

Date : 11/14/13

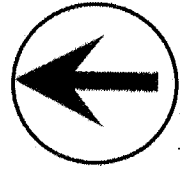
Count Number : TMC1346

Location : TH 65 (Central Ave.)

@ CSAH 12 (109th Ave.)

Collection Period : PEAK HOURS

6-9 AM, 4-7 PM



North

19546

#2

TH 65

10853	D	367
9612	E	
874	F	

8693

CSAH 12

G	712
H	1509
J	1703

#3

7097

3173

2608

#1

5385

2777	C	556
1623	B	
598	A	

CSAH 12

	EXISTING LANES OF APPROACH			TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	0	1	2	3
#2	1	2	2	5
#3	1	2	2	5
#4	1	2	2	5

8833	M	732
7425	L	
676	K	

#4

11913

TH 65

20746

Anoka County Highway Department
Traffic Volume and Turning
Movement Study

Date : 11/14/13

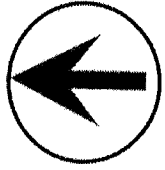
Count Number : TMC1346

Location : TH 65 (Central Ave.)

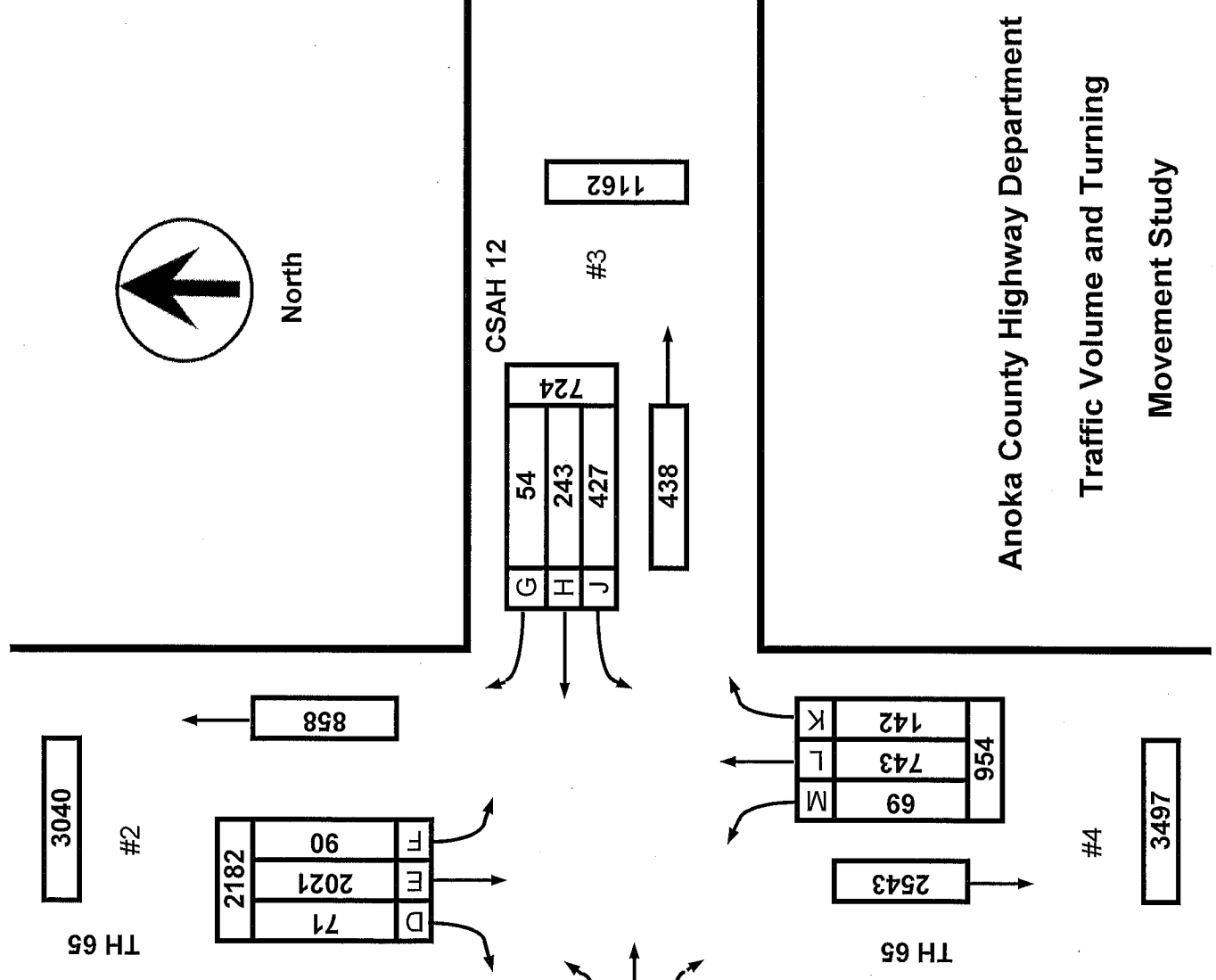
@ CSAH 12 (109th Ave.)

