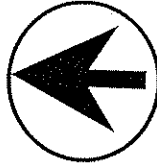


Date: 7/15/04

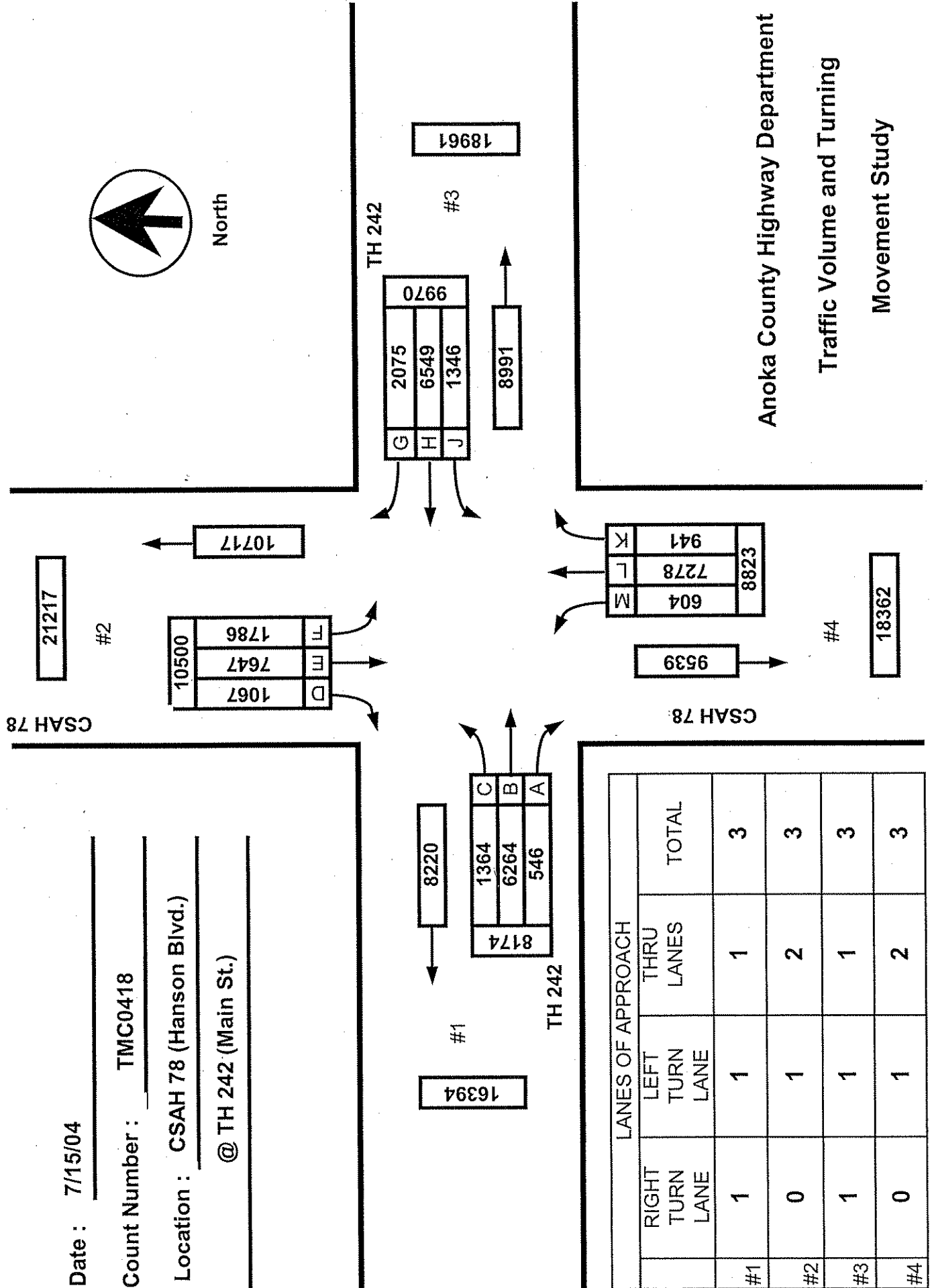
Count Number: TMC0418

Location: CSAH 78 (Hanson Blvd.)

@ TH 242 (Main St.)



