

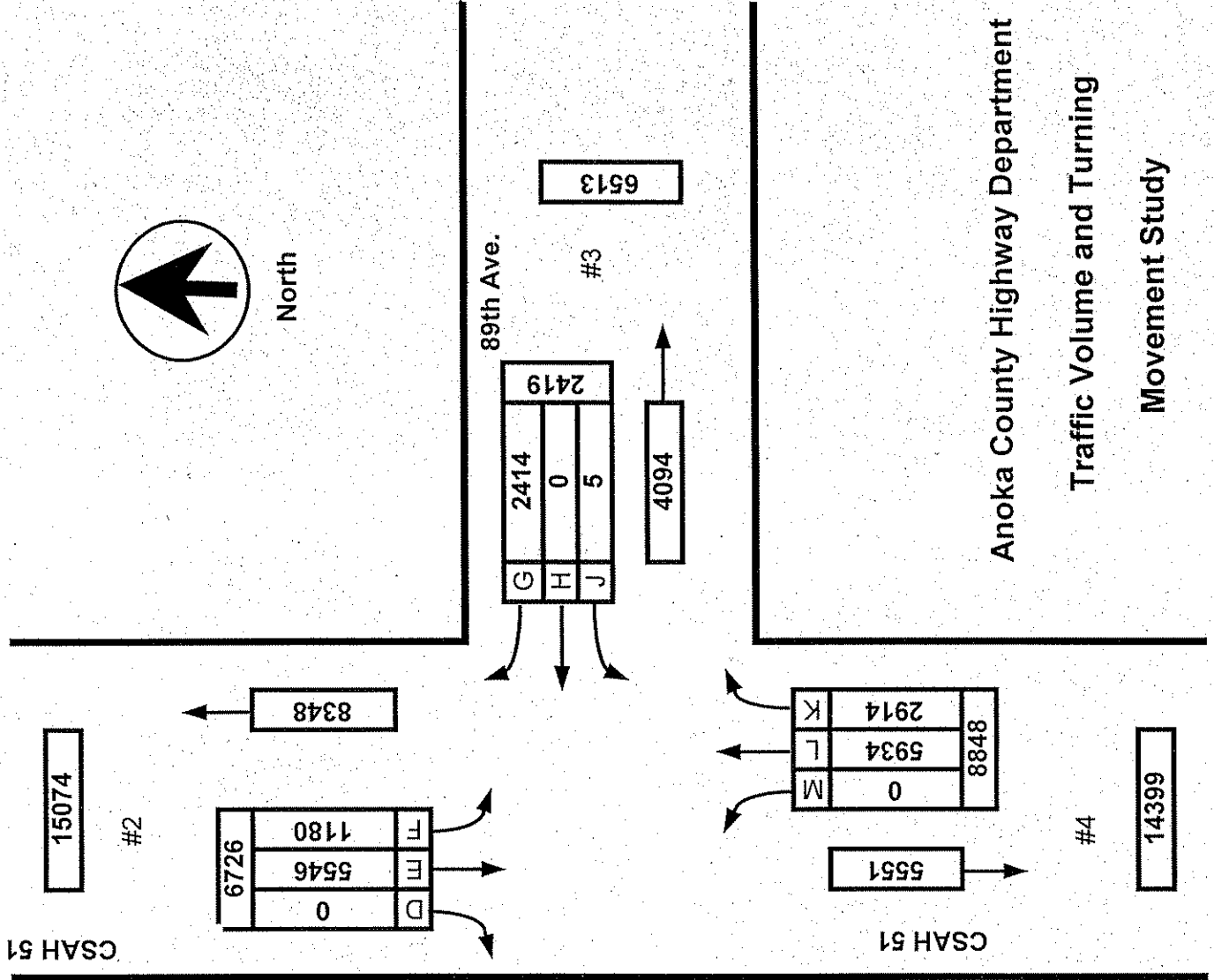
Date : 10/24/05

Count Number : TMC0536

Location : CSAH 51 (University Ave.)

@ 89th Ave.

