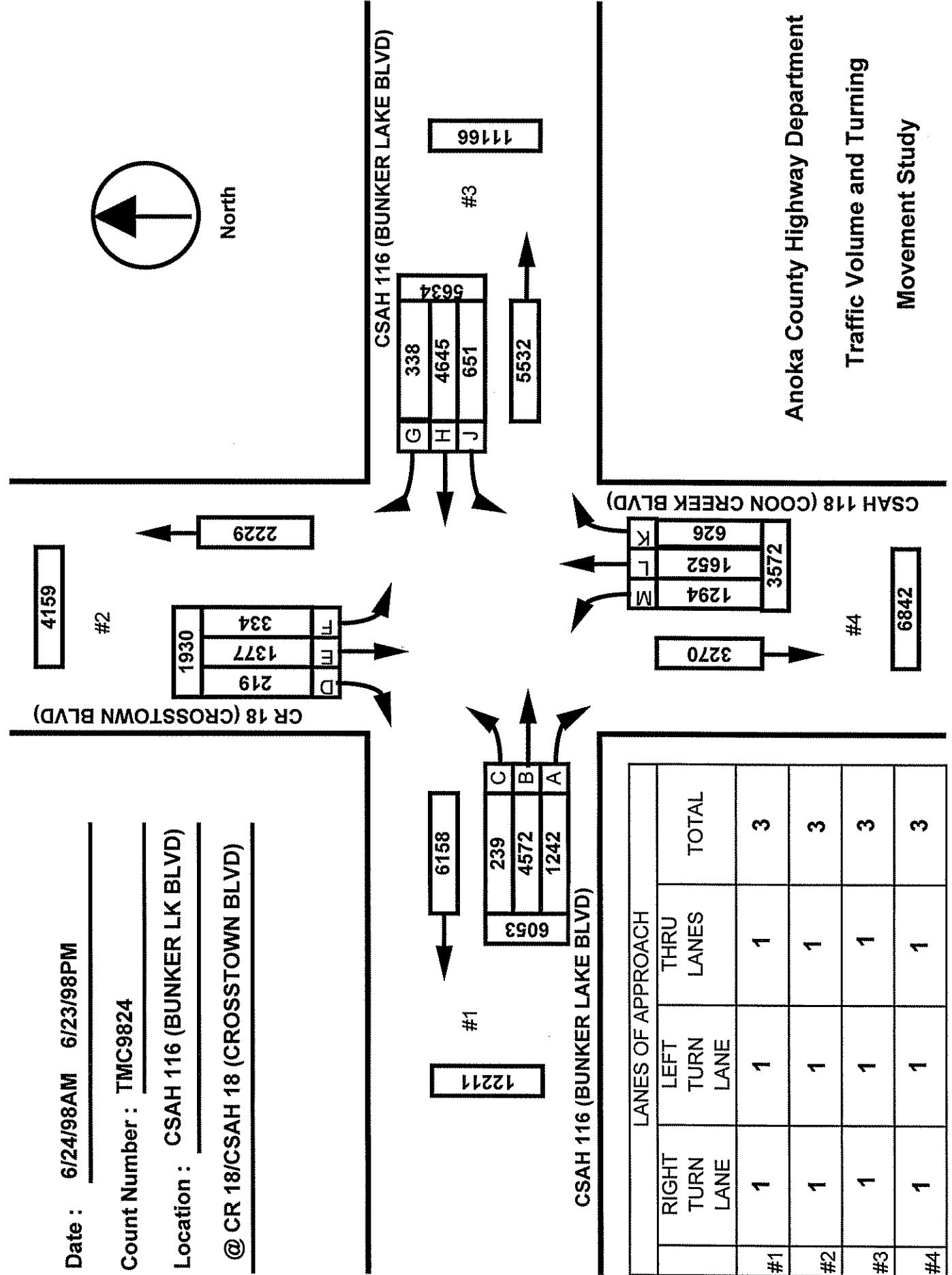


Date : 6/24/98AM 6/23/98PM

Count Number : TMC9824

Location : CSAH 116 (BUNKER LK BLVD)

@ CR 18/CSAH 18 (CROSSTOWN BLVD)



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

PETRA Software

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Jamar Technologies, Inc.

Horsham, PA.