Collection Period : AM PEAK

Hour : 7:30 - 8:30 AM



North



	EXISTING LANES OF APPROACH			TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	0	1	2	3
#2	1	2	2	5
#3	1	2	2	5
#4	1	2	2	5

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 11/14/13

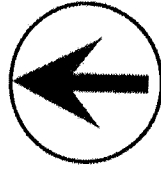
Count Number : TMC1346

Location : TH 65 (Central Ave.)

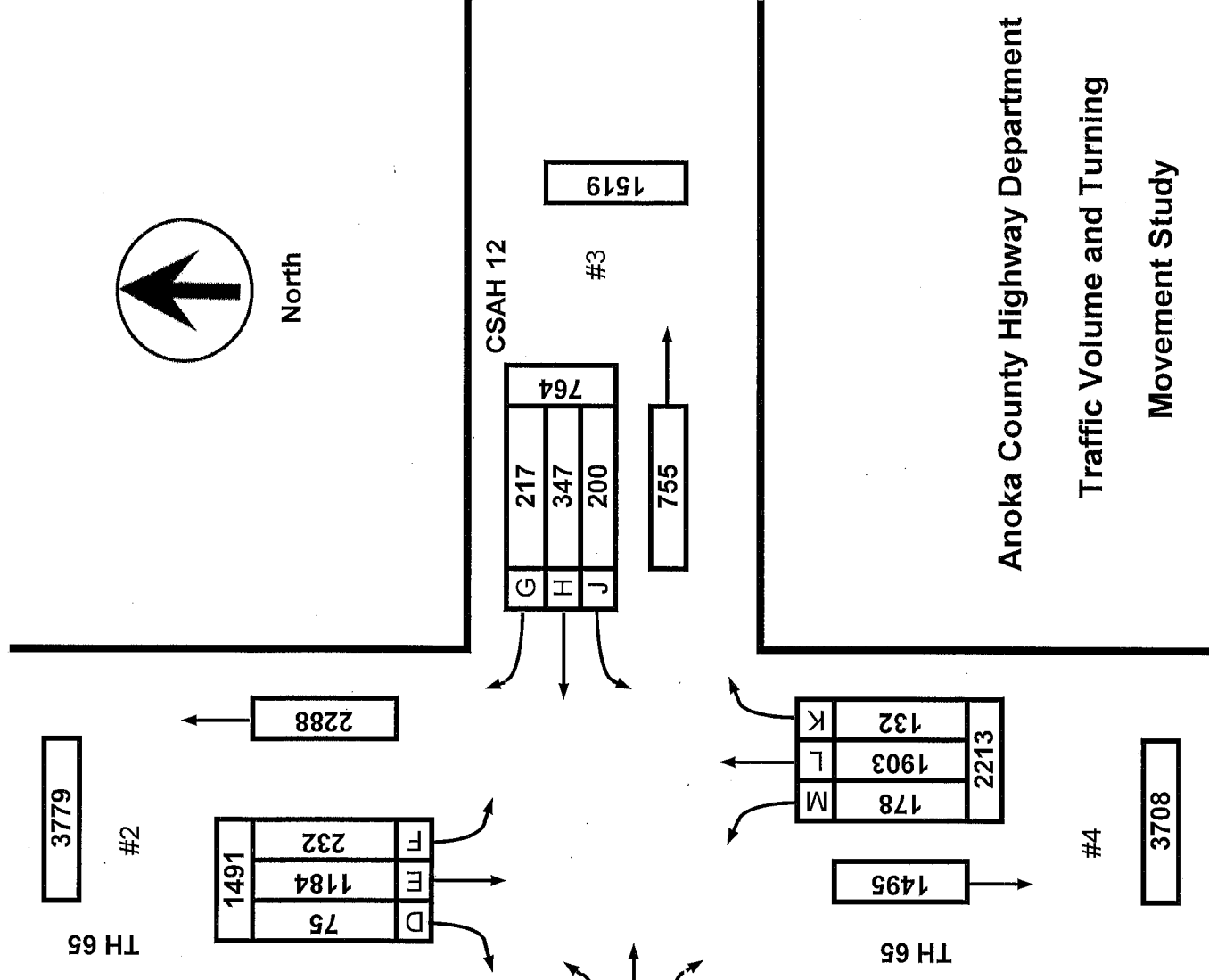
@ CSAH 12 (109th Ave.)

