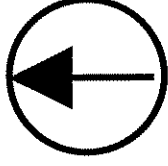


Date : 7/28/98AM 7/27/98PM

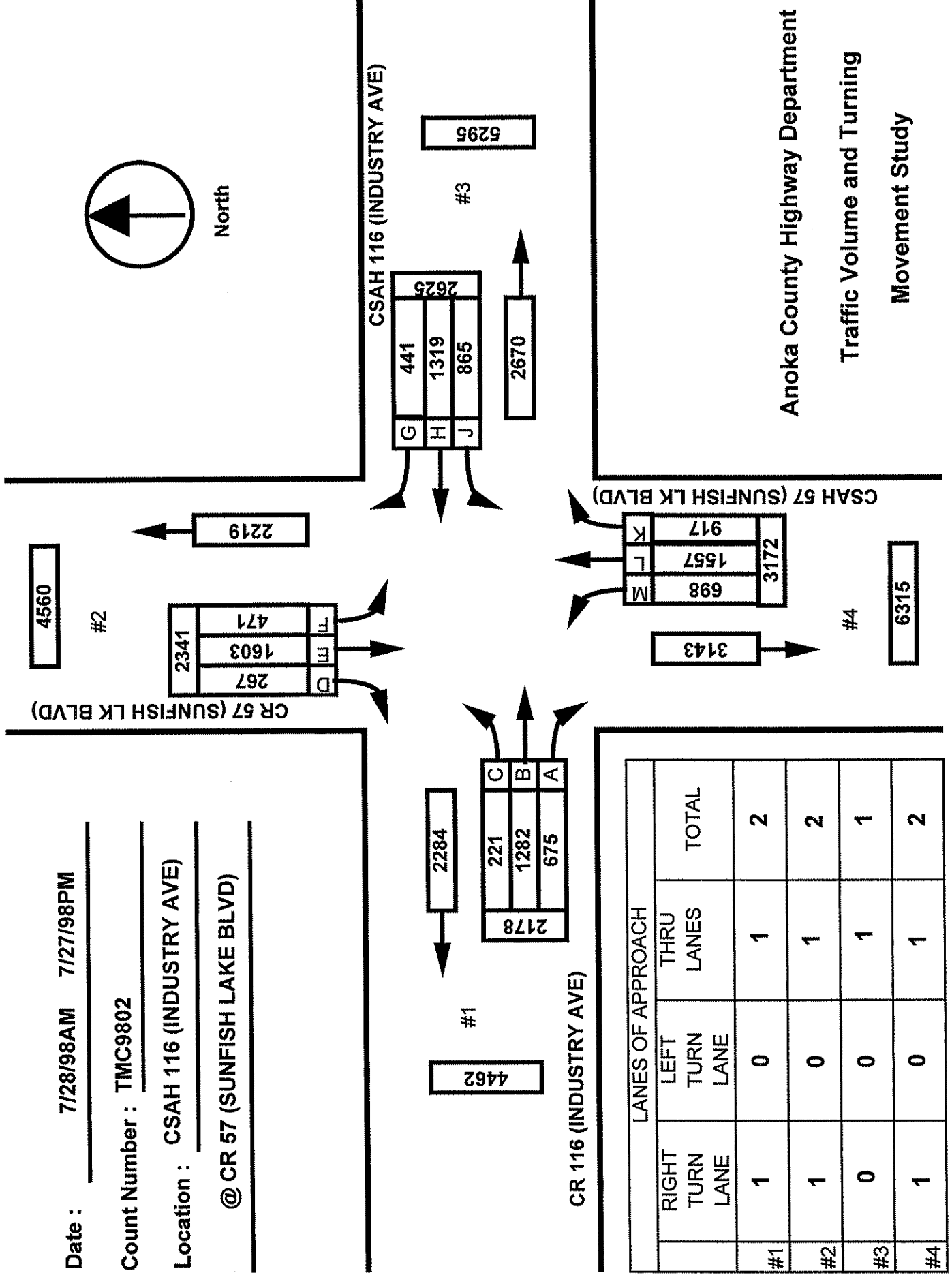
Count Number : TMC9802

Location : CSAH 116 (INDUSTRY AVE)

@ CR 57 (SUNFISH LAKE BLVD)



North



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

Anoka County Highway Department

Traffic Volume and Turning

Movement Study

PETRA Software

Weather :  
 Counted by: Sarah and Vallie  
 Board # :  
 Cher :

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 Horsham, PA.