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

Study Name: TMC9824
 Site Code : 98240202
 Start Date: 06/24/98
 Page : 1

Vehicle group 1

Start Time	CR 18 (CROSSTOWN BVLD)				CSAH 116 (BUNKER LAKE				CSAH 118 (COON CREEK B				CSAH 116 (BUNKER LAKE				Intvl	Exclu	Inclu
	Southbound	Westbound	Northbound	Eastbound	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other			
06/24/98																			
06:00	2	9	0	0	3	10	0	0	1	1	1	0	1	15	7	0	50	0	50
06:15	10	62	6	1	5	66	1	3	14	6	8	0	2	42	22	3	251	7	244
06:30	15	58	1	0	10	61	0	5	7	8	7	0	1	97	21	2	293	7	286
06:45	5	47	5	0	7	60	3	3	4	12	9	4	0	80	14	8	261	15	246
Hour	32	176	12	1	25	197	4	11	26	27	25	4	4	234	64	13	855	29	826
07:00	6	56	1	4	18	59	0	10	13	8	4	1	1	45	8	2	236	17	219
07:15	0	0	1	0	13	88	2	9	14	11	9	4	1	0	0	0	152	13	139
07:30	5	47	4	1	16	94	5	5	17	11	4	1	8	81	23	8	330	15	315
07:45	9	39	1	1	11	51	4	8	15	9	1	2	3	88	16	11	269	22	247
Hour	20	142	7	6	58	292	11	32	59	39	18	8	13	214	47	21	987	67	920
08:00	11	41	1	2	10	57	4	6	10	9	8	0	3	91	18	12	283	20	263
08:15	4	20	1	0	8	63	1	7	12	8	2	1	0	58	8	7	200	15	185
08:30	2	27	2	1	9	60	3	6	14	12	6	2	0	52	14	6	216	15	201
08:45	5	23	3	1	10	26	4	3	13	8	4	0	1	57	10	9	177	13	164
Hour	22	111	7	4	37	206	12	22	49	37	20	3	4	258	50	34	876	63	813
09:00	5	25	6	1	11	66	7	7	14	13	12	2	2	59	19	8	257	18	239
09:15	6	18	0	1	11	45	6	2	18	10	8	1	2	46	16	5	195	9	186
09:30	3	13	2	1	13	52	2	6	17	12	3	1	0	47	13	5	190	13	177
09:45	4	19	4	2	7	62	3	8	15	8	4	2	1	56	6	8	209	20	189
Hour	18	75	12	5	42	225	18	23	64	43	27	6	5	208	54	26	851	60	791
10:00	3	22	4	2	8	56	4	5	11	4	8	2	6	57	15	7	214	16	198
10:15	0	12	4	2	8	58	2	6	13	9	9	2	7	57	16	6	211	16	195
10:30	8	22	6	0	5	63	1	9	12	16	6	3	5	64	13	4	237	16	221
10:45	5	17	8	2	8	39	0	2	12	16	2	0	3	61	8	4	187	8	179
Hour	16	73	22	6	29	216	7	22	48	45	25	7	21	239	52	21	849	56	793
11:00	6	25	2	3	4	71	3	6	18	17	5	2	4	70	20	6	262	17	245
11:15	1	11	1	0	16	98	7	7	25	27	12	3	2	36	8	3	257	13	244
11:30	7	21	3	4	8	73	1	10	21	17	14	1	7	62	19	9	277	24	253
11:45	3	29	3	1	8	67	5	7	25	27	14	1	4	100	23	7	324	16	308
Hour	17	86	9	8	36	309	16	30	89	88	45	7	17	268	70	25	1120	70	1050
12:00	6	14	1	2	8	49	2	4	18	16	10	4	1	45	18	3	201	13	188
12:15	5	13	2	1	6	75	3	4	14	14	6	0	3	53	14	4	217	9	208
12:30	3	10	3	1	7	52	2	5	16	16	1	1	0	68	22	4	211	11	200
12:45	7	14	2	3	7	89	5	9	21	18	10	2	2	69	19	9	286	23	263
Hour	21	51	8	7	28	265	12	22	69	64	27	7	6	235	73	20	915	56	859