North



#	LANES OF APPROACH			TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	1	1	1	3
#2	0	1	2	3
#3	1	1	1	3
#4	0	1	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 : TMC0418
 Site Code : 04160101
 Start Date : 07/07/2004
 Page No : 2

Weather: Warm & Sunny
 Counter: TDC-8
 Counted by: Katelyn/Kyle

Groups Printed- Unshifted

Start Time	CSAH 78 Southbound					TH 242 Westbound					CSAH 78 Northbound					TH 242 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				
18:00	32	122	25	3	179	31	117	81	3	229	22	214	19	3	255	35	130	6	2	171	11	834	845
18:15	28	109	17	1	154	24	172	66	3	262	12	207	24	2	243	23	116	8	2	147	8	806	814
18:30	29	115	19	3	163	21	134	34	3	189	12	176	15	2	203	25	119	5	0	149	8	704	712
18:45	22	128	21	2	171	21	100	28	3	149	12	158	11	3	181	24	115	15	2	154	10	655	665
Total	111	474	82	9	667	97	523	209	12	829	58	755	69	10	882	107	480	34	6	621	37	2999	3036
19:00	36	87	14	3	137	18	121	30	1	169	4	142	12	1	158	23	93	11	1	127	6	591	597
19:15	18	76	18	3	112	14	111	36	3	161	15	111	13	1	139	27	123	5	1	155	8	567	575
19:30	26	74	20	1	120	12	107	20	1	139	9	129	13	1	151	29	115	14	1	158	4	568	572
19:45	13	58	12	0	83	16	80	31	2	127	10	123	11	3	144	36	110	13	2	159	7	513	520
Total	93	296	64	7	452	60	419	117	7	596	38	505	49	6	592	115	441	43	5	599	25	2239	2264
20:00	23	87	12	2	122	16	83	27	0	126	10	128	11	0	149	16	103	12	0	131	2	528	530
20:15	21	88	20	6	129	15	92	24	1	131	10	134	6	2	150	28	91	9	2	128	11	538	549
20:30	27	101	17	1	145	10	95	31	1	136	9	147	14	1	170	28	82	11	0	121	3	572	575
20:45	22	67	11	1	100	16	55	20	1	91	6	131	9	2	146	23	103	8	0	134	4	471	475
Total	93	343	60	10	496	57	325	102	3	484	35	540	40	5	615	95	379	40	2	514	20	2109	2129
21:00	12	77	21	1	110	26	83	28	1	135	7	106	14	1	127	18	117	15	5	150	8	522	530
21:15	25	68	10	0	103	14	49	22	0	85	10	132	13	0	155	32	81	12	2	125	2	468	470
21:30	15	61	10	1	86	16	61	20	0	97	8	135	14	0	157	21	73	6	1	100	2	440	442
21:45	15	49	10	2	74	9	61	13	0	83	4	98	14	1	116	12	56	13	0	81	3	354	357
Total	67	255	51	4	373	65	254	81	1	400	29	471	55	2	555	83	327	46	8	456	15	1784	1799
Grand Total	178	764	106	462	10500	134	654	207	420	9970	604	727	941	372	8823	136	626	546	325	8174	1579	37467	39046
Apprch %	6	7	7			6	9	5			6.8	82.5	10.7			16.7	76.6	6.7					
Total %	4.8	20.4	2.8		28.0	3.6	17.5	5.5		26.6	1.6	19.4	2.5		23.5	3.6	16.7	1.5		21.8	4.0	96.0	

ANOKA COUNTY HIGHWAY
PC-WARRANTS
TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC0418
 Study Date : 07/16/04
 Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 78
 Number of Lanes: 2
 Approach Speed: 55
 Total Approach Volume: 8,823

Southbound: CSAH 78
 Number of Lanes: 2
 Approach Speed: 55
 Total Approach Volume: 10,500

Minor Street Approaches

Eastbound: TH 242
 Number of Lanes: 2
 Total Approach Volume: 8,174

Westbound: TH 242
 Number of Lanes: 2
 Total Approach Volume: 9,970

Warrant Summary (Rural values apply.)

