

Date : 11/19/13

Count Number : TMC1347

Location : CSAH 12 (109th Ave.)

@ Ulysses St.

Collection Period : PEAK HOURS

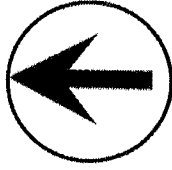
6-9 AM, 4-7 PM

Ulysses St. 2706

#2

1115	468	10	637
D	E	F	T

1591



North

CSAH 12

#3

773	2123	42
G	H	J

2938

2721

5659

2771

#1

5852

3081	809	2239	33
A	B	C	

CSAH 12

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

VFW Driveway

14	9	11
K	L	M

85

#4

119

Anoka County Highway Department

Traffic Volume and Turning

Movement Study

Date : 11/19/13

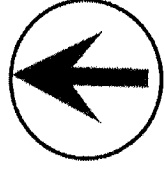
Count Number : TMC1347

Location : CSAH 12 (109th Ave.)

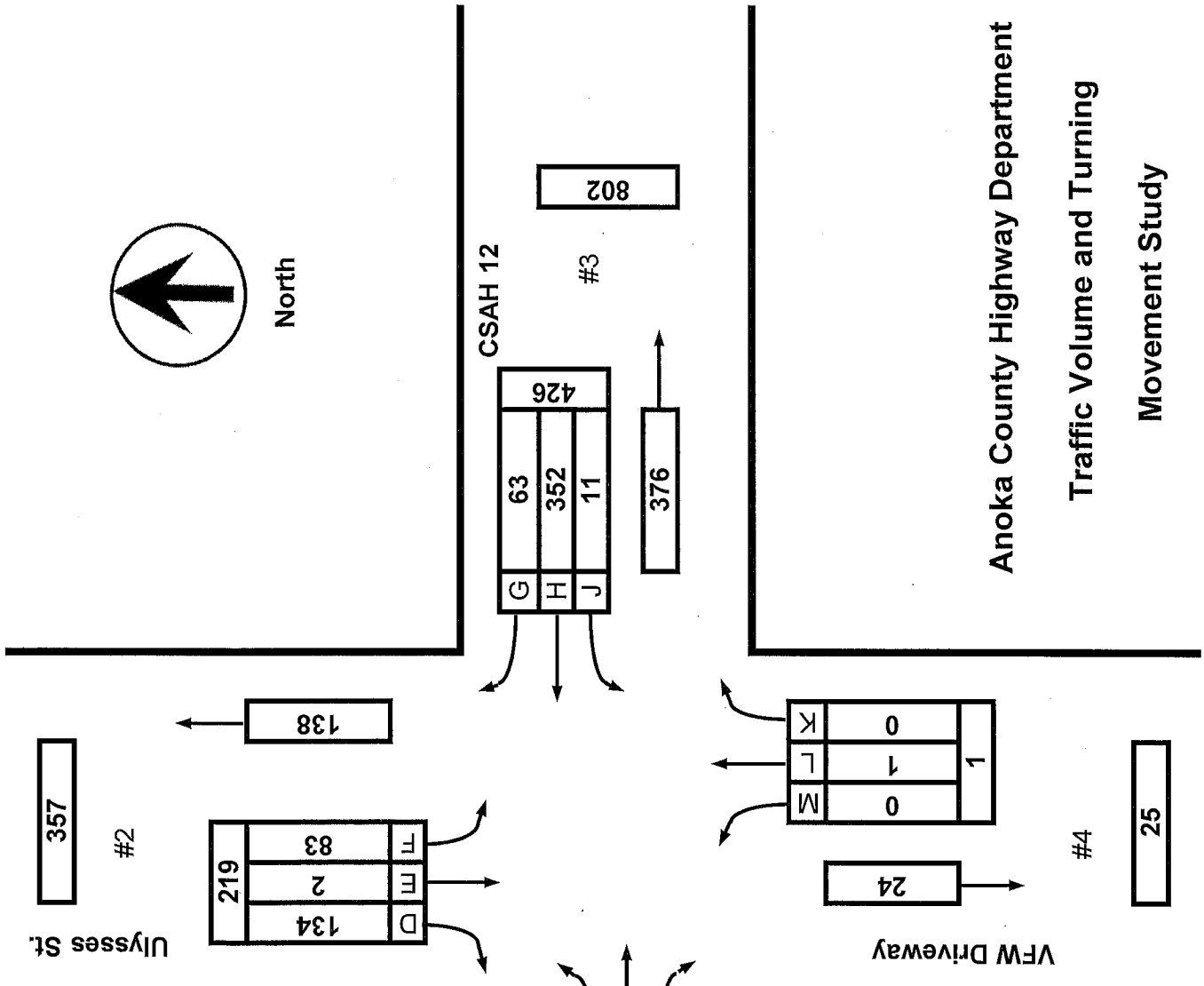
@ Ulysses St.

