Memorandum

The City of Traverse City
Engineering Department

TO: Timothy J. Lodge, P.E., City Engineer TJL
FROM: John Zarafonitis, Seasonal Engineering Aide JZ
DATE: Wednesday, June 18, 2014
SUBJECT: 5 Day Speed Study of Hastings St, 1000 Block between Carver St. and Centre St.

City Engineering performed an on-site 5 day speed count beginning Friday, May 30, 2014 at 2 pm until Wednesday, June 4, 2014 at 4 pm on the 1000 block of Hastings St. This memo is to formalize City Engineering's initial findings and observations with regard to the speeds of vehicles on the 1000 block of Hastings St.

The data was gathered using a Jamar Radar Recorder 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, 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. The speed data was also analyzed through TraxPro's Police Report program to evaluate the possible percentage of enforceable violations. This data was then organized into a small colored chart where red means high enforcement potential and green means low on a total scale for enforceable violations of 30 percent. For this report the enforceable minimum speed a vehicle would need to be traveling was set to 5 miles per hour over the posted speed limit.

During the 5 day study, 26,391 vehicles were recorded on this section of Hastings St with about 68 percent of the vehicles traveling between 26 and 35 miles per hour and an average speed of 29 miles per hour. 3462 of these vehicles, about 13 percent, were recorded going speeds below the posted speed limit of 25 miles per hour. The total percentage of enforceable violations was 48 percent.

Summary:

- Speed Limit: 25 mph
- Number of Recorded Vehicles (5 Days): 26,391
- Percent of Vehicles Under Speed Limit: 13.1 %
- Average Speed: 29 mph
- 10 Mile Per Hour Pace Speed: 26-35 mph
- 85th Percentile: 34 mph
- Total Enforcement Rating High
- Total Percentage Above Speed Limit 48.0 %

Encl.: Detailed TraxPro Speed Reports

Hastings St
(1000 Block, between Carver St. and Centre St.)
Speed

Site Code: 00000001
Station ID:
Hastings St.
Carver St.
Latitude: 0' 0.0000 South

South, North

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 9999	Total
05/30/14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	21	23	66	245	223	30	1	0	0	0	0	0	0	0	609
15:00	12	12	61	298	201	44	3	0	0	0	0	0	0	0	631
16:00	13	7	48	274	239	37	4	0	0	0	0	0	0	0	622
17:00	12	5	29	180	233	53	6	0	0	0	0	0	0	0	518
18:00	6	0	16	88	146	43	6	0	0	0	0	0	0	0	305
19:00	3	2	6	49	74	25	3	0	0	0	0	0	0	0	162
20:00	5	3	9	46	59	11	2	0	0	0	0	0	0	0	135
21:00	3	0	2	34	36	9	2	0	0	0	0	0	0	0	86
22:00	3	1	7	25	17	6	0	0	0	0	0	0	0	0	59
23:00	0	0	6	21	10	2	1	0	0	0	0	0	0	0	40
Day Total	78	53	250	1260	1238	260	28	0	0	0	0	0	0	0	3167

Hastings St
(1000 Block, between Carver St. and Centre St.)
Speed

Site Code: 00000001
Station ID:
Hastings St.
Carver St.
Latitude: 0' 0.0000 South

South, North

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 9999	Total
05/31/14	10	3	2	9	7	2	0	0	0	0	0	0	0	0	33
01:00	0	0	3	11	5	3	0	0	0	0	0	0	0	0	22
02:00	1	0	2	1	3	0	0	0	0	0	0	0	0	0	7
03:00	0	1	0	2	0	0	0	0	0	0	0	0	0	0	3
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	10	3	5	1	0	0	0	0	0	0	0	19
06:00	1	0	7	12	15	10	3	0	0	0	0	0	0	0	48
07:00	4	0	4	23	22	19	2	0	0	0	0	0	0	0	74
08:00	6	3	8	38	86	28	1	0	0	0	0	0	0	0	170
09:00	6	2	21	91	87	24	7	0	0	0	0	0	0	0	238
10:00	11	5	9	113	126	27	4	0	0	0	0	0	0	0	295
11:00	4	6	33	128	120	29	4	0	0	0	0	0	0	0	324
12 PM	9	3	31	110	135	44	1	0	0	0	0	0	0	0	333
13:00	6	7	26	125	135	38	4	1	0	0	0	0	0	0	342
14:00	8	0	11	83	125	52	2	1	0	0	0	0	0	0	282
15:00	1	0	11	93	131	50	5	1	0	0	0	0	0	0	292
16:00	0	1	12	73	95	33	2	0	0	0	0	0	0	0	216
17:00	4	0	7	56	88	25	5	1	0	0	0	0	0	0	186
18:00	1	1	12	54	65	22	0	0	0	0	0	0	0	0	155
19:00	2	2	11	44	46	13	2	0	0	0	0	0	0	0	120
20:00	1	2	9	42	41	19	0	0	0	0	0	0	0	0	114
21:00	0	0	11	23	26	9	2	0	0	0	0	0	0	0	71
22:00	1	0	1	28	10	5	0	0	0	0	0	0	0	0	45
23:00	0	0	2	6	12	3	0	0	0	0	0	0	0	0	23
Day Total	76	36	233	1175	1383	460	45	4	0	0	0	0	0	0	3412