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



Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Anoka County Highway Department
Traffic Engineering
Traffic Volume and Turning Movement Stud

File Name : TMC0536
Site Code : 05360101
Start Date : 10/24/2005
Page No : 1

Weather: Cloudy and Cool
Counter: TDC-8
Counted by: Josie/Terri

Groups Printed- Unshifted

Start Time	CSAH 51 Southbound					89th Ave. Westbound					CSAH 51 Northbound					None 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			
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
06:00	3	98	0	4	101	0	0	5	0	5	0	11	6	3	17	0	0	0	0	0	7	123	130
06:15	4	144	0	1	148	0	0	8	1	8	0	10	11	2	21	0	0	0	0	0	4	177	181
06:30	8	160	0	4	168	0	0	20	0	20	0	26	10	4	36	0	0	0	0	0	8	224	232
06:45	13	171	0	3	184	0	0	16	1	16	0	21	20	2	41	0	0	0	0	0	6	241	247
Total	28	573	0	12	601	0	0	49	2	49	0	68	47	11	115	0	0	0	0	0	25	765	790
07:00	12	189	0	7	201	0	0	17	1	17	0	23	12	5	35	0	0	0	0	0	13	253	266
07:15	16	236	0	3	252	0	0	21	3	21	0	27	20	3	47	0	0	0	0	0	9	320	329
07:30	20	227	0	4	247	0	0	19	3	19	0	24	27	5	51	0	0	0	0	0	12	317	329
07:45	22	171	0	4	193	0	0	18	0	18	0	32	39	4	71	0	0	0	0	0	8	282	290
Total	70	823	0	18	893	0	0	75	7	75	0	106	98	17	204	0	0	0	0	0	42	1172	1214
08:00	15	118	0	6	133	0	0	13	0	13	0	19	17	1	36	0	0	0	0	0	7	182	189
08:15	19	96	0	3	115	0	0	12	0	12	0	35	26	5	61	0	0	0	0	0	8	188	196
08:30	11	68	0	3	79	0	0	26	3	26	0	28	25	7	53	0	0	0	0	0	13	158	171
08:45	16	85	0	2	101	0	0	25	0	25	0	27	34	4	61	0	0	0	0	0	6	187	193
Total	61	367	0	14	428	0	0	76	3	76	0	109	102	17	211	0	0	0	0	0	34	715	749
09:00	22	74	0	3	96	0	0	32	1	32	0	48	39	6	87	0	0	0	0	0	10	215	225
09:15	22	59	0	1	81	0	0	43	0	43	0	43	45	5	88	0	0	0	0	0	6	212	218
09:30	17	68	0	1	85	0	0	35	3	35	0	61	47	4	108	0	0	0	0	0	8	228	236
09:45	24	89	0	4	113	0	0	28	1	28	0	54	47	5	101	0	0	0	0	0	10	242	252
Total	85	290	0	9	375	0	0	138	5	138	0	206	178	20	384	0	0	0	0	0	34	897	931
10:00	26	65	0	6	91	0	0	41	2	41	0	59	45	4	104	0	0	0	0	0	12	236	248
10:15	21	68	0	1	89	0	0	43	3	43	0	51	42	4	93	0	0	0	0	0	8	225	233
10:30	22	79	0	5	101	0	0	49	3	49	0	61	44	5	105	0	0	0	0	0	13	255	268
10:45	16	83	0	6	99	0	0	35	1	35	0	74	65	3	139	0	0	0	0	0	10	273	283
Total	85	295	0	18	380	0	0	168	9	168	0	245	196	16	441	0	0	0	0	0	43	989	1032
11:00	24	65	0	2	89	0	0	32	0	32	0	87	39	4	126	0	0	0	0	0	6	247	253
