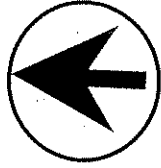


Date : 1/27/04

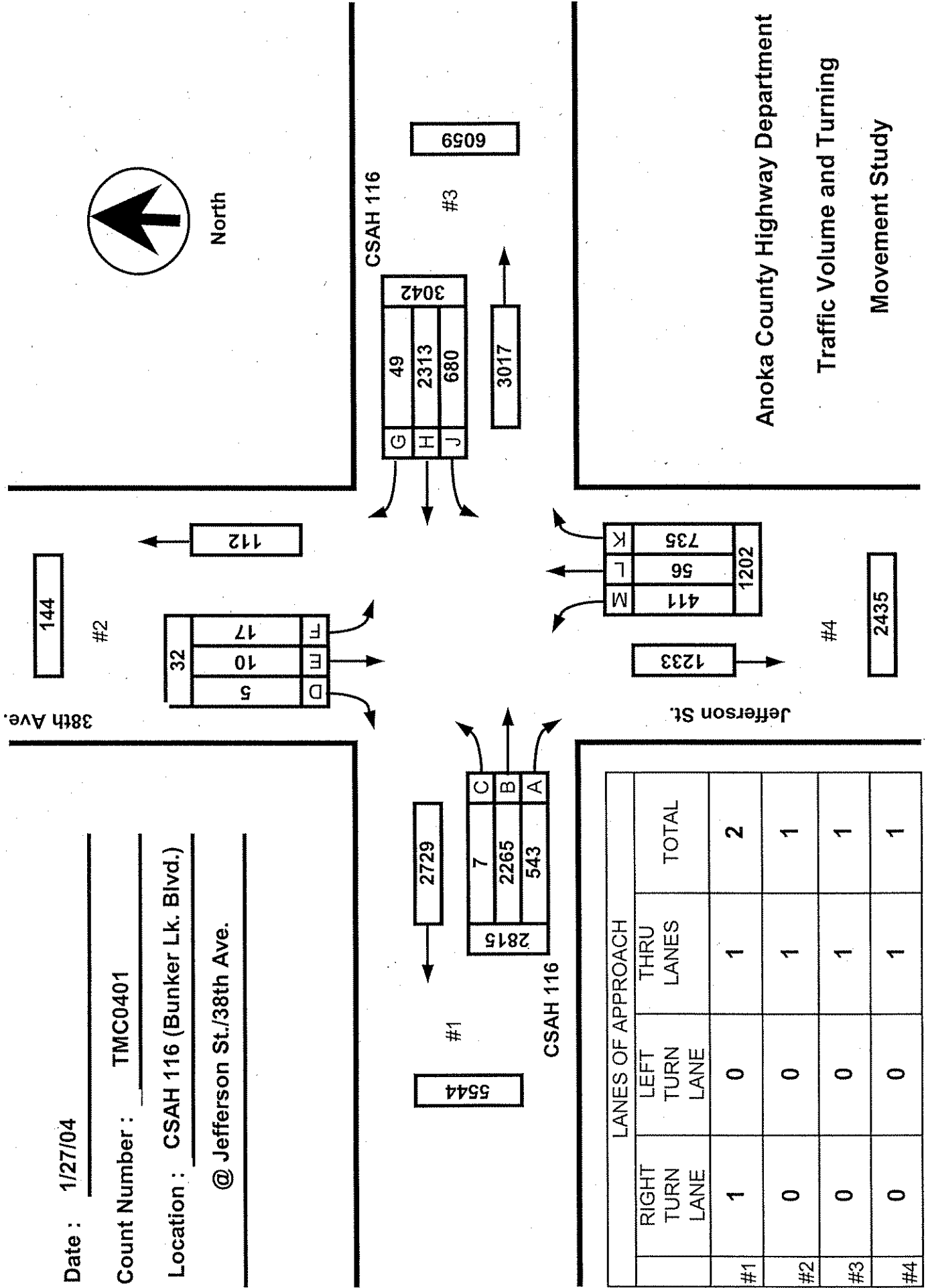
Count Number : TMC0401

Location : CSAH 116 (Bunker Lk. Blvd.)

@ Jefferson St./38th Ave.