Vehicle group 1

Start Time	CR 18 (CROSSTOWN BLVD)				CSAH 116 (BUNKER LAKE)				CSAH 118 (COON CREEK B				CSAH 116 (BUNKER LAKE)				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	7	22	2	1	6	53	3	3	19	19	5	3	8	103	30	7	291	14	277
13:15	5	24	5	3	6	66	3	4	9	18	5	1	3	70	10	7	239	15	224
13:30	3	23	2	1	16	64	5	5	12	16	10	0	3	61	23	5	249	11	238
13:45	0	0	0	0	7	62	3	8	15	8	4	2	0	0	0	0	109	10	99
Hour	15	69	9	5	35	245	14	20	55	61	24	6	14	234	63	19	888	50	838
14:00	9	23	2	4	11	58	5	9	25	12	6	1	2	71	15	10	263	24	239
14:15	4	12	1	3	10	57	3	11	13	15	8	1	1	70	24	9	242	24	218
14:30	3	21	2	1	9	70	4	8	20	26	6	4	4	64	26	8	276	21	255
14:45	4	11	2	1	1	79	2	5	20	34	13	5	2	83	14	6	282	17	265
Hour	20	67	7	9	31	264	14	33	78	87	33	11	9	288	79	33	1063	86	977
15:00	6	14	1	5	10	78	7	12	12	33	13	0	5	91	29	10	326	27	299
15:15	2	17	4	2	8	78	12	9	19	45	13	5	1	85	22	8	330	24	306
15:30	6	16	2	3	13	99	9	10	25	38	8	2	5	83	23	12	354	27	327
15:45	6	16	3	1	17	102	6	14	23	65	21	4	4	78	14	6	380	25	355
Hour	20	63	10	11	48	357	34	45	79	181	55	11	15	337	88	36	1390	103	1287
16:00	4	18	2	4	11	106	14	5	23	52	14	3	1	111	21	3	392	15	377
16:15	7	14	1	1	6	104	12	3	35	62	18	2	5	86	25	5	386	11	375
16:30	8	34	2	2	16	101	16	2	37	48	16	5	11	103	28	3	432	12	420
16:45	3	26	11	1	18	122	9	7	33	54	15	2	6	82	20	4	413	14	399
Hour	22	92	16	8	51	433	51	17	128	216	63	12	23	382	94	15	1623	52	1571
17:00	5	22	1	2	8	89	10	5	29	69	15	2	6	106	23	5	397	14	383
17:15	6	24	5	4	12	132	22	5	28	59	18	0	11	116	33	7	482	16	466
17:30	8	24	2	1	11	126	11	3	53	60	17	2	6	80	23	1	428	7	421
17:45	10	26	7	0	12	105	11	5	43	60	17	1	13	125	15	8	458	14	444
Hour	29	96	15	7	43	452	54	18	153	248	67	5	36	427	94	21	1765	51	1714
18:00	5	25	10	1	12	124	8	4	47	45	15	1	5	90	26	1	419	7	412
18:15	4	17	12	0	9	72	7	5	38	40	18	0	6	64	25	3	320	8	312
18:30	8	24	7	2	15	91	7	4	30	39	8	2	8	76	27	2	350	10	340
18:45	7	13	2	0	17	80	3	2	35	35	21	3	3	75	23	1	320	6	314
Hour	24	79	31	3	53	367	25	15	150	159	62	6	22	305	101	7	1409	31	1378
19:00	6	15	6	0	20	76	7	3	28	33	15	2	4	71	28	2	316	7	309
19:15	3	22	0	1	7	67	3	0	22	32	8	2	5	68	34	2	276	5	271
19:30	7	19	6	0	10	75	2	4	17	36	9	2	4	73	27	2	293	8	285
19:45	5	13	3	1	17	75	7	2	21	24	13	1	1	77	29	2	291	6	285
Hour	21	69	15	2	54	293	19	9	88	125	45	7	14	289	118	8	1176	26	1150

PETRA Software

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

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 Horsham, PA.

Study Name: TMC9824
 Site Code : 98240202
 Start Date: 06/24/98
 Page : 3

Vehicle group 1

Start Time	CR 18 (CROSSTOWN BLVD)				CSAH 116 (BUNKER LAKE)				CSAH 118 (COON CREEK B				CSAH 116 (BUNKER LAKE)				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
20:00	6	16	1	1	4	60	3	2	30	25	8	1	2	67	27	1	254	5	249
20:15	3	17	5	1	8	66	8	1	15	30	12	0	5	109	30	6	316	8	308
20:30	2	20	10	0	8	72	4	4	13	28	16	0	5	83	33	1	299	5	294
20:45	5	8	5	0	8	56	4	1	14	35	20	2	2	93	17	0	270	3	267
Hour	16	61	21	2	28	254	19	8	72	118	56	3	14	352	107	8	1139	21	1118
21:00	4	13	2	0	12	55	6	0	15	13	7	0	3	74	26	2	232	2	230
21:15	4	11	4	1	11	61	8	2	21	31	8	4	3	47	25	3	244	10	234
21:30	3	7	1	0	8	59	5	1	20	18	12	1	3	55	22	4	219	6	213
21:45	10	36	11	0	22	95	9	4	31	52	7	0	13	126	15	8	439	12	427
Hour	21	67	18	1	53	270	28	7	87	114	34	5	22	302	88	17	1134	30	1104
Total	334	1377	219	85	651	4645	338	334	1294	1652	626	108	239	4572	1242	324	18040	851	17189
% Apr.	16.5	68.3	10.8	4.2	10.9	77.8	5.6	5.5	35.1	44.8	17.0	2.9	3.7	71.6	19.4	5.0	-	-	-
% Int.	1.8	7.6	1.2	0.4	3.6	25.7	1.8	1.8	7.1	9.1	3.4	0.5	1.3	25.3	6.8	1.7	-	-	-