Collection Period : PM PEAK

Hour : 4:30 PM - 5:30 PM



North



	EXISTING LANES OF APPROACH			TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	0	1	2	3
#2	1	2	2	5
#3	1	2	2	5
#4	1	2	2	5

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Weather: Cloudy and Mild
 Counter: DB-400
 study conducted by: Andrea/Shannon

File Name : tmc 1346
 Site Code : 13460202
 Start Date : 11/14/2013
 Page No : 1

Groups Printed- Unshifted

Start Time	TH 65 Southbound					CSAH 12 Westbound					TH 65 Northbound					CSAH 12 Eastbound					Exclu. Total	Inclu. Total	Int. Total		
	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total					
06:00	9	668	4	26	681	55	7	4	2	66	7	59	7	11	73	4	28	35	3	67	42	887	929		
06:15	12	665	4	26	681	92	30	5	1	127	7	134	6	10	147	3	34	27	0	64	37	1019	1056		
06:30	17	602	6	27	625	99	40	7	0	146	10	136	11	9	157	12	62	30	2	104	38	1032	1070		
06:45	22	577	12	9	611	85	35	6	3	126	7	173	21	13	201	9	53	35	4	97	29	1035	1064		
Total	60	2512	26	88	2598	331	112	22	6	465	31	502	45	43	578	28	177	127	9	332	146	3973	4119		
07:00	20	526	10	14	556	115	55	10	4	180	7	140	25	13	172	6	53	15	1	74	32	982	1014		
07:15	13	470	14	17	497	81	50	10	8	141	4	150	31	12	185	20	69	32	3	121	40	944	984		
07:30	29	630	15	15	674	135	79	6	5	220	7	199	41	18	247	9	57	21	0	87	38	1228	1266		
07:45	21	470	21	24	512	119	73	19	6	211	21	176	36	12	233	27	60	23	2	110	44	1066	1110		
Total	83	2096	60	70	2239	450	257	45	23	752	39	665	133	55	837	62	239	91	6	392	154	4220	4374		
08:00	16	467	14	23	497	82	46	12	8	140	14	201	31	32	246	12	37	22	1	71	64	954	1018		
08:15	24	454	21	31	499	91	45	17	4	153	27	167	34	25	228	13	52	29	3	94	63	974	1037		
08:30	25	414	13	20	452	69	42	18	6	129	23	176	14	28	213	19	54	22	3	95	57	889	946		
08:45	34	431	22	22	487	92	46	14	10	152	16	206	34	29	256	16	43	20	4	79	65	974	1039		
Total	99	1766	70	96	1935	334	179	61	28	574	80	750	113	114	943	60	186	93	11	339	249	3791	4040		
*** BREAK ***																									
16:00	51	229	20	13	300	59	79	67	1	205	50	485	35	15	570	44	82	18	3	144	32	1219	1251		
16:15	55	281	19	15	355	55	82	49	5	186	41	519	42	10	602	24	79	21	5	124	35	1267	1302		
16:30	49	285	21	5	355	38	71	58	4	167	39	513	48	13	600	52	106	22	1	180	23	1302	1325		