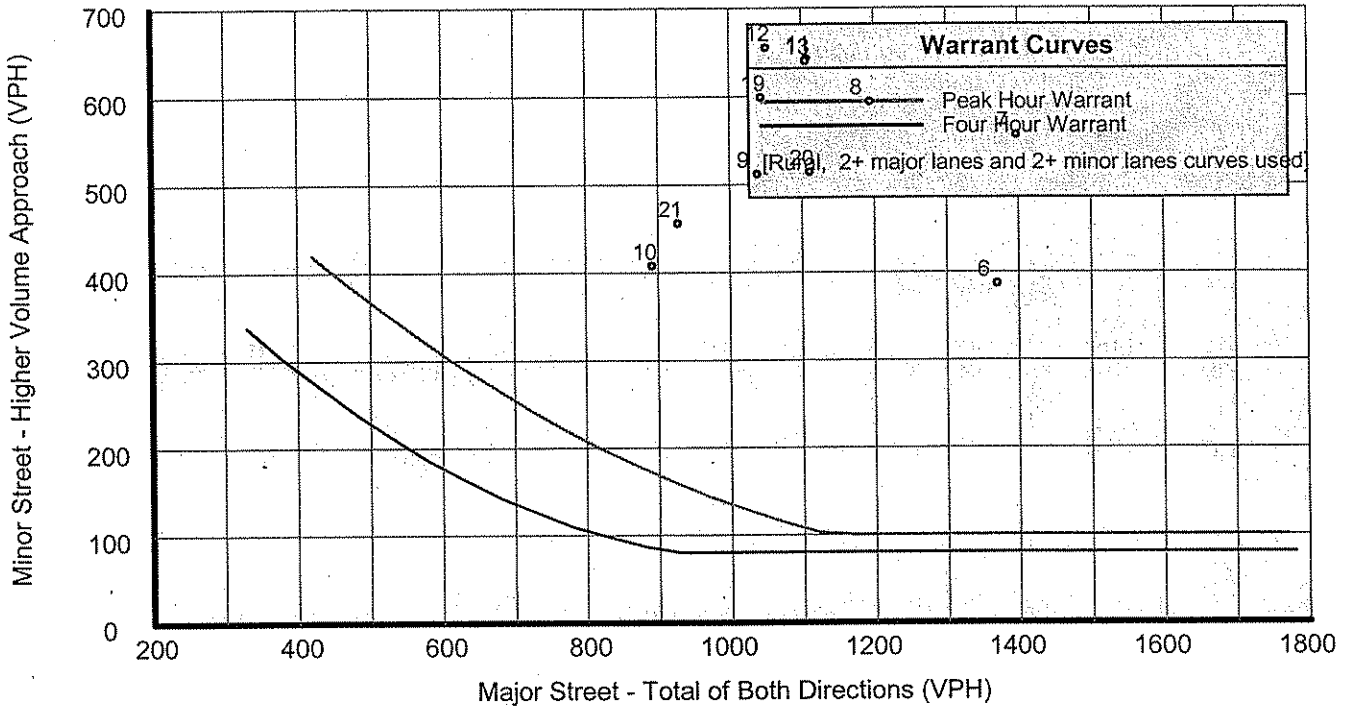
Warrant 1 - Eight Hour Vehicular Volumes	Satisfied
Warrant 1A - Minimum Vehicular Volume	Satisfied
Required volumes reached for 16 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic	Satisfied
Required volumes reached for 16 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants	Satisfied
Required volumes reached for 16 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Satisfied
Number of hours (16) volumes exceed minimum >= minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Volumes	Satisfied
Volumes exceed minimums for at least one hour.	
Warrant 3B - Peak Hour Delay	Satisfied
Number of hours (64) volumes exceed minimum >= required (1). Delay data not evaluated.	
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 : TMC0418
Study Date : 07/16/04
Page No. : 2

Signal Warrants - Summary

14
17



Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor Vol	Dir	War-1A			War-1B			War-1A&B		
				Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
01:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
02:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
03:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
04:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
05:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
06:00	1,370	387	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
07:00	1,398	556	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
08:00	1,195	594	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
09:00	1,038	512	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
10:00	892	408	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
11:00	1,107	643	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
12:00	1,051	655	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
13:00	1,106	640	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
14:00	1,273	764	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
15:00	1,476	807	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
16:00	1,567	954	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
17:00	1,218	741	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
18:00	1,549	829	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
19:00	1,044	599	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
20:00	1,111	514	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
21:00	928	456	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
22:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
23:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---

ANOKA COUNTY HIGHWAY
PC-WARRANTS
TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC0418
 Study Date : 07/16/04

Multi-Way Stop Warrant Report

Major Street Approaches

Northbound: CSAH 78
 Total Approach Volume: 8,823
 Approach Speed: 55

Southbound: CSAH 78
 Total Approach Volume: 10,500
 Approach Speed: 55

Minor Street Approaches

Eastbound: TH 242
 Total Approach Volume: 8,174

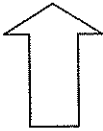
Westbound: TH 242
 Total Approach Volume: 9,970

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
 Number of crashes (0) is less than the minimum required (5).
- Criteria C - Minimum Volumes and Delays** Satisfied
 Delay data not evaluated
 Required volumes reached for 16 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 Crit Total	Minor Total	Crit C			Crit D		
			Major Crit	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	1,370	767	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
07:00 - 08:00	1,398	928	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
08:00 - 09:00	1,195	958	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
09:00 - 10:00	1,038	860	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
10:00 - 11:00	892	760	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
11:00 - 12:00	1,107	1,106	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
12:00 - 13:00	1,051	1,214	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
13:00 - 14:00	1,106	1,200	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
14:00 - 15:00	1,273	1,343	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
15:00 - 16:00	1,476	1,489	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
16:00 - 17:00	1,567	1,652	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
17:00 - 18:00	1,218	1,368	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
18:00 - 19:00	1,549	1,450	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
19:00 - 20:00	1,044	1,195	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
20:00 - 21:00	1,111	998	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
21:00 - 22:00	928	856	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
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



