



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH-7 AT SMITHTOWN RD

COUNTY: CARVER

REF. POINT: 178.651

DATE: 6/12/2000

OPERATOR: DR

Speed	Approach Description	Lanes
55	Major App1: TH-7 EB, W OF CSAH 13	1
55	Major App3: TH-7 WB, E OF CSAH 13	2
30	Minor App2: CSAH 13 NB, S OF TH-7	1
30	Minor App4: SMITHTOWN RD SB, N OF TH-7	1

0.70 FACTOR USED? YES

POPULATION < 10,000? YES

EXISTING SIGNAL ? NO

HOUR	420/630				105/52		105/52		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	33	62	95	/	3	2	/	/	/
1:00 - 2:00	19	46	65	/	1	1	/	/	/
2:00 - 3:00	24	33	57	/	1	1	/	/	/
3:00 - 4:00	39	31	70	/	0	0	/	/	/
4:00 - 5:00	143	46	189	/	3	4	/	/	/
5:00 - 6:00	485	82	567	X/	21	8	/	/	/
6:00 - 7:00	986	190	1176	X/X	69	29	/X	/	/X
7:00 - 8:00	1156	293	1449	X/X	124	57	X/X	/X	X/X
8:00 - 9:00	736	296	1032	X/X	65	50	/X	/	/X
9:00 - 10:00	521	375	896	X/X	49	51	/	/	/
10:00 - 11:00	440	341	781	X/X	46	44	/	/	/
11:00 - 12:00	458	346	804	X/X	58	63	/X	/X	/X
12:00 - 13:00	429	386	815	X/X	40	59	/	/X	/X
13:00 - 14:00	439	385	824	X/X	58	46	/X	/	/X
14:00 - 15:00	449	461	910	X/X	62	43	/X	/	/X
15:00 - 16:00	454	630	1084	X/X	119	58	X/X	/X	X/X
16:00 - 17:00	425	816	1241	X/X	142	57	X/X	/X	X/X
17:00 - 18:00	426	897	1323	X/X	124	59	X/X	/X	X/X
18:00 - 19:00	392	669	1061	X/X	67	51	/X	/	/X
19:00 - 20:00	289	372	661	X/X	40	37	/	/	/
20:00 - 21:00	231	295	526	X/	26	17	/	/	/
21:00 - 22:00	221	288	509	X/	23	29	/	/	/
22:00 - 23:00	145	192	337	/	20	11	/	/	/
23:00 - 24:00	91	122	213	/	4	5	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	4	8	Not satisfied
Warrant 2	11	8	Satisfied
Warrant 6	13	8	Satisfied, check accident record
Warrant 8	4	8	Not satisfied
Warrant 9	7	4	Satisfied
Warrant 11	4	1	Satisfied

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

Speed	Approach Description	Lanes
55	Major App1: TH-7 EB, W OF CSAH 13	1
55	Major App3: TH-7 WB, E OF CSAH 13	2
30	Minor App2: CSAH 13 NB, S OF TH-7	1
30	Minor App4: SMITHTOWN RD SB, N OF TH-7	1