16:45	64	263	19	13	346	55	87	60	1	202	52	501	36	6	589	38	119	29	1	186	21	1323	1344		
Total	219	1058	79	46	1356	207	319	234	11	760	182	2018	161	44	2361	158	386	90	10	634	111	5111	5222		
17:00	47	345	21	12	413	43	91	52	2	186	43	439	24	10	506	37	69	23	1	129	25	1234	1259		
17:15	72	291	14	9	377	64	98	47	3	209	44	450	24	13	518	41	97	37	1	175	26	1279	1305		
17:30	67	341	10	10	418	46	72	47	0	165	32	499	21	6	552	19	88	17	1	124	17	1259	1276		
17:45	51	276	11	9	338	50	78	49	1	177	54	433	25	7	512	40	86	24	1	150	18	1177	1195		
Total	237	1253	56	40	1546	203	339	195	6	737	173	1821	94	36	2088	137	340	101	4	578	86	4949	5035		
18:00	53	249	22	11	324	59	95	49	1	203	53	384	32	4	469	33	78	32	0	143	16	1139	1155		
18:15	35	273	16	4	324	28	77	30	0	135	65	494	21	16	580	19	68	26	0	113	20	1152	1172		
18:30	44	187	10	5	241	43	78	40	3	161	54	412	24	7	490	35	101	24	0	160	15	1052	1067		
18:45	44	218	28	3	290	48	53	36	1	137	55	379	53	11	487	24	48	14	0	86	15	1000	1015		
Total	176	927	76	23	1179	178	303	155	5	636	227	1669	130	38	2026	111	295	96	0	502	66	4343	4409		
Grand Total	874	9612	367	363	10853	1703	1509	712	79	3924	732	7425	676	330	8833	556	1623	598	40	2777	812	26387	27199		
Apprch %	8.1	88.6	3.4			43.4	38.5	18.1			8.3	84.1	7.7			20	58.4	21.5							
Total %	3.3	36.4	1.4		41.1	6.5	5.7	2.7		14.9	2.8	28.1	2.6		33.5	2.1	6.2	2.3		10.5	3	97			

Start Time	TH 65 Southbound					CSAH 12 Westbound					TH 65 Northbound					CSAH 12 Eastbound					Int. Total
	Left	Thru	Right	App. Total	App. Total	Left	Thru	Right	App. Total	App. Total	Left	Thru	Right	App. Total	App. Total	Left	Thru	Right	App. Total	App. Total	
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	29	630	15	674	135	79	6	220	7	199	41	247	9	57	21	87	1228				
07:45	21	470	21	512	119	73	19	211	21	176	36	233	27	60	23	110	1066				
08:00	16	467	14	497	82	46	12	140	14	201	31	246	12	37	22	71	954				
08:15	24	454	21	499	91	45	17	153	27	167	34	228	13	52	29	94	974				
Total Volume	90	2021	71	2182	427	243	54	724	69	743	142	954	61	206	95	362	4222				
% App. Total	4.1	92.6	3.3		59	33.6	7.5		7.2	77.9	14.9		16.9	56.9	26.2						
PHF	.776	.802	.845	.809	.791	.769	.711	.823	.639	.924	.866	.966	.565	.858	.819	.823	.860				

