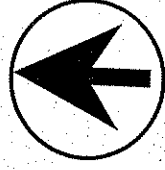


Date : 10/13/05

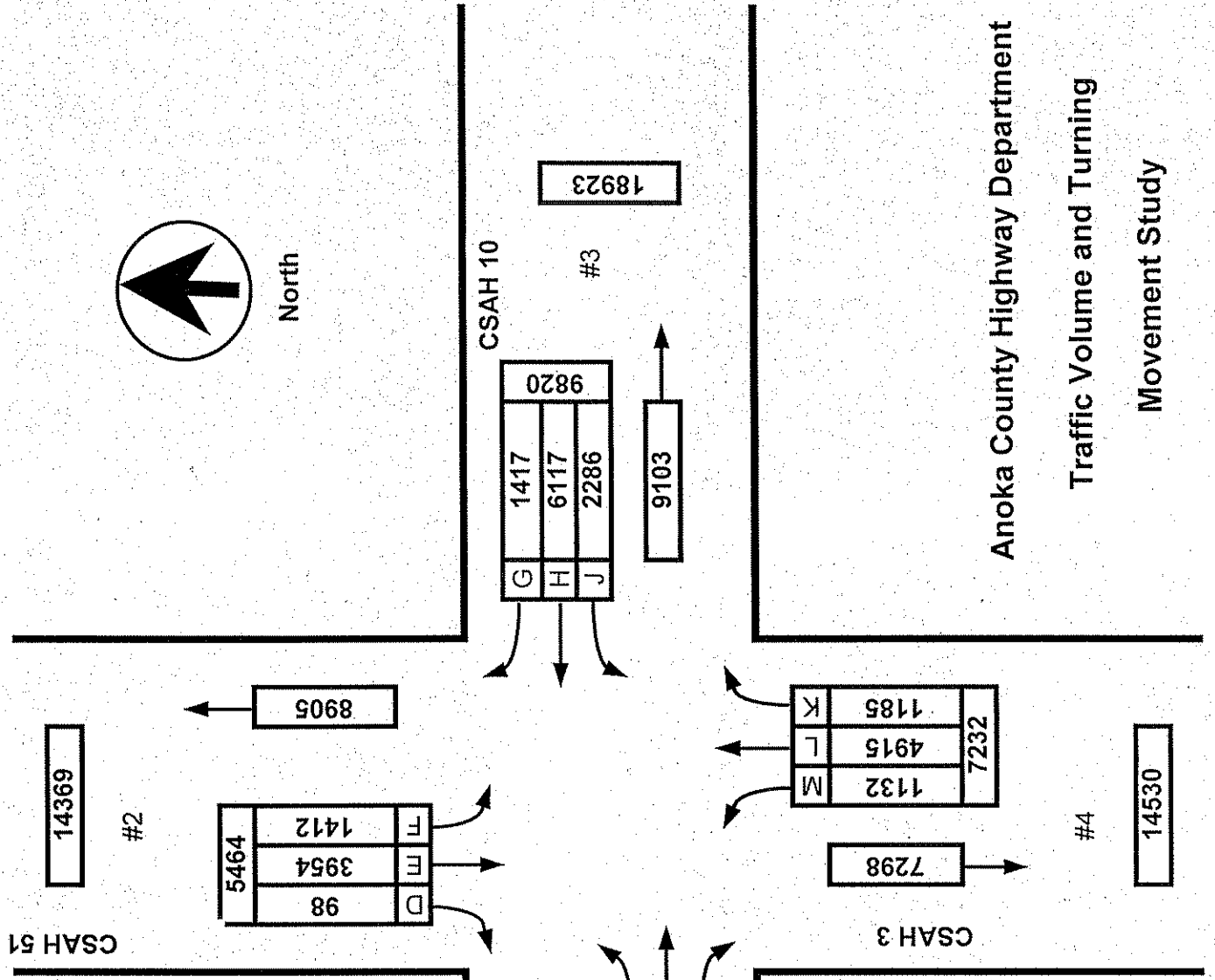
Count Number : TMC0537

Location : CSAH 51 (University Ave.)/CSAH 3

@ CSAH 10 (Old Hwy 10)



