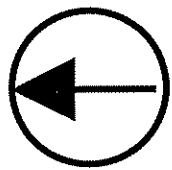


Date : 7/16/98AM 7/15/98PM

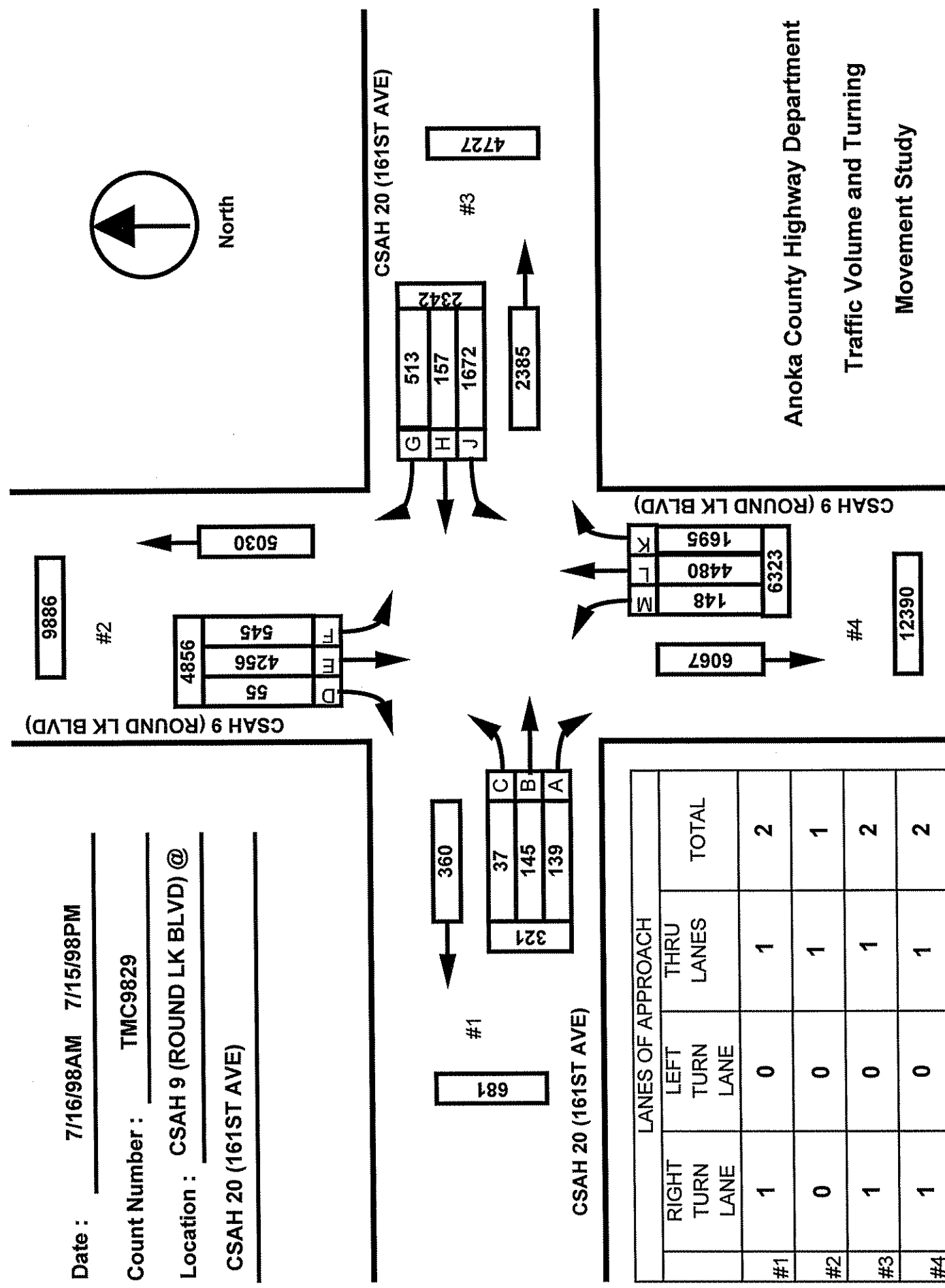
Count Number : TMC9829

Location : CSAH 9 (ROUND LK BLVD) @

CSAH 20 (161ST AVE)



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Weather :
 Counted by: Sarah, Vallie and Alison
 Board # :
 Other :

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 Horsham, PA.

