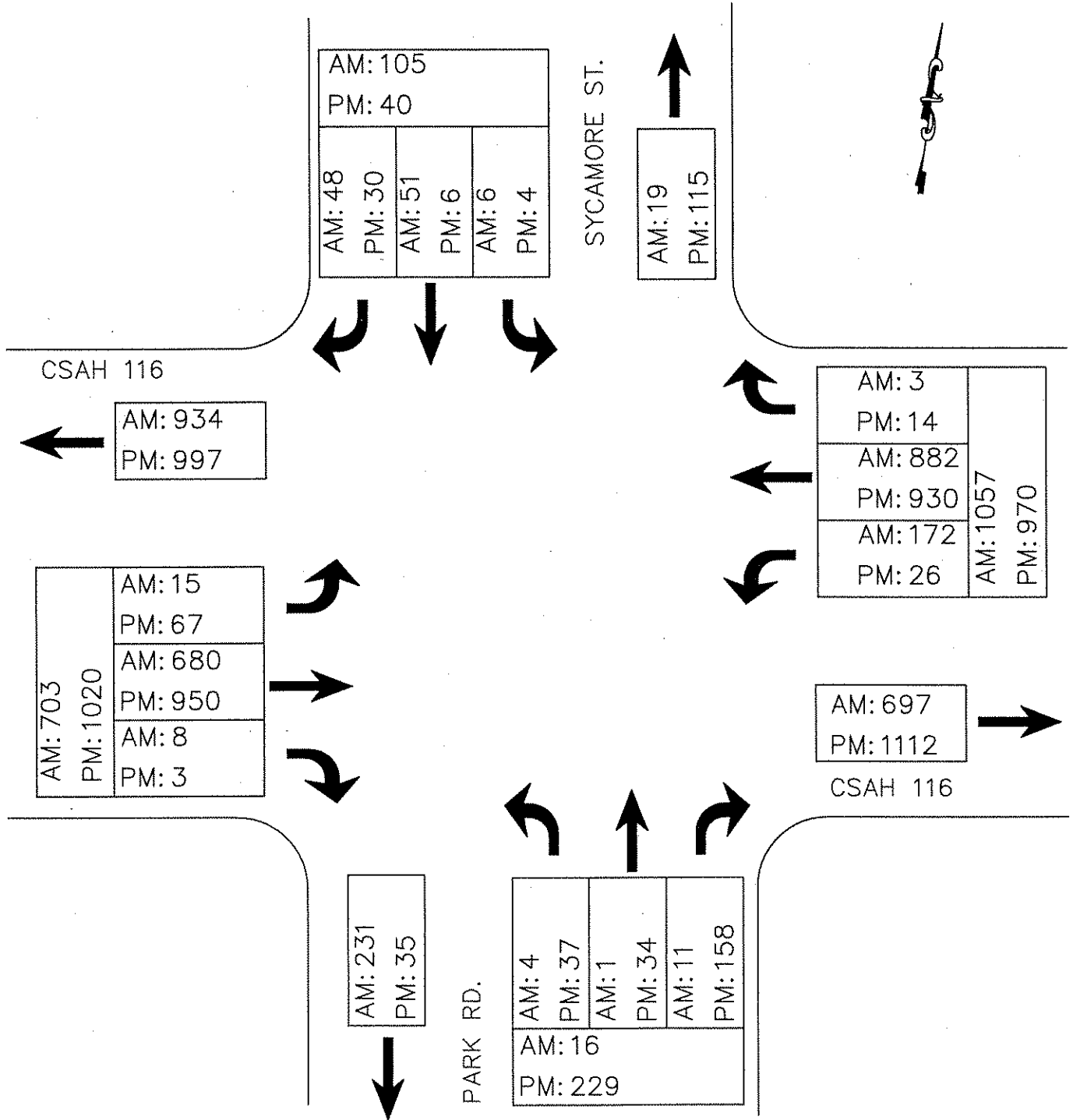


ANOKA COUNTY HIGHWAY DEPARTMENT

PEAK AM/PM TURNING MOVEMENT DIAGRAM

Location: C. S. A. H. 116 (BUNKER LAKE BLVD.) @ SYCAMORE ST. /PARK RD.