North



	LANES OF APPROACH			TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	1	2	2	5
#2	1	1	2	4
#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  
Traffic Volume and Turning Movement Study

File Name : TMC0537  
Site Code : 05370101  
Start Date : 10/26/2005  
Page No : 1

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

Start Time	CSAH 51 Southbound					CSAH 10 Westbound					CSAH 3 Northbound					CSAH 10 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			
	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	17	63	0	2	80	16	25	3	2	44	0	10	4	2	14	3	59	4	3	66	9	204	213
06:15	35	93	0	2	128	6	29	0	3	35	1	5	5	11	10	94	1	5	105	12	279	291	
06:30	36	97	3	1	136	10	59	6	2	75	1	16	5	1	22	24	165	4	10	193	14	426	440
06:45	43	133	0	3	176	10	57	1	3	68	1	16	2	3	19	14	157	6	5	177	14	440	454
Total	131	386	3	8	520	42	170	10	10	222	3	47	16	8	66	51	475	15	23	541	49	1349	1398
07:00	66	126	0	5	192	19	58	3	1	80	2	22	7	8	31	15	175	8	11	198	25	501	526
07:15	70	158	2	4	230	15	76	4	4	95	4	21	6	4	31	22	189	4	4	215	16	571	587
07:30	60	119	1	2	180	21	82	1	3	104	2	17	7	2	26	23	252	5	6	280	13	590	603
07:45	55	140	0	5	195	28	92	8	5	128	4	25	4	3	33	20	194	11	9	225	22	581	603
Total	251	543	3	16	797	83	308	16	13	407	12	85	24	17	121	80	610	28	30	918	76	2243	2319
08:00	47	90	0	2	137	23	79	6	2	108	3	13	7	4	23	24	185	11	11	220	19	488	507
08:15	30	78	2	3	110	23	77	11	6	111	4	25	7	2	36	23	111	10	5	144	16	401	417
08:30	30	46	2	1	78	12	76	7	5	95	6	37	10	5	53	27	110	3	7	140	18	366	384
08:45	24	56	1	4	81	25	92	5	9	122	4	38	7	7	49	39	108	6	4	153	24	405	429
Total	131	270	5	10	406	83	324	29	22	436	17	113	31	18	161	113	514	30	27	657	77	1660	1737
09:00	19	67	3	1	89	25	66	9	6	100	8	36	6	3	50	20	65	8	6	93	16	332	348
09:15	20	54	2	6	76	24	68	7	7	99	8	38	15	6	61	32	84	5	3	121	22	357	379
09:30	9	53	1	2	63	41	94	13	10	148	2	31	12	1	45	27	95	4	9	126	22	382	404
09:45	16	52	0	7	68	35	85	18	6	138	14	39	8	3	61	34	81	14	4	129	20	396	416
Total	64	226	6	16	296	125	313	47	29	485	32	144	41	13	217	113	325	31	22	469	80	1467	1547
10:00	14	50	1	5	65	31	70	10	7	111	8	44	15	5	67	39	78	16	4	133	21	376	397
10:15	13	51	2	5	66	45	68	9	9	122	11	45	13	5	69	45	89	23	4	157	23	414	437
10:30	15	46	1	2	62	30	97	9	3	136	10	56	22	5	88	30	103	23	5	156	15	442	457
10:45	14	58	1	5	73	34	93	8	6	135	17	69	18	3	104	37	103	9	3	149	17	461	478
Total	56	205	5	17	266	140	328	36	25	504	46	214	68	18	328	151	373	71	16	595	76	1693	1769
11:00	11	31	2	1	44	46	86	15	5	147	21	57	21	9	99	58	112	19	6	189	21	479	500