Start Time	TH 65 Southbound					CSAH 12 Westbound					TH 65 Northbound					CSAH 12 Eastbound					Int. Total
	Left	Thru	Right	App. Total	App. Total	Left	Thru	Right	App. Total	App. Total	Left	Thru	Right	App. Total	App. Total	Left	Thru	Right	App. Total	App. Total	
Peak Hour Analysis From 12:00 to 18:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	49	285	21	355	38	71	58	167	39	513	48	600	52	106	22	180	1302				
16:45	64	263	19	346	55	87	60	202	52	501	36	589	38	119	29	186	1323				
17:00	47	345	21	413	43	91	52	186	43	439	24	506	37	69	23	129	1234				
17:15	72	291	14	377	64	98	47	209	44	450	24	518	41	97	37	175	1279				
Total Volume	232	1184	75	1491	200	347	217	764	178	1903	132	2213	168	391	111	670	5138				
% App. Total	15.6	79.4	5		26.2	45.4	28.4		8	86	6		25.1	58.4	16.6						
PHF	.806	.858	.893	.903	.781	.885	.904	.914	.856	.927	.888	.922	.808	.821	.750	.901	.971				



**ANOKA COUNTY HIGHWAY
PC-WARRANTS
TRAFFIC SIGNAL WARRANT ANALYSIS**

Study Name : **TMC 1346**
Study Date : **11/21/13**
Page No. : **1**

Signal Warrants - Summary

Major Street Approaches

Northbound: TH 65
Number of Lanes: **2**
85% Speed > 40 MPH.
Total Approach Volume: **8,835**

Southbound: TH 65
Number of Lanes: **2**
85% Speed > 40 MPH.
Total Approach Volume: **10,855**

Minor Street Approaches

Eastbound: CSAH 12
Number of Lanes: **2**

Total Approach Volume: **2,779**

Westbound: CSAH 12
Number of Lanes: **2**

Total Approach Volume: **3,926**

Warrant Summary (Rural values apply.)

