



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH-52 @ CSAH-42 W. RAMPS

COUNTY: DAKOTA

REF. POINT: 115.573

DATE: 1/16/2001

OPERATOR: DR

Speed	Approach Description	Lanes
55	Major App1: CSAH-42 EB W. OF TH-52 W. RAMPS	2
55	Major App3: CSAH-42 WB E. OF TH-52 W. RAMPS	1
65	Minor App2: TH-52 SB RAMP TO CSAH-42	2
0	Minor App4: N/A	0

0.70 FACTOR USED? YES

POPULATION < 10,000? YES

EXISTING SIGNAL ? NO

HOUR	420/630			140/70		0/0		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	37	26	63	/	15	0	/	/	/
1:00 - 2:00	20	20	40	/	9	0	/	/	/
2:00 - 3:00	18	23	41	/	6	0	/	/	/
3:00 - 4:00	18	13	31	/	7	0	/	/	/
4:00 - 5:00	35	28	63	/	13	0	/	/	/
5:00 - 6:00	129	124	253	/	33	0	/	/	/
6:00 - 7:00	387	414	801	X/X	184	0	X/X	/	X/X
7:00 - 8:00	585	597	1182	X/X	192	0	X/X	/	X/X
8:00 - 9:00	400	331	731	X/X	127	0	/X	/	/X
9:00 - 10:00	284	247	531	X/	106	0	/X	/	/
10:00 - 11:00	276	220	496	X/	108	0	/X	/	/
11:00 - 12:00	358	225	583	X/	134	0	/X	/	/
12:00 - 13:00	381	236	617	X/	125	0	/X	/	/
13:00 - 14:00	417	246	663	X/X	139	0	/X	/	/X
14:00 - 15:00	453	252	705	X/X	146	0	X/X	/	X/X
15:00 - 16:00	610	281	891	X/X	218	0	X/X	/	X/X
16:00 - 17:00	631	362	993	X/X	295	0	X/X	/	X/X
17:00 - 18:00	520	349	869	X/X	260	0	X/X	/	X/X
18:00 - 19:00	284	225	509	X/	137	0	/X	/	/
19:00 - 20:00	179	117	296	/	68	0	/	/	/
20:00 - 21:00	176	105	281	/	53	0	/	/	/
21:00 - 22:00	204	89	293	/	57	0	/	/	/
22:00 - 23:00	92	65	157	/	44	0	/	/	/
23:00 - 24:00	54	44	98	/	20	0	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	6	8	Not satisfied
Warrant 2	8	8	Satisfied
Warrant 6	12	8	Satisfied, check accident record
Warrant 8	11	8	Satisfied
Warrant 9	7	4	Satisfied
Warrant 11	4	1	Satisfied

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55	Major App3: CSAH-42 WB E. OF TH-52 W. RAMPS	1
65	Minor App2: TH-52 SB RAMP TO CSAH-42	2
0	Minor App4: N/A	0

