

Date : 6/18/01

Count Number : TMC0114

Location : CSAH 52 (Radisson Rd.)
@ CR 87 (105th Ave.)

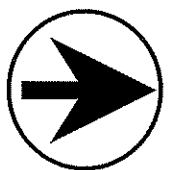
CSAH 52

9695

#2

D	2221
E	3717
F	0
5938	

3757



North

6105

#1

3064

3041	
C	963
B	0
A	2078

CR 87

CSAH 52

5795

#3

M	843
L	2794
K	0
3637	

LANES OF APPROACH

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

Anoka County Highway Department

Traffic Volume and Turning

Movement Study

9432

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

Weather: Sunny
 Inter: TDC-8
 Counted by: Jessica/Melissa

File Name : TMC0114B
 Site Code : 01140102
 Start Date : 06/18/2001
 Page No : 1

Groups Printed- 1 - Unshifted

Start Time	CSAH 52 Southbound					none Westbound					CSAH 52 Northbound					CR 87 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	22	116	0	3	138	0	0	0	0	0	0	18	3	7	21	1	0	18	4	19	14	178	192
06:15	35	121	0	6	156	0	0	0	0	0	0	31	9	10	40	3	0	6	1	9	17	205	222
06:30	36	122	0	6	158	0	0	0	0	0	0	25	20	7	45	8	0	7	3	15	16	218	234
06:45	30	155	0	2	185	0	0	0	0	0	0	18	20	4	38	10	0	26	3	36	9	259	268
Total	123	514	0	17	637	0	0	0	0	0	0	92	52	28	144	22	0	57	11	79	56	860	916
07:00	28	146	0	2	174	0	0	0	0	0	0	27	15	2	42	4	0	24	1	28	5	244	249
07:15	40	130	0	8	170	0	0	0	0	0	0	29	18	11	47	6	0	23	6	29	25	246	271
07:30	41	112	0	6	153	0	0	0	0	0	0	28	22	6	50	7	0	27	2	34	14	237	251
07:45	34	152	0	9	186	0	0	0	0	0	0	32	34	12	66	10	0	34	5	44	26	296	322
Total	143	540	0	25	683	0	0	0	0	0	0	116	89	31	205	27	0	108	14	135	70	1023	1093
08:00	22	74	0	4	96	0	0	0	0	0	0	35	26	8	61	11	0	22	4	33	16	190	206
08:15	12	78	0	5	90	0	0	0	0	0	0	21	21	2	42	2	0	25	7	27	14	159	173
08:30	9	33	0	3	42	0	0	0	0	0	0	22	33	6	55	8	0	22	4	30	13	127	140
08:45	5	53	0	5	58	0	0	0	0	0	0	26	24	6	50	14	0	25	4	39	15	147	162
Total	48	238	0	17	286	0	0	0	0	0	0	104	104	22	208	35	0	94	19	129	58	623	681
09:00	11	44	0	7	55	0	0	0	0	0	0	28	20	7	48	8	0	15	5	23	19	126	145
09:15	8	55	0	4	63	0	0	0	0	0	0	20	20	6	40	8	0	21	2	29	12	132	144
09:30	18	25	0	8	43	0	0	0	0	0	0	34	24	4	58	12	0	21	3	33	15	134	149
09:45	5	25	0	4	30	0	0	0	0	0	0	25	25	10	50	8	0	11	6	19	20	99	119
Total	42	149	0	23	191	0	0	0	0	0	0	107	89	27	196	36	0	68	16	104	66	491	557
10:00	2	25	0	5	27	0	0	0	0	0	0	26	18	11	44	10	0	21	10	31	26	102	128
10:15	9	22	0	5	31	0	0	0	0	0	0	26	16	6	42	6	0	26	7	32	18	105	123
