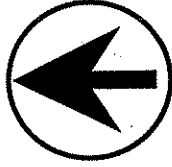


Date : 2/05/01

Count Number : TMC0104

Location : CSAH 23 (Lake Dr.) @

I 35W South Ramps

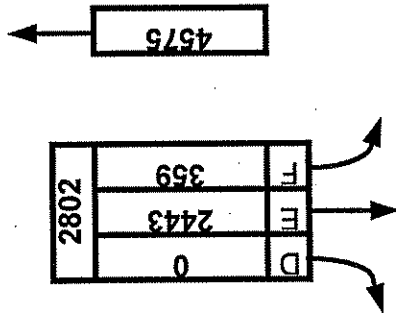


North

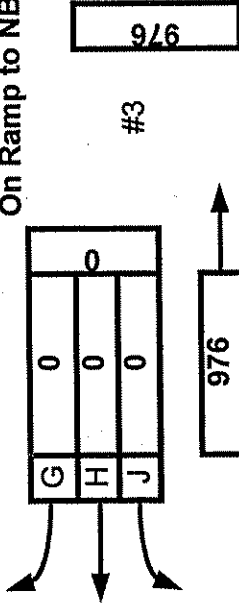
CSAH 23

7377

#2

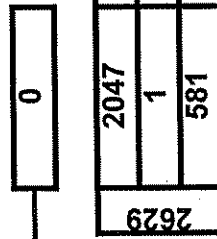


On Ramp to NB 35W



#3

976

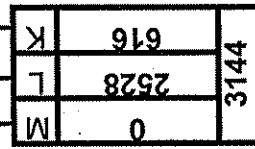


#1

2629

Off Ramp from NB 35W

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



#4

3024

CSAH 23 (Lake Dr.)