11:15	27	59	1	3	87	44	93	20	6	157	20	75	13	7	108	58	82	13	8	153	24	505	529
11:30	22	58	3	2	83	52	101	13	7	166	19	69	33	4	121	50	113	18	9	181	22	551	573
11:45	14	62	2	3	78	56	98	28	11	182	23	75	26	5	124	36	108	15	5	159	24	543	567
Total	74	210	8	9	292	198	378	76	29	652	83	276	93	25	452	202	415	65	28	682	91	2078	2169
12:00	17	41	1	0	59	62	105	12	4	179	25	61	23	10	109	62	137	28	2	227	16	574	590
12:15	14	69	2	2	85	70	140	15	5	225	18	73	28	1	119	62	139	36	5	237	13	666	679
12:30	27	62	2	4	91	52	129	29	3	210	26	72	40	4	138	51	149	30	5	230	16	669	685
12:45	17	67	1	4	85	51	111	20	7	182	34	76	28	2	138	51	136	23	5	210	18	615	633
Total	75	239	6	10	320	235	485	76	19	796	103	282	119	17	504	226	561	117	17	904	63	2524	2587
13:00	29	78	2	1	109	49	109	23	6	181	29	71	31	6	131	45	115	25	4	185	17	606	623
13:15	19	57	2	6	78	63	128	20	5	211	34	76	30	2	140	53	80	26	7	159	20	588	608
13:30	12	53	1	3	66	53	119	21	8	193	22	95	23	7	140	58	96	21	6	175	24	574	598
13:45	14	57	1	3	72	44	109	21	7	174	18	86	29	2	133	52	115	18	5	185	17	564	581
Total	74	245	6	13	325	209	465	85	26	759	103	328	113	17	544	208	406	90	22	704	78	2332	2410
14:00	18	38	0	0	56	56	121	22	4	199	30	100	19	8	149	51	114	24	8	189	20	593	613
14:15	19	66	3	5	88	42	140	28	4	210	23	80	24	5	127	57	92	12	4	161	18	586	604
14:30	23	50	2	1	75	52	113	27	2	192	31	98	21	3	150	49	92	14	3	155	9	572	581
14:45	14	69	1	3	84	54	115	27	10	196	32	130	27	4	189	51	113	19	5	183	22	652	674
Total	74	223	6	9	303	204	489	104	20	797	116	408	91	20	615	208	411	69	20	688	69	2403	2472
15:00	16	50	4	2	70	37	175	57	6	269	22	105	29	3	156	82	117	19	3	218	14	713	727
15:15	20	58	5	1	83	37	158	47	3	242	38	119	25	3	182	66	116	15	1	197	8	704	712
15:30	25	62	0	2	87	43	151	44	2	238	25	122	25	2	172	65	104	23	4	192	10	689	699
15:45	18	78	2	2	98	57	153	51	8	261	17	153	23	3	193	67	113	28	3	208	16	760	776
Total	79	248	11	7	338	174	637	199	19	1010	102	499	102	11	703	280	450	85	11	815	48	2866	2914
16:00	25	61	5	0	91	43	129	57	4	229	31	163	28	4	222	83	124	24	3	231	11	773	784
16:15	27	64	3	2	94	47	185	56	7	288	36	174	30	2	240	41	141	38	2	220	13	842	855
16:30	24	86	2	0	112	51	187	53	7	291	35	214	30	3	279	75	134	23	8	232	18	914	932
16:45	20	85	2	3	107	56	180	70	4	306	28	163	37	6	228	94	144	32	3	270	16	911	927
Total	96	296	12	5	404	197	681	236	22	1114	130	714	125	15	969	293	543	117	16	953	58	3440	3498
17:00	38	65	2	1	105	63	184	69	1	316	28	201	34	2	263	96	128	26	4	250	8	934	942
17:15	31	76	3	1	110	51	142	66	1	259	46	210	34	7	290	80	103	26	4	209	13	868	881
17:30	34	85	1	2	120	67	174	59	3														