Collection Period : AM PEAK

Hour : 7:15 - 8:15 AM



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 11/19/13

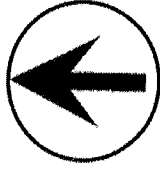
Count Number : TMC1347

Location : CSAH 12 (109th Ave.)

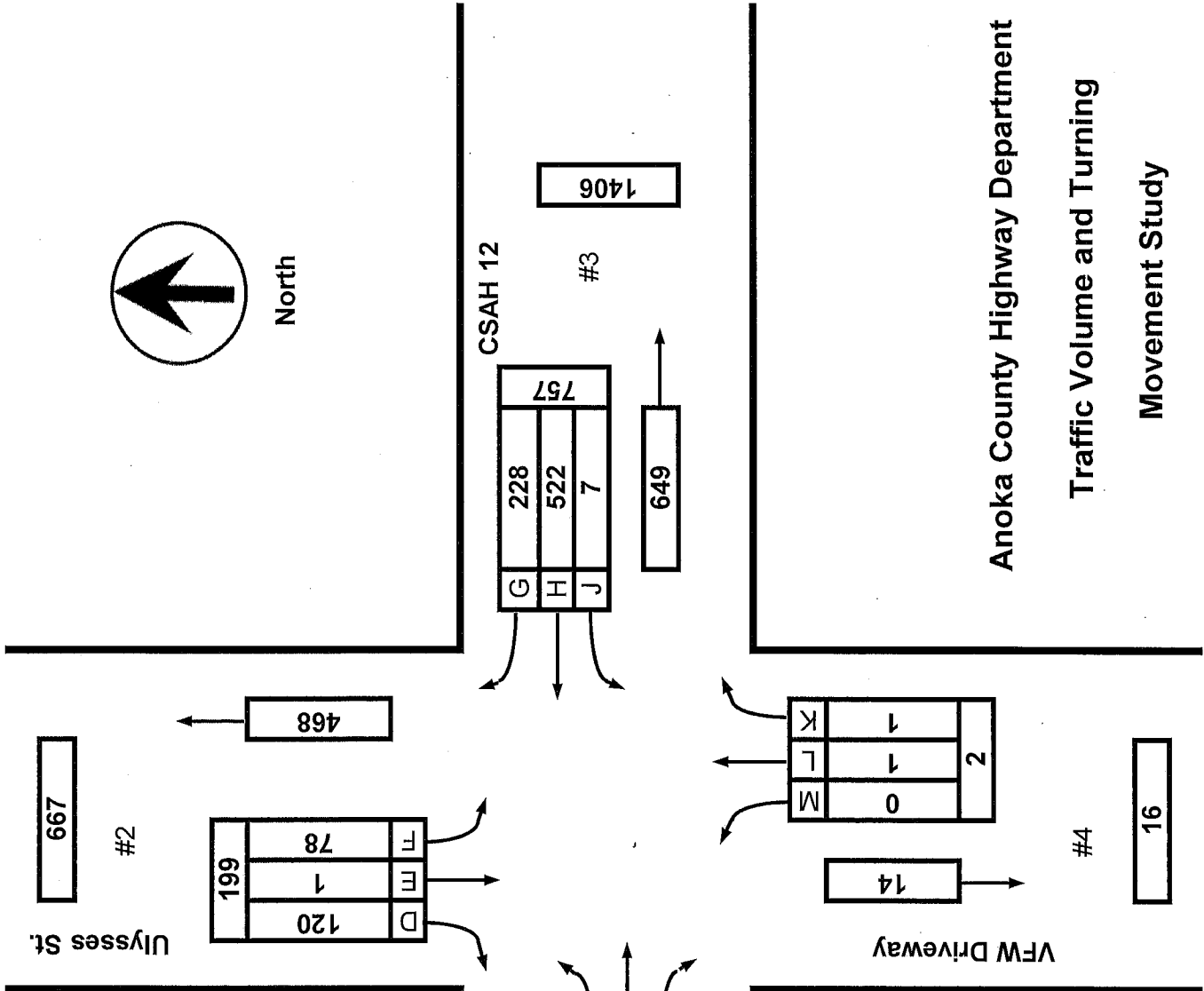
@ Ulysses St.

