speed: 23 mph
- 10 Mile Per Hour Pace Speed: 20-29 mph
- 85<sup>th</sup> Percentile: 28 mph

Encl.: Detailed TraxPro Speed Report

# Seventh St 800 Block Speed

Site Code: 00000001  
Station ID:

Latitude: 0' 0.0000 South

Westbound, Eastbound	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace	Number	
Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999		Speed	in Pace	
05/08/14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	6	24	81	99	14	1	0	0	0	0	0	0	0	0	225	21-30	152	
12 PM	9	32	109	117	33	3	0	0	0	0	0	0	0	0	303	21-30	192	
13:00	23	60	152	84	9	0	0	0	0	0	0	0	0	0	328	19-28	197	
14:00	12	55	147	85	19	4	0	0	0	0	0	0	0	0	322	19-28	197	
15:00	14	38	184	163	29	0	0	0	0	0	0	0	0	0	428	21-30	293	
16:00	11	34	163	191	47	4	0	0	0	0	0	0	0	0	450	21-30	304	
17:00	9	31	144	189	48	4	0	0	0	0	0	0	0	0	425	22-31	288	
18:00	11	16	96	102	22	0	0	0	0	0	0	0	0	0	247	21-30	167	
19:00	3	16	50	54	20	4	0	0	0	0	0	0	0	0	147	21-30	90	
20:00	5	7	41	43	12	0	0	0	0	0	0	0	0	0	108	21-30	71	
21:00	5	9	37	28	5	1	0	0	0	0	0	0	0	0	85	20-29	54	
22:00	4	5	25	27	12	0	0	0	0	0	0	0	0	0	73	22-31	45	
23:00	2	2	15	21	5	0	0	0	0	0	0	0	0	0	45	22-31	31	
Total	114	329	1244	1203	275	21	0	0	0	0	0	0	0	0	3186			
Percent	3.6%	10.3%	39.0%	37.8%	8.6%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
AMI Peak	11:00	11:00	11:00	11:00	11:00	11:00									11:00			
Vol.	6	24	81	99	14	1									225			
PMI Peak	13:00	13:00	15:00	16:00	17:00	14:00									16:00			
Vol.	23	60	184	191	48	4									450			

# Seventh St 800 Block Speed

Site Code: 00000001  
Station ID:

Latitude: 0' 0.0000 South

Westbound		Eastbound		31		36		41		46		51		56		61		66		71		76		Pace		Number			
Start	Time	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	Speed	in	Number	in	Pace	
05/09/14	1	3	3	3	9	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	22-31	0	11	22-31	11	
	0	0	0	5	6	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	22-31	0	10	22-31	10	
	1	0	0	5	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	21-30	0	9	21-30	9	
	0	2	2	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	22-31	0	5	22-31	5	
	1	0	4	4	12	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	23-32	0	14	23-32	14	
	1	3	17	34	34	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	23-32	0	47	23-32	47	
	17	7	38	75	75	22	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	160	23-32	0	96	23-32	96	
	3	12	81	120	120	48	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	268	22-31	0	183	22-31	183	
	8	19	59	111	111	38	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	239	23-32	0	152	23-32	152	
	8	21	69	73	73	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	193	21-30	0	120	21-30	120	
	5	20	94	101	101	14	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	239	21-30	0	166	21-30	166	
	4	27	112	92	92	30	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	268	21-30	0	175	21-30	175	
	5	21	131	125	125	32	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	318	21-30	0	222	21-30	222	
	29	29	109	95	95	28	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	291	21-30	0	165	21-30	165	
	5	27	138	122	122	35	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	333	21-30	0	224	21-30	224	
	6	44	198	159	159	45	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	453	21-30	0	307	21-30	307	
	7	19	131	160	160	50	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	374	22-31	0	256	22-31	256	
	4	26	99	158	158	63	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	353	22-31	0	232	22-31	232	
	9	17	63	112	112	31	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	233	22-31	0	153	22-31	153	
	5	12	66	70	70	15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	170	21-30	0	116	21-30	116	
	5	14	33	45	45	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	21-30	0	65	21-30	65	
	1	12	24	30	30	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	21-30	0	46	21-30	46	
	4	6	26	39	39	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81	22-31	0	55	22-31	55	
	0	4	18	19	19	8	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	21-30	0	33	21-30	33	
Total	129	345	1523	1777	1777	523	49	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	4349		0	4349		0	
Percent	3.0%	7.9%	35.0%	40.9%	40.9%	12.0%	1.1%	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%	0.0%		0.0%	
AMI Peak	06:00	11:00	11:00	07:00	07:00	07:00	10:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	07:00		07:00		07:00		07:00
Vol.	17	27	112	120	120	48	5	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	268		268		268		268
PMI Peak	13:00	15:00	15:00	16:00	16:00	17:00	16:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00	15:00		15:00		15:00		15:00
Vol.	29	44	198	160	160	63	7	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	453		453		453		453