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

Study Name : TMC0537  
Study Date : 11/02/05  
Page No. : 1

**Signal Warrants - Summary**

**Major Street Approaches**

**Eastbound: CSAH 10**  
Number of Lanes: 2  
Approach Speed: 50  
Total Approach Volume: 10,137

**Westbound: CSAH 10**  
Number of Lanes: 2  
Approach Speed: 50  
Total Approach Volume: 9,820

**Minor Street Approaches**

**Northbound: CSAH 3**  
Number of Lanes: 2  
  
Total Approach Volume: 7,232

**Southbound: CSAH 51**  
Number of Lanes: 2  
  
Total Approach Volume: 5,464

**Warrant Summary** (Rural values apply.)

<b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....	<b>Satisfied</b>
<b>Warrant 1A - Minimum Vehicular Volume</b> .....	<b>Satisfied</b>
Required volumes reached for 14 hours, 8 are needed	
<b>Warrant 1B - Interruption of Continuous Traffic</b> .....	<b>Satisfied</b>
Required volumes reached for 14 hours, 8 are needed	
<b>Warrant 1 A&amp;B - Combination of Warrants</b> .....	<b>Satisfied</b>
Required volumes reached for 14 hours, 8 are needed	
<b>Warrant 2 - Four Hour Volumes</b> .....	<b>Satisfied</b>
Number of hours (14) volumes exceed minimum >= minimum required (4).	
<b>Warrant 3 - Peak Hour</b> .....	<b>Satisfied</b>
<b>Warrant 3A - Peak Hour Delay</b> .....	<b>Satisfied</b>
Number of hours (47) volumes exceed minimum >= required (1). Delay data not evaluated.	
<b>Warrant 3B - Peak Hour Volumes</b> .....	<b>Satisfied</b>
Volumes exceed minimums for at least one hour.	
<b>Warrant 4 - Pedestrian Volumes</b> .....	<b>Not Evaluated</b>
<b>Warrant 5 - School Crossing</b> .....	<b>Not Evaluated</b>
<b>Warrant 6 - Coordinated Signal System</b> .....	<b>Not Evaluated</b>
<b>Warrant 7 - Crash Experience</b> .....	<b>Not Evaluated</b>
<b>Warrant 8 - Roadway Network</b> .....	<b>Not Evaluated</b>

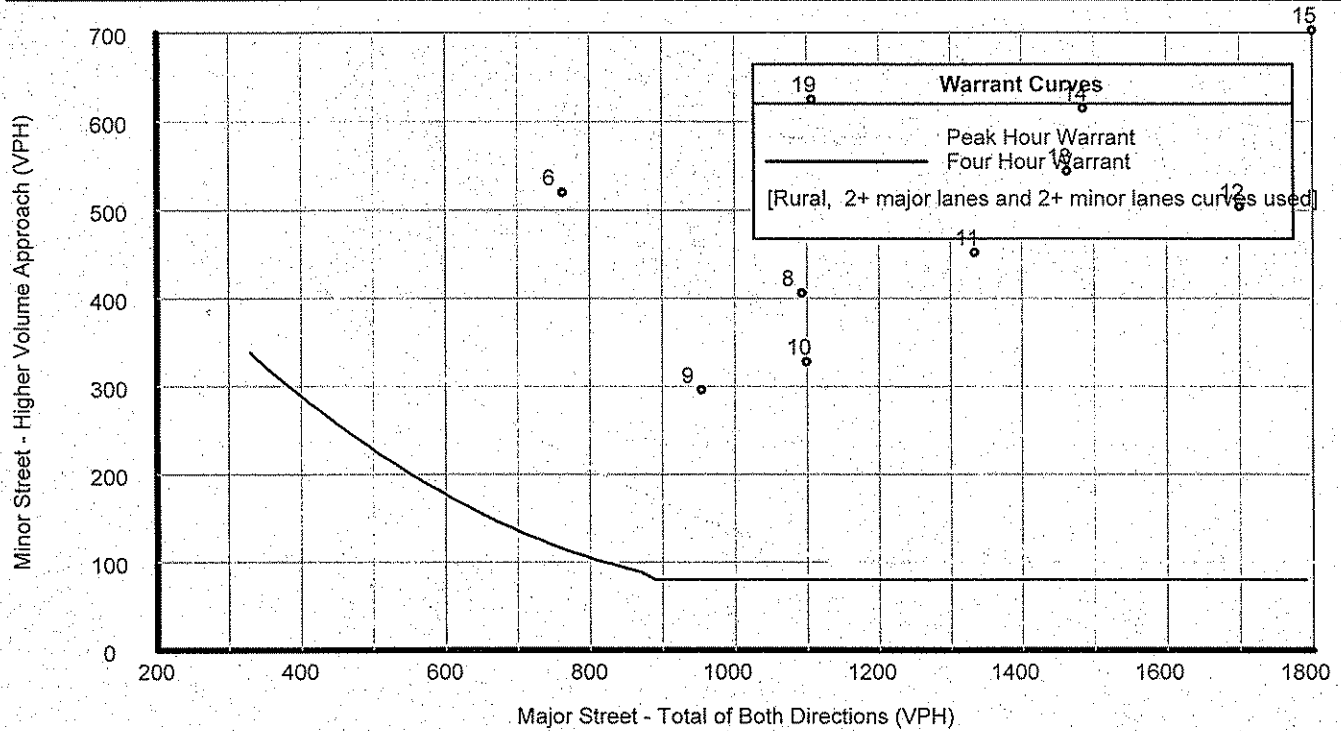
# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC0537  
Study Date : 11/02/05  
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	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
01:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
02:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
03:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
04:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
05:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
06:00	763	520	SB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
07:00	1,325	797	SB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
08:00	1,093	406	SB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
09:00	954	296	SB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
10:00	1,099	328	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
11:00	1,334	452	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
12:00	1,700	504	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
13:00	1,463	544	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
14:00	1,485	615	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
15:00	1,825	703	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
16:00	2,067	969	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
17:00	2,051	1,100	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
18:00	1,691	827	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
19:00	1,107	625	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
20:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
21:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
22:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
23:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---