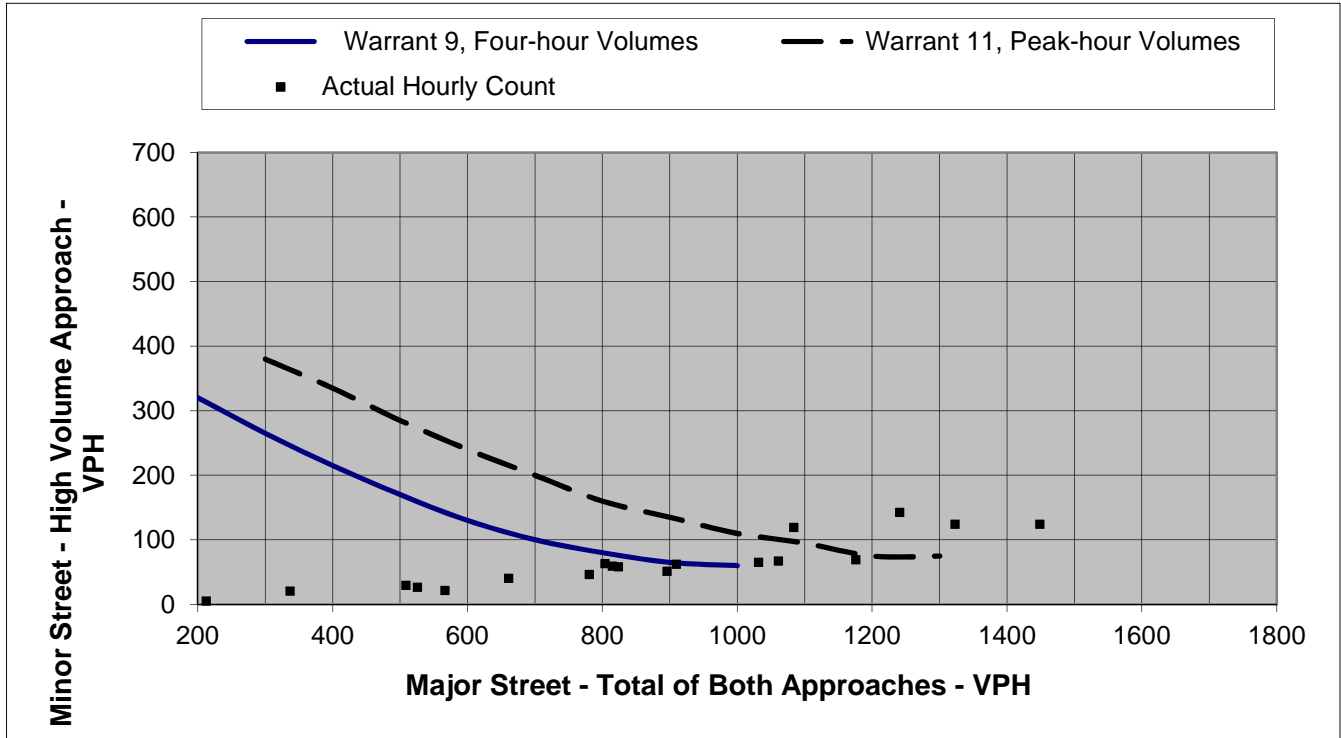


Figure 1. Four Hour and Peak Hour Warrant Analysis

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	320		95	3
300	265	380	65	1
400	215	335	57	1
500	170	285	70	0
600	130	240	189	4
700	100	200	567	21
800	80	160	1176	69
900	65	135	1449	124
1000	60	110	1032	65
1100		95	896	51
1200		75	781	46
1300		75	804	63
1400			815	59
1500			824	58
1600			910	62
1700			1084	119
1800			1241	142
			1323	124
			1061	67
			661	40
			526	26
			509	29
			337	20
			213	5

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-7 AT SMITHTOWN RD

COUNTY: CARVER

REF. POINT: 178.651

DATE: 6/12/2000

OPERATOR: DR

Speed	Approach Description	Lanes
55	Major App1: TH-7 EB, W OF CSAH 13	1
55	Major App3: TH-7 WB, E OF CSAH 13	2
30	Minor App2: CSAH 13 NB, S OF TH-7	1
30	Minor App4: SMITHTOWN RD SB, N OF TH-7	1

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	33	62	3	2	100	5	/
1:00 - 2:00	19	46	1	1	67	2	/
2:00 - 3:00	24	33	1	1	59	2	/
3:00 - 4:00	39	31	0	0	70	0	/
4:00 - 5:00	143	46	3	4	196	7	/
5:00 - 6:00	485	82	21	8	596	29	X/
6:00 - 7:00	986	190	69	29	1274	98	X/
7:00 - 8:00	1156	293	124	57	1630	181	X/X
8:00 - 9:00	736	296	65	50	1147	115	X/
9:00 - 10:00	521	375	49	51	996	100	X/
10:00 - 11:00	440	341	46	44	871	90	X/
11:00 - 12:00	458	346	58	63	925	121	X/
12:00 - 13:00	429	386	40	59	914	99	X/
13:00 - 14:00	439	385	58	46	928	104	X/
14:00 - 15:00	449	461	62	43	1015	105	X/
15:00 - 16:00	454	630	119	58	1261	177	X/X
16:00 - 17:00	425	816	142	57	1440	199	X/X
17:00 - 18:00	426	897	124	59	1506	183	X/X
18:00 - 19:00	392	669	67	51	1179	118	X/
19:00 - 20:00	289	372	40	37	738	77	X/
20:00 - 21:00	231	295	26	17	569	43	X/
21:00 - 22:00	221	288	23	29	561	52	X/
22:00 - 23:00	145	192	20	11	368	31	X/
23:00 - 24:00	91	122	4	5	222	9	/

Allway Stop Warrant: Met (Hr) 4 Required (Hr) 8 Not satisfied

REMARKS: _____

