



# MINNESOTA DEPARTMENT OF TRANSPORTATION

## METRO DIVISION - TRAFFIC ENGINEERING

### SIGNAL WARRANTS ANALYSIS

LOCATION: TH-169 SB EXIT TO 77TH AVE

COUNTY: HENNEPIN

REF. POINT: 138.648

DATE: 7/31/1995

OPERATOR: DR

Speed	Approach Description	Lanes
40	Major App1: 77TH AVE EB (CSAH 130), W OF TH-169	2
40	Major App3: 77TH AVE WB (CSAH 130), E OF TH-169	2
0	Minor App2: N/A	0
55	Minor App4: TH-169 SB EXIT RAMP TO 77TH AVE (CSAH 130)	2

0.70 FACTOR USED? YES

POPULATION < 10,000? NO

EXISTING SIGNAL ? NO

HOUR	420/630				0/0		140/70		MET SAME HOURS
	MAJOR APP. 1	MAJOR APP. 3	TOTAL 1+3	WARRANT MET	MINOR APP. 2	MINOR APP. 4	WARRANT MET APP. 2	WARRANT MET APP. 4	
0:00 - 1:00	20	32	52	/	0	4	/	/	/
1:00 - 2:00	26	29	55	/	0	2	/	/	/
2:00 - 3:00	18	18	36	/	0	1	/	/	/
3:00 - 4:00	21	13	34	/	0	6	/	/	/
4:00 - 5:00	34	47	81	/	0	15	/	/	/
5:00 - 6:00	154	208	362	/	0	96	/	/X	/
6:00 - 7:00	620	503	1123	X/X	0	94	/	/X	/X
7:00 - 8:00	1142	562	1704	X/X	0	116	/	/X	/X
8:00 - 9:00	744	525	1269	X/X	0	121	/	/X	/X
9:00 - 10:00	589	594	1183	X/X	0	73	/	/X	/X
10:00 - 11:00	645	568	1213	X/X	0	62	/	/	/
11:00 - 12:00	702	558	1260	X/X	0	73	/	/X	/X
12:00 - 13:00	658	605	1263	X/X	0	92	/	/X	/X
13:00 - 14:00	628	607	1235	X/X	0	104	/	/X	/X
14:00 - 15:00	651	616	1267	X/X	0	77	/	/X	/X
15:00 - 16:00	685	825	1510	X/X	0	81	/	/X	/X
16:00 - 17:00	633	954	1587	X/X	0	63	/	/	/
17:00 - 18:00	610	963	1573	X/X	0	79	/	/X	/X
18:00 - 19:00	362	461	823	X/X	0	65	/	/	/
19:00 - 20:00	283	261	544	X/	0	44	/	/	/
20:00 - 21:00	168	180	348	/	0	37	/	/	/
21:00 - 22:00	127	175	302	/	0	24	/	/	/
22:00 - 23:00	78	103	181	/	0	27	/	/	/
23:00 - 24:00	52	62	114	/	0	7	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	0	8	Not satisfied
Warrant 2	10	8	Satisfied
Warrant 6	13	8	Satisfied, check accident record
Warrant 8	2	8	Not satisfied
Warrant 9	16	4	Satisfied
Warrant 11	14	1	Satisfied

LOCATION: TH-169 SB EXIT TO 77TH AVE

COUNTY: HENNEPIN

REF. POINT: 138.648

DATE: 7/31/1995

OPERATOR: DR

0.70 FACTOR USED? YES  
 POPULATION < 10,000? NO  
 EXISTING SIGNAL ? NO

Speed	Approach Description	Lanes
40	Major App1: 77TH AVE EB (CSAH 130), W OF TH-169	2
40	Major App3: 77TH AVE WB (CSAH 130), E OF TH-169	2
0	Minor App2: N/A	0
55	Minor App4: TH-169 SB EXIT RAMP TO 77TH AVE (CSAH 130)	2