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

Study Name : TMC0537  
Study Date : 11/02/05

**Multi-Way Stop Warrant Report**

**Major Street Approaches**

**Eastbound: CSAH 10**  
Total Approach Volume: 10,137  
Approach Speed: 50

**Westbound: CSAH 10**  
Total Approach Volume: 9,820  
Approach Speed: 50

**Minor Street Approaches**

**Northbound: CSAH 3**  
Total Approach Volume: 7,232

**Southbound: CSAH 51**  
Total Approach Volume: 5,464

**Warrant Summary**

**Criteria A - Interim Measure** ..... Not Evaluated  
If traffic signals are justified, stop signs can be installed as an interim measure.

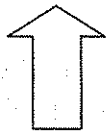
**Criteria B - Crash Experience** ..... Not Evaluated

**Criteria C - Minimum Volumes and Delays** ..... Satisfied  
Delay data not evaluated  
Required volumes reached for 14 hours, 8 are needed

**Criteria D - 80% of Volumes, Delays, and Crashes** ..... Not Evaluated  
Delay data not evaluated  
Required volumes reached for 10 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	210-No	140-No	No	240-No	160-No	No
01:00 - 02:00	0	0	210-No	140-No	No	240-No	160-No	No
02:00 - 03:00	0	0	210-No	140-No	No	240-No	160-No	No
03:00 - 04:00	0	0	210-No	140-No	No	240-No	160-No	No
04:00 - 05:00	0	0	210-No	140-No	No	240-No	160-No	No
05:00 - 06:00	0	0	210-No	140-No	No	240-No	160-No	No
06:00 - 07:00	763	586	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
07:00 - 08:00	1,325	918	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
08:00 - 09:00	1,093	567	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
09:00 - 10:00	954	513	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
10:00 - 11:00	1,099	594	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
11:00 - 12:00	1,334	744	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
12:00 - 13:00	1,700	824	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
13:00 - 14:00	1,463	869	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
14:00 - 15:00	1,485	918	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
15:00 - 16:00	1,825	1,041	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
16:00 - 17:00	2,067	1,373	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
17:00 - 18:00	2,051	1,542	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
18:00 - 19:00	1,691	1,267	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
19:00 - 20:00	1,107	940	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
20:00 - 21:00	0	0	210-No	140-No	No	240-No	160-No	No
21:00 - 22:00	0	0	210-No	140-No	No	240-No	160-No	No
22:00 - 23:00	0	0	210-No	140-No	No	240-No	160-No	No
23:00 - 00:00	0	0	210-No	140-No	No	240-No	160-No	No



