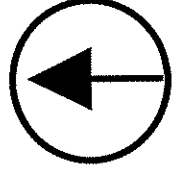


Date : 11/8 11/7 11/19 11/21/96

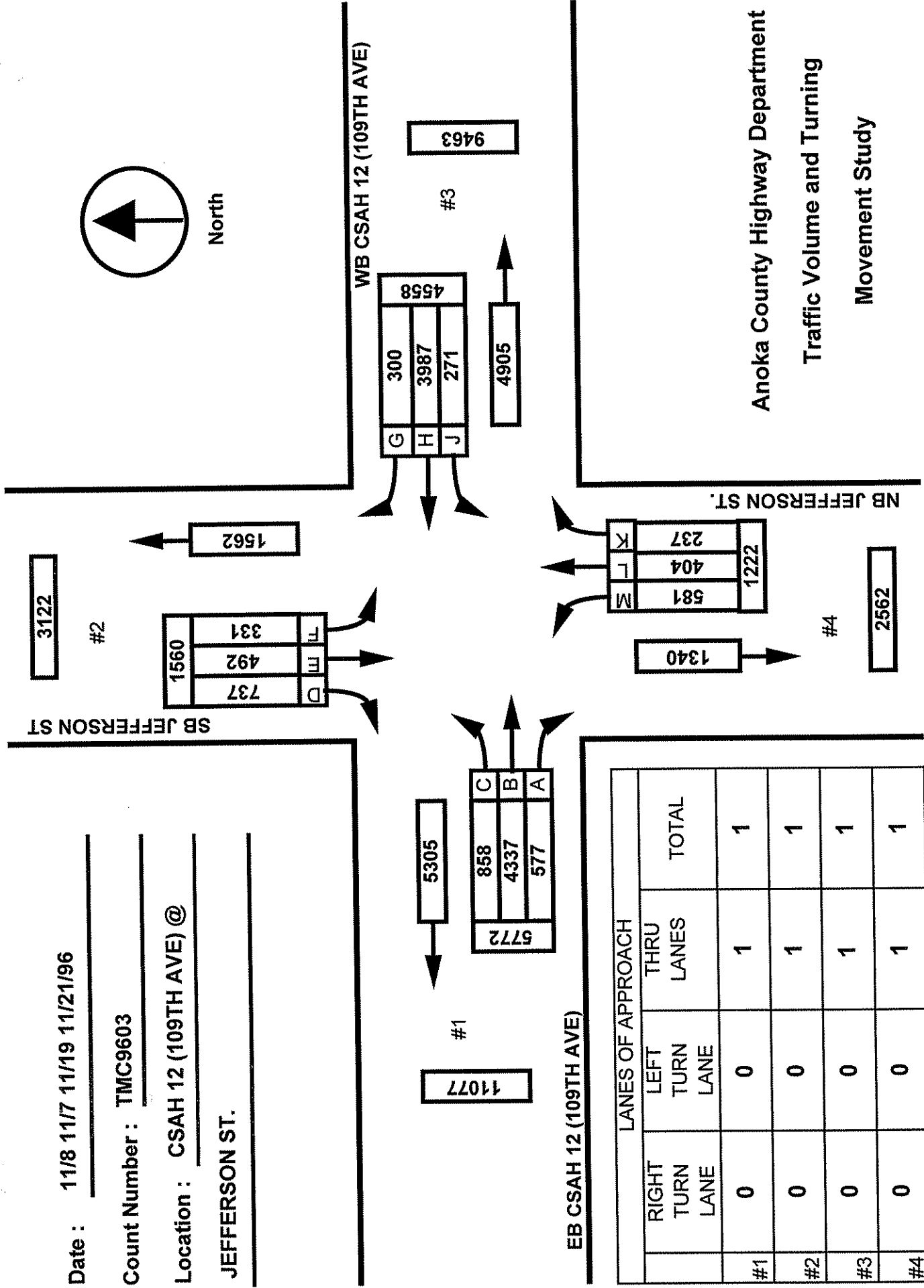
Count Number : TMC9603

Location : CSAH 12 (109TH AVE) @

JEFFERSON ST.



North



	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	1	1
#4	0	0	1	1

Anoka County Highway Department  
Traffic Volume and Turning  
Movement Study

PETRA Software

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Jamar Technologies, Inc.

Horsham, PA.