Collection Period : PM PEAK

Hour : 4:30 PM - 5:30 PM



North



Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

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



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : tmc 1347
 Site Code : 13470202
 Start Date : 11/19/2013
 Page No : 1

Weather: Cool and Cloudy
 Counter: DB-400
 study conducted by: Randy/Matt

Groups Printed- Unshifted

Start Time	Ulysses St. Southbound					CSAH 12 Westbound					VFW Driveway Northbound					CSAH 12 Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total			
06:00	11	0	9	0	20	1	28	6	2	35	0	0	0	0	0	2	39	0	0	41	2	96	98
06:15	15	0	14	0	29	0	37	4	2	41	0	0	0	0	0	13	52	0	0	65	2	135	137
06:30	20	0	20	0	40	1	47	5	1	53	0	0	0	0	0	12	74	0	1	86	2	179	181
06:45	20	0	22	0	42	0	42	19	0	61	0	0	0	0	0	19	91	0	4	110	4	213	217
Total	66	0	65	0	131	2	154	34	5	190	0	0	0	0	0	46	256	0	5	302	10	623	633
07:00	12	0	34	4	46	0	65	4	1	69	0	0	0	0	0	16	71	1	0	88	5	203	208
07:15	21	0	39	0	60	2	114	18	6	134	0	0	0	0	0	19	65	0	3	84	9	278	287
07:30	15	1	46	0	62	0	85	9	4	94	0	0	0	0	0	18	98	2	2	118	6	274	280
07:45	20	0	29	0	49	5	84	28	2	117	0	1	0	0	1	24	70	5	1	99	3	266	269
Total	68	1	148	4	217	7	348	59	13	414	0	1	0	0	1	77	304	8	6	389	23	1021	1044
08:00	27	1	20	1	48	4	69	8	2	81	0	0	0	0	0	13	60	4	1	77	4	206	210
08:15	24	0	18	3	42	5	72	21	2	98	0	1	0	0	1	22	45	4	1	71	6	212	218
08:30	17	2	24	0	43	2	72	20	5	94	0	0	0	0	0	21	66	0	4	87	9	224	233
08:45	12	1	19	3	32	2	68	25	3	95	1	0	0	0	1	31	74	1	4	106	10	234	244
Total	80	4	81	7	165	13	281	74	12	368	1	1	0	0	2	87	245	9	10	341	29	876	905