6168

Anoka County Highway Department

Traffic Volume and Turning

Movement Study

Anoka County Highway Department
Traffic Engineering

Traffic Volume and Turning Movement Study

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

File Name : TMC0104
Site Code : 01040102
Start Date : 02/05/2001
Page No : 1

Groups Printed- Unshifted

Start Time	CSAH 23 Southbound					Westbound					CSAH 23 Northbound					Off Ramp from NB 35W 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	2	38	0	2	40	0	0	0	0	0	0	17	2	1	19	13	0	4	1	17	4	76	80
06:15	2	65	0	5	67	0	0	0	0	0	0	26	7	1	33	19	0	3	3	22	9	122	131
06:30	8	86	0	6	94	0	0	0	0	0	0	15	7	0	22	31	0	2	3	33	9	149	158
06:45	9	61	0	2	70	0	0	0	0	0	0	27	10	4	37	26	0	12	4	38	10	145	155
Total	21	250	0	15	271	0	0	0	0	0	0	85	26	6	111	89	0	21	11	110	32	492	524
07:00	15	92	0	1	107	0	0	0	0	0	0	35	7	3	42	32	0	15	4	47	8	196	204
07:15	11	103	0	6	114	0	0	0	0	0	0	43	9	3	52	44	0	24	1	68	10	234	244
07:30	9	94	0	4	103	0	0	0	0	0	0	61	20	9	81	30	0	18	4	48	17	232	249
07:45	6	75	0	9	81	0	0	0	0	0	0	41	7	5	48	39	0	10	3	49	17	178	195
Total	41	364	0	20	405	0	0	0	0	0	0	180	43	20	223	145	0	67	12	212	52	840	892
08:00	6	54	0	4	60	0	0	0	0	0	0	21	6	2	27	20	0	5	1	25	7	112	119
08:15	5	49	0	2	54	0	0	0	0	0	0	41	6	5	47	24	0	6	4	30	11	131	142
08:30	2	42	0	4	44	0	0	0	0	0	0	44	10	7	54	27	0	9	2	36	13	134	147
08:45	5	36	0	3	41	0	0	0	0	0	0	46	3	6	49	21	0	6	7	27	16	117	133
Total	18	181	0	13	199	0	0	0	0	0	0	152	25	20	177	92	0	26	14	118	47	494	541
09:00	1	42	0	3	43	0	0	0	0	0	0	32	7	5	39	24	0	3	4	27	12	109	121
09:15	5	43	0	9	48	0	0	0	0	0	0	45	5	8	50	31	0	9	8	40	25	138	163
09:30	1	30	0	4	31	0	0	0	0	0	0	42	2	4	44	30	0	2	8	32	16	107	123
09:45	4	53	0	3	57	0	0	0	0	0	0	35	5	5	40	14	0	5	2	19	10	116	126
Total	11	168	0	19	179	0	0	0	0	0	0	154	19	22	173	99	0	19	22	118	63	470	533
10:00	5	29	0	4	34	0	0	0	0	0	0	30	11	3	41	24	0	10	12	34	19	109	128
10:15	7	24	0	4	31	0	0	0	0	0	0	38	10	3	48	22	0	6	5	28	12	107	119
10:30	6	32	0	1	38	0	0	0	0	0	0	24	5	5	29	21	0	5	7	26	13	93	106
10:45	4	38	0	3	42	0	0	0	0	0	0	29	2	3	31	18	0	4	6	22	12	95	107
Total	22	123	0	12	145	0	0	0	0	0	0	121	28	14	149	85	0	25	30	110	56	404	460
11:00	3	40	0	2	43	0	0	0	0	0	0	36	8	8	44	24	0	5	4	29	14	116	130
11:15	2	23	0	4	25	0	0	0	0	0	0	45	7	5	52	29	0	7	8	36	17	113	130
11:30	4	31	0	0	35	0	0	0	0	0	0	35	8	2	43	21	0	7	4	28	6	106	112
11:45	8	56	0	5	64	0	0	0	0	0	0	34	8	2	42	26	0	12	8	38	15	144	159
Total	17	150	0	11	167	0	0	0	0	0	0	150	31	17	181	100	0	31	24	131	52	479	531
12:00	6	35	0	8	41	0	0	0	0	0	0	37	9	8	46	31	0	13	6	44	22	131	153
12:15	4	38	0	3	42	0	0	0	0	0	0	32	10	2	42	19	0	6	2	25	7	109	116
12:30	5	35	0	1	40	0	0	0	0	0	0	56	10	5	66	28	0	4	10	32	16	138	154
12:45	3	38	0	6	41	0	0	0	0	0	0	43	7	9	50	37	0	9	7	46	22	137	159
Total	18	146	0	18	164	0	0	0	0	0	0	168	36	24	204	115	0	32	25	147	67	515	582
13:00	6	39	0	3	45	0	0	0	0	0	0	36	3	6	39	28	1	6	4	35	13	119	132
13:15	1	38	0	0	39	0	0	0	0	0	0	47	12	6	59	33	0	9	6	42	12	140	152
13:30	3	31	0	4	34	0	0	0	0	0	0	52	7	5	59	34	0	6	10	40	19	133	152
13:45	11	42	0	5	53	0	0	0	0	0	0	50	22	10	72	24	0	8	11	32	26	157	183
Total	21	150	0	12	171	0	0	0	0	0	0	185	44	27	229	119	1	29	31	149	70	549	619
14:00	9	40	0	8	49	0	0	0	0	0	0	28	13	5	41	37	0	5	6	42	19	132	151
14:15	5	44	0	3	49	0	0	0	0	0	0	47	12	8	59	37	0	13	4	50	15	158	173
14:30	6	36	0	4	42	0	0	0	0	0	0	54	13	7	67	52	0	11	11	63	22	172	194
14:45	4	28	0	2	32	0	0	0	0	0	0	60	13	5	73	56	0	6	4	62	11	167	178
Total	24	148	0	17	172	0	0	0	0	0	0	189	51	25	240	182	0	35	25	217	67	629	696
15:00	7	38	0	1	45	0	0	0	0	0	0	60	10	5	70	66	0	15	5	81	11	196	207
15:15	6	49	0	3	55	0	0	0	0	0	0	84	23	7	107	52	0	20	7	72	17	234	251
15:30	11	32	0	0	43	0	0	0	0	0	0	72	15	7	87	72	0	13	3	85	10	215	225
15:45	12	48	0	2	60	0	0	0	0	0	0	65	16	4	81	75	0	18	6	93	12	234	246
Total	36	167	0	6	203	0	0	0	0	0	0	281	64	23	345	265	0	66	21	331	50	879	929
16:00	16	62	0	4	78	0	0	0	0	0	0	99	18	8	117	73	0	25	7	98	19	293	312
16:15	18	54	0	3	72	0	0	0	0	0	0	88	17	5	105	73	0	18	6	91	14	268	282
16:30	19	54	0	0	73	0	0	0	0	0	0	76	26	2	102	68	0	21	3	89	5	264	269
16:45	3	40	0	0	43	0	0	0	0	0	0	81	19	2	100	89	0	21	4	110	6	253	259
Total	56	210	0	7	266	0	0	0	0	0	0	344	80	17	424	303	0	85	20	388	44	1078	1122