Study Name: TMC9829
 Site Code : 98290202
 Start Date: 07/16/98
 Page : 1

Vehicle group 1

Start Time	CSAH 9 (ROUND LK BLVD)				CSAH 20 (161ST AVE)				CSAH 9 (ROUND LK BLVD)				161ST AVE.				Intvl	Exclu	Inclu	
	Southbound		Westbound		Northbound		Eastbound		Left	Thru	Right	Other	Left	Thru	Right	Other				Total
07/16/98																				
06:00	12	120	4	8	35	1	7	0	1	18	2	3	0	0	10	0	221	11	210	
06:15	7	128	0	8	54	5	2	2	0	12	6	1	1	2	7	2	237	13	224	
06:30	17	169	1	12	80	1	0	1	1	13	12	2	0	1	3	1	314	16	298	
06:45	12	128	1	8	57	0	3	2	3	25	21	3	2	2	4	0	271	13	258	
Hour	48	545	6	36	226	7	12	5	5	68	41	9	3	5	24	3	1043	53	990	
07:00	14	121	0	5	37	0	6	1	0	22	18	2	0	3	5	0	234	8	226	
07:15	9	122	0	2	38	3	5	2	0	20	20	1	0	5	2	0	229	5	224	
07:30	15	123	2	5	50	1	7	5	2	33	26	4	0	7	2	1	283	15	268	
07:45	10	99	0	8	38	5	9	2	0	32	25	5	2	1	2	1	239	16	223	
Hour	48	465	2	20	163	9	27	10	2	107	89	12	2	16	11	2	985	44	941	
08:00	12	91	0	9	31	1	3	3	0	24	6	2	0	2	3	1	188	15	173	
08:15	6	78	0	9	21	2	3	1	0	30	18	6	1	1	0	0	176	16	160	
08:30	7	62	0	3	19	1	8	8	0	25	13	3	0	3	2	0	154	14	140	
08:45	7	45	1	2	13	1	2	2	0	14	8	2	1	1	2	1	102	7	95	
Hour	32	276	1	23	84	5	16	14	0	93	45	13	2	7	7	2	620	52	568	
09:00	7	71	0	9	16	4	6	0	0	35	10	2	1	2	2	0	165	11	154	
09:15	3	65	0	2	17	2	9	1	1	35	9	5	0	2	2	0	153	8	145	
09:30	7	52	1	4	27	4	5	2	1	27	17	5	2	4	1	1	160	12	148	
09:45	9	57	1	0	22	3	3	0	0	37	17	6	1	2	1	0	159	6	153	
Hour	26	245	2	15	82	13	23	3	2	134	53	18	4	10	6	1	637	37	600	
10:00	12	62	0	2	27	2	3	3	1	42	24	6	0	3	0	0	187	11	176	
10:15	11	57	2	3	24	3	6	1	3	27	13	5	1	0	2	0	158	9	149	
10:30	4	43	2	3	12	1	6	1	1	46	23	3	1	2	3	0	151	7	144	
10:45	6	53	0	4	14	3	4	2	0	44	11	4	1	0	0	0	146	10	136	
Hour	33	215	4	12	77	9	19	7	5	159	71	18	3	5	5	0	642	37	605	
11:00	5	54	0	5	19	0	10	5	0	55	21	2	0	0	1	1	178	13	165	
11:15	4	62	1	4	16	1	6	1	0	58	22	8	0	0	5	0	188	13	175	
11:30	9	72	0	5	20	1	5	1	1	39	23	4	0	0	3	0	183	10	173	
11:45	9	44	1	4	32	1	6	3	3	58	12	0	0	0	1	0	174	7	167	
Hour	27	232	2	18	87	3	27	10	4	210	78	14	0	0	10	1	723	43	680	
12:00	2	54	0	4	15	3	8	1	3	44	14	2	0	0	2	0	152	7	145	
12:15	6	61	2	3	20	2	6	3	0	61	16	3	0	1	3	0	187	9	178	
12:30	5	44	3	3	26	0	7	3	2	46	22	5	1	1	1	0	169	11	158	
12:45	5	59	1	4	24	1	3	1	1	61	24	2	2	1	3	1	193	8	185	
Hour	18	218	6	14	85	6	24	8	6	212	76	12	3	3	9	1	701	35	666	

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

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Study Name: TMC9829
 Site Code : 98290202
 Start Date: 07/16/98
 Page : 2