Study Name: TMC9802  
 Site Code : 98020202  
 Start Date: 07/28/98  
 Page : 1

Vehicle group 1

Start Time	CR 57 (SUNFISH LK BLVD Southbound)				CSAH 116 (INDUSTRY AVE Westbound)				CSAH 57 (SUNFISH LK BLVD Northbound)				CR 116 (INDUSTRY AVE Eastbound)				Intvl	Exclu	Inclu
	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other			
07/28/98																			
06:00	4	39	2	1	12	8	2	3	14	15	5	5	2	12	12	4	140	13	127
06:15	3	56	6	3	23	18	4	4	18	10	9	1	3	10	3	2	173	10	163
06:30	10	70	7	4	19	29	3	4	15	13	11	0	0	26	10	1	222	9	213
06:45	21	59	14	1	24	41	7	5	44	19	21	1	2	23	10	3	295	10	285
Hour	38	224	29	9	78	96	16	16	91	57	46	7	7	71	35	10	830	42	788
07:00	8	57	10	2	25	21	2	5	19	7	11	5	4	17	9	2	204	14	190
07:15	5	66	4	5	22	34	3	5	16	9	4	2	2	34	18	9	238	21	217
07:30	8	39	3	2	32	27	8	8	19	11	8	6	1	23	16	16	227	32	195
07:45	10	54	7	3	20	29	5	4	19	16	10	0	2	28	18	8	233	15	218
Hour	31	216	24	12	99	111	18	22	73	43	33	13	9	102	61	35	902	82	820
08:00	8	31	3	6	19	21	1	3	11	12	11	1	2	14	6	4	153	14	139
08:15	7	20	2	4	16	17	5	3	11	13	8	6	2	22	7	6	149	19	130
08:30	3	20	3	1	10	14	5	2	11	7	5	7	3	17	7	6	121	16	105
08:45	3	26	2	4	11	16	5	5	11	14	9	12	1	23	7	10	159	31	128
Hour	21	97	10	15	56	68	16	13	44	46	33	26	8	76	27	26	582	80	502
09:00	3	14	3	1	14	20	5	14	7	14	16	9	2	20	7	6	155	30	125
09:15	6	17	5	6	16	7	7	5	18	10	3	7	2	11	9	8	137	26	111
09:30	11	23	2	3	15	7	4	4	5	13	6	4	3	19	14	9	142	20	122
09:45	4	14	2	1	16	9	10	6	5	17	9	3	2	12	8	7	125	17	108
Hour	24	68	12	11	61	43	26	29	35	54	34	23	9	62	38	30	559	93	466
10:00	9	17	1	3	19	17	9	8	7	9	9	4	1	10	8	3	134	18	116
10:15	4	19	2	4	11	17	7	5	5	13	10	6	2	17	7	5	134	20	114
10:30	5	20	4	3	10	15	5	9	12	11	13	6	5	9	11	7	145	25	120
10:45	4	17	2	2	13	15	4	8	7	10	14	8	0	13	13	7	137	25	112
Hour	22	73	9	12	53	64	25	30	31	43	46	24	8	49	39	22	550	88	462
11:00	10	23	4	4	14	15	0	6	11	20	12	8	3	18	16	9	173	27	146
11:15	10	13	6	4	14	16	15	4	8	11	18	8	3	18	11	4	163	20	143
11:30	7	17	6	2	9	13	10	2	11	26	15	8	6	34	10	9	185	21	164
11:45	5	26	6	4	13	21	7	8	9	11	14	4	6	14	20	5	173	21	152
Hour	32	79	22	14	50	65	32	20	39	68	59	28	18	84	57	27	694	89	605
12:00	5	26	6	6	19	21	10	8	14	26	28	9	3	20	22	2	225	25	200
12:15	7	24	7	7	14	27	10	1	16	28	9	4	8	30	16	10	218	22	196
12:30	10	28	3	1	13	25	9	4	10	24	21	4	9	23	5	1	190	10	180
12:45	6	24	3	5	13	30	7	7	10	23	16	2	4	15	10	3	178	17	161
Hour	28	102	19	19	59	103	36	20	50	101	74	19	24	88	53	16	811	74	737

Weather :  
 Counted by: Sarah and Vallie  
 Board # :  
 Cher :

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 Horsham, PA.