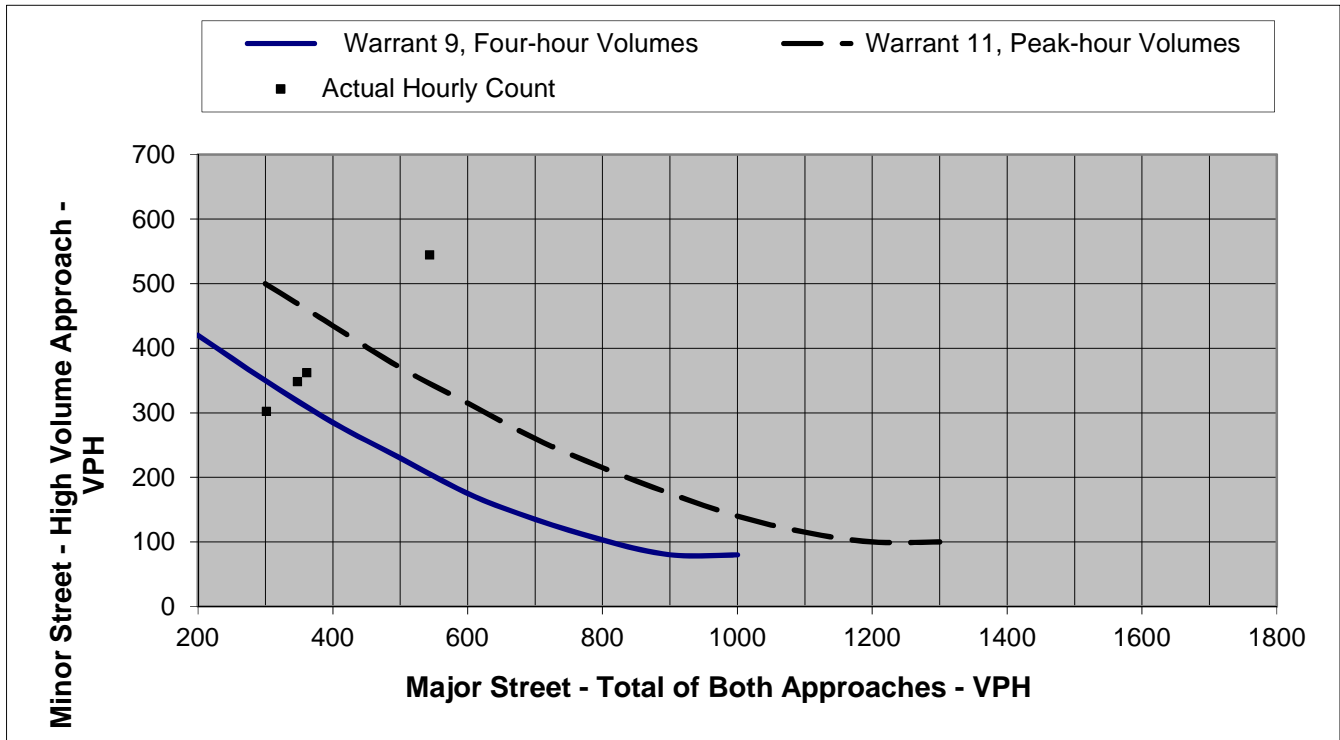


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Major	Warrant Criteria		Actual Hourly Count	
	Warrant 9, F	Warrant 11, P	Major	Actual Hourly Count
200	420		52	52
300	350	500	55	55
400	285	435	36	36
500	230	370	34	34
600	175	315	81	81
700	135	260	362	362
800	103	215	1123	1123
900	80	175	1704	1704
1000	80	140	1269	1269
1100		115	1183	1183
1200		100	1213	1213
1300		100	1260	1260
1400			1263	1263
1500			1235	1235
1600			1267	1267
1700			1510	1510
1800			1587	1587
			1573	1573
			823	823
			544	544
			348	348
			302	302
			181	181
			114	114