Study Name: TMC9603

Site Code : 95030122

Start Date: 11/08/96

Page : 1

Weather :  
 Counted by: Randy/Dick/Josie  
 Yard # : 1  
 Other :

Vehicle group 1

Start Time	JEFFERSON ST NE				CSAH 12 (109TH AVE)				JEFFERSON ST NE				CSAH 12 (109TH AVE)				Intvl	Exclu	Inclu
	Southbound				Westbound				Northbound				Eastbound						
Time	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Total	Total	Total
11/08/96																			
06:00	13	20	11	0	0	15	0	0	4	0	4	0	3	61	9	2	142	2	140
06:15	10	28	7	0	4	33	2	1	5	0	7	1	2	76	11	3	190	5	185
06:30	11	29	13	1	5	53	1	1	6	2	4	0	6	73	12	1	218	3	215
06:45	12	26	11	2	13	56	0	4	4	0	5	0	6	84	17	5	245	11	234
Hour	46	103	42	3	22	157	3	6	19	2	20	1	17	294	49	11	795	21	774
07:00	10	30	19	0	4	70	4	6	17	4	2	2	5	88	15	3	279	11	268
07:15	16	25	16	1	6	65	2	3	11	2	3	1	6	103	15	3	278	8	270
07:30	8	19	22	1	3	76	4	2	6	4	6	1	6	82	15	4	259	8	251
07:45	11	22	12	3	5	65	4	5	11	1	2	1	5	93	12	8	260	17	243
Hour	45	96	69	5	18	276	14	16	45	11	13	5	22	366	57	18	1076	44	1032
08:00	3	14	16	1	2	42	1	4	5	4	3	4	8	75	9	4	195	13	182
08:15	6	15	12	2	4	35	3	3	11	6	4	3	8	68	9	4	193	12	181
08:30	6	1	10	3	6	55	1	3	11	6	4	1	8	63	3	2	183	9	174
08:45	7	12	11	1	7	51	6	3	8	5	4	4	7	67	6	2	201	10	191
Hour	22	42	49	7	19	183	11	13	35	21	15	12	31	273	27	12	772	44	728
09:00	5	12	13	1	1	51	4	4	12	3	5	3	8	69	7	2	200	10	190
09:15	4	5	10	1	7	40	2	4	1	2	4	0	9	71	4	5	169	10	159
09:30	6	4	9	0	6	53	2	1	7	5	5	0	7	61	8	4	178	5	173
09:45	1	4	5	0	1	47	4	8	10	6	4	0	4	65	6	1	166	9	157
Hour	16	25	37	2	15	191	12	17	30	16	18	3	28	266	25	12	713	34	679
10:00	6	3	6	0	5	46	3	1	5	1	1	1	14	42	4	2	140	4	136
10:15	3	6	7	0	0	30	4	3	3	2	3	0	6	43	2	1	113	4	109
10:30	3	4	4	1	0	51	3	5	8	1	0	1	6	46	4	2	139	9	130
10:45	4	4	13	0	1	37	5	3	1	3	0	0	8	48	4	3	134	6	128
Hour	16	17	30	1	6	164	15	12	17	7	4	2	34	179	14	8	526	23	503
11:00	4	7	15	2	1	43	2	3	9	0	2	2	6	48	3	4	151	11	140
11:15	0	1	10	0	1	45	4	6	6	5	6	0	5	59	13	5	166	11	155
11:30	3	1	11	1	1	54	5	2	4	4	5	2	15	53	10	0	171	5	166
11:45	0	4	18	1	1	45	6	3	3	3	1	0	12	65	3	1	166	5	161
Hour	7	13	54	4	4	187	17	14	22	12	14	4	38	225	29	10	654	32	622
12:00	1	8	18	2	0	49	2	2	5	6	0	0	11	56	4	7	171	11	160
12:15	8	4	12	2	1	62	5	2	4	4	1	1	19	54	2	6	187	11	176
12:30	3	1	11	0	3	44	7	2	5	1	3	2	8	52	10	3	155	7	148
12:45	5	4	10	1	5	55	3	3	6	3	4	2	8	57	11	6	183	12	171
Hour	17	17	51	5	9	210	17	9	20	14	8	5	46	219	27	22	696	41	655

PETRA Software

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Jamar Technologies, Inc.

Horsham, PA.