10:30	6	23	0	4	29	0	0	0	0	0	0	29	33	9	62	5	0	24	4	29	17	120	137
10:45	7	32	0	5	39	0	0	0	0	0	0	32	24	9	56	9	0	31	3	40	17	135	152
Total	24	102	0	19	126	0	0	0	0	0	0	113	91	35	204	30	0	102	24	132	78	462	540
11:00	9	18	0	6	27	0	0	0	0	0	0	19	29	8	48	8	0	28	6	36	20	111	131
11:15	11	22	0	5	33	0	0	0	0	0	0	39	34	9	73	13	0	23	4	36	18	142	160
11:30	10	26	0	5	36	0	0	0	0	0	0	40	27	12	67	10	0	16	7	26	24	129	153
11:45	14	18	0	5	32	0	0	0	0	0	0	39	38	9	77	14	0	21	4	35	18	144	162
Total	44	84	0	21	128	0	0	0	0	0	0	137	128	38	265	45	0	88	21	133	80	526	606
12:00	9	23	0	2	32	0	0	0	0	0	0	34	28	6	62	16	0	31	6	47	14	141	155
12:15	7	29	0	3	36	0	0	0	0	0	0	32	31	10	63	22	0	25	10	47	23	146	169
12:30	1	18	0	3	19	0	0	0	0	0	0	43	21	6	64	11	0	32	8	43	17	126	143
12:45	16	29	0	5	45	0	0	0	0	0	0	47	37	10	84	11	0	40	5	51	20	180	200
Total	33	99	0	13	132	0	0	0	0	0	0	156	117	32	273	60	0	128	29	188	74	593	667
13:00	4	48	0	6	52	0	0	0	0	0	0	39	37	9	76	22	0	30	6	52	21	180	201
13:15	9	33	0	6	42	0	0	0	0	0	0	34	33	9	67	12	0	38	8	50	23	159	182
13:30	7	24	0	2	31	0	0	0	0	0	0	38	27	10	65	18	0	35	11	53	23	149	172
13:45	4	29	0	10	33	0	0	0	0	0	0	42	30	9	72	11	0	25	7	36	26	141	167
Total	24	134	0	24	158	0	0	0	0	0	0	153	127	37	280	63	0	128	32	191	93	629	722
14:00	14	19	0	1	33	0	0	0	0	0	0	33	24	2	57	6	0	11	4	17	7	107	114
14:15	12	27	0	9	39	0	0	0	0	0	0	49	39	10	88	8	0	21	3	29	22	156	178
14:30	8	27	0	2	35	0	0	0	0	0	0	54	36	4	90	13	0	30	5	43	11	168	179
14:45	7	30	0	2	37	0	0	0	0	0	0	76	31	9	107	10	0	30	7	40	18	184	202
Total	41	103	0	14	144	0	0	0	0	0	0	212	130	25	342	37	0	92	19	129	58	615	673
15:00	13	36	0	4	49	0	0	0	0	0	0	84	32	11	116	27	0	42	8	69	23	234	257
15:15	9	29	0	8	38	0	0	0	0	0	0	103	39	7	142	11	0	51	3	62	18	242	260
15:30	13	42	0	3	55	0	0	0	0	0	0	101	36	3	137	27	0	38	3	65	9	257	266
15:45	11	25	0	2	36	0	0	0	0	0	0	125	37	7	162	25	0	33	9	58	18	256	274
Total	46	132	0	17	178	0	0	0	0	0	0	413	144	28	557	90	0	164	23	254	68	989	1057
16:00	14	46	0	0	60	0	0	0	0	0	0	149	37	7	186	33	0	25	6	58	13	304	317
16:15	4	38	0	2	42	0	0	0	0	0	0	149	32	4	181	22	0	21	4	43	10	266	276
16:30	9	31	0	0	40	0	0	0	0	0	0	167	43	2	210	31	0	27	2	58	4	308	312
16:45	10	24	0	3	34	0	0	0	0	0	0	169	46	3	215	26	0	36	1	62	7	311	318
Total	37	139	0	5	176	0	0	0	0	0	0	634	158	16	792	112	0	109	13	221	34	1189	1223