11:15	28	91	0	7	119	0	0	44	2	44	0	71	50	1	121	0	0	0	0	0	10	284	294
11:30	25	91	0	4	116	0	0	46	0	46	0	104	75	10	179	0	0	0	0	0	14	341	355
11:45	21	101	0	4	122	0	0	68	3	68	0	101	82	4	183	0	0	0	0	0	11	373	384
Total	98	348	0	17	446	0	0	190	5	190	0	363	246	19	609	0	0	0	0	0	41	1245	1286
12:00	24	68	0	3	92	0	0	49	0	49	0	109	77	6	186	0	0	0	0	0	9	327	336
12:15	16	98	0	2	114	0	0	48	0	48	0	94	63	7	157	0	0	0	0	0	9	319	328
12:30	16	98	0	3	114	1	0	56	0	57	0	104	64	8	168	0	0	0	0	0	11	339	350
12:45	17	91	0	3	108	0	0	56	2	56	0	89	87	7	176	0	0	0	0	0	12	340	352
Total	73	355	0	11	428	1	0	209	2	210	0	396	291	28	687	0	0	0	0	0	41	1325	1366
13:00	24	79	0	3	103	0	0	40	2	40	0	99	55	6	154	0	0	0	0	0	11	297	308
13:15	14	85	0	4	99	1	0	53	0	54	0	78	70	2	148	0	0	0	0	0	6	301	307
13:30	25	93	0	1	118	0	0	34	0	34	0	101	54	3	155	0	0	0	0	0	4	307	311
13:45	24	88	0	2	112	0	0	58	0	58	0	91	66	0	157	0	0	0	0	0	2	327	329
Total	87	345	0	10	432	1	0	185	2	186	0	369	245	11	614	0	0	0	0	0	23	1232	1255
14:00	18	83	0	5	101	1	0	35	1	36	0	119	60	3	179	0	0	0	0	0	9	316	325
14:15	24	90	0	3	114	0	0	48	0	48	0	134	65	6	199	0	0	0	0	0	9	361	370
14:30	27	63	0	1	90	0	0	61	2	61	0	145	73	11	218	0	0	0	0	0	14	369	383
14:45	32	97	0	2	129	0	0	57	3	57	0	128	52	3	180	0	0	0	0	0	8	366	374
Total	101	333	0	11	434	1	0	201	6	202	0	526	250	23	776	0	0	0	0	0	40	1412	1452
15:00	29	90	0	7	119	0	0	63	1	63	0	171	56	6	227	0	0	0	0	0	14	409	423
15:15	34	99	0	3	133	0	0	56	0	56	0	144	70	4	214	0	0	0	0	0	7	403	410
15:30	29	100	0	3	129	0	0	91	0	91	0	186	70	1	256	0	0	0	0	0	4	476	480
15:45	19	95	0	6	114	1	0	42	0	43	0	188	77	3	265	0	0	0	0	0	9	422	431
Total	111	384	0	19	495	1	0	252	1	253	0	689	273	14	962	0	0	0	0	0	34	1710	1744
16:00	20	82	0	0	102	0	0	47	2	47	0	210	71	3	281	0	0	0	0	0	5	430	435
16:15	24	117	0	1	141	0	0	64	0	64	0	221	57	3	278	0	0	0	0	0	4	483	487
16:30	29	114	0	3	143	0	0	72	1	72	0	249	78	2	327	0	0	0	0	0	6	542	548
16:45	26	89	0	1	115	0	0	41	1	41	0	221	79	2	300	0	0	0	0	0	4	456	460
Total	99	402	0	5	501	0	0	224	4	224	0	901	285	10	1186	0	0	0	0	0	19	1911	1930
17:00	35	83	0	3	118	0	0	65	0	65	0	249	72	3	321	0	0	0	0	0	6	504	510
17:15	26	86	0	2	112	0	0	73	1	73	0	246	85	2	331	0	0	0	0	0	5	516	521
17:30	20	91	0	0	111	0	0	61	0	61	0	246	85	5	331	0	0	0	0	0	5	503	508
17:45	46	95	0	3	141	0	0	60	0	60	0	197	69	3	266	0	0	0	0	0	6	467	473
Total	127	355	0	8	482	0	0	259	1	259	0	938	311	13	1249	0	0	0	0	0	22	1990	