Study Name: TMC9603

Site Code : 96030122

Start Date: 11/08/96

Page : 2

Weather :  
 Counted by:Randy/Dick/Josie  
 Card # :1  
 Other :

Vehicle group 1

Start Time	JEFFERSON ST NE				CSAH 12 (109TH AVE)				JEFFERSON ST NE				CSAH 12 (109TH AVE)				Intvl	Exclu	Inclu
	Southbound				Westbound				Northbound				Eastbound						
	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Total	Total	Total
13:00	1	1	10	1	0	52	2	5	11	1	2	1	15	57	7	2	168	9	159
13:15	5	5	9	0	3	50	5	4	2	5	1	0	8	57	4	6	164	10	154
13:30	2	4	10	1	2	48	5	3	6	5	3	1	10	59	2	4	165	9	156
13:45	3	5	8	2	2	36	5	0	9	3	2	2	7	52	6	3	145	7	138
Hour	11	15	37	4	7	186	17	12	28	14	8	4	40	225	19	15	642	35	607
14:00	7	4	13	0	4	45	7	0	9	4	1	0	10	52	9	0	165	0	165
14:15	3	6	7	0	6	55	4	0	4	5	4	0	7	62	7	0	170	0	170
14:30	1	4	6	0	5	47	2	0	9	3	4	0	17	68	7	0	173	0	173
14:45	2	3	11	0	3	72	5	0	5	11	4	0	14	46	12	0	188	0	188
Hour	13	17	37	0	18	219	18	0	27	23	13	0	48	228	35	0	696	0	696
15:00	2	7	10	0	8	72	4	0	9	4	2	0	23	70	9	0	220	0	220
15:15	4	7	16	0	11	90	3	0	7	10	2	0	16	78	26	0	270	0	270
15:30	7	3	7	0	1	93	15	0	24	14	2	0	27	89	12	0	294	0	294
15:45	5	4	12	0	3	107	7	0	15	11	2	0	21	68	11	0	266	0	266
Hour	18	21	45	0	23	362	29	0	55	39	8	0	87	305	58	0	1050	0	1050
16:00	8	5	13	0	5	105	5	0	14	12	7	0	23	86	6	1	290	1	289
16:15	8	4	10	0	8	95	12	0	20	23	6	0	24	81	16	0	307	0	307
16:30	5	13	13	0	3	122	5	0	14	17	5	0	27	99	10	0	333	0	333
16:45	6	4	16	0	6	130	9	0	23	23	5	0	19	88	15	0	344	0	344
Hour	27	26	52	0	22	452	31	0	71	75	23	0	93	354	47	1	1274	1	1273
17:00	7	12	11	0	6	106	11	0	32	17	4	0	30	86	17	0	339	0	339
17:15	11	4	18	0	9	109	7	0	20	22	5	0	27	87	19	5	343	5	338
17:30	6	4	16	0	6	106	10	0	18	31	14	0	34	82	14	0	341	0	341
17:45	9	2	17	0	7	102	9	0	11	9	8	0	17	82	4	0	277	0	277
Hour	33	22	62	0	28	423	37	0	81	79	31	0	108	337	54	5	1300	5	1295
18:00	6	8	15	0	11	82	7	0	16	7	11	1	23	95	15	4	301	5	296
18:15	7	6	25	1	6	84	9	1	12	9	4	2	20	80	12	1	279	5	274
18:30	2	6	11	1	3	80	4	0	13	13	8	1	16	84	6	2	250	4	246
18:45	6	11	22	0	5	93	8	0	14	10	4	0	22	91	7	1	294	1	293
Hour	21	31	73	2	25	339	28	1	55	39	27	4	81	350	40	8	1124	15	1109
19:00	5	7	13	0	8	87	2	2	11	0	4	0	14	85	16	1	255	3	252
19:15	1	5	8	0	4	59	4	2	4	1	3	0	16	60	4	0	171	2	169
19:30	2	4	10	1	5	64	6	0	8	5	3	0	18	53	4	0	183	1	182
19:45	4	7	11	0	9	47	4	1	6	7	5	0	15	51	12	0	179	1	178
Hour	12	23	42	1	26	257	16	5	29	13	15	0	63	249	36	1	788	7	781

PETRA Software

Weather :  
 Counted by:Randy/Dick/Josie  
 Card # :1  
 Other :

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 Horsham, PA.