North



Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

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

File Name : TMC0401  
 Site Code : 04010101  
 Start Date : 01/27/2004  
 Page No : 1

Weather: Cold and Sunny  
 Counter: TDC-8  
 Counted by: Josie/Sean

Groups Printed- Unshifted

Start Time	38TH AVE Southbound					CSAH 116 Westbound					JEFFERSON ST. Northbound					CSAH 116 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	0	0	0	0	0	13	20	0	2	33	2	0	4	1	6	0	26	6	2	32	5	71	76
06:15	0	0	1	0	1	23	41	0	2	64	4	0	3	0	7	0	51	18	3	69	5	141	146
06:30	0	0	0	0	0	35	45	0	0	80	10	0	3	0	13	0	77	28	11	105	11	198	209
06:45	0	0	0	0	0	31	36	1	1	68	4	1	3	1	8	0	74	22	10	96	12	172	184
Total	0	0	1	0	1	102	142	1	5	245	20	1	13	2	34	0	228	74	26	302	33	582	615
07:00	1	0	0	0	1	56	45	1	4	102	3	1	9	1	13	0	100	35	10	135	15	251	266
07:15	2	0	1	0	3	59	81	1	9	141	3	0	9	2	12	1	103	39	5	143	16	299	315
07:30	0	1	0	0	1	54	79	0	4	133	2	1	14	2	17	0	112	39	6	151	12	302	314
07:45	0	1	0	0	1	55	55	1	5	111	11	0	18	1	29	0	114	28	4	142	10	283	293
Total	3	2	1	0	6	224	260	3	22	487	19	2	50	6	71	1	429	141	25	571	53	1135	1188
08:00	0	0	0	0	0	36	59	2	4	97	8	2	35	2	45	0	94	26	7	120	13	262	275
08:15	0	0	0	0	0	20	34	0	3	54	5	2	5	1	12	1	64	21	5	86	9	152	161
08:30	0	1	0	0	1	22	69	2	8	93	6	0	7	1	13	0	98	4	9	102	18	209	227
08:45	0	2	1	1	3	13	44	1	6	58	5	0	4	1	9	0	67	13	3	80	11	150	161
Total	0	3	1	1	4	91	206	5	21	302	24	4	51	5	79	1	323	64	24	388	51	773	824
09:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	20	5	0	25	0	26	26
*** BREAK ***																							
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	20	5	0	25	0	26	26
*** BREAK ***																							
14:00	0	1	0	0	1	11	45	1	1	57	5	2	8	0	15	1	58	13	7	72	8	145	153
14:15	0	0	1	1	1	10	54	5	5	69	16	1	10	3	27	0	63	11	4	74	13	171	184
14:30	1	0	0	0	1	13	60	2	3	75	20	1	61	9	82	0	62	17	10	79	22	237	259
14:45	1	1	0	0	2	18	58	1	3	77	21	4	51	5	76	0	54	11	4	65	12	220	232
Total	2	2	1	1	5	52	217	9	12	278	62	8	130	17	200	1	237	52	25	290	55	773	828
15:00	1	0	0	0	1	4	58	3	3	65	14	3	30	3	47	0	59	11	5	70	11	183	194
15:15	1	1	0	0	2	9	68	1	10	78	14	2	28	2	44	1	70	12	2	83	14	207	221
15:30	0	0	0	0	0	11	78	2	4	91	15	3	18	1	36	0	80	7	4	87	9	214	223
15:45	1	1	0	0	2	15	91	0	2	106	17	0	37	1	54	1	64	11	2	76	5	238	243
Total	3	2	0	0	5	39	295	6	19	340	60	8	113	7	181	2	273	41	13	316	39	842	861
16:00	0	0	0	0	0	14	97	1	1	112	12	3	37	5	52	0	59	11	0	70	6	234	240
16:15	0	0	0	0	0	12	91	2	4	105	26	5	42	1	73	0	71	12	1	83	6	261	267
16:30	1	0	1	0	2	11	125	2	14	138	20	1	38	0	59	0	67	14	2	81	16	280	296
16:45	0	0	0	0	0	15	104	0	5	119	19	1	36	0	56	1	97	16	2	114	7	289	296
Total	1	0	1	0	2	52	417	5	24	474	77	10	153	6	240	1	294	53	5	348	35	1064	1099
17:00	0	0	0	0	0	25	118	1	5	144	20	2	33	0	55	0	57	22	0	79	5	278	283
17:15	1	0	0	0	1	16	132	4	3	152	17	4	43	1	64	0	68	11	3	79	7	296	303
17:30	0	0	0	0	0	17	118	0	1	135	26	5	38	0	69	0	69	13	3	82	4	286	290
17:45	1	0	0	0	1	7	110	4	2	121	23	3	37	0	63	0	61	17	1	78	3	263	266
Total	2	0	0	0	2	65	478	9	11	552	86	14	151	1	251	0	255	63	7	318	19	1123	1142
18:00	2	0	0	0	2	7	105	2	2	114	20	4	19	0	43	1	50	15	4	66	6	225	231
18:15	1	0	0	0	1	23	82	5	0	110	14	3	13	0	30	0	45	13	0	58	0	199	199
18:30	2	0	0	0	2	10	51	1	1	62	17	1	20	0	38	0	49	8	1	57	2	159	161
18:45	1	0	0	0	1	15	60	3	0	78	12	1	22	0	35	0	62	14	2	76	2	190	192
Total	6	0	0	0	6	55	298	11	3	364	63	9	74	0	146	1	206	50	7	257	10	773	783
Grand Total	17	10	5	2	32	680	2313	49	117	3042	411	56	735	44	1202	7	2265	543	132	2815	295	7091	7386
Approch %	53.1	31.3	15.6			22.4	76.0	1.6			34.2	4.7	61.1			0.2	80.5	19.3					
Total %	0.2	0.1	0.1		0.5	9.6	32.6	0.7		42.9	5.8	0.8	10.4		17.0	0.1	31.9	7.7		39.7	4.0	96.0	

