



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH-61 & TH-316 S JCT

COUNTY: GOODHUE

REF. POINT: 104.480

DATE: 2/5/1998

OPERATOR: DR

Speed	Approach Description	Lanes
55	Major App1: TH-61 EB, W OF TH-316	4
55	Major App3: TH-61 WB, E OF TH-316 (FREE RIGHT NOT INCL)	4
50	Minor App2: 130TH AVE NB, S OF TH-61	1
55	Minor App4: TH-216SB, N OF TH-61	1

0.70 FACTOR USED? YES

POPULATION < 10,000? NO

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	26	21	47	/	0	20	/	/	/
1:00 - 2:00	13	26	39	/	1	25	/	/	/
2:00 - 3:00	14	27	41	/	0	22	/	/	/
3:00 - 4:00	21	28	49	/	2	13	/	/	/
4:00 - 5:00	14	27	41	/	2	18	/	/	/
5:00 - 6:00	34	90	124	/	4	53	/	/X	/
6:00 - 7:00	73	145	218	/	8	78	/	/X	/
7:00 - 8:00	133	152	285	/	9	144	/	X/X	/
8:00 - 9:00	129	130	259	/	3	97	/	/X	/
9:00 - 10:00	108	134	242	/	4	117	/	X/X	/
10:00 - 11:00	146	117	263	/	6	105	/	X/X	/
11:00 - 12:00	153	116	269	/	3	125	/	X/X	/
12:00 - 13:00	143	110	253	/	1	119	/	X/X	/
13:00 - 14:00	125	127	252	/	3	108	/	X/X	/
14:00 - 15:00	139	163	302	/	7	139	/	X/X	/
15:00 - 16:00	156	165	321	/	5	196	/	X/X	/
16:00 - 17:00	219	191	410	/	9	181	/	X/X	/
17:00 - 18:00	217	193	410	/	6	190	/	X/X	/
18:00 - 19:00	147	104	251	/	5	135	/	X/X	/
19:00 - 20:00	109	69	178	/	5	83	/	/X	/
20:00 - 21:00	81	61	142	/	2	90	/	/X	/
21:00 - 22:00	85	69	154	/	3	73	/	/X	/
22:00 - 23:00	51	75	126	/	1	48	/	/	/
23:00 - 24:00	40	40	80	/	1	49	/	/	/

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

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

Speed	Approach Description	Lanes
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50	Minor App2: 130TH AVE NB, S OF TH-61	1
55	Minor App4: TH-216SB, N OF TH-61	1