Study Name: TMC9603  
 Site Code : 96030122  
 Start Date: 11/08/96  
 Page : 3

Vehicle group 1

Start Time	JEFFERSON ST NE Southbound				CSAH 12 (109TH AVE) Westbound				JEFFERSON ST NE Northbound				CSAH 12 (109TH AVE) Eastbound				Intvl	Exclu	Inclu
	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other			
20:00	5	1	8	0	2	42	6	0	8	6	2	0	19	68	14	0	181	0	181
20:15	2	3	13	0	7	57	3	0	4	8	4	0	17	56	6	0	180	0	180
20:30	6	3	8	0	6	53	3	0	6	4	8	0	19	69	6	1	192	1	191
20:45	2	4	11	0	3	58	3	0	7	2	2	0	14	63	9	1	179	1	178
Hour	15	11	40	0	18	210	15	0	25	20	16	0	69	256	35	2	732	2	730
21:00	4	4	3	0	2	51	6	0	5	11	0	0	21	50	6	1	164	1	163
21:15	1	2	8	0	3	45	4	0	3	2	3	0	13	68	12	1	165	1	164
21:30	0	5	2	0	1	40	3	1	5	5	1	0	14	53	4	0	134	1	133
21:45	7	2	4	0	5	35	7	0	9	1	0	0	5	40	3	1	119	1	118
Hour	12	13	17	0	11	171	20	1	22	19	4	0	53	211	25	3	582	4	578
Total	331	492	737	34	271	3987	300	106	581	404	237	40	858	4337	577	128	13420	308	13112
% Apr.	20.7	30.8	46.2	2.1	5.8	85.4	6.4	2.2	46.0	32.0	18.7	3.1	14.5	73.5	9.7	2.1	-	-	-
% Int.	2.4	3.6	5.4	0.2	2.0	29.7	2.2	0.7	4.3	3.0	1.7	0.2	6.3	32.3	4.2	0.9	-	-	-

or Street Approaches:

Eastbound:

CSAH 12 (109TH AVE)

Data File: C:\APPS\PETRA2\DATAFILE\TMC9603.PDF  
 Count Type: IMC. Channel: 0. Count Date: 11/ 8/96  
 Number of Lanes: 1  
 Approach Speed: 35  
 Total Approach Traffic: 5772

Westbound:

CSAH 12 (109TH AVE)

Data File: C:\APPS\PETRA2\DATAFILE\TMC9603.PDF  
 Count Type: IMC. Channel: 0. Count Date: 11/ 8/96  
 Number of Lanes: 1  
 Approach Speed: 35  
 Total Approach Traffic: 4558

Minor Street Approaches:

Northbound:

JEFFERSON ST NE

Data File: C:\APPS\PETRA2\DATAFILE\TMC9603.PDF  
 Count Type: IMC. Channel: 0. Count Date: 11/ 8/96  
 Number of Lanes: 1  
 Approach Speed: 0  
 Total Approach Traffic: 1222

Southbound:

JEFFERSON ST NE

Data File: C:\APPS\PETRA2\DATAFILE\TMC9603.PDF  
 Count Type: IMC. Channel: 0. Count Date: 11/ 8/96  
 Number of Lanes: 1  
 Approach Speed: 0  
 Total Approach Traffic: 1560

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	S	17		150		75		120
1	0	0	S	18		150		75		120
2	0	0	S	19		150		75		120
3	0	0	S	20		150		75		120
4	0	0	S	21		150		75		120
5	0	0	S	22		150		75		120
6	542	191	S	2	--BOTH--	150	SIDE	75	SIDE	120
7	753	210	S	1	--BOTH--	150	--BOTH--	75	--BOTH--	120
8	544	113	S	6	MAIN	150	SIDE	75		120
9	537	78	S	9	MAIN	150	SIDE	75		120
10	412	63	S	14		150		75		120
11	500	74	S	11	MAIN	150		75		120
12	528	85	S	8	MAIN	150	SIDE	75		120
13	494	63	S	15		150		75		120
14	566	67	S	12	MAIN	150		75		120
15	864	102	N	7	MAIN	150	--BOTH--	75	MAIN	120
16	999	169	N	4	--BOTH--	150	--BOTH--	75	--BOTH--	120
17	987	191	N	3	--BOTH--	150	--BOTH--	75	--BOTH--	120
18	863	125	S	5	MAIN	150	--BOTH--	75	--BOTH--	120
19	647	77	S	10	MAIN	150	SIDE	75	MAIN	120
20	603	66	S	13	MAIN	150		75	MAIN	120
21	491	45	N	16		150		75		120
22	0	0	S	23		150		75		120
23	0	0	S	24		150		75		120

## Warrant Summary:

Urban values apply.

## Warrant 1 - Minimum Vehicular Volumes

NOT SATISFIED. Required values reached for 4 hours. Criteria--Main St.: 500; Side St.: See Volume Summary.