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

Study Name : TMC0536
Study Date : 11/15/05
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 51
Number of Lanes: 2
Approach Speed: 35
Total Approach Volume: 8,848

Southbound: CSAH 51
Number of Lanes: 2
Approach Speed: 35
Total Approach Volume: 6,726

Minor Street Approaches

Eastbound: None
Number of Lanes: 1

Total Approach Volume: 0

Westbound: 89th Ave.
Number of Lanes: 1

Total Approach Volume: 2,419

Warrant Summary (Urban values apply.)

Warrant 1 - Eight Hour Vehicular Volumes	Satisfied
Warrant 1A - Minimum Vehicular Volume Satisfied	
Required volumes reached for 10 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic Satisfied	
Required volumes reached for 10 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants Satisfied	
Required volumes reached for 11 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Satisfied
Number of hours (9) volumes exceed minimum >= minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Delay Satisfied	
Number of hours (42) 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

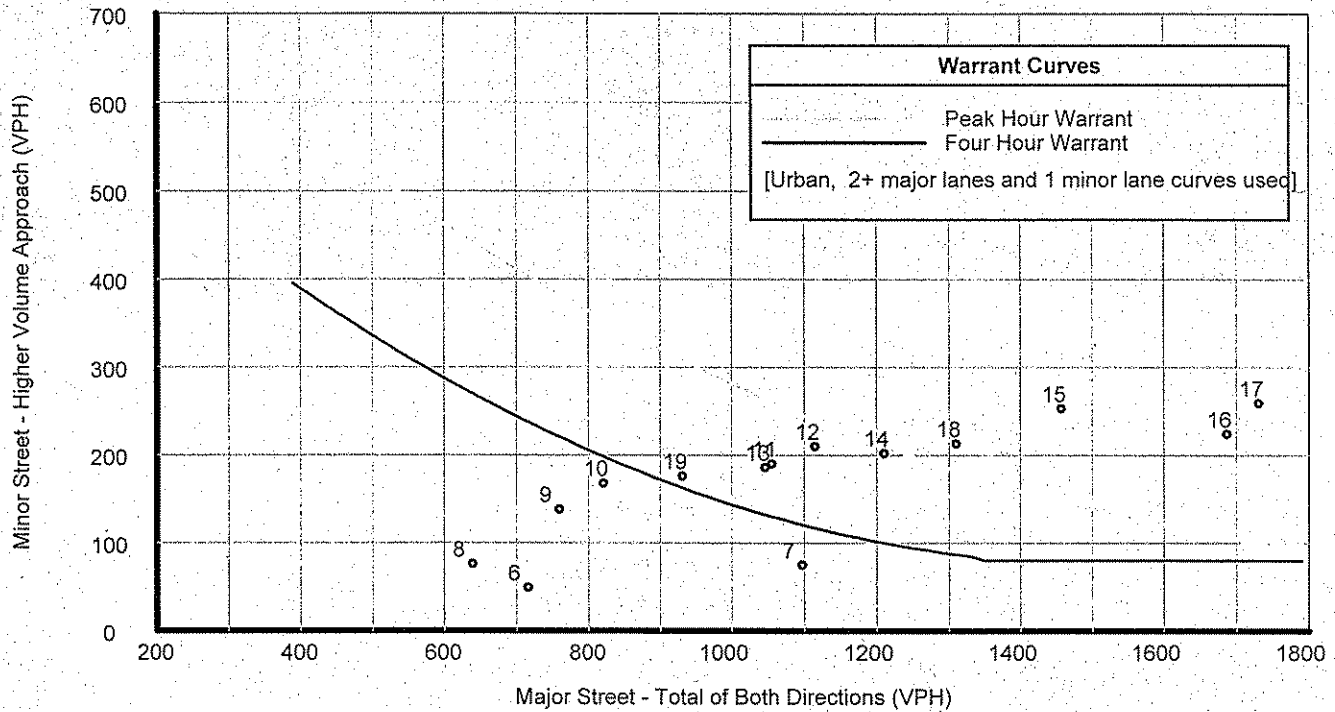
ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC0536
Study Date : 11/15/05
Page No. : 2