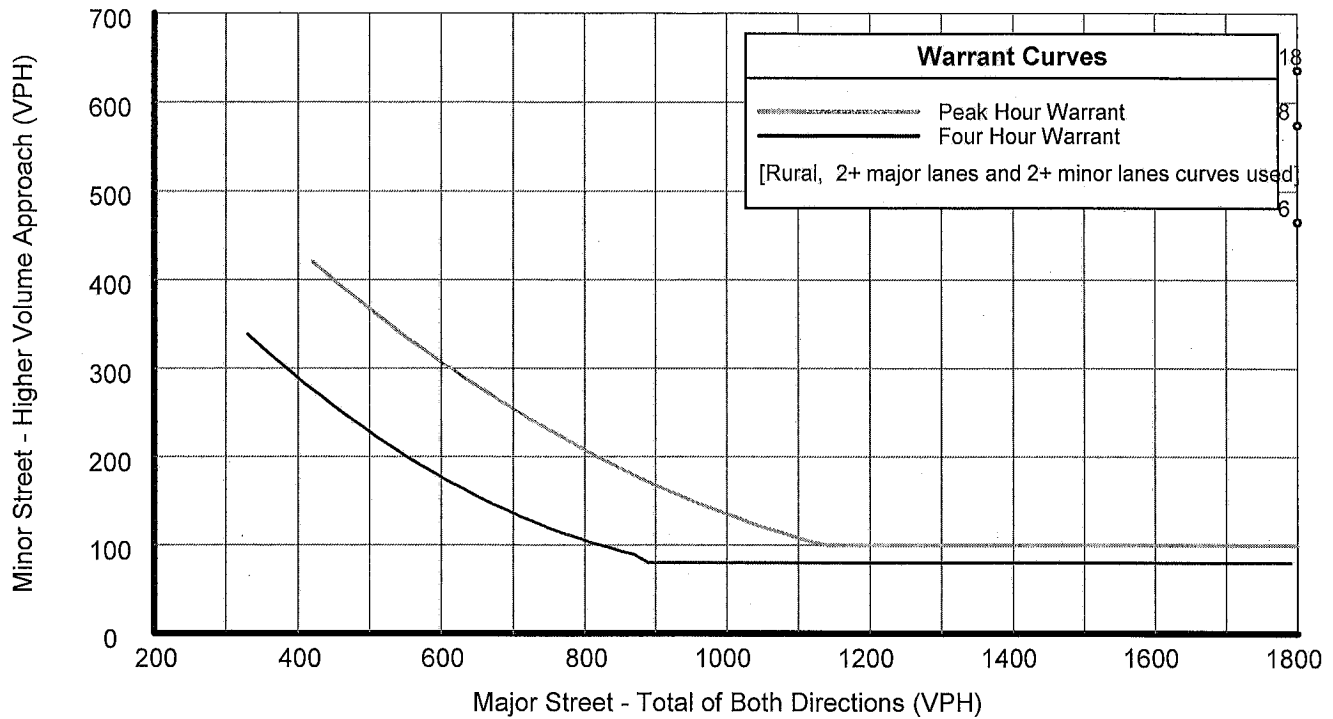
Warrant 1 - Eight Hour Vehicular Volumes	Satisfied
Warrant 1A - Minimum Vehicular Volume	Satisfied
Required volumes reached for 8 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic	Satisfied
Required volumes reached for 8 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants	Satisfied
Required volumes reached for 8 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Satisfied
Number of hours (8) volumes exceed minimum < minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Delay	Satisfied
Number of hours (28) volumes exceed minimum >= required (1). Delay data not evaluated.	
Warrant 3B - Peak Hour Volumes	Satisfied
Volumes exceed minimums for at least one hour.	
Warrant 4 - Pedestrian Volumes	Not Evaluated
Warrant 5 - School Crossing	Not Evaluated
Warrant 6 - Coordinated Signal System	Not Evaluated
Warrant 7 - Crash Experience	Not Evaluated
Warrant 8 - Roadway Network	Not Evaluated
Warrant 9 - Intersection Near a Grade Crossing	Not Evaluated



ANOKA COUNTY HIGHWAY PC-WARRANTS TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC 1346
Study Date : 11/21/13
Page No. : 2

Signal Warrants - Summary



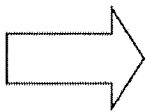
Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