## Warrant 2 - Interruption of Continuous Traffic

NOT SATISFIED. Required values reached for 5 hours. Criteria--Main St.: 750; 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

NOT SATISFIED. At least one street has no major approaches. Peak hour total entering volume: 1295.

- 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 4 hours. Criteria--Main: 600; Side: See Volume Summary.

## Warrant 9 - Four Hour Volumes

NOT SATISFIED. Required values reached for 3 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

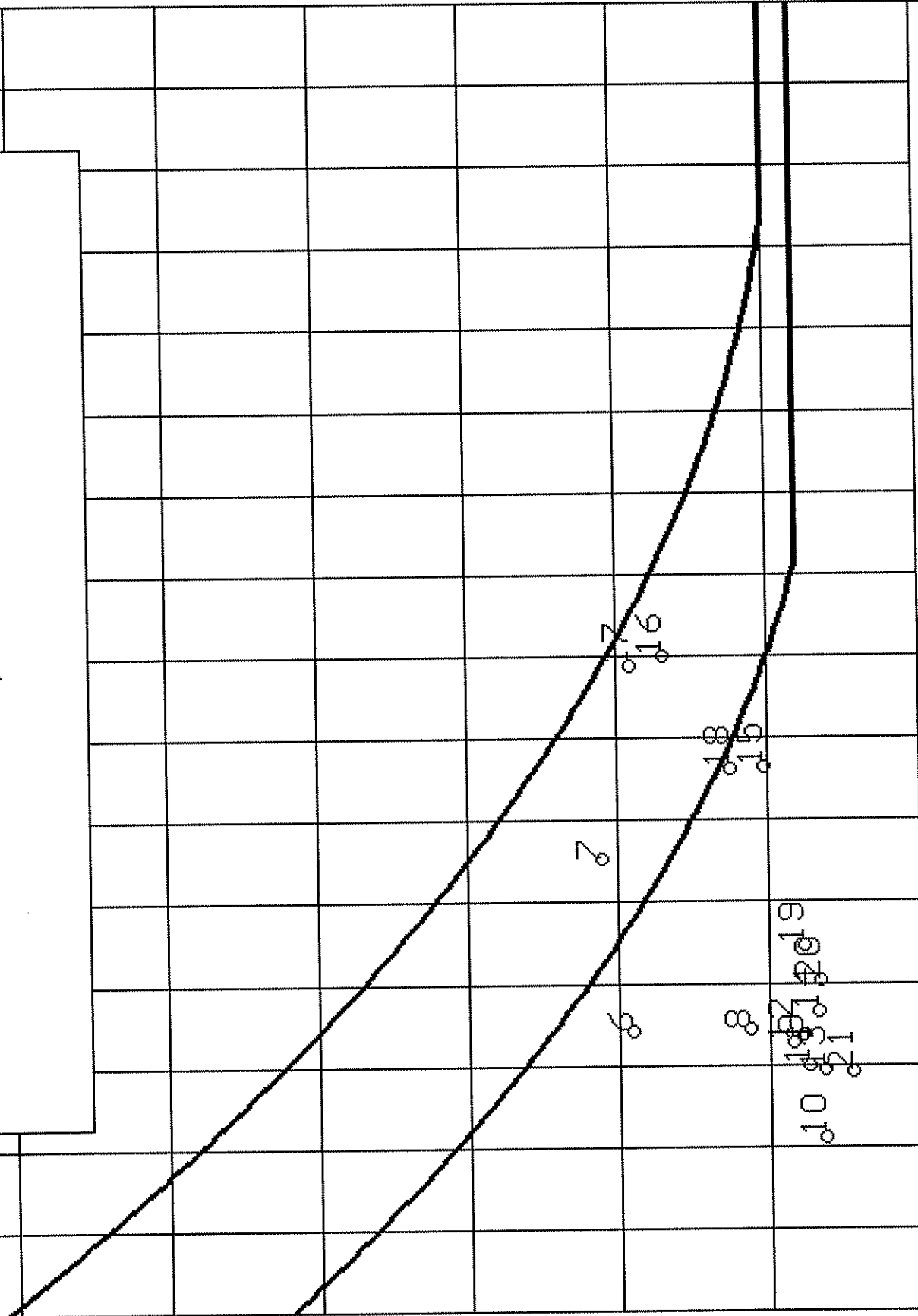
NOT SATISFIED.