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor		War-1A			War-1B			War-1A&B		
		Vol	Dir	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	0	0	EB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
01:00	0	0	EB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
02:00	0	0	EB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
03:00	0	0	EB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
04:00	0	0	EB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
05:00	0	0	EB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
06:00	716	49	WB	600-Yes	150-No	Major	900-No	75-No	---	720-No	120-No	---
07:00	1,097	75	WB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-No	Major
08:00	639	76	WB	600-Yes	150-No	Major	900-No	75-Yes	Minor	720-No	120-No	---
09:00	759	138	WB	600-Yes	150-No	Major	900-No	75-Yes	Minor	720-Yes	120-Yes	Both
10:00	821	168	WB	600-Yes	150-Yes	Both	900-No	75-Yes	Minor	720-Yes	120-Yes	Both
11:00	1,055	190	WB	600-Yes	150-Yes	Both	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
12:00	1,115	210	WB	600-Yes	150-Yes	Both	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
13:00	1,046	186	WB	600-Yes	150-Yes	Both	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
14:00	1,210	202	WB	600-Yes	150-Yes	Both	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
15:00	1,457	253	WB	600-Yes	150-Yes	Both	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
16:00	1,687	224	WB	600-Yes	150-Yes	Both	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
17:00	1,731	259	WB	600-Yes	150-Yes	Both	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
18:00	1,310	213	WB	600-Yes	150-Yes	Both	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
19:00	931	176	WB	600-Yes	150-Yes	Both	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
20:00	0	0	EB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
21:00	0	0	EB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
22:00	0	0	EB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
23:00	0	0	EB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---

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

Study Name : TMC0536
Study Date : 11/15/05

Multi-Way Stop Warrant Report

Major Street Approaches

Northbound: CSAH 51
Total Approach Volume: 8,848
Approach Speed: 35

Southbound: CSAH 51
Total Approach Volume: 6,726
Approach Speed: 35

Minor Street Approaches

Eastbound: None
Total Approach Volume: 0

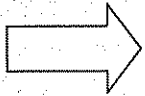
Westbound: 89th Ave.
Total Approach Volume: 2,419

Warrant Summary

- Criteria A - Interim Measure** Not Evaluated
If traffic signals are justified, stop signs can be installed as an interim measure.
- Criteria B - Crash Experience** Not Evaluated
- Criteria C - Minimum Volumes and Delays** Not Satisfied
Delay data not evaluated
Required volumes reached for 6 hours, 8 are needed
- Criteria D - 80% of Volumes, Delays, and Crashes** Not Evaluated
Delay data not evaluated
Required volumes reached for 0 hours, 8 are needed

Analysis of 8-Hour Volume Warrants:

Time	Major Total	Minor Total	Crit C			Crit D		
			Major	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00 - 01:00	0	0	300-No	200-No	No	240-No	160-No	No
01:00 - 02:00	0	0	300-No	200-No	No	240-No	160-No	No
02:00 - 03:00	0	0	300-No	200-No	No	240-No	160-No	No
03:00 - 04:00	0	0	300-No	200-No	No	240-No	160-No	No
04:00 - 05:00	0	0	300-No	200-No	No	240-No	160-No	No
05:00 - 06:00	0	0	300-No	200-No	No	240-No	160-No	No
06:00 - 07:00	716	49	300-Yes	200-No	Major	240-Yes	160-No	Major
07:00 - 08:00	1,097	75	300-Yes	200-No	Major	240-Yes	160-No	Major
08:00 - 09:00	639	76	300-Yes	200-No	Major	240-Yes	160-No	Major
09:00 - 10:00	759	138	300-Yes	200-No	Major	240-Yes	160-No	Major
10:00 - 11:00	821	168	300-Yes	200-No	Major	240-Yes	160-Yes	Both
11:00 - 12:00	1,055	190	300-Yes	200-No	Major	240-Yes	160-Yes	Both
12:00 - 13:00	1,115	210	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
13:00 - 14:00	1,046	186	300-Yes	200-No	Major	240-Yes	160-Yes	Both
14:00 - 15:00	1,210	202	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
15:00 - 16:00	1,457	253	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
16:00 - 17:00	1,687	224	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
17:00 - 18:00	1,731	259	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
18:00 - 19:00	1,310	213	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
19:00 - 20:00	931	176	300-Yes	200-No	Major	240-Yes	160-Yes	Both
20:00 - 21:00	0	0	300-No	200-No	No	240-No	160-No	No
21:00 - 22:00	0	0	300-No	200-No	No	240-No	160-No	No
22:00 - 23:00	0	0	300-No	200-No	No	240-No	160-No	No
23:00 - 00:00	0	0	300-No	200-No	No	240-No	160-No	No



COUNT LOCATION:

CSAH 51 (University Ave.) @
89th Ave.