*** BREAK ***

16:00	22	1	26	1	49	0	118	52	2	170	0	1	0	0	1	53	127	1	8	181	11	401	412
16:15	24	0	37	1	61	1	99	57	3	157	0	0	0	0	0	70	122	1	5	193	9	411	420
16:30	21	0	24	0	45	1	134	77	0	212	0	0	1	0	1	68	129	0	2	197	2	455	457
16:45	24	1	29	1	54	2	140	56	2	198	0	0	0	0	0	62	151	5	0	218	3	470	473
Total	91	2	116	3	209	4	491	242	7	737	0	1	1	0	2	253	529	7	15	789	25	1737	1762
17:00	23	0	41	0	64	2	115	41	1	158	0	0	0	0	0	64	147	1	0	212	1	434	435
17:15	10	0	26	1	36	2	133	54	0	189	0	1	0	0	1	45	143	0	2	188	3	414	417
17:30	22	0	24	1	46	0	90	39	1	129	0	0	1	0	1	60	138	1	2	199	4	375	379
17:45	17	2	28	0	47	3	119	54	2	176	0	0	0	0	0	28	120	3	0	151	2	374	376
Total	72	2	119	2	193	7	457	188	4	652	0	1	1	0	2	197	548	5	4	750	10	1597	1607
18:00	28	0	28	1	56	2	130	43	0	175	1	2	1	0	4	49	93	2	1	144	2	379	381
18:15	20	1	29	1	50	5	87	44	1	136	4	0	1	1	5	37	95	1	0	133	3	324	327
18:30	19	0	21	0	40	1	93	41	1	135	5	1	2	0	8	36	88	1	1	125	2	308	310
18:45	24	0	30	0	54	1	82	48	1	131	0	2	8	0	10	27	81	0	1	108	2	303	305
Total	91	1	108	2	200	9	392	176	3	577	10	5	12	1	27	149	357	4	3	510	9	1314	1323
Grand Total	468	10	637	18	1115	42	2123	773	44	2938	11	9	14	1	34	809	2239	33	43	3081	106	7168	7274
Apprch %	42	0.9	57.1			1.4	72.3	26.3			32.4	26.5	41.2			26.3	72.7	1.1					
Total %	6.5	0.1	8.9		15.6	0.6	29.6	10.8		41	0.2	0.1	0.2		0.5	11.3	31.2	0.5		43	1.5	98.5	

Start Time	Ulysses St. Southbound				CSAH 12 Westbound				VFW Driveway Northbound				CSAH 12 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	21	0	39	60	2	114	18	134	0	0	0	0	19	65	0	84	278
07:30	15	1	46	62	0	85	9	94	0	0	0	0	18	98	2	118	274
07:45	20	0	29	49	5	84	28	117	0	1	0	1	24	70	5	99	266
08:00	27	1	20	48	4	69	8	81	0	0	0	0	13	60	4	77	206
Total Volume	83	2	134	219	11	352	63	426	0	1	0	1	74	293	11	378	1024
% App. Total	37.9	0.9	61.2		2.6	82.6	14.8		0	100	0		19.6	77.5	2.9		
PHF	.769	.500	.728	.883	.550	.772	.563	.795	.000	.250	.000	.250	.771	.747	.550	.801	.921

Peak Hour Analysis From 12:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	21	0	24	45	1	134	77	212	0	0	1	1	68	129	0	197	455
16:45	24	1	29	54	2	140	56	198	0	0	0	0	62	151	5	218	470
17:00	23	0	41	64	2	115	41	158	0	0	0	0	64	147	1	212	434
17:15	10	0	26	36	2	133	54	189	0	1	0	1	45	143	0	188	414
Total Volume	78	1	120	199	7	522	228	757	0	1	1	2	239	570	6	815	1773
% App. Total	39.2	0.5	60.3		0.9	69	30.1		0	50	50		29.3	69.9	0.7		
PHF	.813	.250	.732	.777	.875	.932	.740	.893	.000	.250	.250	.500	.879	.944	.300	.935	.943



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

Study Name : TMC 1347
Study Date : 11/25/13
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 12

Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: 3,083

Westbound: CSAH 12

Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: 2,940

Minor Street Approaches

Northbound: VFW Driveway

Number of Lanes: 1

Total Approach Volume: 34

Southbound: Ulysses St.

Number of Lanes: 2

Total Approach Volume: 1,117

Warrant Summary (Rural values apply.)