Major Street Approaches:

Eastbound:

CSAH 116 (BUNKER LAKE BLVD)
 Data File: C:\APPS\PETRA2\DATAFILE\TMC9824.PDF
 Count Type: IMC. Channel: 0. Count Date: 6/24/98
 Number of Lanes: 2
 Approach Speed: 50
 Total Approach Traffic: 6053

Westbound:

CSAH 116 (BUNKER LAKE BLVD)
 Data File: C:\APPS\PETRA2\DATAFILE\TMC9824.PDF
 Count Type: IMC. Channel: 0. Count Date: 6/24/98
 Number of Lanes: 2
 Approach Speed: 55
 Total Approach Traffic: 5634

Minor Street Approaches:

Northbound:

CSAH 118 (COON CREEK BLVD)
 Data File: C:\APPS\PETRA2\DATAFILE\TMC9824.PDF
 Count Type: IMC. Channel: 0. Count Date: 6/24/98
 Number of Lanes: 2
 Approach Speed: 45
 Total Approach Traffic: 3572

Southbound:

CR 18 (CROSSTOWN BVLD)
 Data File: C:\APPS\PETRA2\DATAFILE\TMC9824.PDF
 Count Type: IMC. Channel: 0. Count Date: 6/24/98
 Number of Lanes: 2
 Approach Speed: 40
 Total Approach Traffic: 1930

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

Hour	Main (Total)	Side Vol.	Side Dir.	Side Rank	Warrant 1 Meets?	Warrant 1 Criteria	Warrant 2 Meets?	Warrant 2 Criteria	Warrant 8 Meets?	Warrant 8 Criteria
0	0	0	S	17		140		70		112
1	0	0	S	18		140		70		112
2	0	0	S	19		140		70		112
3	0	0	S	20		140		70		112
4	0	0	S	21		140		70		112
5	0	0	S	22		140		70		112
6	528	220	S	9	--BOTH--	140	SIDE	70	--BOTH--	112
7	635	169	S	11	--BOTH--	140	--BOTH--	70	--BOTH--	112
8	567	140	S	13	--BOTH--	140	SIDE	70	--BOTH--	112
9	552	134	N	15	MAIN	140	SIDE	70	--BOTH--	112
10	564	118	N	16	MAIN	140	SIDE	70	--BOTH--	112
11	716	222	N	8	--BOTH--	140	--BOTH--	70	--BOTH--	112
12	619	160	N	12	--BOTH--	140	SIDE	70	--BOTH--	112
13	605	140	N	14	--BOTH--	140	SIDE	70	--BOTH--	112
14	685	198	N	10	--BOTH--	140	--BOTH--	70	--BOTH--	112
15	879	315	N	4	--BOTH--	140	--BOTH--	70	--BOTH--	112
16	1034	407	N	2	--BOTH--	140	--BOTH--	70	--BOTH--	112
17	1106	468	N	1	--BOTH--	140	--BOTH--	70	--BOTH--	112
18	873	371	N	3	--BOTH--	140	--BOTH--	70	--BOTH--	112
19	787	258	N	5	--BOTH--	140	--BOTH--	70	--BOTH--	112
20	774	246	N	6	--BOTH--	140	--BOTH--	70	--BOTH--	112
21	763	235	N	7	--BOTH--	140	--BOTH--	70	--BOTH--	112
22	0	0	S	23		140		70		112
23	0	0	S	24		140		70		112

Warrant Summary:

Rural values apply.

Warrant 1 - Minimum Vehicular Volumes

SATISFIED for 14 hours. Criteria--Main St.: 420; Side St.: See Volume Summary.