Anoka County Highway Department
Traffic Engineering

Traffic Volume and Turning Movement Study

Weather: Clear and Cold
Counter TDC-8
Printed by: Josie/ Sean

File Name : TMC0104
Site Code : 01040102
Start Date : 02/05/2001
Page No : 2

Groups Printed- Unshifted

Start Time	CSAH 23 Southbound					Westbound					CSAH 23 Northbound					Off Ramp from NB 35W 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				
17:00	15	44	0	2	59	0	0	0	0	0	0	85	26	2	111	75	0	25	2	100	6	270	276
17:15	17	62	0	0	79	0	0	0	0	0	0	83	30	1	113	76	0	27	3	103	4	295	299
17:30	7	52	0	0	59	0	0	0	0	0	0	81	19	1	100	68	0	15	2	83	3	242	245
17:45	10	46	0	1	56	0	0	0	0	0	0	66	15	4	81	67	0	16	1	83	6	220	226
Total	49	204	0	3	253	0	0	0	0	0	0	315	90	8	405	286	0	83	8	369	19	1027	1046
18:00	6	36	0	0	42	0	0	0	0	0	0	50	26	1	76	41	0	23	3	64	4	182	186
18:15	4	44	0	0	48	0	0	0	0	0	0	46	21	0	67	51	0	13	3	64	3	179	182
18:30	10	51	0	1	61	0	0	0	0	0	0	57	17	2	74	39	0	16	0	55	3	190	193
18:45	5	51	0	1	56	0	0	0	0	0	0	51	15	3	66	36	0	10	2	46	6	168	174
Total	25	182	0	2	207	0	0	0	0	0	0	204	79	6	283	167	0	62	8	229	16	719	735
Grand Total	359	244	0	155	2802	0	0	0	0	0	0	252	616	229	3144	204	1	581	251	2629	635	8575	9210
Apprch %	12.8	87.2	0.0			0.0	0.0	0.0			0.0	80.4	19.6			77.9	0.0	22.1					
Total %	4.2	28.5	0.0		32.7	0.0	0.0	0.0			0.0	29.5	7.2		36.7	23.9	0.0	6.8		30.7	6.9	93.1	

Major Street Approaches:

Northbound:

CSAH 23

Data File: C:\Program Files\JAMAR\PETRA\Data Files\TMC0104C.war
 Count Type: IMC. Channel: 0. Count Date: 2/ 5/ 1
 Number of Lanes: 1
 Approach Speed: 50
 Total Approach Traffic: 3144

Southbound:

CSAH 23

Data File: C:\Program Files\JAMAR\PETRA\Data Files\TMC0104C.war
 Count Type: IMC. Channel: 0. Count Date: 2/ 5/ 1
 Number of Lanes: 1
 Approach Speed: 50
 Total Approach Traffic: 2802

Minor Street Approaches:

Eastbound:

Off Ramp from NB 35W

Data File: C:\Program Files\JAMAR\PETRA\Data Files\TMC0104C.war
 Count Type: IMC. Channel: 0. Count Date: 2/ 5/ 1
 Number of Lanes: 1
 Approach Speed: 0
 Total Approach Traffic: 2629

Westbound:

Data File: C:\Program Files\JAMAR\PETRA\Data Files\TMC0104C.war
 Count Type: IMC. Channel: 0. Count Date: 2/ 5/ 1
 Number of Lanes: 1
 Approach Speed: 0
 Total Approach Traffic: 0

Analysis of 8-Hour Volume Warrants (Criteria refers to high volume side street for that hour):

