



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH-10 & SPRING LAKE PARK RD.

COUNTY: RAMSEY

REF. POINT: 235.793

DATE: 9/30/1996

OPERATOR: RE

Speed	Approach Description	Lanes
50	Major App1: TH-10 EB, W OF SPRING LAKE PARK RD.	4
50	Major App3: TH-10 WB, E OF SPRING LAKE PARK RD.	4
30	Minor App2: SPRING LAKE PARK RD. NB, S OF TH-10	2
30	Minor App4: SPRING LAKE PARK RD. SB, N OF TH-10	2

0.70 FACTOR USED? YES

POPULATION < 10,000? NO

EXISTING SIGNAL ? NO

HOUR	420/630				140/70		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	90	195	285	/	0	3	/	/	/
1:00 - 2:00	64	132	196	/	0	0	/	/	/
2:00 - 3:00	55	96	151	/	0	2	/	/	/
3:00 - 4:00	77	79	156	/	1	0	/	/	/
4:00 - 5:00	157	98	255	/	2	4	/	/	/
5:00 - 6:00	631	270	901	X/X	1	17	/	/	/
6:00 - 7:00	1201	780	1981	X/X	4	57	/	/	/
7:00 - 8:00	1189	1204	2393	X/X	13	78	/	/X	/X
8:00 - 9:00	720	1032	1752	X/X	17	42	/	/	/
9:00 - 10:00	546	940	1486	X/X	15	44	/	/	/
10:00 - 11:00	550	927	1477	X/X	13	31	/	/	/
11:00 - 12:00	583	1054	1637	X/X	13	24	/	/	/
12:00 - 13:00	602	1132	1734	X/X	18	38	/	/	/
13:00 - 14:00	599	1183	1782	X/X	11	36	/	/	/
14:00 - 15:00	872	1485	2357	X/X	13	34	/	/	/
15:00 - 16:00	862	2065	2927	X/X	24	42	/	/	/
16:00 - 17:00	984	2339	3323	X/X	21	46	/	/	/
17:00 - 18:00	906	2218	3124	X/X	31	50	/	/	/
18:00 - 19:00	696	1516	2212	X/X	18	57	/	/	/
19:00 - 20:00	497	1082	1579	X/X	17	45	/	/	/
20:00 - 21:00	440	837	1277	X/X	10	21	/	/	/
21:00 - 22:00	358	713	1071	X/X	8	13	/	/	/
22:00 - 23:00	246	427	673	X/X	3	9	/	/	/
23:00 - 24:00	147	314	461	X/	2	4	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	0	8	Not satisfied
Warrant 2	1	8	Not satisfied
Warrant 6	3	8	Not satisfied
Warrant 8	0	8	Not satisfied
Warrant 9	0	4	Not satisfied
Warrant 11	0	1	Not satisfied

LOCATION: TH-10 & SPRING LAKE PARK RD.

COUNTY: RAMSEY

REF. POINT: 235.793

DATE: 9/30/1996

OPERATOR: RE

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

Speed	Approach Description	Lanes
50	Major App1: TH-10 EB, W OF SPRING LAKE PARK RD.	4
50	Major App3: TH-10 WB, E OF SPRING LAKE PARK RD.	4
30	Minor App2: SPRING LAKE PARK RD. NB, S OF TH-10	2
30	Minor App4: SPRING LAKE PARK RD. SB, N OF TH-10	2

