



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH-47 & NOWTHEN BLVD/CSAH 5

COUNTY: ANOKA

REF. POINT: 22.664

DATE: 11/5/1998

OPERATOR: DR

Speed	Approach Description	Lanes
45	Major App1: TH-47 NB, S OF NOWTHEN BLVD NW/CSAH5	2
50	Major App3: TH-47 SB, N OF NOWTHEN BLVD NW/CSAH 5	1
55	Minor App2: NOWTHEN BLVD NW/CSAH 5 EB, W OF TH-47	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	81	18	99	/	10	0	/	/	/
1:00 - 2:00	57	9	66	/	5	0	/	/	/
2:00 - 3:00	58	8	66	/	2	0	/	/	/
3:00 - 4:00	29	26	55	/	14	0	/	/	/
4:00 - 5:00	26	110	136	/	31	0	/	/	/
5:00 - 6:00	49	466	515	X/	156	0	X/X	/	X/
6:00 - 7:00	170	848	1018	X/X	323	0	X/X	/	X/X
7:00 - 8:00	332	858	1190	X/X	356	0	X/X	/	X/X
8:00 - 9:00	311	471	782	X/X	238	0	X/X	/	X/X
9:00 - 10:00	301	329	630	X/X	219	0	X/X	/	X/X
10:00 - 11:00	321	256	577	X/	125	0	/X	/	/
11:00 - 12:00	372	267	639	X/X	172	0	X/X	/	X/X
12:00 - 13:00	388	263	651	X/X	133	0	/X	/	/X
13:00 - 14:00	463	253	716	X/X	197	0	X/X	/	X/X
14:00 - 15:00	703	292	995	X/X	206	0	X/X	/	X/X
15:00 - 16:00	1031	334	1365	X/X	258	0	X/X	/	X/X
16:00 - 17:00	1254	383	1637	X/X	245	0	X/X	/	X/X
17:00 - 18:00	1278	401	1679	X/X	268	0	X/X	/	X/X
18:00 - 19:00	995	376	1371	X/X	277	0	X/X	/	X/X
19:00 - 20:00	677	224	901	X/X	217	0	X/X	/	X/X
20:00 - 21:00	522	177	699	X/X	162	0	X/X	/	X/X
21:00 - 22:00	441	125	566	X/	84	0	/X	/	/
22:00 - 23:00	213	87	300	/	58	0	/	/	/
23:00 - 24:00	160	32	192	/	20	0	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	14	8	Satisfied
Warrant 2	14	8	Satisfied
Warrant 6	17	8	Satisfied, check accident record
Warrant 8	16	8	Satisfied
Warrant 9	13	4	Satisfied
Warrant 11	9	1	Satisfied