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

Weather: Sunny
 Counter: TDC-8
 Counted by: Jessica/Melissa

File Name : TMC0114B
 Site Code : 01140102
 Start Date : 06/18/2001
 Page No : 2

Groups Printed- 1 - Unshifted

Start Time	CSAH 52 Southbound					none Westbound					CSAH 52 Northbound					CR 87 Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Righ t	Hea vy	App. Total	Left	Thru	Righ t	Hea vy	App. Total	Left	Thru	Righ t	Hea vy	App. Total	Left	Thru	Righ t	Hea vy	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	36	0	4	51	0	0	0	0	0	0	175	68	7	243	38	0	49	2	87	13	381	394
17:15	17	52	0	4	69	0	0	0	0	0	0	182	77	4	259	31	0	36	3	67	11	395	406
17:30	19	44	0	0	63	0	0	0	0	0	0	153	81	4	234	30	0	38	1	68	5	365	370
17:45	27	31	0	2	58	0	0	0	0	0	0	140	105	2	245	22	0	21	2	43	6	346	352
Total	78	163	0	10	241	0	0	0	0	0	0	650	331	17	981	121	0	144	8	265	35	1487	1522
18:00	13	21	0	0	34	0	0	0	0	0	0	127	120	4	247	30	0	15	1	45	5	326	331
18:15	20	35	0	2	55	0	0	0	0	0	0	81	118	1	199	16	0	38	1	54	4	308	312
18:30	15	29	0	0	44	0	0	0	0	0	0	82	106	3	188	15	0	29	4	44	7	276	283
18:45	22	32	0	0	54	0	0	0	0	0	0	56	69	2	125	17	0	25	1	42	3	221	224
Total	70	117	0	2	187	0	0	0	0	0	0	346	413	10	759	78	0	107	7	185	19	1131	1150
19:00	8	20	0	1	28	0	0	0	0	0	0	50	54	1	104	20	0	20	1	40	3	172	175
19:15	11	21	0	0	32	0	0	0	0	0	0	55	26	1	81	20	0	27	4	47	5	160	165
19:30	12	32	0	3	44	0	0	0	0	0	0	36	32	2	68	11	0	56	3	67	8	179	187
19:45	22	25	0	0	47	0	0	0	0	0	0	31	40	0	71	27	0	74	0	101	0	219	219
Total	53	98	0	4	151	0	0	0	0	0	0	172	152	4	324	78	0	177	8	255	16	730	746
20:00	7	32	0	0	39	0	0	0	0	0	0	51	18	1	69	18	0	46	1	64	2	172	174
20:15	6	24	0	0	30	0	0	0	0	0	0	49	18	1	67	32	0	53	0	85	1	182	183
20:30	4	44	0	1	48	0	0	0	0	0	0	39	16	1	55	7	0	96	0	103	2	206	208
20:45	3	33	0	0	36	0	0	0	0	0	0	41	14	0	55	22	0	71	0	93	0	184	184
Total	20	133	0	1	153	0	0	0	0	0	0	180	66	3	246	79	0	266	1	345	5	744	749
21:00	4	14	0	0	18	0	0	0	0	0	0	31	12	0	43	10	0	28	0	38	0	99	99
21:15	4	10	0	0	14	0	0	0	0	0	0	36	6	0	42	14	0	71	0	85	0	141	141
21:30	8	16	0	0	24	0	0	0	0	0	0	36	9	0	45	4	0	93	0	97	0	166	166
21:45	1	9	0	0	10	0	0	0	0	0	0	29	3	0	32	22	0	54	0	76	0	118	118
Total	17	49	0	0	66	0	0	0	0	0	0	132	30	0	162	50	0	246	0	296	0	524	524
Grand Total	843	2794	0	212	3637	0	0	0	0	0	0	3717	2221	353	5938	963	0	2078	245	3041	810	12616	13426
Apprch %	23.2	76.8	0.0			0.0	0.0	0.0			0.0	62.6	37.4		31.7	0.0	68.3				6.0	94.0	
Total %	6.7	22.1	0.0		28.8	0.0	0.0	0.0		0.0	0.0	29.5	17.6		47.1	7.6	0.0	16.5		24.1	6.0	94.0	

Major Street Approaches:

Northbound:

CSAH 52

Data File: C:\Program Files\JAMAR\PETRA\Data Files\TMC0114B.war
 Count Type: IMC. Channel: 0. Count Date: 6/18/ 1
 Number of Lanes: 2
 Approach Speed: 50
 Total Approach Traffic: 5938

Southbound:

CSAH 52

Data File: C:\Program Files\JAMAR\PETRA\Data Files\TMC0114B.war
 Count Type: IMC. Channel: 0. Count Date: 6/18/ 1
 Number of Lanes: 2
 Approach Speed: 50
 Total Approach Traffic: 3637

Minor Street Approaches:

Eastbound:

CR 87

Data File: C:\Program Files\JAMAR\PETRA\Data Files\TMC0114B.war
 Count Type: IMC. Channel: 0. Count Date: 6/18/ 1
 Number of Lanes: 2
 Approach Speed: 55
 Total Approach Traffic: 3041

Westbound:

none

Data File: C:\Program Files\JAMAR\PETRA\Data Files\TMC0114B.war
 Count Type: IMC. Channel: 0. Count Date: 6/18/ 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		Side		Warrant 1		Warrant 2		Warrant 8		
	Begin	(Total)	Vol.	Dir.	Rank	Meets?	Criteria	Meets?	Criteria	Meets?	Criteria
0		0	0	E	17		140		70		112
1		0	0	E	18		140		70		112
2		0	0	E	19		140		70		112
3		0	0	E	20		140		70		112
4		0	0	E	21		140		70		112
5		0	0	E	22		140		70		112
6		781	79	E	16	MAIN	140	--BOTH--	70	MAIN	112
7		888	135	E	10	MAIN	140	--BOTH--	70	--BOTH--	112
8		494	129	E	13	MAIN	140	SIDE	70	SIDE	112
9		387	104	E	15		140	SIDE	70		112
10		330	132	E	12		140	SIDE	70	SIDE	112
11		393	133	E	11		140	SIDE	70	SIDE	112
12		405	188	E	8	SIDE	140	SIDE	70	SIDE	112
13		438	191	E	7	--BOTH--	140	SIDE	70	SIDE	112
14		486	129	E	14	MAIN	140	SIDE	70	SIDE	112
15		735	254	E	5	--BOTH--	140	--BOTH--	70	--BOTH--	112
16		968	221	E	6	--BOTH--	140	--BOTH--	70	--BOTH--	112
17		1222	265	E	3	--BOTH--	140	--BOTH--	70	--BOTH--	112
18		946	185	E	9	--BOTH--	140	--BOTH--	70	--BOTH--	112
19		475	255	E	4	--BOTH--	140	SIDE	70	SIDE	112
20		399	345	E	1	SIDE	140	SIDE	70	SIDE	112
21		228	296	E	2	SIDE	140	SIDE	70	SIDE	112
22		0	0	E	23		140		70		112
23		0	0	E	24		140		70		112

Warrant Summary:

Rural values apply.

Warrant 1 - Minimum Vehicular Volumes

NOT SATISFIED. Required values reached for 6 hours. Criteria--Main St.: 420; Side St.: See Volume Summary.

Warrant 2 - Interruption of Continuous Traffic

NOT SATISFIED. Required values reached for 6 hours. Criteria--Main St.: 630; Side St.: See Volume Summary.

Warrant 3 - Minimum Pedestrian Volumes

NOT SATISFIED. Ped volumes too low. Criteria--190 Peds in peak hour, 100 peds in 4th high hour.

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

SATISFIED. Peak hour total entering volume: 1487. Approaches on both streets satisfy one of the following criteria:

- NSE - Approaches which are part of the principal through traffic roadway network.
- Approaches which include rural or suburban highways outside, entering or traversing a city.
- 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: 504; Side: See Volume Summary.

Warrant 9 - Four Hour Volumes

SATISFIED for 7 hours.