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

Study Name : TMC0401  
Study Date : 01/29/04  
Page No. : 1

**Signal Warrants - Summary**

**Major Street Approaches**

**Eastbound: CSAH 116**  
Number of Lanes: 2  
Approach Speed: 55  
Total Approach Volume: 2,815

**Westbound: CSAH 116**  
Number of Lanes: 2  
Approach Speed: 50  
Total Approach Volume: 3,042

**Minor Street Approaches**

**Northbound: JEFFERSON ST.**  
Number of Lanes: 2  
Total Approach Volume: 1,202

**Southbound: 38TH AVE**  
Number of Lanes: 1  
Total Approach Volume: 32

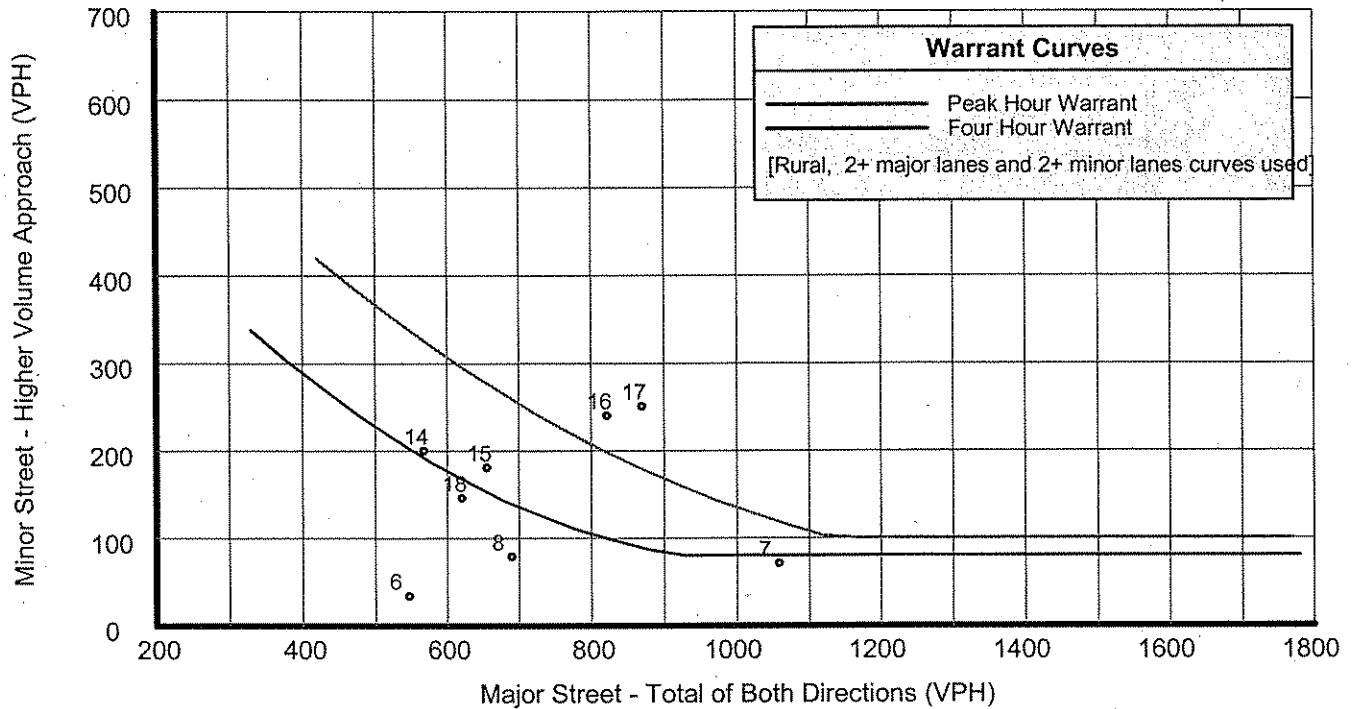
**Warrant Summary (Rural values apply.)**

