



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH-169 & MEDICINE LAKE RD E RAMP

COUNTY: HENNEPIN

REF. POINT: 132.621

DATE: 12/3/1997

OPERATOR: DR

Speed	Approach Description	Lanes
35	Major App1: MEDICINE LAKE RD EB, W OF TH-169 NB RAMP	2
35	Major App3: MEDICINE LAKE RD WB, E OF TH-169 NB RAMP	2
55	Minor App2: TH-169 NB RAMP, S OF MEDICINE LAKE RD	2
0	Minor App4: N/A	0

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

HOUR	600/900			200/100		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	36	54	90	/	75	0	/	/	/
1:00 - 2:00	23	26	49	/	34	0	/	/	/
2:00 - 3:00	13	22	35	/	15	0	/	/	/
3:00 - 4:00	36	14	50	/	14	0	/	/	/
4:00 - 5:00	36	40	76	/	18	0	/	/	/
5:00 - 6:00	275	131	406	/	78	0	/	/	/
6:00 - 7:00	341	458	799	X/	153	0	/X	/	/
7:00 - 8:00	448	626	1074	X/X	251	0	X/X	/	X/X
8:00 - 9:00	324	515	839	X/	251	0	X/X	/	X/
9:00 - 10:00	210	375	585	/	218	0	X/X	/	/
10:00 - 11:00	158	378	536	/	227	0	X/X	/	/
11:00 - 12:00	259	439	698	X/	289	0	X/X	/	X/
12:00 - 13:00	272	491	763	X/	364	0	X/X	/	X/
13:00 - 14:00	202	438	640	X/	330	0	X/X	/	X/
14:00 - 15:00	346	641	987	X/X	331	0	X/X	/	X/X
15:00 - 16:00	310	673	983	X/X	345	0	X/X	/	X/X
16:00 - 17:00	423	692	1115	X/X	339	0	X/X	/	X/X
17:00 - 18:00	453	697	1150	X/X	336	0	X/X	/	X/X
18:00 - 19:00	270	519	789	X/	360	0	X/X	/	X/
19:00 - 20:00	219	382	601	X/	315	0	X/X	/	X/
20:00 - 21:00	120	209	329	/	235	0	X/X	/	/
21:00 - 22:00	108	190	298	/	233	0	X/X	/	/
22:00 - 23:00	79	160	239	/	147	0	/X	/	/
23:00 - 24:00	93	200	293	/	152	0	/X	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	11	8	Satisfied
Warrant 2	5	8	Not satisfied
Warrant 6	14	8	Satisfied, check accident record
Warrant 8	8	8	Satisfied
Warrant 9	7	4	Satisfied
Warrant 11	2	1	Satisfied