Hastings St
(1000 Block, between Carver St. and Centre St.)
Speed

Site Code: 00000001
Station ID:
Hastings St.
Carver St.
Latitude: 0' 0.0000 South

South, North

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 9999	Total
06/01/14	1	0	5	4	2	1	0	0	0	0	0	0	0	0	13
01:00	0	0	1	3	1	0	0	0	0	0	0	0	0	0	5
02:00	1	0	0	1	1	0	0	0	0	0	0	0	0	0	3
03:00	2	0	0	1	2	1	0	0	0	0	0	0	0	0	6
04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00	0	0	1	2	2	2	1	0	0	0	0	0	0	0	8
06:00	0	0	0	5	5	1	0	0	0	0	0	0	0	0	11
07:00	0	1	1	8	10	6	1	1	0	0	0	0	0	0	28
08:00	4	2	4	19	46	9	1	0	0	0	0	0	0	0	85
09:00	3	0	7	41	42	17	0	0	0	0	0	0	0	0	110
10:00	1	2	11	63	64	15	3	0	2	0	0	0	0	0	161
11:00	1	1	12	71	73	22	4	0	0	0	0	0	0	0	184
12 PM	6	2	9	73	106	28	5	1	0	0	0	0	0	0	230
13:00	3	1	5	64	87	25	4	0	0	0	0	0	0	0	189
14:00	3	0	10	53	93	23	1	0	0	0	0	0	0	0	183
15:00	2	1	8	43	77	32	4	0	0	0	0	0	0	0	167
16:00	1	4	7	54	72	16	3	2	0	0	0	0	0	0	159
17:00	0	0	2	35	71	31	4	1	0	0	0	0	0	0	144
18:00	0	0	6	36	45	18	2	1	0	0	0	0	0	0	108
19:00	1	1	5	27	46	11	8	0	0	0	0	0	0	0	99
20:00	2	0	7	22	33	7	0	1	0	0	0	0	0	0	72
21:00	0	0	6	26	14	5	0	0	0	0	0	0	0	0	51
22:00	1	0	4	14	12	2	0	0	0	0	0	0	0	0	33
23:00	1	0	0	8	4	1	0	0	0	0	0	0	0	0	14
Day Total	33	15	112	673	908	273	41	7	2	0	0	0	0	0	2064

Hastings St
(1000 Block, between Carver St. and Centre St.)
Speed

Site Code: 00000001
Station ID:
Hastings St.
Carver St.
Latitude: 0' 0.0000 South

South, North

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 9999	Total
06/02/14	1	1	0	4	2	2	0	0	0	0	0	0	0	0	10
01:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
02:00	0	0	0	2	1	0	0	0	0	0	0	0	0	0	3
03:00	0	0	1	4	0	0	0	0	0	0	0	0	0	0	5
04:00	1	1	2	5	9	1	0	0	0	0	0	0	0	0	19
05:00	1	0	4	22	18	4	2	0	0	0	0	0	0	0	51
06:00	2	2	9	49	72	21	1	0	0	0	0	0	0	0	156
07:00	6	6	14	153	142	33	6	0	0	0	0	0	0	0	360
08:00	15	3	25	151	149	35	4	1	0	0	0	0	0	0	383
09:00	17	10	36	158	136	31	4	0	0	0	0	0	0	0	392
10:00	19	14	53	195	150	31	1	0	0	0	0	0	0	0	463
11:00	7	12	45	195	180	35	3	1	0	0	0	0	0	0	478
12 PM	14	13	53	217	227	39	3	0	0	0	0	0	0	0	566
13:00	12	14	33	247	195	37	3	0	0	0	0	0	0	0	541
14:00	9	12	52	224	174	32	0	0	0	0	0	0	0	0	503
15:00	26	13	37	228	204	26	3	0	0	0	0	0	0	0	537
16:00	17	16	35	218	212	37	1	0	0	0	0	0	0	0	536
17:00	15	4	38	187	249	37	6	1	0	0	0	0	0	0	537
18:00	4	8	16	102	121	43	2	0	0	0	0	0	0	0	296
19:00	4	2	7	58	74	32	1	0	0	0	0	0	0	0	178
20:00	3	3	7	46	44	21	2	1	0	0	0	0	0	0	127
21:00	0	0	12	36	42	6	3	0	0	0	0	0	0	0	99
22:00	0	1	6	19	9	2	0	1	0	0	0	0	0	0	38
23:00	0	0	3	14	10	1	0	0	0	0	0	0	0	0	28
Day Total	173	135	488	2535	2421	506	45	5	0	0	0	0	0	0	6308