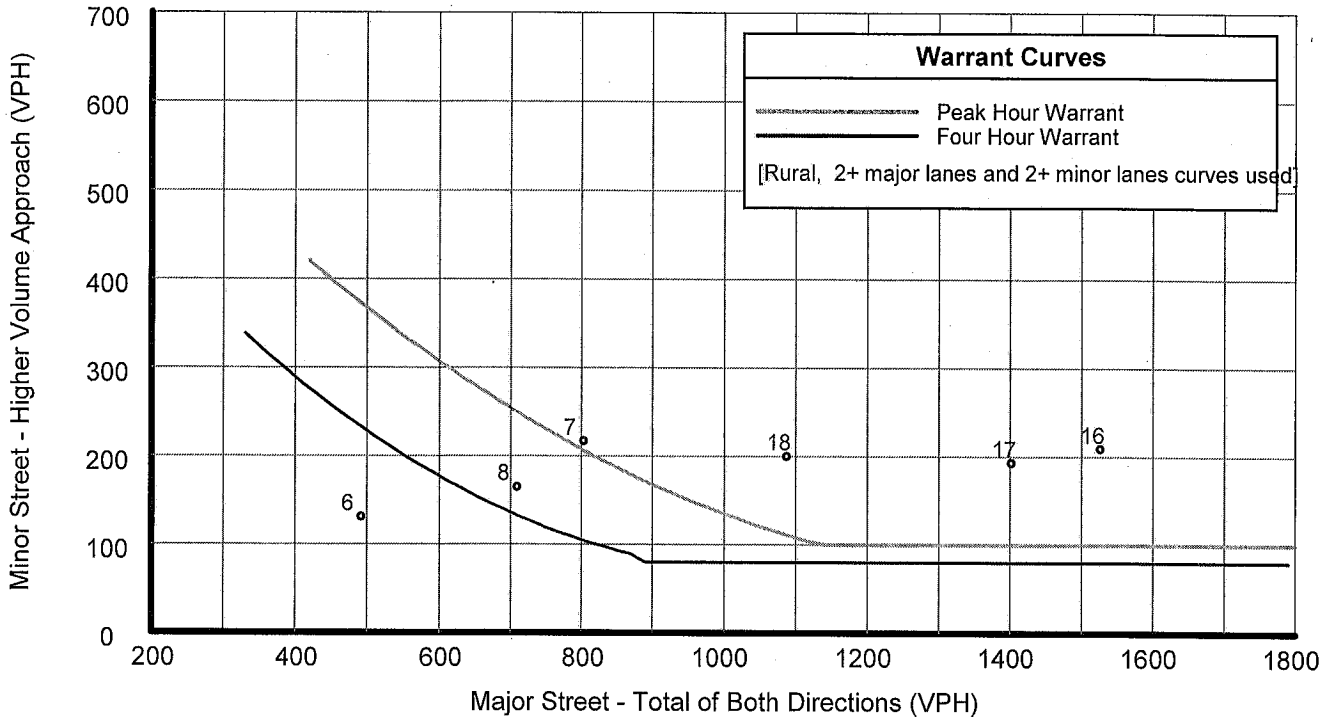
Warrant 1 - Eight Hour Vehicular Volumes	Not Satisfied
Warrant 1A - Minimum Vehicular Volume	Not Satisfied
Required volumes reached for 7 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic	Not Satisfied
Required volumes reached for 5 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants	Not Satisfied
Required volumes reached for 6 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Satisfied
Number of hours (5) volumes exceed minimum < minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Delay	Satisfied
Number of hours (17) 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 1347
Study Date : 11/25/13
Page No. : 2

Signal Warrants - Summary



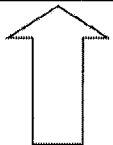
Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