Warrant 2 - Interruption of Continuous Traffic

SATISFIED for 10 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. At least one street has no major approaches. Peak hour total entering volume: 1714.

- 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

SATISFIED for 16 hours. Criteria--Main: 504; Side: See Volume Summary.

Warrant 9 - Four Hour Volumes

SATISFIED for 11 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.

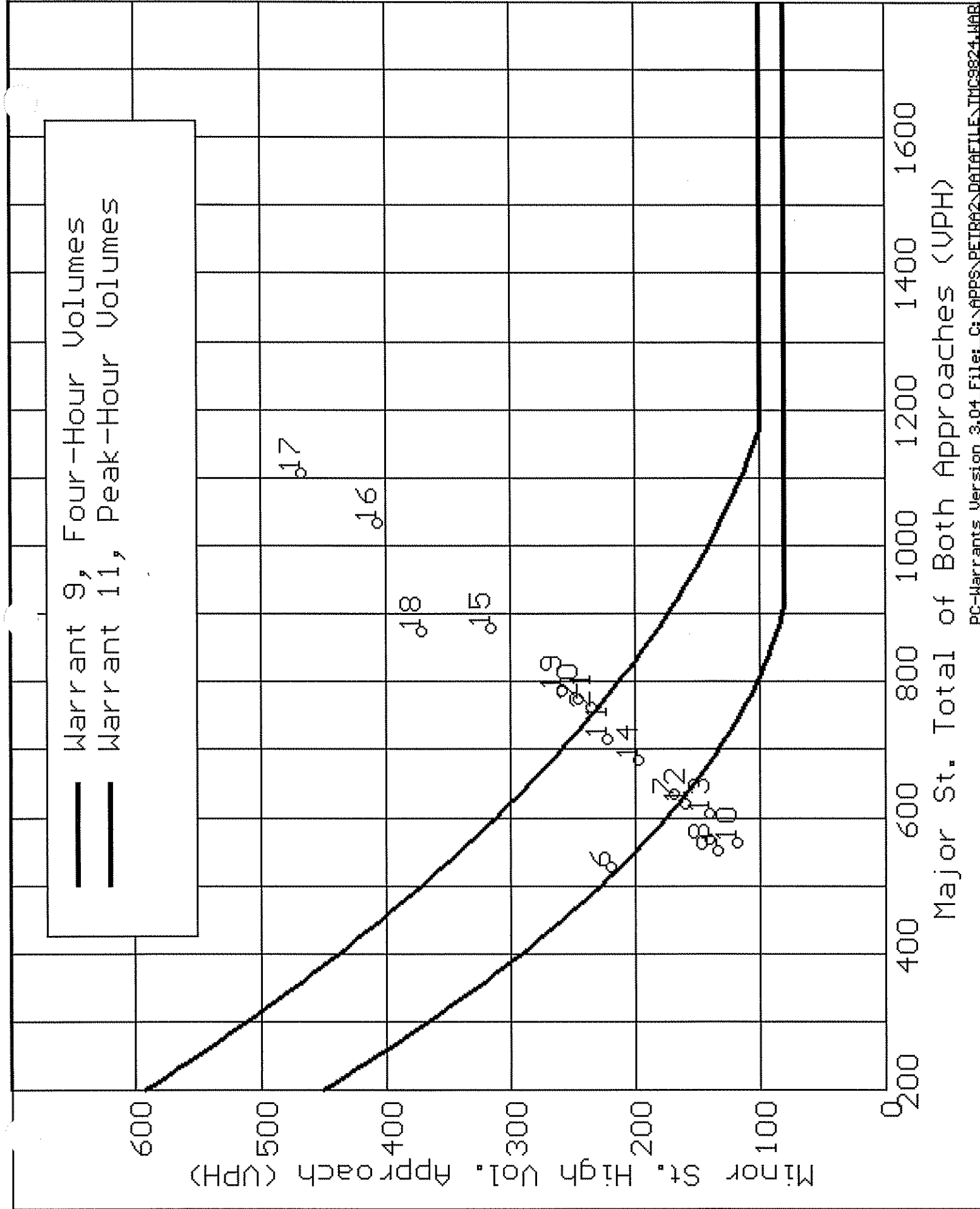
Warrant 11 - Peak Hour Volume


SATISFIED for 7 hours.