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(1000 Block, between Carver St. and Centre St.)
Speed

Site Code: 00000001
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Carver St.
Latitude: 0' 0.0000 South

South, North

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 9999	Total
06/03/14	1	1	0	7	3	0	0	0	0	0	0	0	0	0	12
01:00	0	0	2	4	1	1	0	0	0	0	0	0	0	0	8
02:00	0	0	2	1	2	0	0	0	0	0	0	0	0	0	5
03:00	0	2	2	5	4	1	0	0	0	0	0	0	0	0	14
04:00	1	2	4	6	4	1	0	0	0	0	0	0	0	0	18
05:00	3	0	9	24	10	8	1	0	0	0	0	0	0	0	55
06:00	3	2	10	47	73	14	2	0	0	0	0	0	0	0	151
07:00	17	3	23	145	151	25	6	0	0	0	0	0	0	0	370
08:00	14	13	36	154	185	31	6	1	0	0	0	0	0	0	440
09:00	22	25	54	175	112	21	2	1	0	0	0	0	0	0	412
10:00	11	5	49	211	144	29	2	0	0	0	0	0	0	0	451
11:00	21	15	72	248	145	26	2	0	0	0	0	0	0	0	529
12 PM	26	16	74	221	187	34	3	0	0	0	0	0	0	0	561
13:00	12	24	78	252	171	29	1	0	0	0	0	0	0	0	567
14:00	8	11	66	227	186	42	0	0	0	0	0	0	0	0	540
15:00	14	4	52	273	190	29	1	1	0	0	0	0	0	0	564
16:00	17	11	38	227	244	37	2	0	0	0	0	0	0	0	576
17:00	16	8	37	241	267	56	5	1	0	0	0	0	0	0	631
18:00	9	1	12	99	141	52	7	1	0	0	0	0	0	0	322
19:00	2	1	14	80	68	30	1	0	0	0	0	0	0	0	196
20:00	1	1	8	59	63	25	1	0	0	0	0	0	0	0	158
21:00	1	0	3	42	23	11	1	0	0	0	0	0	0	0	81
22:00	1	1	3	22	13	3	0	0	0	0	0	0	0	0	43
23:00	1	0	3	11	6	1	0	0	0	0	0	0	0	0	22
Day Total	201	146	651	2781	2393	506	43	5	0	0	0	0	0	0	6726

Hastings St
(1000 Block, between Carver St. and Centre St.)
Speed

Site Code: 00000001
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Carver St.
Latitude: 0' 0.0000 South

South, North

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 9999	Total
06/04/14	0	0	1	4	4	0	1	0	0	0	0	0	0	0	10
01:00	0	0	0	6	6	3	0	0	0	0	0	0	0	0	15
02:00	0	0	3	3	1	0	0	0	0	0	0	0	0	0	7
03:00	5	0	0	3	1	1	0	0	0	0	0	0	0	0	10
04:00	2	0	5	4	6	1	0	0	0	0	0	0	0	0	18
05:00	2	1	9	24	22	4	2	0	0	0	0	0	0	0	64
06:00	5	4	10	47	82	23	4	0	0	0	0	0	0	0	175
07:00	13	4	15	139	158	43	6	1	1	0	0	0	0	0	380
08:00	22	5	31	170	166	43	1	0	0	0	0	0	0	0	438
09:00	20	6	37	153	136	28	3	0	0	0	0	0	0	0	383
10:00	25	16	39	168	150	26	4	1	0	0	0	0	0	0	429
11:00	25	17	70	210	153	33	3	0	0	0	0	0	0	0	511
12 PM	14	15	68	249	198	39	5	0	0	0	0	0	0	0	588
13:00	29	14	89	266	174	31	1	0	0	0	0	0	0	0	604
14:00	21	17	61	211	196	36	4	0	0	0	0	0	0	0	546
15:00	14	9	39	263	177	34	0	0	0	0	0	0	0	0	536
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day Total	197	108	477	1920	1630	345	34	2	1	0	0	0	0	0	4714
Grand Total	758	493	2211	10344	9973	2350	236	23	3	0	0	0	0	0	26391

	15th Percentile :	23 MPH
	50th Percentile :	29 MPH
	85th Percentile :	34 MPH
	95th Percentile :	37 MPH
Statistics	Mean Speed(Average) :	29 MPH
	10 MPH Pace Speed :	26-35 MPH
	Number in Pace :	17849
	Percent in Pace :	67.6%
	Number of Vehicles > 25 MPH :	22929

Percent of Vehicles > 25 MPH : 86.9%