



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH-5 AT CSAH 11 W JCT

COUNTY: CARVER

REF. POINT: 038.378

DATE: 4/30/1996

OPERATOR: DR

Speed	Approach Description	Lanes
55	Major App1: TH-5 EB, W OF CSAH 11	2
55	Major App3: TH-5 WB, E OF CSAH 11	2
40	Minor App2: CSAH 11 SB, N OF TH-5	2
0	Minor App4: N/A	0

0.70 FACTOR USED? YES

POPULATION < 10,000? NO

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	19	43	62	/	6	0	/	/	/
1:00 - 2:00	13	34	47	/	1	0	/	/	/
2:00 - 3:00	12	25	37	/	2	0	/	/	/
3:00 - 4:00	27	16	43	/	3	0	/	/	/
4:00 - 5:00	92	21	113	/	16	0	/	/	/
5:00 - 6:00	348	67	415	/	70	0	/X	/	/
6:00 - 7:00	721	227	948	X/X	267	0	X/X	/	X/X
7:00 - 8:00	757	381	1138	X/X	241	0	X/X	/	X/X
8:00 - 9:00	477	318	795	X/X	91	0	/X	/	/X
9:00 - 10:00	318	311	629	X/	61	0	/	/	/
10:00 - 11:00	306	298	604	X/	49	0	/	/	/
11:00 - 12:00	283	323	606	X/	57	0	/	/	/
12:00 - 13:00	265	346	611	X/	66	0	/	/	/
13:00 - 14:00	272	382	654	X/X	66	0	/	/	/
14:00 - 15:00	323	532	855	X/X	79	0	/X	/	/X
15:00 - 16:00	346	769	1115	X/X	85	0	/X	/	/X
16:00 - 17:00	365	951	1316	X/X	87	0	/X	/	/X
17:00 - 18:00	370	837	1207	X/X	86	0	/X	/	/X
18:00 - 19:00	292	546	838	X/X	59	0	/	/	/
19:00 - 20:00	191	349	540	X/	50	0	/	/	/
20:00 - 21:00	181	299	480	X/	41	0	/	/	/
21:00 - 22:00	132	257	389	/	34	0	/	/	/
22:00 - 23:00	78	182	260	/	15	0	/	/	/
23:00 - 24:00	50	113	163	/	11	0	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	2	8	Not satisfied
Warrant 2	7	8	Not satisfied
Warrant 6	12	8	Satisfied, check accident record
Warrant 8	2	8	Not satisfied
Warrant 9	5	4	Satisfied
Warrant 11	2	1	Satisfied

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55	Major App3: TH-5 WB, E OF CSAH 11	2
40	Minor App2: CSAH 11 SB, N OF TH-5	2
0	Minor App4: N/A	0