Study Name: TMC9802  
 Site Code : 98020202  
 Start Date: 07/28/98  
 Page : 2

Vehicle group 1

Start Time	CR 57 (SUNFISH LK BLVD Southbound)				CSAH 116 (INDUSTRY AVE Westbound)				CSAH 57 (SUNFISH LK BL Northbound)				CR 116 (INDUSTRY AVE Eastbound)				Intvl	Exclu	Inclu
	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other			
13:00	10	27	3	4	17	24	10	4	6	30	15	2	5	16	7	3	183	13	170
13:15	8	19	4	3	8	15	4	2	7	26	13	11	4	16	6	6	152	22	130
13:30	10	21	4	5	16	8	4	3	11	22	17	6	1	16	3	4	151	18	133
13:45	10	20	5	3	14	14	6	3	10	15	16	2	5	14	6	7	150	15	135
Hour	38	87	16	15	55	61	24	12	34	93	61	21	15	62	22	20	636	68	568
14:00	9	24	5	4	12	14	5	7	11	35	21	10	1	14	8	6	186	27	159
14:15	7	27	0	3	13	14	5	4	13	28	14	4	4	26	24	5	191	16	175
14:30	6	29	5	1	5	24	5	1	12	29	16	7	2	25	19	5	191	14	177
14:45	6	24	2	2	7	20	7	5	13	34	13	7	1	19	9	8	177	22	155
Hour	28	104	12	10	37	72	22	17	49	126	64	28	8	84	60	24	745	79	666
15:00	7	24	6	1	18	29	7	10	18	26	19	6	5	20	14	7	217	24	193
15:15	14	20	4	3	14	25	9	2	16	32	21	2	13	44	36	2	257	9	248
15:30	11	26	13	3	14	47	11	5	26	37	22	6	4	36	20	4	285	18	267
15:45	4	25	6	2	11	32	13	4	20	52	31	7	10	44	19	5	285	18	267
Hour	36	95	29	9	57	133	40	21	80	147	93	21	32	144	89	18	1044	69	975
16:00	5	19	5	2	15	34	8	5	10	34	23	4	11	39	25	7	246	18	228
16:15	5	22	3	1	20	27	15	5	17	48	24	5	6	40	17	2	257	13	244
16:30	17	29	7	3	18	33	10	3	11	43	21	5	5	38	15	5	263	16	247
16:45	11	31	8	5	15	41	10	3	14	53	27	6	8	23	17	2	274	16	258
Hour	38	101	23	11	68	135	43	16	52	178	95	20	30	140	74	16	1040	63	977
17:00	13	20	6	1	13	28	17	3	15	47	21	6	6	33	21	2	252	12	240
17:15	12	24	4	3	9	22	12	5	14	51	27	10	4	24	16	3	240	21	219
17:30	7	29	5	2	12	31	14	5	7	47	26	2	7	29	12	2	237	11	226
17:45	4	26	4	1	16	23	13	1	5	48	19	3	3	18	4	1	189	6	183
Hour	36	99	19	7	50	104	56	14	41	193	93	21	20	104	53	8	918	50	868
18:00	4	24	1	0	22	32	7	7	7	42	23	3	0	22	3	0	197	10	187
18:15	7	29	2	2	13	17	8	1	8	32	14	1	1	18	4	4	161	8	153
18:30	11	21	5	0	4	21	6	1	7	32	18	5	4	17	9	2	163	8	155
18:45	9	26	4	0	14	19	5	3	5	30	12	5	5	13	6	3	159	11	148
Hour	31	100	12	2	53	89	26	12	27	136	67	14	10	70	22	9	680	37	643
19:00	7	15	1	0	5	24	6	1	7	21	10	2	2	14	11	0	126	3	123
19:15	5	12	0	2	11	19	5	2	4	23	14	2	2	15	4	2	122	8	114
19:30	5	13	3	0	5	12	7	0	4	25	10	2	3	11	4	1	105	3	102
19:45	7	10	4	0	6	11	8	0	10	29	8	2	2	8	4	0	109	2	107
Hour	24	50	8	2	27	66	26	3	25	98	42	8	9	48	23	3	462	16	446

Weather :  
 Counted by: Sarah and Vallie  
 Board # :  
 Character :

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 Horsham, PA.