Vehicle group 1

Start Time	CSAH 9 (ROUND LK BLVD)				CSAH 20 (161ST AVE)				CSAH 9 (ROUND LK BLVD)				161ST AVE.				Intvl	Exclu	Inclu
	Southbound		Westbound		Northbound		Eastbound		Left	Thru	Right	Other	Left	Thru	Right	Other			
13:00	7	53	1	5	23	4	6	5	3	55	22	7	3	1	3	2	200	19	181
13:15	3	65	1	4	15	4	10	4	4	72	27	9	2	1	2	0	223	17	206
13:30	3	63	3	4	26	1	8	2	0	67	29	4	0	3	1	1	215	11	204
13:45	8	53	0	2	22	0	3	1	3	62	14	6	0	1	0	0	175	9	166
Hour	21	234	5	15	86	9	27	12	10	256	92	26	5	6	6	3	813	56	757
14:00	7	63	1	3	19	1	3	1	4	55	21	3	0	1	0	0	182	7	175
14:15	7	73	2	7	31	3	7	4	1	57	23	4	0	0	0	0	219	15	204
14:30	5	66	3	6	34	2	7	4	6	68	22	8	0	1	0	0	232	18	214
14:45	13	56	3	2	21	0	10	2	4	94	28	12	1	2	0	1	249	17	232
Hour	32	258	9	18	105	6	27	11	15	274	94	27	1	4	0	1	882	57	825
15:00	10	64	0	4	19	2	10	3	1	116	46	12	1	4	2	0	294	19	275
15:15	11	56	1	2	24	3	11	6	2	103	48	4	0	4	1	0	276	12	264
15:30	11	64	0	2	25	2	9	4	7	110	50	3	1	2	2	0	292	9	283
15:45	10	55	0	2	26	5	16	6	8	146	50	7	2	3	1	2	339	17	322
Hour	42	239	1	10	94	12	46	19	18	475	194	26	4	13	6	2	1201	57	1144
16:00	14	65	3	0	22	6	12	5	4	128	48	5	1	3	1	0	317	10	307
16:15	6	55	0	1	26	4	13	4	4	128	40	9	1	8	2	0	301	14	287
16:30	12	61	3	4	38	7	18	2	7	126	38	4	0	9	5	0	334	10	324
16:45	8	58	0	4	35	1	15	2	4	152	50	4	1	3	3	0	340	10	330
Hour	40	239	6	9	121	18	58	13	19	534	176	22	3	23	11	0	1292	44	1248
17:00	8	64	1	2	40	6	18	2	2	139	38	3	0	7	2	0	332	7	325
17:15	9	53	2	2	36	3	16	0	6	147	55	6	1	2	6	0	344	8	336
17:30	8	68	0	4	27	6	13	3	3	140	56	4	0	8	2	0	342	11	331
17:45	15	52	1	4	22	3	19	0	4	129	49	5	0	7	1	0	311	9	302
Hour	40	237	4	12	125	18	66	5	15	555	198	18	1	24	11	0	1329	35	1294
18:00	10	71	0	4	31	2	15	4	4	127	47	6	1	6	4	0	332	14	318
18:15	22	69	1	5	27	1	14	1	3	98	51	3	0	2	3	0	300	9	291
18:30	10	61	0	2	30	4	10	1	3	122	37	4	0	3	2	0	289	7	282
18:45	13	61	0	5	25	1	8	0	1	89	32	5	1	3	3	0	247	10	237
Hour	55	262	1	16	113	8	47	6	11	436	167	18	2	14	12	0	1168	40	1128
19:00	8	55	0	4	32	2	12	1	6	106	35	0	0	1	2	1	265	6	259
19:15	10	66	2	2	18	4	7	3	2	88	41	3	0	1	3	0	250	8	242
19:30	6	54	0	2	25	5	5	0	2	97	27	3	0	1	4	1	232	6	226
19:45	6	41	0	1	17	5	6	0	6	84	25	1	1	3	0	0	196	2	194
Hour	30	216	2	9	92	16	30	4	16	375	128	7	1	6	9	2	943	22	921

PETRA Software

Weather :
 Counted by: Sarah, Vallie and Alison
 Board # :
 Other :

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Study Name: TMC9829
 Site Code : 98290202
 Start Date: 07/16/98
 Page : 3