War 1B-Interruption of Traffic

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol Dir	Maj 420	Min 0	Hour Begin	Major Total	Minor Vol Dir	Maj 630	Min 0	Hour Begin	Major Total	Minor Vol Dir	Maj 504	Min 0
16:30	1,572	199 SB	Yes	Yes	16:30	1,572	199 SB	Yes	Yes	16:30	1,572	199 SB	Yes	Yes
17:30	1,243	199 SB	Yes	Yes	17:30	1,243	199 SB	Yes	Yes	17:30	1,243	199 SB	Yes	Yes
07:00	803	217 SB	Yes	Yes	07:30	755	201 SB	Yes	Yes	07:15	804	219 SB	Yes	Yes
08:00	709	165 SB	Yes	Yes	15:30	703	110 SB	Yes	Yes	15:30	703	110 SB	Yes	Yes
15:30	703	110 SB	Yes	Yes	06:30	685	188 SB	Yes	Yes	06:15	573	157 SB	Yes	Yes
18:30	499	94 SB	Yes	Yes	06:15	573	157 SB	No	Yes	08:15	551	118 SB	Yes	Yes
06:00	492	131 SB	Yes	Yes	18:30	499	94 SB	No	Yes	18:30	499	94 SB	No	Yes
15:15	353	50 SB	No	Yes	06:00	492	131 SB	No	Yes	06:00	492	131 SB	No	Yes
05:45	321	89 SB	No	Yes	08:30	383	76 SB	No	Yes	15:15	353	50 SB	No	Yes
05:30	182	49 SB	No	Yes	15:15	353	50 SB	No	Yes	05:45	321	89 SB	No	Yes
05:15	76	20 SB	No	Yes	05:45	321	89 SB	No	Yes	18:45	239	54 SB	No	Yes
15:00	2	1 SB	No	Yes	18:45	239	54 SB	No	Yes	05:30	182	49 SB	No	Yes
09:15	2	0 SB	No	Yes	08:45	203	33 SB	No	Yes	05:15	76	20 SB	No	Yes
09:00	2	1 SB	No	Yes	05:30	182	49 SB	No	Yes	15:00	2	1 SB	No	Yes
14:45	1	1 SB	No	Yes	05:15	76	20 SB	No	Yes	09:15	2	0 SB	No	Yes
09:30	1	0 SB	No	Yes	15:00	2	1 SB	No	Yes	14:45	1	1 SB	No	Yes
22:45	0	0 SB	No	Yes	09:15	2	0 SB	No	Yes	09:30	1	0 SB	No	Yes
22:30	0	0 SB	No	Yes	09:00	2	1 SB	No	Yes	22:45	0	0 SB	No	Yes
22:15	0	0 SB	No	Yes	14:45	1	1 SB	No	Yes	22:30	0	0 SB	No	Yes
22:00	0	0 SB	No	Yes	09:30	1	0 SB	No	Yes	22:15	0	0 SB	No	Yes
21:45	0	0 SB	No	Yes	22:45	0	0 SB	No	Yes	22:00	0	0 SB	No	Yes
21:30	0	0 SB	No	Yes	22:30	0	0 SB	No	Yes	21:45	0	0 SB	No	Yes
21:15	0	0 SB	No	Yes	22:15	0	0 SB	No	Yes	21:30	0	0 SB	No	Yes
21:00	0	0 SB	No	Yes	22:00	0	0 SB	No	Yes	21:15	0	0 SB	No	Yes



NORTH

COUNT LOCATION:

CSAH 12 (109th Ave.)

DATE:

11/19/2013

@ Ulysses St.

APP. #1 = CSAH 12

APP. #2 = Ulysses St.

APP. #3 = CSAH 12

APP. #4 = VFW Driveway

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						2		
6:15-6:30						2		
6:30-6:45				1	1	1		
6:45-7:00						2		2
HOURLY TOTAL					1	HOURLY TOTAL		9
7:00-7:15AM						3		2
7:15-7:30				1	1	4		5
7:30-7:45				1	1	4		2
7:45-8:00						2		1
HOURLY TOTAL					2	HOURLY TOTAL		23
8:00-8:15AM				1	1	1		3
8:15-8:30				1	1	2		3
8:30-8:45		1			1	5		4
8:45-9:00				1	1	3		7
HOURLY TOTAL					4	HOURLY TOTAL		28
					TOTAL 7		TOTAL	60

TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
4:00-4:15PM						5		6
4:15-4:30	1			1	2	4		4
4:30-4:45						2		
4:45-5:00						2		
HOURLY TOTAL					2	HOURLY TOTAL		23
5:00-5:15PM						2		
5:15-5:30								2
5:30-5:45						2		3
5:45-6:00						2		
HOURLY TOTAL						HOURLY TOTAL		11
6:00-6:15PM						2		
6:15-6:30						3		
6:30-6:45						2		
6:45-7:00						2		
HOURLY TOTAL						HOURLY TOTAL		9
					TOTAL 2		TOTAL	43