Warrant 10 - Peak Hour Delay

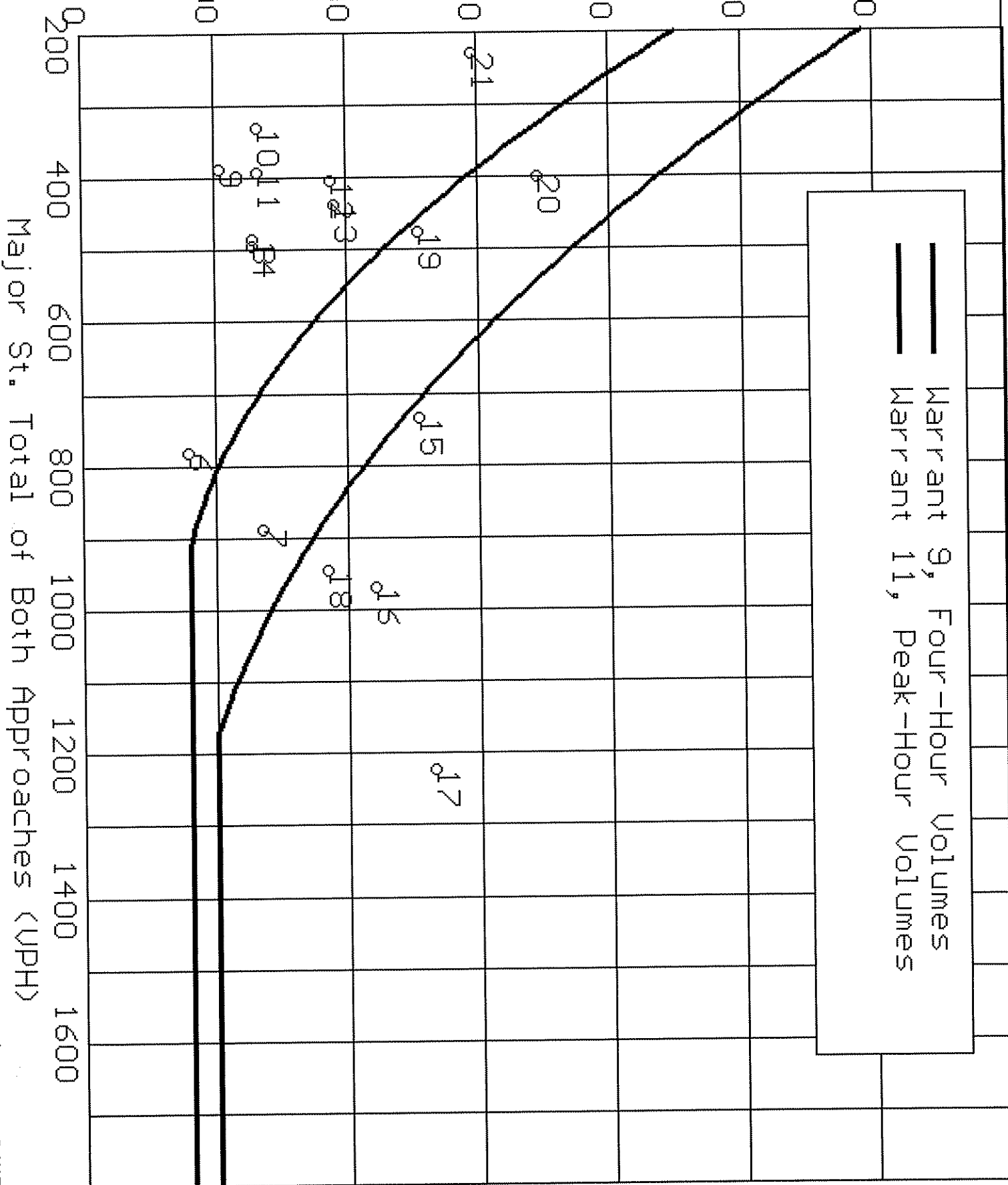
NOT APPLICABLE. Volume requirements satisfied, but side street peak hour delay not defined.

Criteria--Main St.: 800 (4 approaches), 650 (3 approaches); Side St.: 150.

Warrant 11 - Peak Hour Volume

SATISFIED for 4 hours.