<b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....	<b>Not Satisfied</b>
<b>Warrant 1A - Minimum Vehicular Volume</b> .....	<b>Not Satisfied</b>
Required volumes reached for 5 hours, 8 are needed	
<b>Warrant 1B - Interruption of Continuous Traffic</b> .....	<b>Not Satisfied</b>
Required volumes reached for 5 hours, 8 are needed	
<b>Warrant 1 A&amp;B - Combination of Warrants</b> .....	<b>Not Satisfied</b>
Required volumes reached for 5 hours, 8 are needed	
<b>Warrant 2 - Four Hour Volumes</b> .....	<b>Satisfied</b>
Number of hours (4) volumes exceed minimum >= minimum required (4).	
<b>Warrant 3 - Peak Hour</b> .....	<b>Satisfied</b>
<b>Warrant 3A - Peak Hour Volumes</b> .....	<b>Satisfied</b>
Volumes exceed minimums for at least one hour.	
<b>Warrant 3B - Peak Hour Delay</b> .....	<b>Satisfied</b>
Number of hours (15) volumes exceed minimum >= required (1). Delay data not evaluated.	
<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 : TMC0401  
Study Date : 01/29/04  
Page No. : 2

## Signal Warrants - Summary



### 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	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	547	34	NB	420-Yes	140-No	Major	630-No	70-No	---	504-Yes	112-No	Major
07:00	1,058	71	NB	420-Yes	140-No	Major	630-Yes	70-Yes	Both	504-Yes	112-No	Major
08:00	690	79	NB	420-Yes	140-No	Major	630-Yes	70-Yes	Both	504-Yes	112-No	Major
09:00	25	1	SB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
10:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
11:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
12:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
13:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
14:00	568	200	NB	420-Yes	140-Yes	Both	630-No	70-Yes	Minor	504-Yes	112-Yes	Both
15:00	656	181	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
16:00	822	240	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
17:00	870	251	NB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
18:00	621	146	NB	420-Yes	140-Yes	Both	630-No	70-Yes	Minor	504-Yes	112-Yes	Both
19:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
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 : **TMC0401**  
 Study Date : **01/28/04**

**Multi-Way Stop Warrant Report**

**Major Street Approaches**

**Eastbound: CSAH 116**  
 Total Approach Volume: **2,815**  
 Approach Speed: **55**

**Westbound: CSAH 116**  
 Total Approach Volume: **3,042**  
 Approach Speed: **50**

**Minor Street Approaches**

**Northbound: JEFFERSON ST.**  
 Total Approach Volume: **1,202**

**Southbound: 38TH AVE**  
 Total Approach Volume: **32**

**Warrant Summary**

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

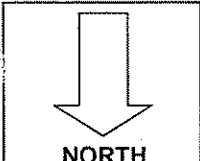
**Criteria B - Crash Experience** ..... **Not Evaluated**  
 Number of crashes (0) is less than the minimum required (5).

