



# MINNESOTA DEPARTMENT OF TRANSPORTATION

## METRO DIVISION - TRAFFIC ENGINEERING

### SIGNAL WARRANTS ANALYSIS

LOCATION: TH-47 & 167TH AVE RAMSEY

COUNTY: ANOKA

REF. POINT: 025.778

DATE: 4/17/1995

OPERATOR: DR

Speed	Approach Description	Lanes
55	Major App1: TH-47 NB, S OF 167TH AVE.	2
55	Major App3: TH-47 SB, N OF 167TH AVE.	2
50	Minor App2: 167TH AVE W OF TH-47	2
10	Minor App4: GOLF COURSE ENTRANCE E OF TH-47	2

0.70 FACTOR USED? YES

POPULATION < 10,000? YES

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	32	9	41	/	3	5	/	/	/
1:00 - 2:00	23	6	29	/	1	5	/	/	/
2:00 - 3:00	15	8	23	/	4	3	/	/	/
3:00 - 4:00	13	15	28	/	4	0	/	/	/
4:00 - 5:00	13	65	78	/	11	0	/	/	/
5:00 - 6:00	23	232	255	/	33	0	/	/	/
6:00 - 7:00	85	433	518	X/	82	2	/X	/	/
7:00 - 8:00	132	401	533	X/	116	4	/X	/	/
8:00 - 9:00	137	247	384	/	84	2	/X	/	/
9:00 - 10:00	138	164	302	/	95	9	/X	/	/
10:00 - 11:00	144	150	294	/	71	2	/X	/	/
11:00 - 12:00	160	138	298	/	81	11	/X	/	/
12:00 - 13:00	200	141	341	/	85	15	/X	/	/
13:00 - 14:00	189	149	338	/	97	51	/X	/	/
14:00 - 15:00	256	183	439	X/	99	24	/X	/	/
15:00 - 16:00	387	190	577	X/	133	26	/X	/	/
16:00 - 17:00	497	206	703	X/X	182	32	X/X	/	X/X
17:00 - 18:00	459	222	681	X/X	180	28	X/X	/	X/X
18:00 - 19:00	359	198	557	X/	139	20	/X	/	/
19:00 - 20:00	237	145	382	/	129	45	/X	/	/
20:00 - 21:00	205	102	307	/	115	56	/X	/	/
21:00 - 22:00	167	78	245	/	56	75	/	/X	/
22:00 - 23:00	91	50	141	/	30	24	/	/	/
23:00 - 24:00	69	18	87	/	6	15	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	2	8	Not satisfied
Warrant 2	2	8	Not satisfied
Warrant 6	7	8	Not satisfied
Warrant 8	5	8	Not satisfied
Warrant 9	2	4	Not satisfied
Warrant 11	0	1	Not satisfied

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

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55	Major App3: TH-47 SB, N OF 167TH AVE.	2
50	Minor App2: 167TH AVE W OF TH-47	2
10	Minor App4: GOLF COURSE ENTRANCE E OF TH-47	2