Minor St. High Vol. Approach (UPH)



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

Multiway Stop Warrant Analysis
TMC 0114 CSAH 52@ CR 87
Speed Limit of Major Roadway..... 55

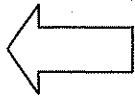
Minimum Traffic Volumes Multiway Stop Warrant Criteria:

- 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	860	0	637	637	1
7 AM - 8 AM	1023	0	683	683	1
8 AM - 9 AM	623	0	286	286	1
9 AM - 10 AM	491	0	191	191	0
10 AM - 11 AM	462	0	126	126	0
11 AM - 12 PM	526	0	128	128	0
12 PM - 13 PM	593	0	132	132	0
1 PM - 2 PM	629	0	158	158	0
2 PM - 3 PM	615	0	144	144	0
3 PM - 4 PM	989	0	178	178	0
4 PM - 5 PM	1189	0	176	176	0
5 PM - 6 PM	1487	0	241	241	1
6 PM - 7 PM	1131	0	187	187	0
7 PM - 8 PM	730	0	151	151	0
8 PM - 9 PM	744	0	153	153	0
9 PM - 10 PM	524	0	66	66	0

TOTAL HOURS MET: 4

MULTIWAY STOP WARRANT IS NOT MET



COUNT LOCATION:

CSAH 52 @

DATE:

6/18/01

CR 87

NORTH

APP. #1 = CSAH 52
APP. #2 =
APP. #3 = CSAH 52
APP. #4 = CR 87

APP.
#1

APP.
#2

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						11		3
6:15-6:30						17		
6:30-6:45						13		3
6:45-7:00						9		
HOURLY TOTAL						HOURLY TOTAL		56
7:00-7:15						7		
7:15-7:30						22		1
7:30-7:45						13		1
7:45-8:00						28		
HOURLY TOTAL						HOURLY TOTAL		72
8:00-8:15						15		
8:15-8:30						14		
8:30-8:45						16		
8:45-9:00						14		
HOURLY TOTAL						HOURLY TOTAL		59
9:00-9:15						22		
9:15-9:30						10		
9:30-9:45						13		
9:45-10:00						20		
HOURLY TOTAL						HOURLY TOTAL		65
10:00-10:15						26		
10:15-10:30						19		
10:30-10:45						17		
10:45-11:00						17		
HOURLY TOTAL						HOURLY TOTAL		79
11:00-11:15			1		1	17		
11:15-11:30						19		
11:30-11:45						23		
11:45-12:00				1	1	18		
HOURLY TOTAL					2	HOURLY TOTAL		77
12:00-12:15				1	1	13		
12:15-12:30						22		
12:30-12:45			1		1	18		
12:45-1:00						20		
HOURLY TOTAL					2	HOURLY TOTAL		73
1:00-1:15						20		
1:15-1:30						24		
1:30-1:45						25		
1:45-2:00						19		
HOURLY TOTAL						HOURLY TOTAL		88



COUNT LOCATION:

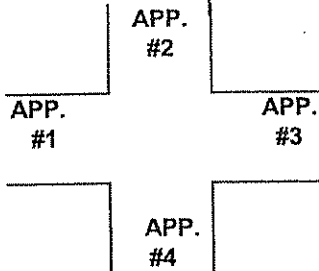
CSAH 52 @

DATE:

6/18/01

CR 87

NORTH
APP. #1 = CSAH 52
APP. #2 =
APP. #3 = CSAH 52
APP. #4 = CR 87



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						9		
2:15-2:30						17		
2:30-2:45						6	1	
2:45-3:00						19		
HOURLY TOTAL						HOURLY TOTAL		52
3:00-3:15						20		1
3:15-3:30						19		
3:30-3:45			1		1	8		
3:45-4:00						17		
HOURLY TOTAL					1	HOURLY TOTAL		65
4:00-4:15						12		
4:15-4:30	1				1	9		
4:30-4:45			1			4		
4:45-5:00				1	1	6		
HOURLY TOTAL					2	HOURLY TOTAL		31
5:00-5:15						15		
5:15-5:30						9		
5:30-5:45	1				1	6		
5:45-6:00						4		
HOURLY TOTAL					1	HOURLY TOTAL		34
6:00-6:15						5		
6:15-6:30						4		
6:30-6:45	1				1	7		
6:45-7:00						3		
HOURLY TOTAL					1	HOURLY TOTAL		19
7:00-7:15						3		
7:15-7:30						5		
7:30-7:45						8		
7:45-8:00								
HOURLY TOTAL						HOURLY TOTAL		16
8:00-8:15						2		
8:15-8:30						1		
8:30-8:45						2		
8:45-9:00								
HOURLY TOTAL						HOURLY TOTAL		5
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		