Hour	Main Begin (Total)	Side			Warrant 1		Warrant 2		Warrant 8		
		Vol.	Dir.	Rank	Meets?	Criteria	Meets?	Criteria	Meets?	Criteria	
0	0	0	E	14		105		52		84	
1	0	0	E	15		105		52		84	
2	0	0	E	16		105		52		84	
3	0	0	E	17		105		52		84	
4	0	0	E	18		105		52		84	
5	0	0	E	19		105		52		84	
6	382	110	E	12	--BOTH--	105	SIDE	52	SIDE	84	
7	628	212	E	6	--BOTH--	105	--BOTH--	52	--BOTH--	84	
8	376	118	E	10	--BOTH--	105	SIDE	52	SIDE	84	
9	352	118	E	11	--BOTH--	105	SIDE	52	SIDE	84	
10	294	110	E	13		SIDE	105	SIDE	52	SIDE	84
11	348	131	E	9		SIDE	105	SIDE	52	SIDE	84
12	368	147	E	8	--BOTH--	105	SIDE	52	SIDE	84	
13	400	149	E	7	--BOTH--	105	SIDE	52	SIDE	84	
14	412	217	E	5	--BOTH--	105	SIDE	52	SIDE	84	
15	548	331	E	3	--BOTH--	105	--BOTH--	52	--BOTH--	84	
16	690	388	E	1	--BOTH--	105	--BOTH--	52	--BOTH--	84	
17	658	369	E	2	--BOTH--	105	--BOTH--	52	--BOTH--	84	
18	490	229	E	4	--BOTH--	105	SIDE	52	--BOTH--	84	
19	0	0	E	20		105		52		84	
20	0	0	E	21		105		52		84	
21	0	0	E	22		105		52		84	
22	0	0	E	23		105		52		84	
23	0	0	E	24		105		52		84	

Warrant Summary:

Rural values apply.

Warrant 1 - Minimum Vehicular Volumes

SATISFIED for 11 hours. Criteria--Main St.: 350; Side St.: See Volume Summary.

Warrant 2 - Interruption of Continuous Traffic

NOT SATISFIED. Required values reached for 4 hours. Criteria--Main St.: 525; Side St.: See Volume Summary.

Warrant 3 - Minimum Pedestrian Volumes

NOT SATISFIED. 8th-High Hour--Pedestrians: 0. Criteria--Pedestrians: 105; Vehicles: 420.

Warrant 4 - School Crossing

NOT APPLICABLE. Gap data has not been defined.

Warrant 5 - Progressive Movement

NOT SATISFIED. Adjacent signals closer than 1000 feet and/or not part of coordinated system.

Warrant 6 - Accident Experience

NOT SATISFIED. 0 correctable accidents is fewer than required 5.

Correctable Accidents: 0; Right Angle Accidents: 0; Left Turn Accidents: 0; Other Accidents: 0.

Warrant 7 - Systems Warrant

NOT SATISFIED. At least one street has no major approaches. Peak hour total entering volume: 1078.

NS - Approaches which are part of the principal through traffic roadway network.

- Approaches which connect areas of principal traffic generation.

- Approaches which include rural or suburban highways outside, entering or traversing a city.

- Approaches which have surface street freeway or expressway ramp terminals.

- Approaches which appear as a major route in an official transportation plan.

Warrant 8 - Combination of Warrants

NOT SATISFIED. Required values reached for 5 hours. Criteria--Main: 420; Side: See Volume Summary.

Warrant 9 - Four Hour Volumes

SATISFIED for 6 hours.