DATE:

10/25/2005

NORTH

APP.#1= CSAH 51

APP.#2= None

APP.#3= CSAH 51

APP.#4= 89th Ave.

APP.
#2

APP.
#1

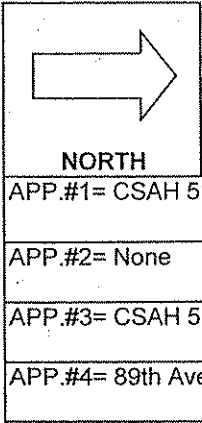
APP.
#3

APP.
#4

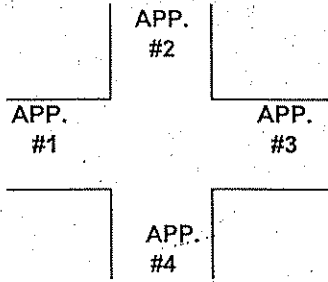
- HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT
- A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.
 - B. RV- A HEAVY VEHICLE OPERATED BY A PRIVATE MOTORIST AND INVOLVED IN THE TRANSPORT OF RECREATIONAL EQUIPMENT OR 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				1	1	4		3
6:15-6:30						3		1
6:30-6:45				1	1	7		1
6:45-7:00						3		3
HOURLY TOTAL					2	HOURLY TOTAL		25
7:00-7:15				1	1	9		4
7:15-7:30						8		1
7:30-7:45						7		3
7:45-8:00						7		3
HOURLY TOTAL					1	HOURLY TOTAL		42
8:00-8:15						6		2
8:15-8:30						6		1
8:30-8:45						9		3
8:45-9:00						5		3
HOURLY TOTAL						HOURLY TOTAL		35
9:00-9:15						8		2
9:15-9:30				1	1	5		1
9:30-9:45						6		2
9:45-10:00				1	1	6	1	3
HOURLY TOTAL					2	HOURLY TOTAL		34
10:00-10:15						10		2
10:15-10:30						8		
10:30-10:45						12		
10:45-11:00						8		2
HOURLY TOTAL						HOURLY TOTAL		42
11:00-11:15						10		1
11:15-11:30						4		1
11:30-11:45						14		
11:45-12:00						8		2
HOURLY TOTAL						HOURLY TOTAL		40
12:00-12:15						7		2
12:15-12:30						7		1
12:30-12:45						10		1
12:45-1:00						12		
HOURLY TOTAL						HOURLY TOTAL		40
1:00-1:15						9		2
1:15-1:30		1			1	6		
1:30-1:45						4		
1:45-2:00						1		1
HOURLY TOTAL					1	HOURLY TOTAL		23
				TOTAL	6		TOTAL	281

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COUNT LOCATION: CSAH 51 (University Ave.) @ 89th Ave. DATE: 10/24/2005



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
2:00-2:15PM						6		5
2:15-2:30						7		
2:30-2:45						9		3
2:45-3:00				2	2	6		2
HOURLY TOTAL					2	HOURLY TOTAL		38
3:00-3:15				1	1	9		5
3:15-3:30				1	1	5		1
3:30-3:45						3		1
3:45-4:00						6		2
HOURLY TOTAL					2	HOURLY TOTAL		32
4:00-4:15						1		3
4:15-4:30				1	1	4		1
4:30-4:45						6		
4:45-5:00						2		2
HOURLY TOTAL					1	HOURLY TOTAL		19
5:00-5:15						1		5
5:15-5:30						4		1
5:30-5:45						4		2
5:45-6:00						3		3
HOURLY TOTAL						HOURLY TOTAL		23
6:00-6:15						1		1
6:15-6:30				1	1	2		1
6:30-6:45						3		
6:45-7:00								2
HOURLY TOTAL					1	HOURLY TOTAL		10
7:00-7:15						2		1
7:15-7:30						4		
7:30-7:45						3		
7:45-8:00						2		
HOURLY TOTAL						HOURLY TOTAL		12
					TOTAL		TOTAL	415

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