Minor St. High Vol. Approach (VPH)

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

Major St. Total of Both Approaches (VPH)

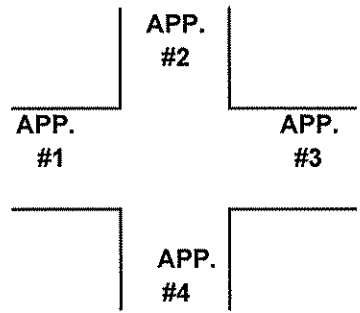



NORTH

APP. #1= EB CSAH 116 (BUNKER LK BLVD)
APP. #2 = SB CR 18 (CSAH 18)
APP. #3= WB CSAH 116 (BUNKER LK BLVD)
APP. #4= NB CSAH 18 (CR 18)

COUNT LOCATION: CSAH 116 (BUNKER LK BLVD) @
CR 18 / CSAH 18

DATE: 6/24/98



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								
6:15-6:30						3	1	2
6:30-6:45						5		2
6:45-7:00						8	4	3
HOURLY TOTAL						HOURLY TOTAL		28
7:00-7:15						16		5
7:15-7:30						14		6
7:30-7:45						14	3	
7:45-8:00						19		4
HOURLY TOTAL						HOURLY TOTAL		81
8:00-8:15						11	2	2
8:15-8:30						11	2	2
8:30-8:45						12	1	5
8:45-9:00						7	1	5
HOURLY TOTAL						HOURLY TOTAL		61
9:00-9:15						7	3	2
9:15-9:30						8		1
9:30-9:45						14	2	3
9:45-10:00						18	1	
HOURLY TOTAL						HOURLY TOTAL		59
10:00-10:15						13	1	
10:15-10:30		1			1	7		1
10:30-10:45							4	1
10:45-11:00						9		4
HOURLY TOTAL					1	HOURLY TOTAL		40
11:00-11:15						15	2	
11:15-11:30		3			3	8		2
11:30-11:45						11	2	2
11:45-12:00	2				2	13		1
HOURLY TOTAL					5	HOURLY TOTAL		56
12:00-12:15			4		4	10	1	2
12:15-12:30		2			2	3	3	3
12:30-12:45		2	3		5	11	4	4
12:45-1:00		2			2	15	2	
HOURLY TOTAL					13	HOURLY TOTAL		58
1:00-1:15		1			1	8		
1:15-1:30				2	2	14	1	
1:30-1:45		2			2	5	4	
1:45-2:00		1		2	3	11	2	
HOURLY TOTAL					8	HOURLY TOTAL		45



NORTH

COUNT LOCATION:

CSAH 116 (BUNKER LK BLVD) @
CR 18 / CSAH 18

DATE:

6/23/98

APP. #1= EB CSAH 116
(BUNKER LK BLVD)

APP. #2 = SB CR 18
(CSAH 18)

APP. #3= WB CSAH 116
(BUNKER LK BLVD)

APP. #4= NB CSAH 18
(CR 18)

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			2		2	21	2	
2:15-2:30	1				1	19	4	1
2:30-2:45						15	4	3
2:45-3:00						13	4	
HOURLY TOTAL					3	HOURLY TOTAL		86
3:00-3:15						24	3	
3:15-3:30						15	3	5
3:30-3:45	1					23		2
3:45-4:00						18	6	1
HOURLY TOTAL						HOURLY TOTAL		100
4:00-4:15		1	2		3	10	3	1
4:15-4:30		1			1	13		1
4:30-4:45						11	1	
4:45-5:00						6	3	1
HOURLY TOTAL					4	HOURLY TOTAL		50
5:00-5:15						8	4	
5:15-5:30						15	3	
5:30-5:45						4	3	
5:45-6:00	4				4	9	5	
HOURLY TOTAL					4	HOURLY TOTAL		51
6:00-6:15						4	3	
6:15-6:30						6	2	
6:30-6:45						5	5	
6:45-7:00						4	1	
HOURLY TOTAL						HOURLY TOTAL		30
7:00-7:15				1	1	3	4	
7:15-7:30			1	1	2	2	3	
7:30-7:45						1	6	
7:45-8:00		1			1	2	4	
HOURLY TOTAL					4	HOURLY TOTAL		25
8:00-8:15						2	3	
8:15-8:30						6	2	
8:30-8:45	1				1	2	3	
8:45-9:00	2				2	1	2	
HOURLY TOTAL					3	HOURLY TOTAL		21
9:00-9:15							2	
9:15-9:30		1			1	4	5	
9:30-9:45						4	2	
9:45-10:00						1	1	
HOURLY TOTAL					1	HOURLY TOTAL		19