Four Hour Warrant

Major App	Minor App		
	1 & 1	2 & 1	2 & 2
300	360	440	590
400	310	390	530
500	260	340	460
600	215	290	390
700	180	245	330
800	150	205	280
900	125	170	235
1000	100	145	195
1100	85	120	165
1200	80	100	135
1300	80	83	110
1400	80	80	110

Peak Hour

Major App	1 & 1
400	475
500	425
600	370
700	330
800	280
900	240
1000	204
1100	175
1200	150
1300	130
1400	115
1500	100
1600	100
1700	100
1800	100

Four Hour Warrant Factored

Major App	Minor App		
	1 & 1	2 & 1	2 & 2
200	250	320	420
300	210	265	350
400	170	215	285
500	130	170	230
600	93	130	175
700	70	100	135
800	60	80	103
900	60	65	80
1000	60	60	80

Peak Hour

Major App	1 & 1
300	320
400	270
500	225
600	180
700	145
800	115
900	90
1000	75
1100	75
1200	75
1300	75



Warrant

Minor App

2 & 1	2 & 2
570	725
520	665
465	600
420	540
370	480
330	425
285	375
250	330
220	285
190	250
160	220
140	187
115	165
100	150
100	150

Warrant Factored

Minor App

2 & 1	2 & 2
380	500
335	435
285	370
240	315
200	260
160	215
135	175
110	140
95	115
75	100
75	100



# MINNESOTA DEPARTMENT OF TRANSPORTATION

## METRO DIVISION - TRAFFIC ENGINEERING

### ALL WAY STOP WARRANT

LOCATION: TH-169 SB EXIT TO 77TH AVE

COUNTY: HENNEPIN

REF. POINT: 138.648

DATE: 7/31/1995

OPERATOR: DR

Speed	Approach Description	Lanes
40	Major App1: 77TH AVE EB (CSAH 130), W OF TH-169	2
40	Major App3: 77TH AVE WB (CSAH 130), E OF TH-169	2
0	Minor App2: N/A	0
55	Minor App4: TH-169 SB EXIT RAMP TO 77TH AVE (CSAH 130)	2

0.70 FACTOR USED? Yes

HOUR					350	140	WARRANT MET
	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	TOTAL $\Sigma$ (APP.1 to APP. 4)	MINOR TOTAL APP. 2 + APP. 4	
0:00 - 1:00	20	32	0	4	56	4	/
1:00 - 2:00	26	29	0	2	57	2	/
2:00 - 3:00	18	18	0	1	37	1	/
3:00 - 4:00	21	13	0	6	40	6	/
4:00 - 5:00	34	47	0	15	96	15	/
5:00 - 6:00	154	208	0	96	458	96	X/
6:00 - 7:00	620	503	0	94	1217	94	X/
7:00 - 8:00	1142	562	0	116	1820	116	X/
8:00 - 9:00	744	525	0	121	1390	121	X/
9:00 - 10:00	589	594	0	73	1256	73	X/
10:00 - 11:00	645	568	0	62	1275	62	X/
11:00 - 12:00	702	558	0	73	1333	73	X/
12:00 - 13:00	658	605	0	92	1355	92	X/
13:00 - 14:00	628	607	0	104	1339	104	X/
14:00 - 15:00	651	616	0	77	1344	77	X/
15:00 - 16:00	685	825	0	81	1591	81	X/
16:00 - 17:00	633	954	0	63	1650	63	X/
17:00 - 18:00	610	963	0	79	1652	79	X/
18:00 - 19:00	362	461	0	65	888	65	X/
19:00 - 20:00	283	261	0	44	588	44	X/
20:00 - 21:00	168	180	0	37	385	37	X/
21:00 - 22:00	127	175	0	24	326	24	/
22:00 - 23:00	78	103	0	27	208	27	/
23:00 - 24:00	52	62	0	7	121	7	/

Allway Stop Warrant: Met (Hr) 0 Required (Hr) 8 Not satisfied

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_