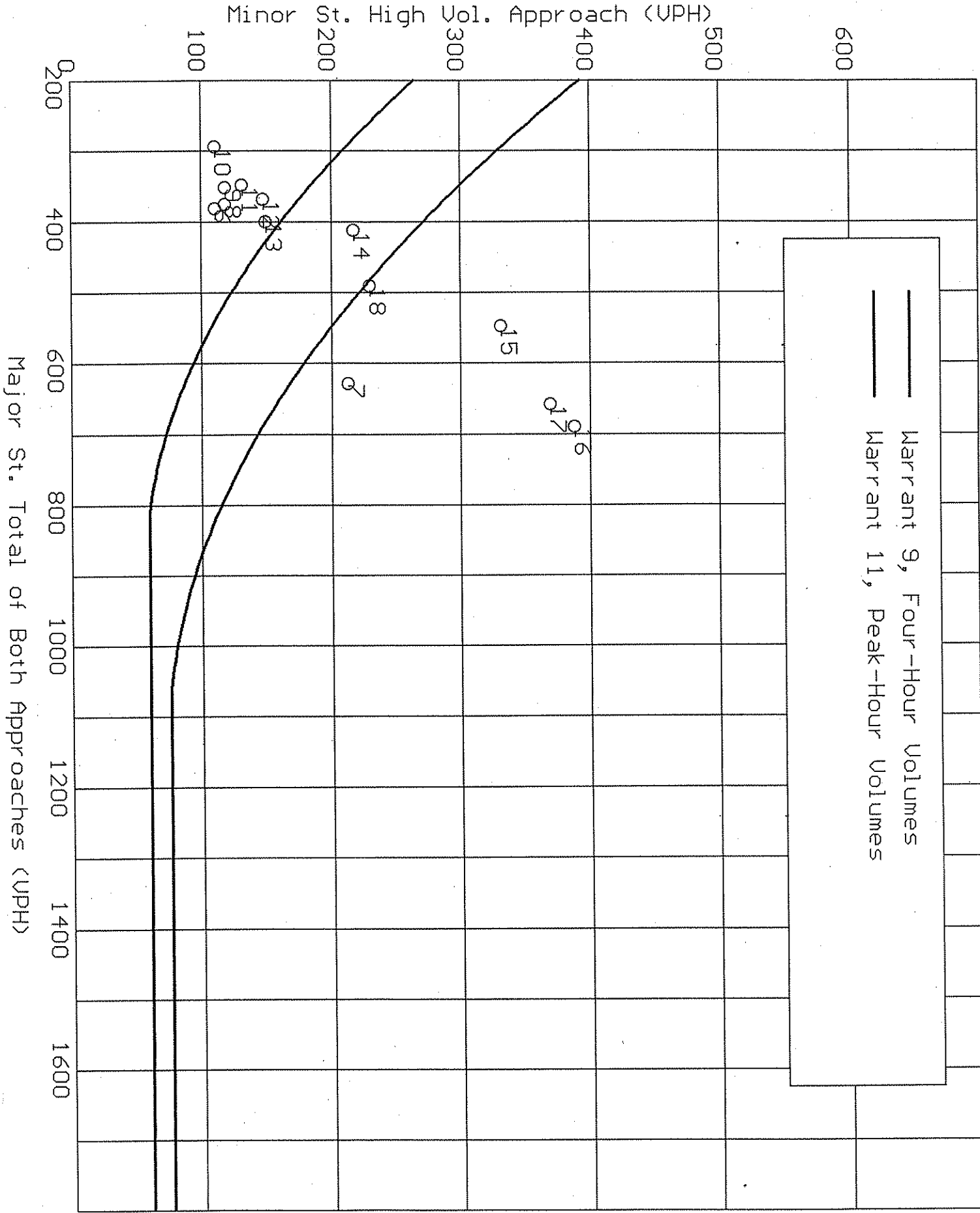
Warrant 10 - Peak Hour Delay

NOT APPLICABLE. Volume requirements satisfied, but side street peak hour delay not defined.

Criteria--Main St.: 800 (4 approaches), 650 (3 approaches); Side St.: 100.

Warrant 11 - Peak Hour Volume

SATISFIED for 5 hours.



— Warrant 9, Four-Hour Volumes
 - - - Warrant 11, Peak-Hour Volumes

Multiway Stop Warrant Analysis
TMC 0104 CSAH 23 (Lake Dr.) @ I 35W South Ramps
Speed Limit of Major Roadway..... 50

Minimum Traffic Volumes Multiway Stop Warrant Criteria:

- a) The total vehicular volume entering the intersection from all approaches must average at least 500 vehicles per hour (vph) for any 8 hours of an average day, AND:
- b) The combined vehicular and pedestrian volume from the minor street or highway must average at least 200 vph for the same 8 hours, with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the maximum hour, BUT:
- c) When the 85-percentile approach speed of the major street traffic exceeds 40 miles per hour, the minimum volume warrant is 70% of the above requirements.