# Seventh St 800 Block Speed

Site Code: 00000001  
Station ID:

Latitude: 0' 0.0000 South

Westbound		Eastbound		16		21		26		31		36		41		46		51		56		61		66		71		76		Pace Speed	Number in Pace
Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	Total		
05/11/14	0	2	5	9	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	13	
01:00	0	0	7	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	22-31	15	
02:00	0	3	6	7	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	21-30	11	
03:00	0	1	2	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	27-36	4	
04:00	0	3	2	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	26-35	4	
05:00	0	0	5	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	23-32	8		
06:00	0	0	16	31	13	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	23-32	46		
07:00	4	1	17	24	17	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	23-32	39		
08:00	6	7	8	19	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	24-33	24		
09:00	3	5	22	23	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	22-31	38		
10:00	6	6	40	43	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	113	22-31	71		
11:00	5	15	41	40	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	107	21-30	67		
12 PM	8	23	73	46	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	161	20-29	100		
13:00	8	19	68	37	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	20-29	88		
14:00	7	25	98	64	13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	208	20-29	137		
15:00	13	20	73	60	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	169	20-29	108		
16:00	12	9	53	45	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	131	21-30	80		
17:00	5	24	64	44	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	144	20-29	91		
18:00	8	18	66	58	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	160	21-30	103		
19:00	9	21	56	38	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	129	20-29	77		
20:00	10	13	37	21	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	19-28	47		
21:00	0	9	13	19	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	20-29	27		
22:00	2	5	11	22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	22-31	27		
23:00	0	4	12	12	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	21-30	21		
Total	106	233	795	680	168	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2001				
Percent	5.3%	11.6%	39.7%	34.0%	8.4%	0.9%	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%	0.0%	0.0%	10.00				
AM Peak	08:00	11:00	11:00	10:00	10:00	06:00																						113			
Vol.	6	15	41	43	18	5																					14:00				
PM Peak	15:00	14:00	14:00	14:00	14:00	16:00																						208			
Vol.	13	25	98	64	13	2																					14:00				



# Seventh St 800 Block Speed

Site Code: 00000001  
Station ID:

Latitude: 0' 0.0000 South

Westbound, Eastbound	1		16		21		26		31		36		41		46		51		56		61		66		71		76		Pace Speed	Number in Pace
	Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145		
05/13/14	2	0	0	4	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	10	
01:00	0	0	0	7	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	10	
02:00	0	0	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	6	
03:00	0	3	3	4	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	7		
04:00	0	3	3	4	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	8		
05:00	2	4	4	20	40	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	53		
06:00	5	6	6	38	98	24	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	173	125		
07:00	23	28	28	96	123	20	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	293	179		
08:00	30	69	82	82	56	13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	251	119		
09:00	20	63	81	45	7	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	217	113		
10:00	19	74	82	53	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	237	123		
11:00	70	120	82	39	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	320	154		
12 PM	16	72	127	57	19	19	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	293	165		
13:00	27	66	133	67	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	304	169		
14:00	34	78	133	78	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	334	176		
15:00	41	127	202	90	13	13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	474	262		
16:00	45	138	178	76	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	445	241		
17:00	48	142	131	66	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	393	204		
18:00	15	41	120	76	15	15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	269	164		
19:00	15	42	54	40	10	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	162	79		
20:00	14	17	48	21	7	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	109	57		
21:00	6	12	28	21	9	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	40		
22:00	0	4	13	20	13	13	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	32		
23:00	1	4	10	30	10	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	38		
Total	433	1113	1680	1121	226	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4594			
Percent	9.4%	24.2%	36.6%	24.4%	4.9%	0.5%	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%	0.0%	0.0%	111.00			
AM Peak	11:00	11:00	07:00	07:00	06:00	07:00	07:00																					320		
Vol.	70	120	96	123	24	3																					15:00			
PM Peak	17:00	17:00	15:00	15:00	12:00	12:00	12:00																					474		
Vol.	48	142	202	90	19	2																					15:00			





# Seventh St 800 Block Speed

Site Code: 00000001  
Station ID:

Latitude: 0' 0.0000 South

Westbound				Eastbound															
Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace		
05/15/14	15	20	25	30	35	40	45	50	55	60	65	70	75	999					
01:00	0	1	4	6	7	0	0	0	0	0	0	0	0	0	20	21-30	9		
02:00	1	0	3	6	1	0	0	0	0	0	0	0	0	0	12	21-30	9		
03:00	0	0	3	6	1	0	0	0	0	0	0	0	0	0	11	22-31	8		
04:00	3	3	7	8	2	0	0	0	0	0	0	0	0	0	13	20-29	10		
05:00	0	1	19	31	6	0	0	0	0	0	0	0	0	0	57	20-29	12		
06:00	3	7	52	70	16	1	0	0	0	0	0	0	0	0	149	22-31	45		
07:00	5	26	111	105	25	6	0	0	0	0	0	0	0	0	278	22-31	107		
08:00	9	49	84	82	16	3	0	0	0	0	0	0	0	0	243	21-30	185		
09:00	19	40	92	57	16	3	0	0	0	0	0	0	0	0	227	20-29	137		
10:00	12	44	106	62	6	2	0	0	0	0	0	0	0	0	232	19-28	123		
11:00	7	38	117	60	7	0	0	0	0	0	0	0	0	0	229	19-28	142		
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Total	62	212	605	499	101	15	0	0	0	0	0	0	0	0	1494				
Percent	4.1%	14.2%	40.5%	33.4%	6.8%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%					
AM Peak	09:00	08:00	11:00	07:00	07:00	07:00	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%					
Vol.	19	49	117	105	25	6									07:00		278		
PM Peak																			

Total		10 MPH Pace Speed		20-29 MPH		Number in Pace		Percent in Pace		Number of Vehicles > 25 MPH		Percent of Vehicles > 25 MPH		Mean Speed(Average)	
Vol.	Vol.	Vol.	Vol.	Vol.	Vol.	Vol.	Vol.	Vol.	Vol.	Vol.	Vol.	Vol.	Vol.	Vol.	Vol.
1496	3891	10379	9131	2212	213	16077	16077	58.8%	58.8%	11561	11561	42.3%	42.3%	23 MPH	23 MPH
5.5%	14.2%	38.0%	33.4%	8.1%	0.8%	58.8%	58.8%	58.8%	58.8%	42.3%	42.3%	42.3%	42.3%	23 MPH	23 MPH

Stats  
10 MPH Pace Speed : 20-29 MPH  
Number in Pace : 16077  
Percent in Pace : 58.8%  
Number of Vehicles > 25 MPH : 11561  
Percent of Vehicles > 25 MPH : 42.3%  
Mean Speed(Average) : 23 MPH