**COUNT LOCATION:**

CSAH 51 (University Ave.)/CSAH 3

**DATE:**

10/26/2005

@ CSAH 10 (Old Hwy 10)

**NORTH**

APP.#1= CSAH 10

APP.#2= CSAH 51

APP.#3= CSAH 10

APP.#4= CSAH 3

APP.  
#2

APP.  
#1

APP.  
#3

APP.  
#4

HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT

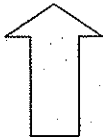
A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.

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						6		3
6:15-6:30			1		1	9		2
6:30-6:45						12		2
6:45-7:00						13		3
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>50</b>
7:00-7:15						22		3
7:15-7:30			2		2	14	1	1
7:30-7:45	1				1	11		3
7:45-8:00						18		4
<b>HOURLY TOTAL</b>					<b>3</b>	<b>HOURLY TOTAL</b>		<b>77</b>
8:00-8:15			1		1	16		3
8:15-8:30			1		1	15		2
8:30-8:45						15		3
8:45-9:00						16		9
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>		<b>79</b>
9:00-9:15	1		1		2	14		1
9:15-9:30	1			1	2	22		1
9:30-9:45						19	1	2
9:45-10:00						18		2
<b>HOURLY TOTAL</b>					<b>4</b>	<b>HOURLY TOTAL</b>		<b>80</b>
10:00-10:15						19		2
10:15-10:30						19		3
10:30-10:45						15		
10:45-11:00						15		2
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>75</b>
11:00-11:15			2		2	20		1
11:15-11:30						24		1
11:30-11:45			1		1	22		1
11:45-12:00						23		1
<b>HOURLY TOTAL</b>					<b>3</b>	<b>HOURLY TOTAL</b>		<b>93</b>
12:00-12:15						13		3
12:15-12:30						12		
12:30-12:45				1	1	14		4
12:45-1:00						15		3
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>64</b>
1:00-1:15						16		1
1:15-1:30			1		1	17		3
1:30-1:45			1		1	20		3
1:45-2:00						15		2
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>77</b>
<b>TOTAL</b>					<b>14</b>	<b>TOTAL</b>		<b>595</b>

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NORTH

APP.#1= CSAH 10
APP.#2= CSAH 51
APP.#3= CSAH 10
APP.#4= CSAH 3

COUNT LOCATION:

CSAH 51 (University Ave.)/CSAH 3

DATE:

10/27/2005

@ CSAH 10 (Old Hwy 10)

APP.  
#2

HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT

APP.  
#1

APP.  
#3

A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.

APP.  
#4

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						15		5
2:15-2:30						16		2
2:30-2:45						8		1
2:45-3:00	1		1		2	18		4
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>		<b>69</b>
3:00-3:15						10		4
3:15-3:30				1	1	7		1
3:30-3:45			3	1	4	10		
3:45-4:00			2		2	14	1	1
<b>HOURLY TOTAL</b>					<b>7</b>	<b>HOURLY TOTAL</b>		<b>48</b>
4:00-4:15						9		2
4:15-4:30			1		1	12		2
4:30-4:45						17		
4:45-5:00						13		4
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>59</b>
5:00-5:15						6		2
5:15-5:30						10		3
5:30-5:45	1		2	1	4	7		2
5:45-6:00	1				1	4	1	3
<b>HOURLY TOTAL</b>					<b>5</b>	<b>HOURLY TOTAL</b>		<b>38</b>
6:00-6:15						13		1
6:15-6:30						7		1
6:30-6:45						7		1
6:45-7:00						6		1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>37</b>
7:00-7:15						8		1
7:15-7:30			1		1	5		1
7:30-7:45						7		1
7:45-8:00						4		
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>27</b>
					<b>TOTAL</b>		<b>TOTAL</b>	<b>873</b>
					<b>30</b>			

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