Vehicle group 1

Start Time	CSAH 9 (ROUND LK BLVD)				CSAH 20 (161ST AVE)				CSAH 9 (ROUND LK BLVD)				161ST AVE.				Intvl	Exclu	Inclu
	Southbound		Westbound		Northbound		Eastbound		Left	Thru	Right	Other	Left	Thru	Right	Other			
20:00	1	46	1	2	14	3	10	0	3	82	21	2	0	2	1	0	188	4	184
20:15	7	50	0	4	28	3	7	1	2	72	25	3	0	0	0	0	202	8	194
20:30	15	54	1	0	16	3	5	1	1	91	18	2	1	3	4	0	215	3	212
20:45	9	41	0	1	14	5	8	0	1	68	38	2	1	2	2	0	192	3	189
Hour	32	191	2	7	72	14	30	2	7	313	102	9	2	7	7	0	797	18	779
21:00	9	36	1	1	21	1	10	2	5	82	28	2	1	0	3	0	202	5	197
21:15	4	48	1	2	17	1	8	0	4	46	22	2	0	1	0	0	156	4	152
21:30	4	51	0	0	12	1	8	0	1	82	25	3	0	1	0	0	188	3	185
21:45	4	49	0	0	10	1	8	0	3	69	16	0	0	0	2	0	162	0	162
Hour	21	184	2	3	60	4	34	2	13	279	91	7	1	2	5	0	708	12	696
Total	545	4256	55	237	1672	157	513	131	148	4480	1695	256	37	145	139	18	14484	642	13842
% Apr.	10.7	83.5	1.0	4.6	67.6	6.3	20.7	5.2	2.2	68.0	25.7	3.8	10.9	42.7	41.0	5.3	-	-	-
% Int.	3.7	29.3	0.3	1.6	11.5	1.0	3.5	0.9	1.0	30.9	11.7	1.7	0.2	1.0	0.9	0.1	-	-	-

Major Street Approaches:

Northbound:

CSAH 9 (ROUND LK BLVD)

Data File: C:\APPS\PETRA2\DATAFILE\TMC9829.PDF
 Count Type: IMC. Channel: 0. Count Date: 7/16/98
 Number of Lanes: 2
 Approach Speed: 55
 Total Approach Traffic: 6323

Southbound:

CSAH 9 (ROUND LK BLVD)

Data File: C:\APPS\PETRA2\DATAFILE\TMC9829.PDF
 Count Type: IMC. Channel: 0. Count Date: 7/16/98
 Number of Lanes: 1
 Approach Speed: 55
 Total Approach Traffic: 4856

Minor Street Approaches:

Eastbound:

161ST AVE.

Data File: C:\APPS\PETRA2\DATAFILE\TMC9829.PDF
 Count Type: IMC. Channel: 0. Count Date: 7/16/98
 Number of Lanes: 1
 Approach Speed: 0
 Total Approach Traffic: 321

Westbound:

CSAH 20 (161ST AVE)

Data File: C:\APPS\PETRA2\DATAFILE\TMC9829.PDF
 Count Type: IMC. Channel: 0. Count Date: 7/16/98
 Number of Lanes: 2
 Approach Speed: 55
 Total Approach Traffic: 2342

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		140		70		112
1	0	0	W	18		140		70		112
2	0	0	W	19		140		70		112
3	0	0	W	20		140		70		112
4	0	0	W	21		140		70		112
5	0	0	W	22		140		70		112
6	713	245	W	1	--BOTH--	140	--BOTH--	70	--BOTH--	112
7	713	199	W	3	--BOTH--	140	--BOTH--	70	--BOTH--	112
8	447	105	W	14	MAIN	140	SIDE	70		112
9	462	118	W	10	MAIN	140	SIDE	70	SIDE	112
10	487	105	W	15	MAIN	140	SIDE	70		112
11	553	117	W	11	MAIN	140	SIDE	70	--BOTH--	112
12	536	115	W	13	MAIN	140	SIDE	70	--BOTH--	112
13	618	122	W	9	MAIN	140	SIDE	70	--BOTH--	112
14	682	138	W	7	MAIN	140	--BOTH--	70	--BOTH--	112
15	969	152	W	6	--BOTH--	140	--BOTH--	70	--BOTH--	112
16	1014	197	W	4	--BOTH--	140	--BOTH--	70	--BOTH--	112
17	1049	209	W	2	--BOTH--	140	--BOTH--	70	--BOTH--	112
18	932	168	W	5	--BOTH--	140	--BOTH--	70	--BOTH--	112
19	767	138	W	8	MAIN	140	--BOTH--	70	--BOTH--	112
20	647	116	W	12	MAIN	140	--BOTH--	70	--BOTH--	112
21	590	98	W	16	MAIN	140	SIDE	70	MAIN	112
22	0	0	W	23		140		70		112
23	0	0	W	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

SATISFIED for 9 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: 1294.