**Criteria C - Minimum Volumes and Delays** ..... **Not Satisfied**  
 Delay data not evaluated  
 Required volumes reached for 5 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		Crit C			Crit D		
	Total	Minor Total	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	547	35	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	1,058	77	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	690	83	210-Yes	140-No	Major	240-Yes	160-No	Major
09:00 - 10:00	25	1	210-No	140-No	No	240-No	160-No	No
10:00 - 11:00	0	0	210-No	140-No	No	240-No	160-No	No
11:00 - 12:00	0	0	210-No	140-No	No	240-No	160-No	No
12:00 - 13:00	0	0	210-No	140-No	No	240-No	160-No	No
13:00 - 14:00	0	0	210-No	140-No	No	240-No	160-No	No
14:00 - 15:00	568	205	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
15:00 - 16:00	656	186	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
16:00 - 17:00	822	242	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
17:00 - 18:00	870	253	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
18:00 - 19:00	621	152	210-Yes	140-Yes	Both	240-Yes	160-No	Major
19:00 - 20:00	0	0	210-No	140-No	No	240-No	160-No	No
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:**

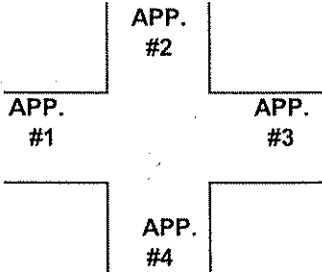
CSAH 116 (Bunker Lk. Blvd.) @

**DATE:**

01/27/2004

Jefferson St./38th Ave.

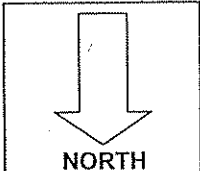
<b>NORTH</b>
APP. #1 = CSAH 116
APP. #2 = Jefferson St.
APP. #3 = CSAH 116
APP. #4 = 38th Ave.



- 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						5		
6:15-6:30						5		
6:30-6:45						2		9
6:45-7:00						2		10
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>33</b>
7:00-7:15						3		12
7:15-7:30						6		10
7:30-7:45						3		9
7:45-8:00						8		2
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>53</b>
8:00-8:15						4		9
8:15-8:30						7		2
8:30-8:45						14		4
8:45-9:00						11		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>51</b>
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		
10:00-10:15								
10:15-10:30								
10:30-10:45								
10:45-11:00								
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		
11:00-11:15								
11:15-11:30								
11:30-11:45								
11:45-12:00								
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		
12:00-12:15								
12:15-12:30								
12:30-12:45								
12:45-1:00								
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		
1:00-1:15								
1:15-1:30								
1:30-1:45								
1:45-2:00								
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		
					<b>TOTAL</b>		<b>TOTAL</b>	<b>137</b>

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COUNT LOCATION:

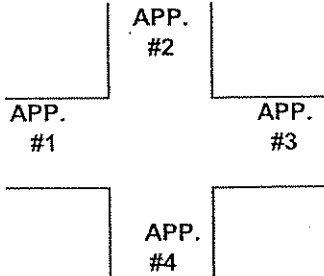
CSAH 116 (Bunker Lk. Blvd.) @

DATE:

01/27/2004

Jefferson St./38th Ave.

<b>NORTH</b>
APP. #1 = CSAH 116
APP. #2 = Jefferson St.
APP. #3 = CSAH 116
APP. #4 = 38th Ave.



- HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT
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TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
2:00-2:15PM						4		4
2:15-2:30						9		4
2:30-2:45						8		14
2:45-3:00						7		5
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>55</b>
3:00-3:15						5		6
3:15-3:30						10		4
3:30-3:45						8		1
3:45-4:00						5		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>39</b>
4:00-4:15						2		4
4:15-4:30						3		3
4:30-4:45						6		10
4:45-5:00						3		4
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>35</b>
5:00-5:15						3		2
5:15-5:30						6		1
5:30-5:45						4		
5:45-6:00						3		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>19</b>
6:00-6:15						6		
6:15-6:30								
6:30-6:45						2		
6:45-7:00						2		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>10</b>
7:00-7:15								
7:15-7:30								
7:30-7:45								
7:45-8:00								
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		
8:00-8:15								
8:15-8:30								
8:30-8:45								
8:45-9:00								
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		
					<b>TOTAL</b>		<b>TOTAL</b>	<b>295</b>

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