Study Name: TMC9802  
 Site Code : 98020202  
 Start Date: 07/28/98  
 Page : 3

Vehicle group 1

Start Time	CR 57 (SUNFISH LK BLVD) Southbound				CSAH 116 (INDUSTRY AVE) Westbound				CSAH 57 (SUNFISH LK BLVD) Northbound				CR 116 (INDUSTRY AVE) Eastbound				Intvl	Exclu	Inclu
	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other			
20:00	6	12	5	2	6	13	8	2	5	20	12	2	2	18	4	1	118	7	111
20:15	5	16	1	1	6	7	3	1	2	28	16	2	2	8	6	1	105	5	100
20:30	6	15	4	0	10	19	6	1	4	24	8	0	1	13	0	1	112	2	110
20:45	3	17	1	0	10	17	2	2	3	22	9	2	1	24	4	0	117	4	113
Hour	20	60	11	3	32	56	19	6	14	94	45	6	6	63	14	3	452	18	434
21:00	7	19	7	1	9	13	5	0	5	21	15	0	5	13	1	0	121	1	120
21:15	7	10	4	1	5	8	5	1	6	20	7	0	1	9	3	0	87	2	85
21:30	6	13	1	0	6	18	2	0	1	20	5	0	1	4	0	0	77	0	77
21:45	4	6	0	0	10	14	4	2	1	19	5	2	1	9	4	0	81	4	77
Hour	24	48	12	2	30	53	16	3	13	80	32	2	8	35	8	0	366	7	359
Total	471	1603	267	153	865	1319	441	254	698	1557	917	281	221	1282	675	267	11271	955	10316
% Apr.	18.8	64.2	10.7	6.1	30.0	45.8	15.3	8.8	20.2	45.0	26.5	8.1	9.0	52.4	27.6	10.9	-	-	-
% Int.	4.1	14.2	2.3	1.3	7.6	11.7	3.9	2.2	6.1	13.8	8.1	2.4	1.9	11.3	5.9	2.3	-	-	-

Major Street Approaches:

Northbound:

CSAH 57 (SUNFISH LK BLVD)

Data File: C:\APPS\PETRA2\DATAFILE\TMC9802.PDF  
 Count Type: IMC. Channel: 0. Count Date: 7/28/98  
 Number of Lanes: 2  
 Approach Speed: 45  
 Total Approach Traffic: 3172

Southbound:

CR 57 (SUNFISH LK BLVD)

Data File: C:\APPS\PETRA2\DATAFILE\TMC9802.PDF  
 Count Type: IMC. Channel: 0. Count Date: 7/28/98  
 Number of Lanes: 2  
 Approach Speed: 55  
 Total Approach Traffic: 2341

Minor Street Approaches:

Eastbound:

CR 116 (INDUSTRY AVE)

Data File: C:\APPS\PETRA2\DATAFILE\TMC9802.PDF  
 Count Type: IMC. Channel: 0. Count Date: 7/28/98  
 Number of Lanes: 2  
 Approach Speed: 55  
 Total Approach Traffic: 2178

Westbound:

CSAH 116 (INDUSTRY AVE)

Data File: C:\APPS\PETRA2\DATAFILE\TMC9802.PDF  
 Count Type: IMC. Channel: 0. Count Date: 7/28/98  
 Number of Lanes: 1  
 Approach Speed: 50  
 Total Approach Traffic: 2625

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	W	17		105		52		84
1	0	0	W	18		105		52		84
2	0	0	W	19		105		52		84
3	0	0	W	20		105		52		84
4	0	0	W	21		105		52		84
5	0	0	W	22		105		52		84
6	485	190	W	6	--BOTH--	105	SIDE	52	SIDE	84
7	420	228	W	3	--BOTH--	105	SIDE	52	SIDE	84
8	251	140	W	11	SIDE	105	SIDE	52	SIDE	84
9	227	130	W	13	SIDE	105	SIDE	52	SIDE	84
10	224	142	W	10	SIDE	105	SIDE	52	SIDE	84
11	299	159	E	8	SIDE	140	SIDE	70	SIDE	112
12	374	198	W	5	SIDE	105	SIDE	52	SIDE	84
13	329	140	W	12	SIDE	105	SIDE	52	SIDE	84
14	383	152	E	9	SIDE	140	SIDE	70	SIDE	112
15	480	265	E	1	--BOTH--	140	SIDE	70	SIDE	112
16	487	246	W	2	--BOTH--	105	SIDE	52	SIDE	84
17	481	210	W	4	--BOTH--	105	SIDE	52	SIDE	84
18	373	168	W	7	SIDE	105	SIDE	52	SIDE	84
19	247	119	W	14	SIDE	105	SIDE	52	SIDE	84
20	244	107	W	15	SIDE	105	SIDE	52	SIDE	84
21	209	99	W	16		105	SIDE	52	SIDE	84
22	0	0	W	23		105		52		84
23	0	0	W	24		105		52		84

## Warrant Summary:

Rural values apply.