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

Warrant 9 - Four Hour Volumes

SATISFIED for 8 hours.

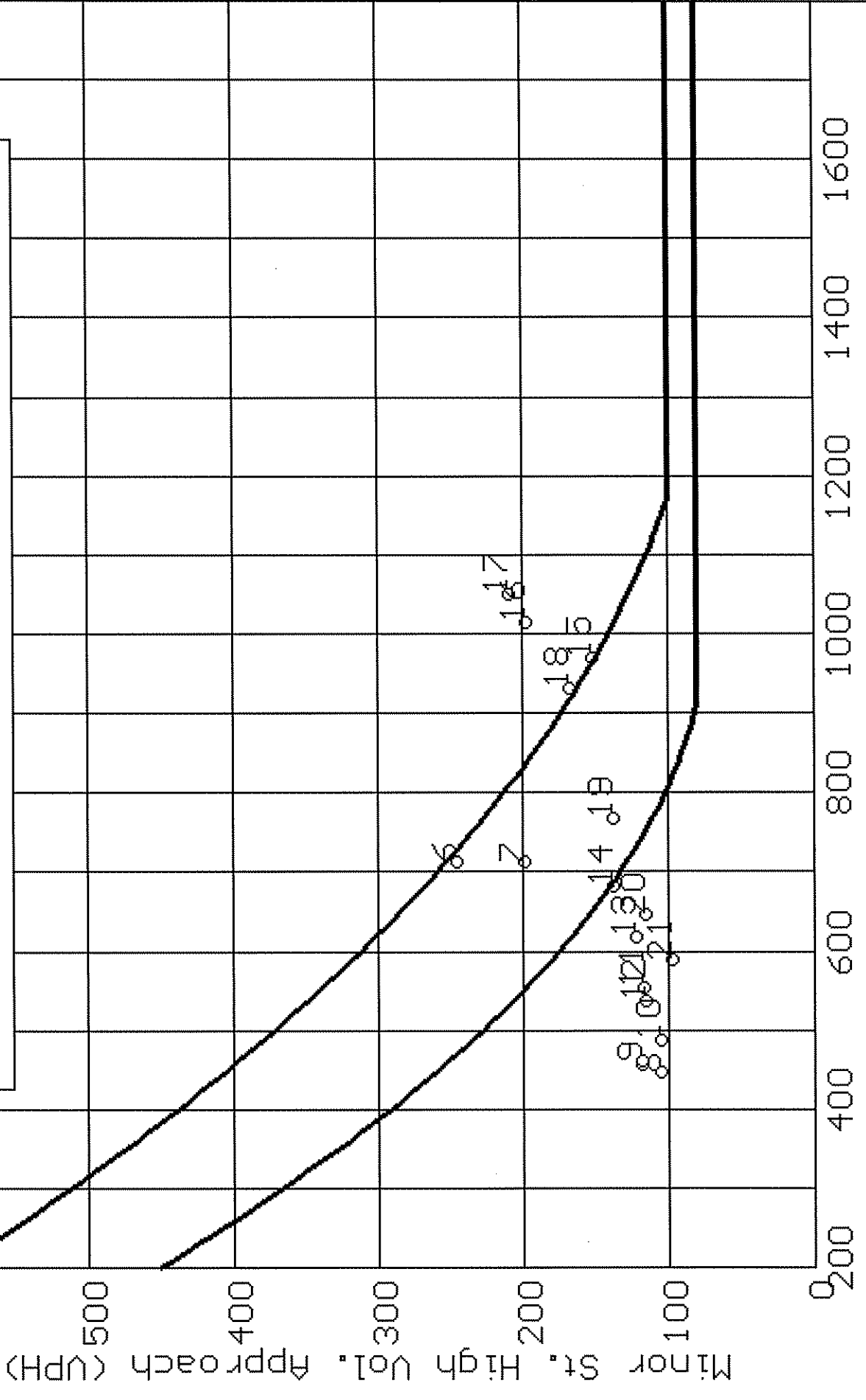
Warrant 10 - Peak Hour Delay

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 5 hours.