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

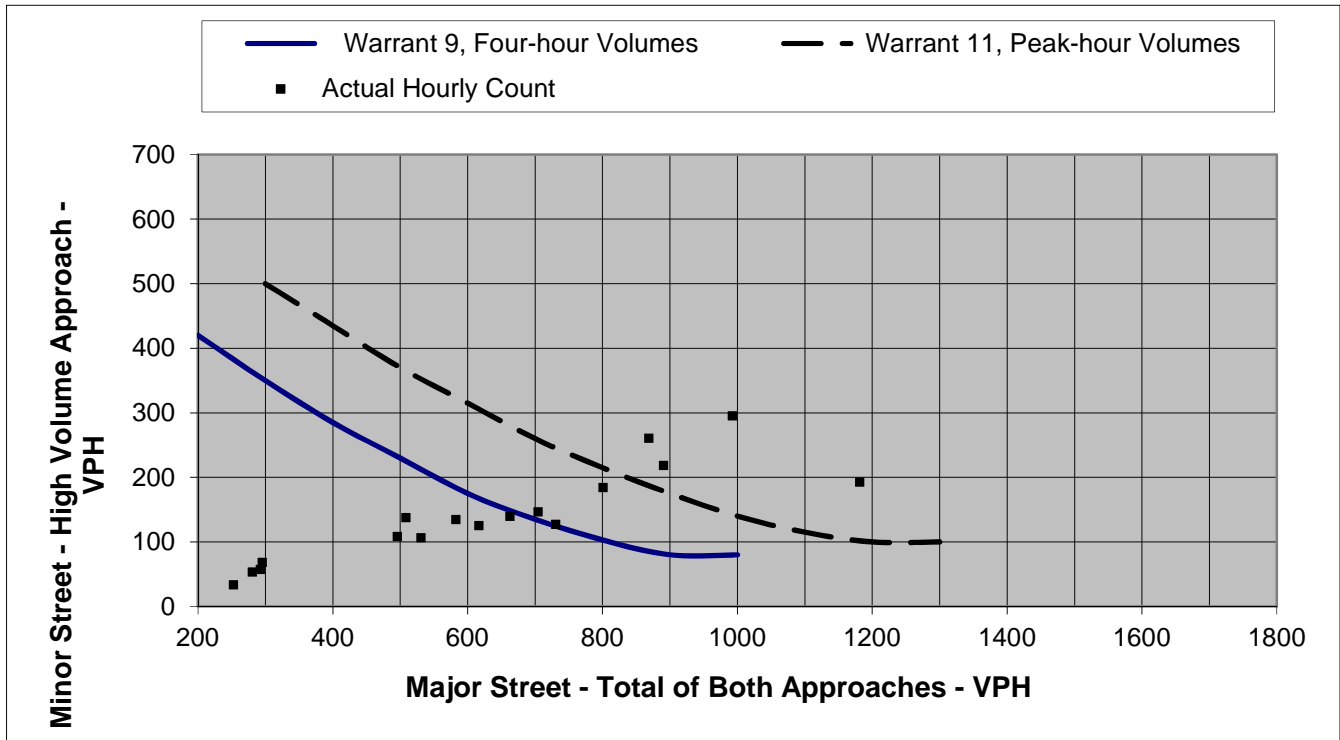


Figure 1. Four Hour and Peak Hour Warrant Analysis

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		63	15
300	350	500	40	9
400	285	435	41	6
500	230	370	31	7
600	175	315	63	13
700	135	260	253	33
800	103	215	801	184
900	80	175	1182	192
1000	80	140	731	127
1100		115	531	106
1200		100	496	108
1300		100	583	134
1400			617	125
1500			663	139
1600			705	146
1700			891	218
1800			993	295
			869	260
			509	137
			296	68
			281	53
			293	57
			157	44
			98	20

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



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METRO DIVISION - TRAFFIC ENGINEERING

ALL WAY STOP WARRANT

LOCATION: TH-52 @ CSAH-42 W. RAMPS

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OPERATOR: DR

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55	Major App3: CSAH-42 WB E. OF TH-52 W. RAMPS	1
65	Minor App2: TH-52 SB RAMP TO CSAH-42	2
0	Minor App4: N/A	0

0.70 FACTOR USED? Yes

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	350	140	WARRANT MET
					TOTAL Σ (APP.1 to APP. 4)	MINOR TOTAL APP. 2 + APP. 4	
0:00 - 1:00	37	26	15	0	78	15	/
1:00 - 2:00	20	20	9	0	49	9	/
2:00 - 3:00	18	23	6	0	47	6	/
3:00 - 4:00	18	13	7	0	38	7	/
4:00 - 5:00	35	28	13	0	76	13	/
5:00 - 6:00	129	124	33	0	286	33	/
6:00 - 7:00	387	414	184	0	985	184	X/X
7:00 - 8:00	585	597	192	0	1374	192	X/X
8:00 - 9:00	400	331	127	0	858	127	X/
9:00 - 10:00	284	247	106	0	637	106	X/
10:00 - 11:00	276	220	108	0	604	108	X/
11:00 - 12:00	358	225	134	0	717	134	X/
12:00 - 13:00	381	236	125	0	742	125	X/
13:00 - 14:00	417	246	139	0	802	139	X/
14:00 - 15:00	453	252	146	0	851	146	X/X
15:00 - 16:00	610	281	218	0	1109	218	X/X
16:00 - 17:00	631	362	295	0	1288	295	X/X
17:00 - 18:00	520	349	260	0	1129	260	X/X
18:00 - 19:00	284	225	137	0	646	137	X/
19:00 - 20:00	179	117	68	0	364	68	X/
20:00 - 21:00	176	105	53	0	334	53	/
21:00 - 22:00	204	89	57	0	350	57	X/
22:00 - 23:00	92	65	44	0	201	44	/
23:00 - 24:00	54	44	20	0	118	20	/

Allway Stop Warrant: Met (Hr) 6 Required (Hr) 8 Not satisfied

REMARKS: _____