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

File Name : TMC0344
 Site Code : 03440202
 Start Date : 12/08/2003
 Page No : 1

Weather: Snowy and Cool
 Inter: TDC-8
 Counted by: Josie/Sean

Groups Printed- 1 - Unshifted

Start Time	Sycamore St. Southbound					CSAH 116 Westbound					Park Rd. 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	1	6	7	0	14	21	87	0	0	108	0	0	0	0	0	1	71	0	17	72	17	194	211
06:15	0	3	4	0	7	31	83	0	3	114	1	0	0	1	1	1	89	1	13	91	17	213	230
06:30	2	8	6	0	16	26	110	1	1	137	0	0	3	0	3	2	99	3	7	104	8	260	268
06:45	2	8	6	1	16	30	141	0	4	171	0	0	3	0	3	2	87	2	3	91	8	281	289
Total	5	25	23	1	53	108	421	1	8	530	1	0	6	1	7	6	346	6	40	358	50	948	998
07:00	1	8	5	0	14	23	127	1	4	151	1	0	3	0	4	1	105	1	4	107	8	276	284
07:15	0	14	6	0	20	18	124	0	6	142	0	1	2	0	3	3	62	0	9	65	15	230	245
07:30	0	2	8	0	10	16	124	0	7	140	1	0	0	0	1	4	83	1	4	88	11	239	250
07:45	0	2	6	0	8	7	86	1	8	94	1	0	0	0	1	1	84	0	12	85	20	188	208
Total	1	26	25	0	52	64	461	2	25	527	3	1	5	0	9	9	334	2	29	345	54	933	987
16:00	1	0	5	0	6	2	87	0	8	89	6	1	18	0	25	6	133	0	5	139	13	259	272
16:15	0	1	5	0	6	4	102	0	7	106	8	3	18	0	29	9	117	0	6	126	13	267	280
16:30	0	3	3	0	6	6	159	1	18	166	4	3	28	0	35	6	120	1	3	127	21	334	355
16:45	0	1	2	0	3	4	130	1	6	135	4	4	21	0	29	9	127	1	1	137	7	304	311
Total	1	5	15	0	21	16	478	2	39	496	22	11	85	0	118	30	497	2	15	529	54	1164	1218
17:00	1	1	6	0	8	3	135	5	6	143	2	3	19	0	24	9	117	1	2	127	8	302	310
17:15	1	0	4	0	5	2	115	1	3	118	5	8	16	0	29	8	116	0	1	124	4	276	280
17:30	1	0	4	0	5	2	115	4	0	121	7	7	23	0	37	11	109	0	1	120	1	283	284
17:45	0	0	1	0	1	3	87	2	0	92	1	5	15	0	21	9	111	0	0	120	0	234	234
Total	3	1	15	0	19	10	452	12	9	474	15	23	73	0	111	37	453	1	4	491	13	1095	1108
Grand Total	10	57	78	1	145	198	181	17	81	2027	41	35	169	1	245	82	163	11	88	1723	171	4140	4311
prch %	6.9	39.3	53.8			9.8	89.4	0.8			16.7	14.3	69.0			4.8	94.6	0.6					
total %	0.2	1.4	1.9		3.5	4.8	43.8	0.4		49.0	1.0	0.8	4.1		5.9	2.0	39.4	0.3		41.6	4.0	96.0	

Organization Title Goes Here

Heading Second Line

Heading Third Line

Study Name : TMC0344

Study Date : 12/09/03

Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 116

Number of Lanes: 2

Approach Speed: 41

Total Approach Volume: 1,723

Westbound: CSAH 116

Number of Lanes: 2

Approach Speed: 55

Total Approach Volume: 2,027

Minor Street Approaches

Northbound: Park Rd.

Number of Lanes: 1

Total Approach Volume: 245

Southbound: Sycamore St.

Number of Lanes: 1

Total Approach Volume: 145

Warrant Summary (Rural values apply.)

Warrant 1 - Eight Hour Vehicular Volumes Not Satisfied

Warrant 1A - Minimum Vehicular Volume Not Satisfied

Required volumes reached for 2 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic Not Satisfied

Required volumes reached for 4 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants Not Satisfied

Required volumes reached for 2 hours, 8 are needed

Warrant 2 - Four Hour Volumes Not Satisfied

Number of hours (2) 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 (5) 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