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0	Minor App4: N/A	0

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

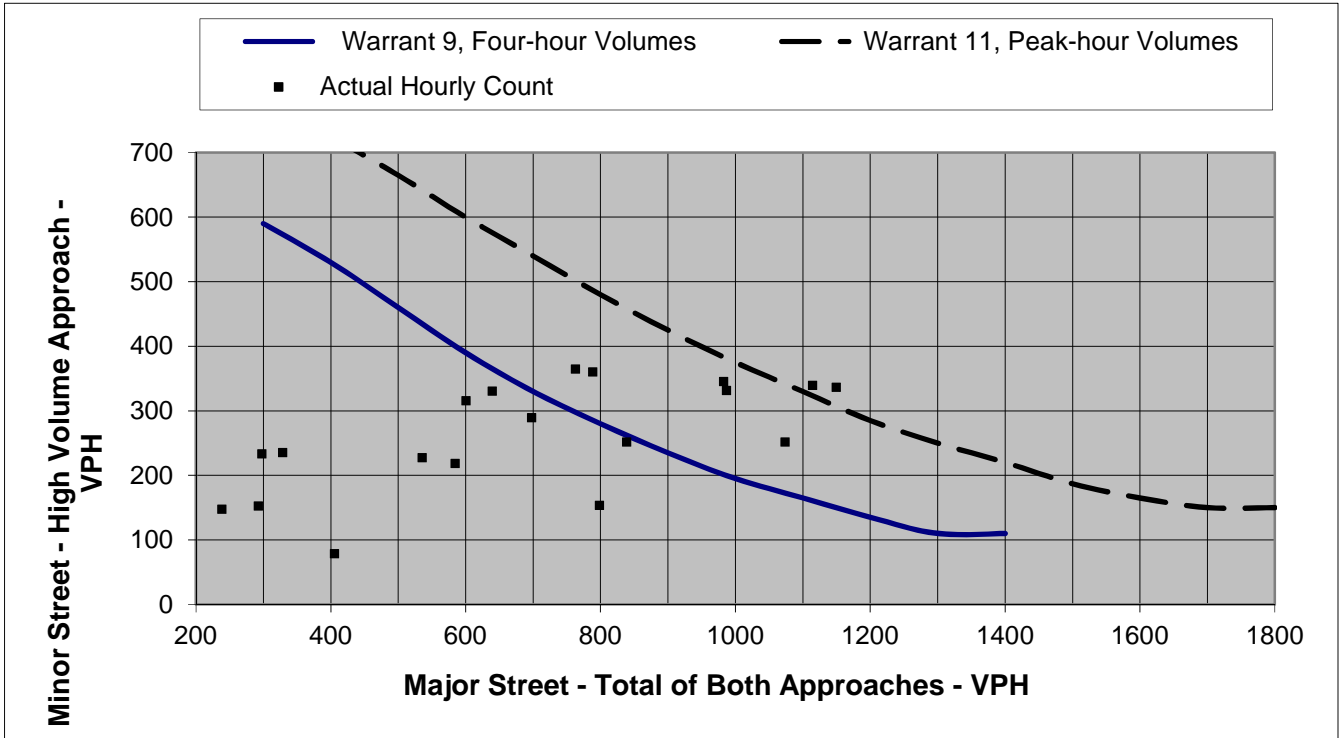


Figure 1. Four Hour and Peak Hour Warrant Analysis

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			90	75
300	590		49	34
400	530	725	35	15
500	460	665	50	14
600	390	600	76	18
700	330	540	406	78
800	280	480	799	153
900	235	425	1074	251
1000	195	375	839	251
1100	165	330	585	218
1200	135	285	536	227
1300	110	250	698	289
1400	110	220	763	364
1500		187	640	330
1600		165	987	331
1700		150	983	345
1800		150	1115	339
			1150	336
			789	360
			601	315
			329	235
			298	233
			239	147
			293	152

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-169 & MEDICINE LAKE RD E RAMP

COUNTY: HENNEPIN

REF. POINT: 132.621

DATE: 12/3/1997

OPERATOR: DR

Speed	Approach Description	Lanes
35	Major App1: MEDICINE LAKE RD EB, W OF TH-169 NB RAMI	2
35	Major App3: MEDICINE LAKE RD WB, E OF TH-169 NB RAMI	2
55	Minor App2: TH-169 NB RAMP, S OF MEDICINE LAKE RD	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	36	54	75	0	165	75	/
1:00 - 2:00	23	26	34	0	83	34	/
2:00 - 3:00	13	22	15	0	50	15	/
3:00 - 4:00	36	14	14	0	64	14	/
4:00 - 5:00	36	40	18	0	94	18	/
5:00 - 6:00	275	131	78	0	484	78	X/
6:00 - 7:00	341	458	153	0	952	153	X/X
7:00 - 8:00	448	626	251	0	1325	251	X/X
8:00 - 9:00	324	515	251	0	1090	251	X/X
9:00 - 10:00	210	375	218	0	803	218	X/X
10:00 - 11:00	158	378	227	0	763	227	X/X
11:00 - 12:00	259	439	289	0	987	289	X/X
12:00 - 13:00	272	491	364	0	1127	364	X/X
13:00 - 14:00	202	438	330	0	970	330	X/X
14:00 - 15:00	346	641	331	0	1318	331	X/X
15:00 - 16:00	310	673	345	0	1328	345	X/X
16:00 - 17:00	423	692	339	0	1454	339	X/X
17:00 - 18:00	453	697	336	0	1486	336	X/X
18:00 - 19:00	270	519	360	0	1149	360	X/X
19:00 - 20:00	219	382	315	0	916	315	X/X
20:00 - 21:00	120	209	235	0	564	235	X/X
21:00 - 22:00	108	190	233	0	531	233	X/X
22:00 - 23:00	79	160	147	0	386	147	X/X
23:00 - 24:00	93	200	152	0	445	152	X/X

Met (Hr) Required (Hr)

Allway Stop Warrant: **18** 8 **Satisfied**

REMARKS: _____