NORTH

APP. #1 = TH 242
APP. #2 = CSAH 78
APP. #3 = TH 242
APP. #4 = CSAH 78

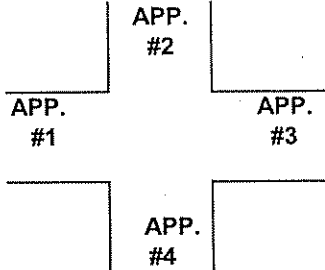
COUNT LOCATION:

CSAH 78 (Hanson Blvd.) @

DATE:

07/07/2004

TH 242 (Main St.)



- 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		1
6:15-6:30						15		
6:30-6:45						13		6
6:45-7:00		2			2	20		17
HOURLY TOTAL					2	HOURLY TOTAL		78
7:00-7:15						16		11
7:15-7:30						16		11
7:30-7:45		1			1	29		15
7:45-8:00		1			1	21		11
HOURLY TOTAL					3	HOURLY TOTAL		130
8:00-8:15		1				24		7
8:15-8:30						34	1	10
8:30-8:45						25		5
8:45-9:00						27	2	17
HOURLY TOTAL						HOURLY TOTAL		152
9:00-9:15						31		14
9:15-9:30						32		3
9:30-9:45						21		4
9:45-10:00						32	2	1
HOURLY TOTAL						HOURLY TOTAL		140
10:00-10:15						27	1	4
10:15-10:30						31		3
10:30-10:45						31	1	6
10:45-11:00						31		5
HOURLY TOTAL						HOURLY TOTAL		140
11:00-11:15						33		14
11:15-11:30						35	2	10
11:30-11:45						22	3	6
11:45-12:00						22	2	15
HOURLY TOTAL						HOURLY TOTAL		164
12:00-12:15						21		5
12:15-12:30		2			2	30	1	11
12:30-12:45						28		18
12:45-1:00						30	1	4
HOURLY TOTAL					2	HOURLY TOTAL		149
1:00-1:15		7	1		8	47	1	10
1:15-1:30		3			3	28	1	3
1:30-1:45		1			1	27		1
1:45-2:00						28	1	1
HOURLY TOTAL					12	HOURLY TOTAL		148
TOTAL					21	TOTAL		1023

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NORTH

APP. #1 = TH 242

APP. #2 = CSAH 78

APP. #3 = TH 242

APP. #4 = CSAH 78

COUNT LOCATION:

CSAH 78 (Hanson Blvd.) @
TH 242 (Main St.)

DATE:

07/08/2004

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
2:00-2:15PM		4			4	35		1
2:15-2:30		1			1	31		1
2:30-2:45		2			2	58	1	
2:45-3:00						28	1	
HOURLY TOTAL					7	HOURLY TOTAL		156
3:00-3:15						29	1	1
3:15-3:30						32	2	
3:30-3:45						38		1
3:45-4:00						22	1	3
HOURLY TOTAL						HOURLY TOTAL		130
4:00-4:15		2			2	16		3
4:15-4:30						11		1
4:30-4:45		1			1	13		3
4:45-5:00						12		
HOURLY TOTAL					3	HOURLY TOTAL		59
5:00-5:15						7		
5:15-5:30						15		
5:30-5:45		1			1	9		
5:45-6:00						9	1	
HOURLY TOTAL					1	HOURLY TOTAL		41
6:00-6:15						10	1	
6:15-6:30		1			1	6	1	1
6:30-6:45						7	1	
6:45-7:00						8	2	
HOURLY TOTAL					12	HOURLY TOTAL		37
7:00-7:15						5		1
7:15-7:30						6	2	
7:30-7:45						3		1
7:45-8:00						7		
HOURLY TOTAL						HOURLY TOTAL		25
8:00-8:15						2		
8:15-8:30		1			1	8	2	
8:30-8:45						3		
8:45-9:00	1		2	1	4	4		
HOURLY TOTAL					5	HOURLY TOTAL		19
9:00-9:15						6	2	
9:15-9:30		1			1	2		
9:30-9:45						2		
9:45-10:00						3		
HOURLY TOTAL					1	HOURLY TOTAL		15
TOTAL					29	TOTAL		1086

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