Organization Title Goes Here

Heading Second Line

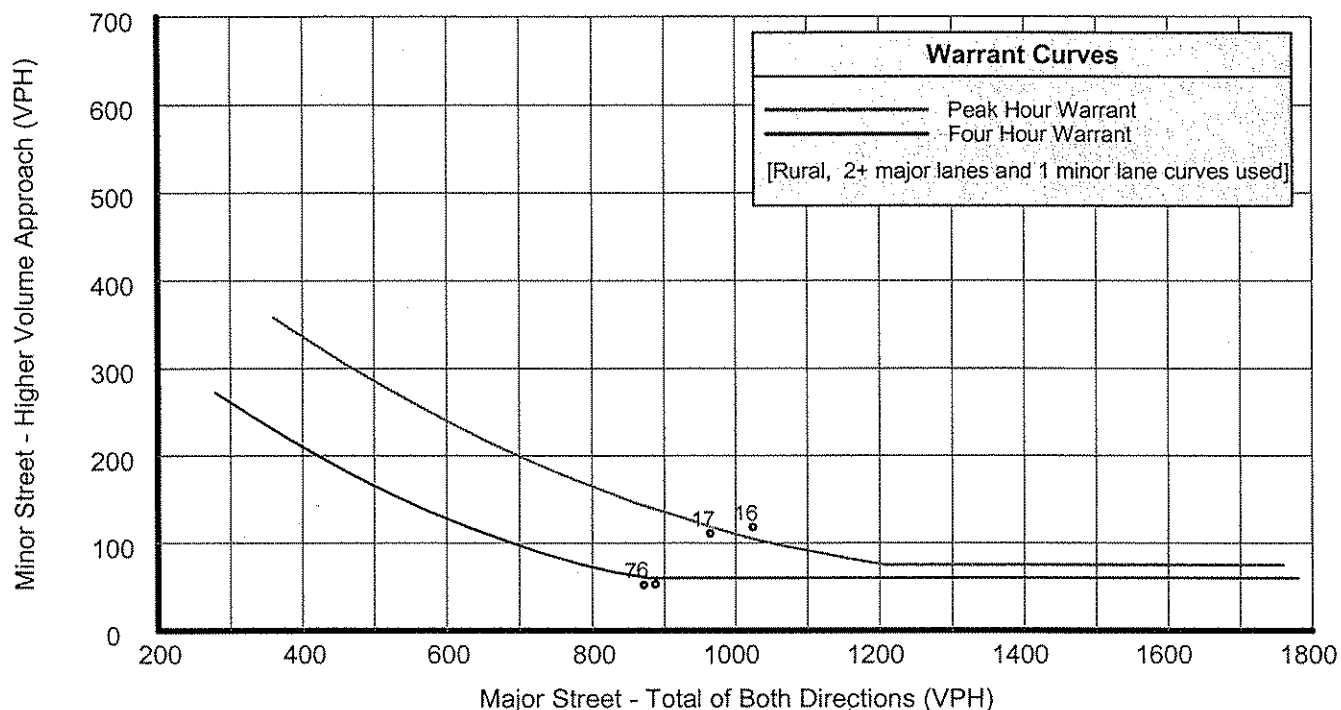
Heading Third Line

Study Name : TMC0344

Study Date : 12/09/03

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	105-No	---	630-No	52-No	---	504-No	84-No	---
01:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
02:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
03:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
04:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
05:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
06:00	888	53	SB	420-Yes	105-No	Major	630-Yes	52-Yes	Both	504-Yes	84-No	Major
07:00	872	52	SB	420-Yes	105-No	Major	630-Yes	52-Yes	Both	504-Yes	84-No	Major
08:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
09:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
10:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
11:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
12:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
13:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
14:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
15:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
16:00	1,025	118	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
17:00	965	111	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
18:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
19:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
20:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
21:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
22:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
23:00	0	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---

Organization Title Goes Here

Heading Second Line

Heading Third Line

Study Name : TMC0344b

Study Date : 12/10/03

Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 116

Number of Lanes: 2

Approach Speed: 41

Total Approach Volume: 1,723

Westbound: CSAH 116

Number of Lanes: 2

Approach Speed: 55

Total Approach Volume: 2,027

Minor Street Approaches

Northbound: Park Rd.

Number of Lanes: 2

Total Approach Volume: 245

Southbound: Sycamore St.

Number of Lanes: 2

Total Approach Volume: 145

Warrant Summary (Rural values apply.)

Warrant 1 - Eight Hour Vehicular Volumes Not Satisfied

Warrant 1A - Minimum Vehicular Volume Not Satisfied

Required volumes reached for 0 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic Not Satisfied

Required volumes reached for 2 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants Not Satisfied

Required volumes reached for 1 hours, 8 are needed

Warrant 2 - Four Hour Volumes Not Satisfied

Number of hours (2) 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 Not Satisfied

Approach volumes on minor street don't exceed minimums for any hour. 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