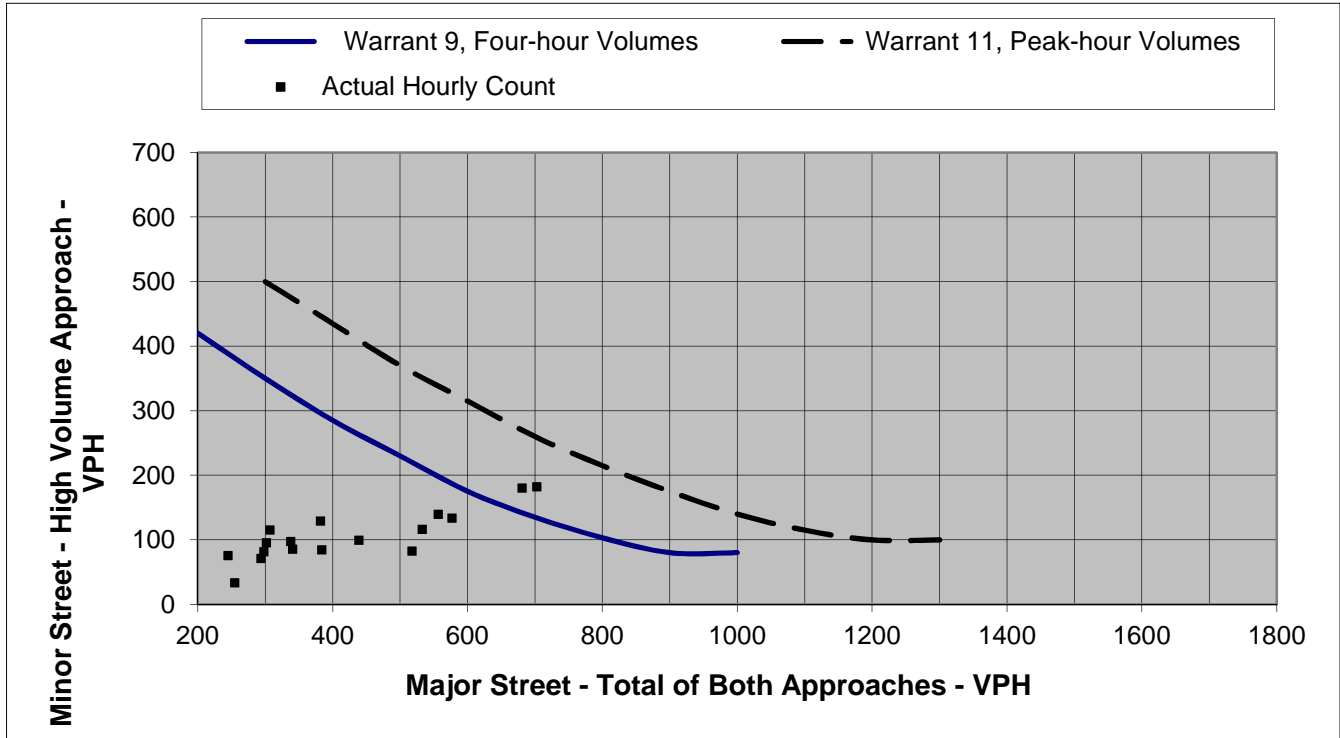


Figure 1. Four Hour and Peak Hour Warrant Analysis

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		41	5
300	350	500	29	5
400	285	435	23	4
500	230	370	28	4
600	175	315	78	11
700	135	260	255	33
800	103	215	518	82
900	80	175	533	116
1000	80	140	384	84
1100		115	302	95
1200		100	294	71
1300		100	298	81
1400			341	85
1500			338	97
1600			439	99
1700			577	133
1800			703	182
			681	180
			557	139
			382	129
			307	115
			245	75
			141	30
			87	15

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 & 167TH AVE RAMSEY

COUNTY: ANOKA

REF. POINT: 025.778

DATE: 4/17/1995

OPERATOR: DR

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55	Major App3: TH-47 SB, N OF 167TH AVE.	2
50	Minor App2: 167TH AVE W OF TH-47	2
10	Minor App4: GOLF COURSE ENTRANCE E OF TH-47	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	32	9	3	5	49	8	/
1:00 - 2:00	23	6	1	5	35	6	/
2:00 - 3:00	15	8	4	3	30	7	/
3:00 - 4:00	13	15	4	0	32	4	/
4:00 - 5:00	13	65	11	0	89	11	/
5:00 - 6:00	23	232	33	0	288	33	/
6:00 - 7:00	85	433	82	2	602	84	X/
7:00 - 8:00	132	401	116	4	653	120	X/
8:00 - 9:00	137	247	84	2	470	86	X/
9:00 - 10:00	138	164	95	9	406	104	X/
10:00 - 11:00	144	150	71	2	367	73	X/
11:00 - 12:00	160	138	81	11	390	92	X/
12:00 - 13:00	200	141	85	15	441	100	X/
13:00 - 14:00	189	149	97	51	486	148	X/X
14:00 - 15:00	256	183	99	24	562	123	X/
15:00 - 16:00	387	190	133	26	736	159	X/X
16:00 - 17:00	497	206	182	32	917	214	X/X
17:00 - 18:00	459	222	180	28	889	208	X/X
18:00 - 19:00	359	198	139	20	716	159	X/X
19:00 - 20:00	237	145	129	45	556	174	X/X
20:00 - 21:00	205	102	115	56	478	171	X/X
21:00 - 22:00	167	78	56	75	376	131	X/
22:00 - 23:00	91	50	30	24	195	54	/
23:00 - 24:00	69	18	6	15	108	21	/

Met (Hr) Required (Hr)

Allway Stop Warrant: 7 8 Not satisfied

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
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