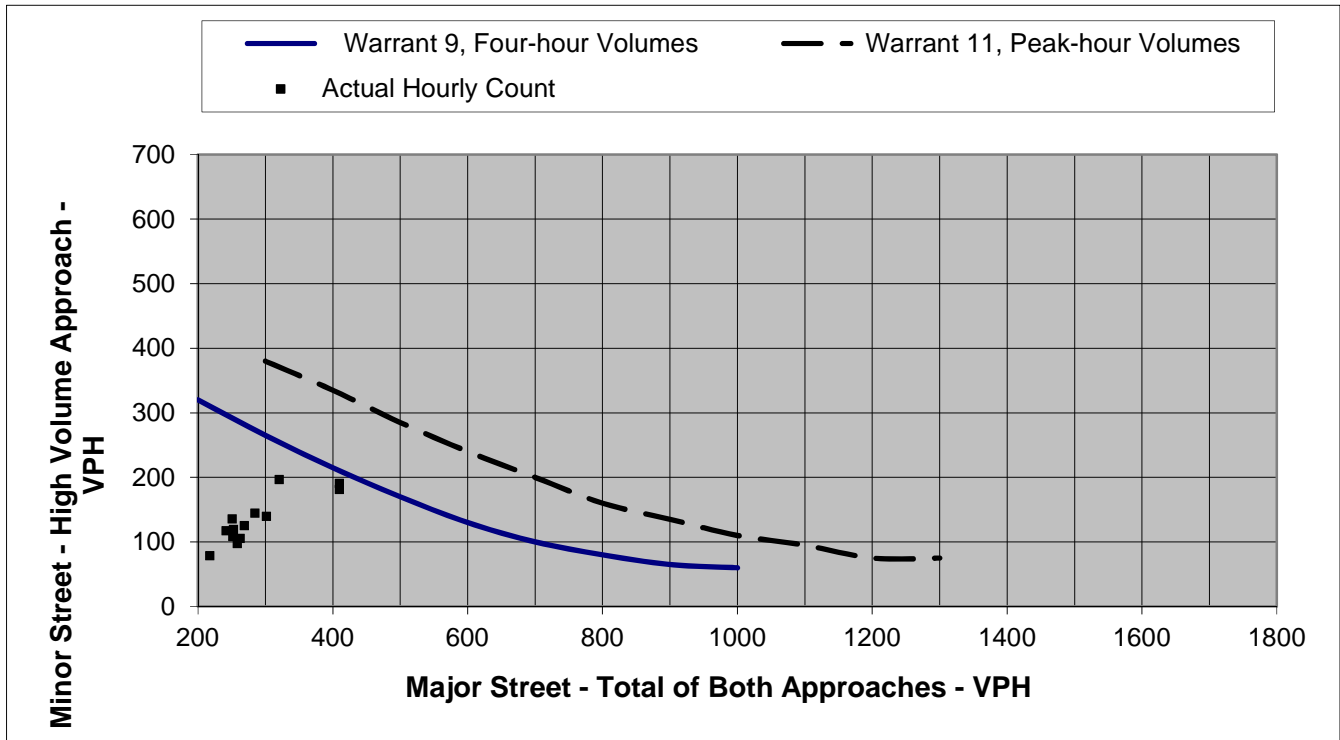


Figure 1. Four Hour and Peak Hour Warrant Analysis

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		47	20
300	265	380	39	25
400	215	335	41	22
500	170	285	49	13
600	130	240	41	18
700	100	200	124	53
800	80	160	218	78
900	65	135	285	144
1000	60	110	259	97
1100		95	242	117
1200		75	263	105
1300		75	269	125
1400			253	119
1500			252	108
1600			302	139
1700			321	196
1800			410	181
			410	190
			251	135
			178	83
			142	90
			154	73
			126	48
			80	49

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-61 & TH-316 S JCT

COUNTY: GOODHUE

REF. POINT: 104.480

DATE: 2/5/1998

OPERATOR: DR

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55	Major App3: TH-61 WB, E OF TH-316 (FREE RIGHT NOT INC	4
50	Minor App2: 130TH AVE NB, S OF TH-61	1
55	Minor App4: TH-216SB, N OF TH-61	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	26	21	0	20	67	20	/
1:00 - 2:00	13	26	1	25	65	26	/
2:00 - 3:00	14	27	0	22	63	22	/
3:00 - 4:00	21	28	2	13	64	15	/
4:00 - 5:00	14	27	2	18	61	20	/
5:00 - 6:00	34	90	4	53	181	57	/
6:00 - 7:00	73	145	8	78	304	86	/
7:00 - 8:00	133	152	9	144	438	153	X/X
8:00 - 9:00	129	130	3	97	359	100	X/
9:00 - 10:00	108	134	4	117	363	121	X/
10:00 - 11:00	146	117	6	105	374	111	X/
11:00 - 12:00	153	116	3	125	397	128	X/
12:00 - 13:00	143	110	1	119	373	120	X/
13:00 - 14:00	125	127	3	108	363	111	X/
14:00 - 15:00	139	163	7	139	448	146	X/X
15:00 - 16:00	156	165	5	196	522	201	X/X
16:00 - 17:00	219	191	9	181	600	190	X/X
17:00 - 18:00	217	193	6	190	606	196	X/X
18:00 - 19:00	147	104	5	135	391	140	X/X
19:00 - 20:00	109	69	5	83	266	88	/
20:00 - 21:00	81	61	2	90	234	92	/
21:00 - 22:00	85	69	3	73	230	76	/
22:00 - 23:00	51	75	1	48	175	49	/
23:00 - 24:00	40	40	1	49	130	50	/

Allway Stop Warrant: Met (Hr) 6 Required (Hr) 8 Not satisfied

REMARKS: _____