Organization Title Goes Here

Heading Second Line

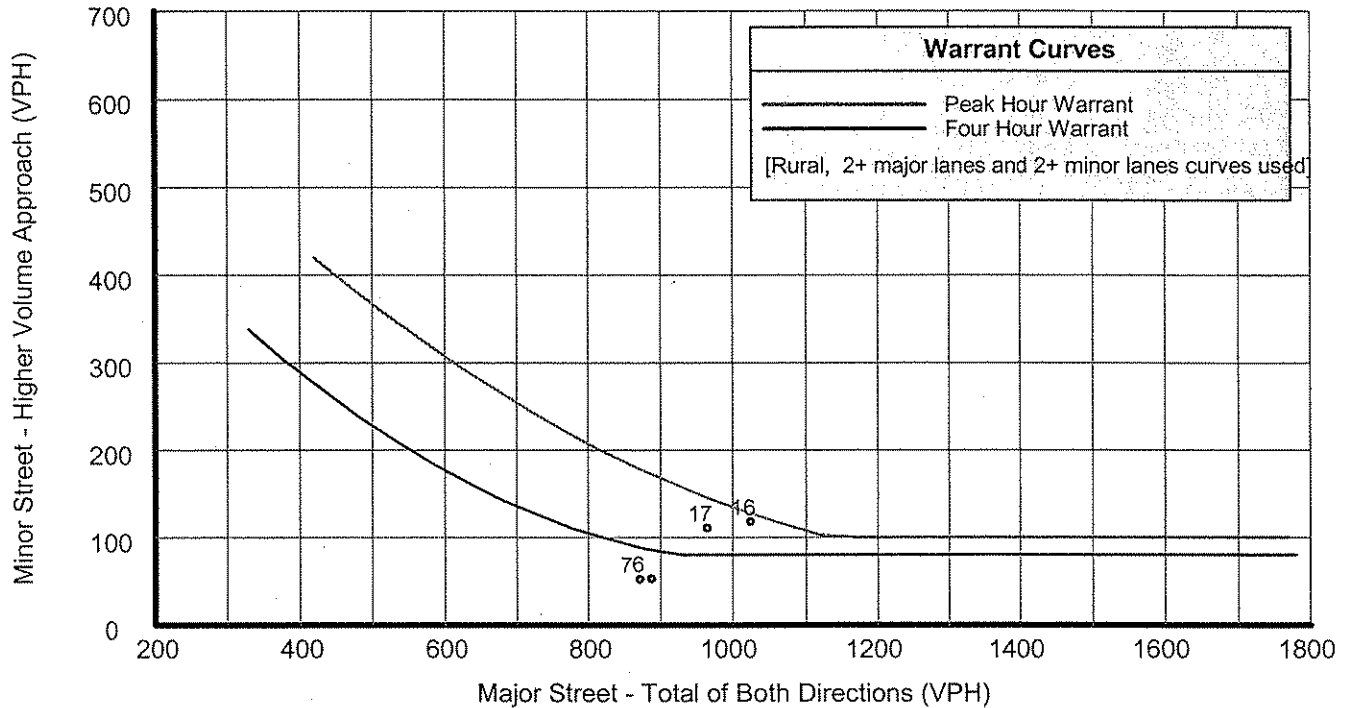
Heading Third Line

Study Name : TMC0344b

Study Date : 12/10/03

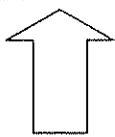
Page No. : 2

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	888	53	SB	420-Yes	140-No	Major	630-Yes	70-No	Major	504-Yes	112-No	Major
07:00	872	52	SB	420-Yes	140-No	Major	630-Yes	70-No	Major	504-Yes	112-No	Major
08:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
09:00	0	0	NB	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	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
15:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
16:00	1,025	118	NB	420-Yes	140-No	Major	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
17:00	965	111	NB	420-Yes	140-No	Major	630-Yes	70-Yes	Both	504-Yes	112-No	Major
18:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
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	---



NORTH

COUNT LOCATION:

CSAH 116 (Bunker Lk. Blvd.)

DATE:

12/08/2003

@ Sycamore St./Park Rd.

APP. #1 = CSAH 116

APP. #2 = Sycamore St.

APP. #3 = CSAH 116

APP. #4 = Park Rd.

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		15
6:15-6:30						7		10
6:30-6:45						5		4
6:45-7:00						3		5
HOURLY TOTAL						HOURLY TOTAL		51
7:00-7:15						1		7
7:15-7:30						12		2
7:30-7:45						7		4
7:45-8:00						13		7
HOURLY TOTAL						HOURLY TOTAL		53

4:00-4:15PM						3		10
4:15-4:30						5		8
4:30-4:45						6		15
4:45-5:00						3		4
HOURLY TOTAL						HOURLY TOTAL		54
5:00-5:15						6		2
5:15-5:30						3		1
5:30-5:45						1		
5:45-6:00								
HOURLY TOTAL						HOURLY TOTAL		13