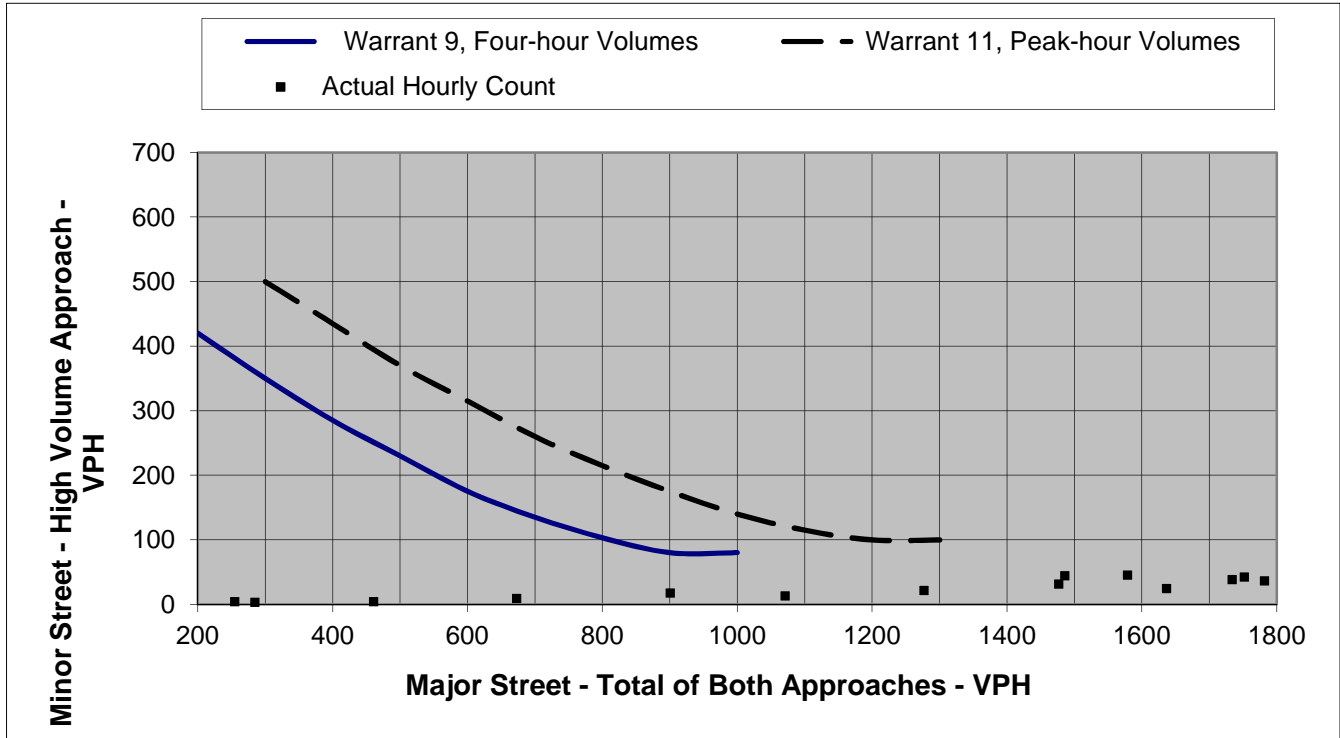


Figure 1. Four Hour and Peak Hour Warrant Analysis

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		285	3
300	350	500	196	0
400	285	435	151	2
500	230	370	156	1
600	175	315	255	4
700	135	260	901	17
800	103	215	1981	57
900	80	175	2393	78
1000	80	140	1752	42
1100		115	1486	44
1200		100	1477	31
1300		100	1637	24
1400			1734	38
1500			1782	36
1600			2357	34
1700			2927	42
1800			3323	46
			3124	50
			2212	57
			1579	45
			1277	21
			1071	13
			673	9
			461	4

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-10 & SPRING LAKE PARK RD.

COUNTY: RAMSEY

REF. POINT: 235.793

DATE:

OPERATOR: RE

Speed	Approach Description	Lanes
50	Major App1: TH-10 EB, W OF SPRING LAKE PARK RD.	4
50	Major App3: TH-10 WB, E OF SPRING LAKE PARK RD.	4
30	Minor App2: SPRING LAKE PARK RD. NB, S OF TH-10	2
30	Minor App4: SPRING LAKE PARK RD. SB, N OF TH-10	2

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	90	195	0	3	288	3	/
1:00 - 2:00	64	132	0	0	196	0	/
2:00 - 3:00	55	96	0	2	153	2	/
3:00 - 4:00	77	79	1	0	157	1	/
4:00 - 5:00	157	98	2	4	261	6	/
5:00 - 6:00	631	270	1	17	919	18	X/
6:00 - 7:00	1201	780	4	57	2042	61	X/
7:00 - 8:00	1189	1204	13	78	2484	91	X/
8:00 - 9:00	720	1032	17	42	1811	59	X/
9:00 - 10:00	546	940	15	44	1545	59	X/
10:00 - 11:00	550	927	13	31	1521	44	X/
11:00 - 12:00	583	1054	13	24	1674	37	X/
12:00 - 13:00	602	1132	18	38	1790	56	X/
13:00 - 14:00	599	1183	11	36	1829	47	X/
14:00 - 15:00	872	1485	13	34	2404	47	X/
15:00 - 16:00	862	2065	24	42	2993	66	X/
16:00 - 17:00	984	2339	21	46	3390	67	X/
17:00 - 18:00	906	2218	31	50	3205	81	X/
18:00 - 19:00	696	1516	18	57	2287	75	X/
19:00 - 20:00	497	1082	17	45	1641	62	X/
20:00 - 21:00	440	837	10	21	1308	31	X/
21:00 - 22:00	358	713	8	13	1092	21	X/
22:00 - 23:00	246	427	3	9	685	12	X/
23:00 - 24:00	147	314	2	4	467	6	X/

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

REMARKS: _____