War 1B-Interruption of Traffic

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Maj Dir	Min 420 140	Hour Begin	Major Total	Minor Vol	Maj Dir	Min 630 70	Hour Begin	Major Total	Minor Vol	Maj Dir	Min 504 112
16:15	3,766	741	W	Yes Yes	16:15	3,766	741	W	Yes Yes	16:15	3,766	741	W	Yes Yes
17:15	3,508	754	W	Yes Yes	17:15	3,508	754	W	Yes Yes	17:15	3,508	754	W	Yes Yes
07:30	3,136	724	W	Yes Yes	07:30	3,136	724	W	Yes Yes	07:30	3,136	724	W	Yes Yes
06:30	3,004	593	W	Yes Yes	06:30	3,004	593	W	Yes Yes	06:30	3,004	593	W	Yes Yes
18:15	2,412	433	W	Yes Yes	18:15	2,412	433	W	Yes Yes	18:15	2,412	433	W	Yes Yes
05:30	1,582	193	W	Yes Yes	05:30	1,582	193	W	Yes Yes	05:30	1,582	193	W	Yes Yes
08:30	1,410	281	W	Yes Yes	08:30	1,410	281	W	Yes Yes	08:30	1,410	281	W	Yes Yes
15:15	871	206	W	Yes Yes	15:15	871	206	W	Yes Yes	15:15	871	206	W	Yes Yes
05:15	754	67	EB	Yes No	05:15	754	67	EB	Yes No	05:15	754	67	EB	Yes No
15:00	2	1	W	No No	15:00	2	1	W	No No	15:00	2	1	W	No No
14:45	2	1	EB	No No	14:45	2	1	EB	No No	14:45	2	1	EB	No No
14:30	2	0	W	No No	14:30	2	0	W	No No	14:30	2	0	W	No No
14:15	1	0	W	No No	14:15	1	0	W	No No	14:15	1	0	W	No No
22:45	0	0	W	No No	22:45	0	0	W	No No	22:45	0	0	W	No No
22:30	0	0	W	No No	22:30	0	0	W	No No	22:30	0	0	W	No No
22:15	0	0	W	No No	22:15	0	0	W	No No	22:15	0	0	W	No No
22:00	0	0	W	No No	22:00	0	0	W	No No	22:00	0	0	W	No No
21:45	0	0	W	No No	21:45	0	0	W	No No	21:45	0	0	W	No No
21:30	0	0	W	No No	21:30	0	0	W	No No	21:30	0	0	W	No No
21:15	0	0	W	No No	21:15	0	0	W	No No	21:15	0	0	W	No No
21:00	0	0	W	No No	21:00	0	0	W	No No	21:00	0	0	W	No No
20:45	0	0	W	No No	20:45	0	0	W	No No	20:45	0	0	W	No No
20:30	0	0	W	No No	20:30	0	0	W	No No	20:30	0	0	W	No No
20:15	0	0	W	No No	20:15	0	0	W	No No	20:15	0	0	W	No No



COUNT LOCATION:

TH 65 (Central Ave.)

DATE:

11/14/2013

@ CSAH 12 (109th Ave.)

NORTH

APP. #1 = TH 65

APP. #2 = CSAH 12

APP. #3 = TH 65

APP. #4 = CSAH 12

APP. #2

APP. #1

APP. #3

APP. #4

- HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT
- A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.
 - B. RV- A HEAVY VEHICLE OPERATED BY A PRIVATE MOTORIST AND INVOLVED IN THE TRANSPORT OF RECREATIONAL EQUIPMENT OR FACILITIES.
 - C. BUSES- A HEAVY VEHICLE INVOLVED IN THE TRANSPORTATION OF GROUPS OF PEOPLE.

TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
6:00-6:15AM						40		2
6:15-6:30						34		3
6:30-6:45						32		6
6:45-7:00						22		7
HOURLY TOTAL						HOURLY TOTAL		146
7:00-7:15AM						25		6
7:15-7:30	2				2	27		12
7:30-7:45	1				1	34		5
7:45-8:00	1				1	34		8
HOURLY TOTAL					4	HOURLY TOTAL		151
8:00-8:15AM						49		14
8:15-8:30	2				2	50		8
8:30-8:45						50		7
8:45-9:00	1				1	56	1	9
HOURLY TOTAL					3	HOURLY TOTAL		244
					TOTAL		TOTAL	541

TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
4:00-4:15PM			1		1	27		6
4:15-4:30			1		1	25		10
4:30-4:45			1		1	18	1	4
4:45-5:00						16		4
HOURLY TOTAL					3	HOURLY TOTAL		111
5:00-5:15PM						26		
5:15-5:30						25		2
5:30-5:45						12	1	3
5:45-6:00						16		2
HOURLY TOTAL						HOURLY TOTAL		87
6:00-6:15PM						13		3
6:15-6:30						17		2
6:30-6:45						13		2
6:45-7:00						12		2
HOURLY TOTAL						HOURLY TOTAL		64
					TOTAL		TOTAL	262