Hour	Total Vehicular Traffic Entering the Intersection	Vehicular Traffic Entering on First Minor Roadway	Vehicular Traffic Entering on Second Minor Roadway	Sum of Minor Approaches	Hours Stop Warrant Met
6 AM - 7 AM	524	110	0	110	0
7 AM - 8 AM	892	212	0	212	1
8 AM - 9 AM	541	118	0	118	0
9 AM - 10 AM	533	118	0	118	0
10 AM - 11 AM	460	110	0	110	0
11 AM - 12 PM	531	131	0	131	0
12 PM - 13 PM	582	147	0	147	0
1 PM - 2 PM	619	149	0	149	0
2 PM - 3 PM	696	217	0	217	1
3 PM - 4 PM	929	331	0	331	1
4 PM - 5 PM	1122	388	0	388	1
5 PM - 6 PM	1046	369	0	369	1
6 PM - 7 PM	735	229	0	229	1

TOTAL HOURS MET: 6

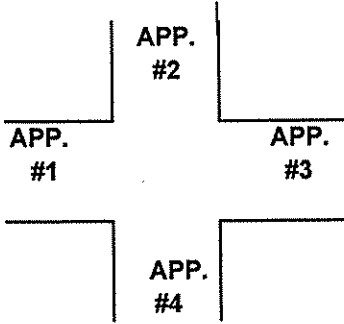
MULTIWAY STOP WARRANT IS NOT MET

I 35W South Ramps



NORTH

APP. #1= Off Ramp from NB 35W
 APP. #2 =SB CSAH 23
 APP. #3= On Ramp to NB 35W
 APP. #4= NB CSAH 23



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		1
6:15-6:30						8		1
6:30-6:45						8		1
6:45-7:00						7		3
HOURLY TOTAL						HOURLY TOTAL		31
7:00-7:15						4		2
7:15-7:30						12		
7:30-7:45						13		5
7:45-8:00						13		3
HOURLY TOTAL						HOURLY TOTAL		52
8:00-8:15						4		3
8:15-8:30						7		3
8:30-8:45						9		4
8:45-9:00						13		3
HOURLY TOTAL						HOURLY TOTAL		46
9:00-9:15						12		
9:15-9:30						22		4
9:30-9:45						16		
9:45-10:00						8		2
HOURLY TOTAL						HOURLY TOTAL		64
10:00-10:15						17		
10:15-10:30						12		
10:30-10:45						12		
10:45-11:00						10		2
HOURLY TOTAL						HOURLY TOTAL		53
11:00-11:15						7		1
11:15-11:30						20		3
11:30-11:45						6		1
11:45-12:00						17		1
HOURLY TOTAL						HOURLY TOTAL		56
12:00-12:15						17		3
12:15-12:30						6		1
12:30-12:45						15		
12:45-1:00						20		
HOURLY TOTAL						HOURLY TOTAL		62
1:00-1:15						11		3
1:15-1:30						12		
1:30-1:45						20		
1:45-2:00						23	1	
HOURLY TOTAL						HOURLY TOTAL		70



NORTH

COUNT LOCATION:

CSAH 23 (Lake Dr.) @

DATE:

2/5/01

I 35W South Ramps

APP. #1= Off Ramp from
NB 35W

APP. #2 =SB CSAH 23

APP. #3= On Ramp to
NB 35W

APP. #4= NB CSAH 23

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						14		5
2:15-2:30						12		2
2:30-2:45						17		5
2:45-3:00						12		
HOURLY TOTAL						HOURLY TOTAL		67
3:00-3:15						8		3
3:15-3:30						11		5
3:30-3:45						9		2
3:45-4:00						10		3
HOURLY TOTAL						HOURLY TOTAL		51
4:00-4:15						13		6
4:15-4:30						12		2
4:30-4:45						5		
4:45-5:00						5		3
HOURLY TOTAL						HOURLY TOTAL		46
5:00-5:15						5		1
5:15-5:30						4		
5:30-5:45						3		
5:45-6:00						3		3
HOURLY TOTAL						HOURLY TOTAL		19
6:00-6:15						4		
6:15-6:30						3		
6:30-6:45						2		1
6:45-7:00						6		
HOURLY TOTAL						HOURLY TOTAL		16
7:00-7:15								
7:15-7:30								
7:30-7:45								
7:45-8:00								
HOURLY TOTAL						HOURLY TOTAL		
8:00-8:15								
8:15-8:30								
8:30-8:45								
8:45-9:00								
HOURLY TOTAL						HOURLY TOTAL		
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		