## Warrant 1 - Minimum Vehicular Volumes

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

## Warrant 2 - Interruption of Continuous Traffic

NOT SATISFIED. Required values reached for 0 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

NOT SATISFIED. Peak hour total entering volume 977 does not meet criteria of 1000

- 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 0 hours. Criteria--Main: 504; Side: See Volume Summary.

## Warrant 9 - Four Hour Volumes

NOT SATISFIED. Required values reached for 2 hours.

## Warrant 10 - Peak Hour Delay

NOT SATISFIED. Peak hour (1600 hours) volume not adequate.

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

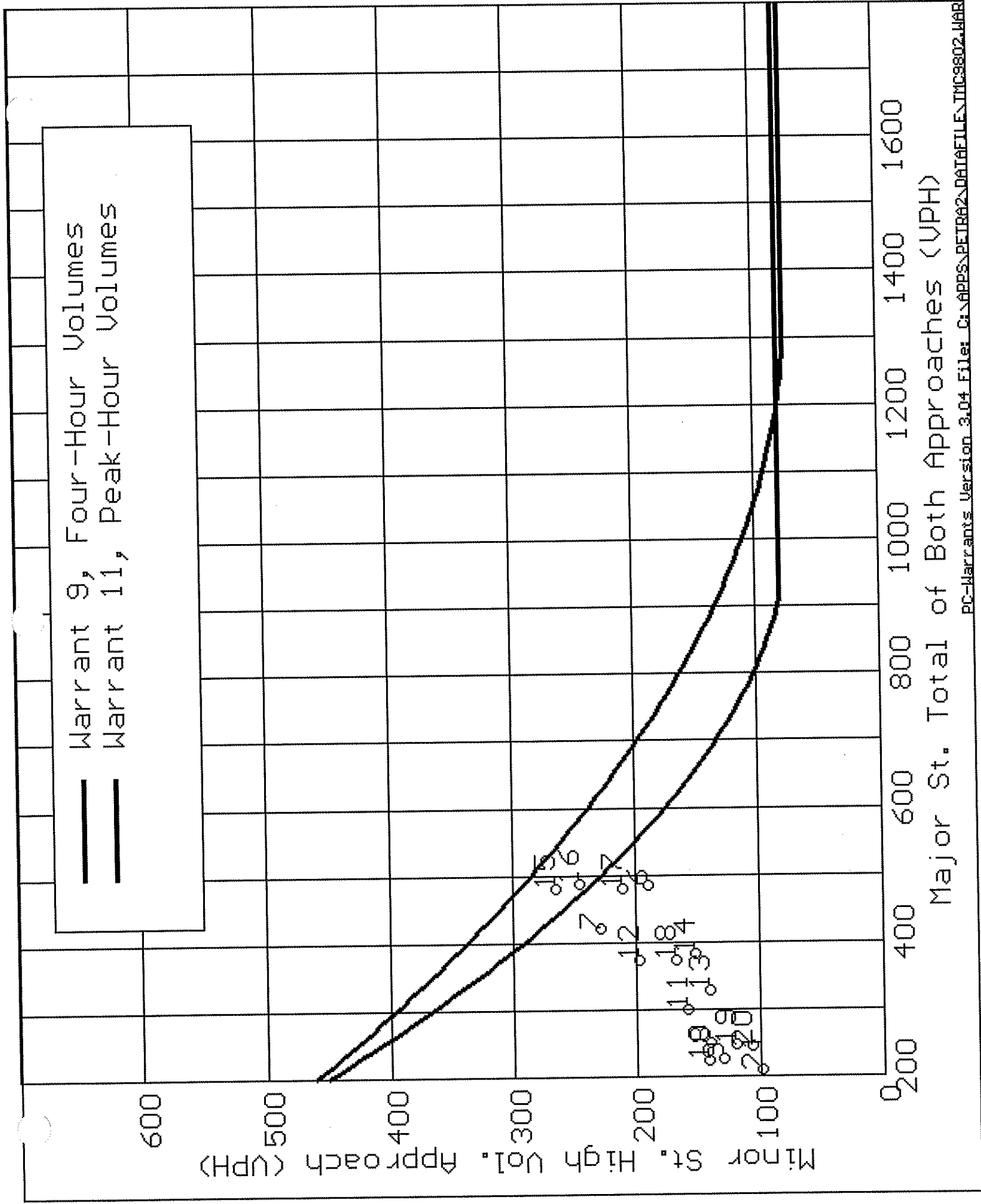
## Warrant 11 - Peak Hour Volume

NOT SATISFIED.