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0	Minor App4: N/A	0

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

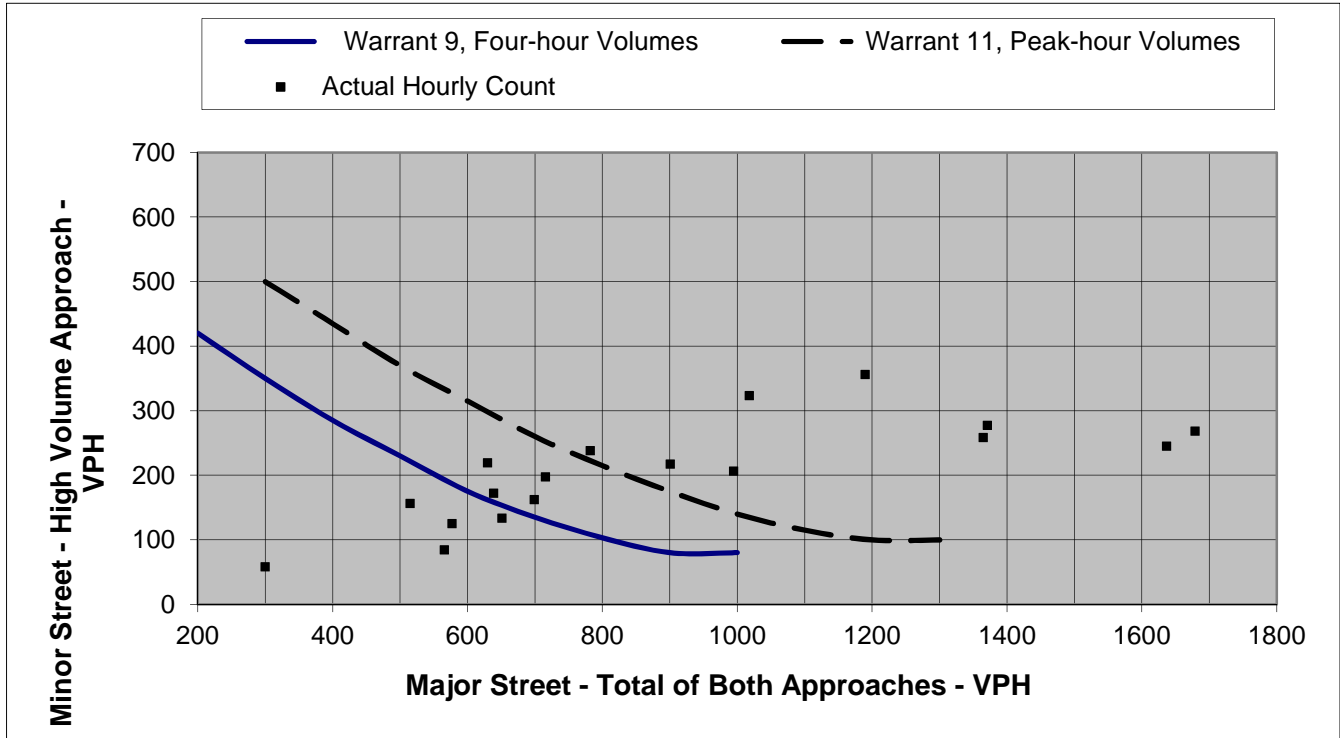


Figure 1. Four Hour and Peak Hour Warrant Analysis

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		99	10
300	350	500	66	5
400	285	435	66	2
500	230	370	55	14
600	175	315	136	31
700	135	260	515	156
800	103	215	1018	323
900	80	175	1190	356
1000	80	140	782	238
1100		115	630	219
1200		100	577	125
1300		100	639	172
1400			651	133
1500			716	197
1600			995	206
1700			1365	258
1800			1637	245
			1679	268
			1371	277
			901	217
			699	162
			566	84
			300	58
			192	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



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

ALL WAY STOP WARRANT

LOCATION: TH-47 & NOWTHEN BLVD/CSAH 5

COUNTY: ANOKA

REF. POINT: 22.664

DATE: 11/5/1998

OPERATOR: DR

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45	Major App1: TH-47 NB, S OF NOWTHEN BLVD NW/CSAH5	2
50	Major App3: TH-47 SB, N OF NOWTHEN BLVD NW/CSAH 5	1
55	Minor App2: NOWTHEN BLVD NW/CSAH 5 EB, W OF TH-47	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	81	18	10	0	109	10	/
1:00 - 2:00	57	9	5	0	71	5	/
2:00 - 3:00	58	8	2	0	68	2	/
3:00 - 4:00	29	26	14	0	69	14	/
4:00 - 5:00	26	110	31	0	167	31	/
5:00 - 6:00	49	466	156	0	671	156	X/X
6:00 - 7:00	170	848	323	0	1341	323	X/X
7:00 - 8:00	332	858	356	0	1546	356	X/X
8:00 - 9:00	311	471	238	0	1020	238	X/X
9:00 - 10:00	301	329	219	0	849	219	X/X
10:00 - 11:00	321	256	125	0	702	125	X/
11:00 - 12:00	372	267	172	0	811	172	X/X
12:00 - 13:00	388	263	133	0	784	133	X/
13:00 - 14:00	463	253	197	0	913	197	X/X
14:00 - 15:00	703	292	206	0	1201	206	X/X
15:00 - 16:00	1031	334	258	0	1623	258	X/X
16:00 - 17:00	1254	383	245	0	1882	245	X/X
17:00 - 18:00	1278	401	268	0	1947	268	X/X
18:00 - 19:00	995	376	277	0	1648	277	X/X
19:00 - 20:00	677	224	217	0	1118	217	X/X
20:00 - 21:00	522	177	162	0	861	162	X/X
21:00 - 22:00	441	125	84	0	650	84	X/
22:00 - 23:00	213	87	58	0	358	58	X/
23:00 - 24:00	160	32	20	0	212	20	/

Met (Hr) Required (Hr)

Allway Stop Warrant: **14** 8 **Satisfied**

REMARKS: _____