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

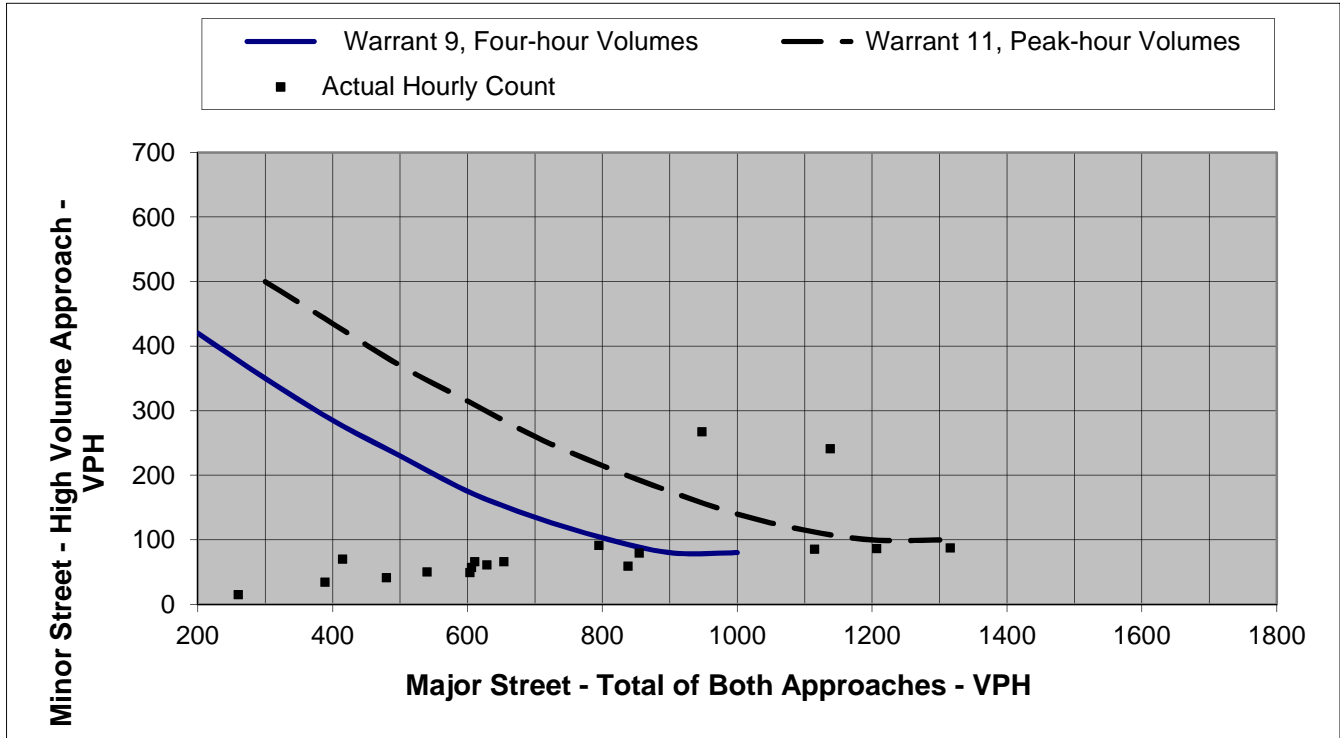


Figure 1. Four Hour and Peak Hour Warrant Analysis

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		62	6
300	350	500	47	1
400	285	435	37	2
500	230	370	43	3
600	175	315	113	16
700	135	260	415	70
800	103	215	948	267
900	80	175	1138	241
1000	80	140	795	91
1100		115	629	61
1200		100	604	49
1300		100	606	57
1400			611	66
1500			654	66
1600			855	79
1700			1115	85
1800			1316	87
			1207	86
			838	59
			540	50
			480	41
			389	34
			260	15
			163	11

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-5 AT CSAH 11 W JCT

COUNTY: CARVER

REF. POINT: 038.378

DATE: 4/30/1996

OPERATOR: DR

Speed	Approach Description	Lanes
55	Major App1: TH-5 EB, W OF CSAH 11	2
55	Major App3: TH-5 WB, E OF CSAH 11	2
40	Minor App2: CSAH 11 SB, N OF TH-5	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	19	43	6	0	68	6	/
1:00 - 2:00	13	34	1	0	48	1	/
2:00 - 3:00	12	25	2	0	39	2	/
3:00 - 4:00	27	16	3	0	46	3	/
4:00 - 5:00	92	21	16	0	129	16	/
5:00 - 6:00	348	67	70	0	485	70	X/
6:00 - 7:00	721	227	267	0	1215	267	X/X
7:00 - 8:00	757	381	241	0	1379	241	X/X
8:00 - 9:00	477	318	91	0	886	91	X/
9:00 - 10:00	318	311	61	0	690	61	X/
10:00 - 11:00	306	298	49	0	653	49	X/
11:00 - 12:00	283	323	57	0	663	57	X/
12:00 - 13:00	265	346	66	0	677	66	X/
13:00 - 14:00	272	382	66	0	720	66	X/
14:00 - 15:00	323	532	79	0	934	79	X/
15:00 - 16:00	346	769	85	0	1200	85	X/
16:00 - 17:00	365	951	87	0	1403	87	X/
17:00 - 18:00	370	837	86	0	1293	86	X/
18:00 - 19:00	292	546	59	0	897	59	X/
19:00 - 20:00	191	349	50	0	590	50	X/
20:00 - 21:00	181	299	41	0	521	41	X/
21:00 - 22:00	132	257	34	0	423	34	X/
22:00 - 23:00	78	182	15	0	275	15	/
23:00 - 24:00	50	113	11	0	174	11	/

Allway Stop Warrant: Met (Hr) 2 Required (Hr) 8 Not satisfied

REMARKS: _____