Minor St. High Vol. Approach (VPH)

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

Major St. Total of Both Approaches (VPH)





**NORTH**

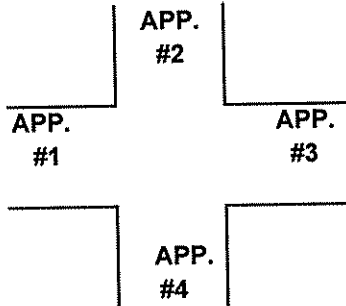
**COUNT LOCATION:**

CSAH 116 (INDUSTRY AVE)  
@ CR 57 (SUNFISH LAKE BLVD)

**DATE:**

7/28/98

APP. #1=NB CSAH 116  
(INDUSTRY AVE)  
APP. #2 =EB CSAH 57  
(SUNFISH LAKE BLVD)  
APP. #3=SB CSAH 116  
(INDUSTRY AVE)  
APP. #4 =WB CSAH 57  
(SUNFISH LAKE BLVD)



HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT

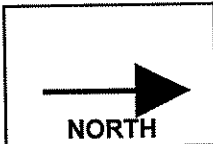
A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.

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						13		
6:15-6:30						7	3	
6:30-6:45						7	2	
6:45-7:00						7	2	1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>42</b>
7:00-7:15						7	5	1
7:15-7:30						13	4	1
7:30-7:45						28	1	1
7:45-8:00						16	1	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>78</b>
8:00-8:15			1		1	21		2
8:15-8:30						11	1	2
8:30-8:45						10		1
8:45-9:00						27	4	
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>79</b>
9:00-9:15						24	4	
9:15-9:30			3		3	26		
9:30-9:45						18	4	
9:45-10:00						13	3	
<b>HOURLY TOTAL</b>					<b>3</b>	<b>HOURLY TOTAL</b>		<b>92</b>
10:00-10:15						16	3	
10:15-10:30						18	1	
10:30-10:45						24	1	
10:45-11:00						25	1	1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>90</b>
11:00-11:15			2	3	5	28	1	
11:15-11:30						18	1	1
11:30-11:45	1			1	2	15	3	2
11:45-12:00						25	2	
<b>HOURLY TOTAL</b>					<b>7</b>	<b>HOURLY TOTAL</b>		<b>96</b>
12:00-12:15				6	6	26	2	1
12:15-12:30				2	2	21		2
12:30-12:45						12		
12:45-1:00						15		
<b>HOURLY TOTAL</b>					<b>8</b>	<b>HOURLY TOTAL</b>		<b>79</b>
1:00-1:15				1	1	12		
1:15-1:30			3		3	22		
1:30-1:45						18	1	
1:45-2:00			1			14	1	
<b>HOURLY TOTAL</b>					<b>4</b>	<b>HOURLY TOTAL</b>		<b>68</b>





COUNT LOCATION:

CSAH 116 (INDUSTRY AVE)

DATE:

7/27/98

@ CR 57 (SUNFISH LAKE BLVD)

APP. #1=NB CSAH 116  
(INDUSTRY AVE)  
APP. #2 =EB CSAH 57  
(SUNFISH LAKE BLVD)  
APP. #3=SB CSAH 116  
(INDUSTRY AVE)  
APP. #4 =WB CSAH 57  
(SUNFISH LAKE BLVD)

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
2:00-2:15PM						26	1	
2:15-2:30						13	1	1
2:30-2:45						12		
2:45-3:00						17	4	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>75</b>
3:00-3:15						24	2	
3:15-3:30						9		1
3:30-3:45						15	1	
3:45-4:00						19	1	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>72</b>
4:00-4:15						16	1	
4:15-4:30						9	2	
4:30-4:45						15	2	2
4:45-5:00						18		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>65</b>
5:00-5:15						6	3	
5:15-5:30						19	2	
5:30-5:45						8	3	
5:45-6:00						5	1	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>47</b>
6:00-6:15						7	4	
6:15-6:30						7		
6:30-6:45						5	2	
6:45-7:00						8	3	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>36</b>
7:00-7:15						1	2	
7:15-7:30						5	3	
7:30-7:45						2	1	
7:45-8:00						1	1	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>16</b>
8:00-8:15						6	1	
8:15-8:30						5		
8:30-8:45						1	1	
8:45-9:00						3	1	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>18</b>
9:00-9:15						1		
9:15-9:30						1	1	
9:30-9:45								
9:45-10:00						3	1	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>7</b>