Minor St. High Vol. Approach (UPH)  
0 200 400 600 800 1000 1200 1400 1600

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

Major St. Total of Both Approaches (UPH)

Major St. Total of Both Approaches (UPH)

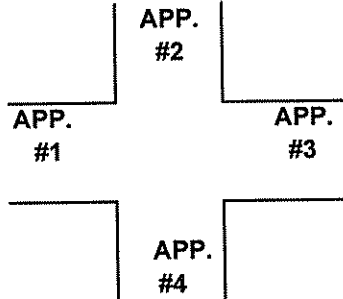




COUNT LOCATION: CSAH 12 (109TH AVE) @  
JEFFERSON ST

DATE: 11/8 11/19/96

APP. #1=EB CSAH 12  
(109TH AVE)  
APP. #2 =SB JEFFERSON  
  
APP. #3=WB CSAH 12  
(109TH AVE)  
APP. #4 =NB JEFFERSON



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			1	1	2	1		4
6:30-6:45	3				3			3
6:45-7:00	2				2	5	1	5
<b>HOURLY TOTAL</b>					<b>7</b>	<b>HOURLY TOTAL</b>		<b>22</b>
7:00-7:15						6		5
7:15-7:30						4		4
7:30-7:45		1			1	5	1	2
7:45-8:00						10	1	6
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>44</b>
8:00-8:15						6		7
8:15-8:30						4		8
8:30-8:45						4	1	4
8:45-9:00						2		8
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>44</b>
9:00-9:15		1			1	5	1	4
9:15-9:30						8		2
9:30-9:45						3		2
9:45-10:00	1				1	9		
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>		<b>34</b>
10:00-10:15						2		2
10:15-10:30						3		1
10:30-10:45						6		3
10:45-11:00						4		1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>22</b>
11:00-11:15						10		1
11:15-11:30	1		1		2	7		4
11:30-11:45		1				5		
11:45-12:00						4		1
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>		<b>32</b>
12:00-12:15						6		5
12:15-12:30						6		5
12:30-12:45						3		4
12:45-1:00	1				1	9		3
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>41</b>
1:00-1:15	1				1	5	1	3
1:15-1:30	1	1			2	10		
1:30-1:45						7		2
1:45-2:00	1		1		2	4		3
<b>HOURLY TOTAL</b>					<b>5</b>	<b>HOURLY TOTAL</b>		<b>35</b>

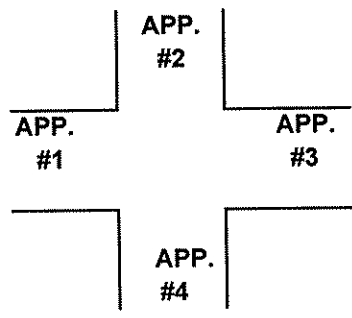




**COUNT LOCATION:** CSAH 12 (109TH AVE) @  
JEFFERSON ST

**DATE:** 11/7 11/21/96

APP. #1=EB CSAH 12  
(109TH AVE)  
APP. #2 =SB JEFFERSON  
  
APP. #3=WB CSAH 12  
(109TH AVE)  
APP. #4 =NB JEFFERSON



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								1
2:15-2:30	1			1	2	4		3
2:30-2:45	1	1			2	5		8
2:45-3:00						3		5
<b>HOURLY TOTAL</b>					<b>4</b>	<b>HOURLY TOTAL</b>		<b>29</b>
3:00-3:15						8		5
3:15-3:30								8
3:30-3:45						2		11
3:45-4:00				1	1	2		10
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>46</b>
4:00-4:15						7		2
4:15-4:30						3		5
4:30-4:45						3		4
4:45-5:00						5		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>29</b>
5:00-5:15				1	1	1		4
5:15-5:30				1	1	3		1
5:30-5:45						1		5
5:45-6:00						1		4
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>		<b>20</b>
6:00-6:15			3	4	7	1		5
6:15-6:30			1		1			3
6:30-6:45						1		1
6:45-7:00						1		
<b>HOURLY TOTAL</b>					<b>8</b>	<b>HOURLY TOTAL</b>		<b>12</b>
7:00-7:15						2	1	
7:15-7:30						1		1
7:30-7:45						1		
7:45-8:00						1		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>7</b>
8:00-8:15								
8:15-8:30								
8:30-8:45						1		
8:45-9:00		2			2	1		
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>		<b>2</b>
9:00-9:15				1	1	1		
9:15-9:30						1		
9:30-9:45						1		
9:45-10:00								1
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>4</b>