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

Major St. Total of Both Approaches (UPH)



NORTH

COUNT LOCATION:

CSAH 9 (ROUND LK BLVD) @

DATE:

7/16/98

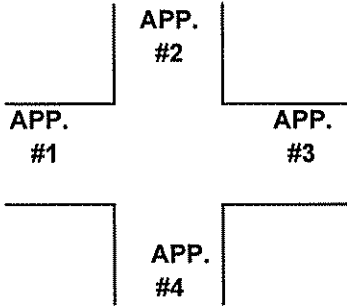
CSAH 20 (161ST AVE)

APP. #1= NB CSAH 9
(ROUND LK BLVD)

APP. #2 = EB CSAH 20
(161ST AVE)

APP. #3= SB CSAH 9
(ROUND LK BLVD)

APP. #4= WB CSAH 20
(161ST AVE)




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						8		
6:15-6:30						10		2
6:30-6:45						11	1	
6:45-7:00						7	2	
HOURLY TOTAL						HOURLY TOTAL		41
7:00-7:15						6	1	1
7:15-7:30						1	2	
7:30-7:45						11	3	2
7:45-8:00			1		1	11	3	1
HOURLY TOTAL					1	HOURLY TOTAL		42
8:00-8:15						9	3	
8:15-8:30						13	3	
8:30-8:45						11	1	
8:45-9:00						5	2	
HOURLY TOTAL						HOURLY TOTAL		47
9:00-9:15						9		1
9:15-9:30						5	1	1
9:30-9:45						9	1	1
9:45-10:00						5		1
HOURLY TOTAL						HOURLY TOTAL		34
10:00-10:15						7	3	
10:15-10:30						7	2	
10:30-10:45		1			1	3	4	
10:45-11:00						6	4	
HOURLY TOTAL					1	HOURLY TOTAL		36
11:00-11:15						11	2	
11:15-11:30						12	3	
11:30-11:45						7	3	
11:45-12:00						6	1	
HOURLY TOTAL						HOURLY TOTAL		45
12:00-12:15						3	4	
12:15-12:30						6	3	
12:30-12:45						8	2	
12:45-1:00		1			1	7	1	
HOURLY TOTAL					1	HOURLY TOTAL		34
1:00-1:15						9	8	
1:15-1:30						12	5	
1:30-1:45						11		
1:45-2:00						7	1	1
HOURLY TOTAL						HOURLY TOTAL		54



NORTH

APP. #1= NB CSAH 9
(ROUND LK BLVD)

APP. #2 = EB CSAH 20
(161ST AVE)

APP. #3= SB CSAH 9
(ROUND LK BLVD)

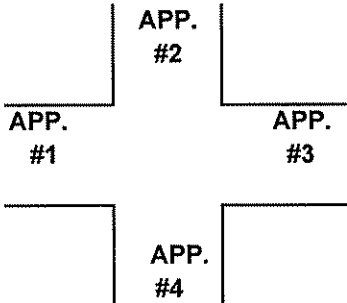
APP. #4= WB CSAH 20
(161ST AVE)

COUNT LOCATION:

CSAH 9 (ROUND LK BLVD) @
CSAH 20 (161ST AVE)

DATE:

7/15/98



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
2:00-2:15PM						6	1	
2:15-2:30						15	1	
2:30-2:45						13	1	2
2:45-3:00						11	4	1
HOURLY TOTAL						HOURLY TOTAL		55
3:00-3:15						17	1	
3:15-3:30						9	3	
3:30-3:45						5	3	
3:45-4:00						14	2	1
HOURLY TOTAL						HOURLY TOTAL		55
4:00-4:15						7	4	
4:15-4:30						7	5	
4:30-4:45						7	3	
4:45-5:00						9	1	
HOURLY TOTAL						HOURLY TOTAL		43
5:00-5:15						6	1	
5:15-5:30				1	1	4	4	
5:30-5:45						7	4	
5:45-6:00						2	7	
HOURLY TOTAL					1	HOURLY TOTAL		35
6:00-6:15			1		1	7	7	
6:15-6:30						4	4	
6:30-6:45		1			1	2	7	
6:45-7:00						4	4	
HOURLY TOTAL					2	HOURLY TOTAL		39
7:00-7:15						5	1	
7:15-7:30				2	2	6	3	
7:30-7:45						2	5	
7:45-8:00							2	
HOURLY TOTAL					2	HOURLY TOTAL		24
8:00-8:15				1	1		4	
8:15-8:30						2	6	
8:30-8:45			2		2	1	2	
8:45-9:00							1	
HOURLY TOTAL					3	HOURLY TOTAL		16
9:00-9:15						3	4	
9:15-9:30							4	
9:30-9:45							3	
9:45-10:00						2	3	
HOURLY TOTAL						HOURLY TOTAL		19