



# MINNESOTA DEPARTMENT OF TRANSPORTATION

## METRO DIVISION - TRAFFIC ENGINEERING

### SIGNAL WARRANTS ANALYSIS

LOCATION: TH-288 & CR 79/NORTH ST

COUNTY: ANOKA

REF. POINT: 000.200

DATE: 12/3/1997

OPERATOR: DR

Speed	Approach Description	Lanes
35	Major App1: TH-288 NB, S OF CR 79/NORTH ST	3
35	Major App3: TH-288 SB, N OF CR 79/NORTH ST	3
30	Minor App2: NORTH ST EB, W OF TH-288	1
30	Minor App4: CR 79/NORTH ST WB, E OF TH-288	1

0.70 FACTOR USED? NO

POPULATION < 10,000? NO

EXISTING SIGNAL ? NO

HOUR	600/900			150/75		150/75		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	118	27	145	/	1	31	/	/	/
1:00 - 2:00	69	24	93	/	0	19	/	/	/
2:00 - 3:00	43	24	67	/	0	11	/	/	/
3:00 - 4:00	42	42	84	/	1	7	/	/	/
4:00 - 5:00	26	124	150	/	5	12	/	/	/
5:00 - 6:00	91	531	622	X/	5	28	/	/	/
6:00 - 7:00	400	1152	1552	X/X	1	67	/	/	/
7:00 - 8:00	547	1163	1710	X/X	7	91	/	/X	/X
8:00 - 9:00	449	691	1140	X/X	9	102	/	/X	/X
9:00 - 10:00	487	548	1035	X/X	8	138	/	/X	/X
10:00 - 11:00	511	439	950	X/X	10	197	/	X/X	X/X
11:00 - 12:00	627	437	1064	X/X	10	236	/	X/X	X/X
12:00 - 13:00	594	449	1043	X/X	11	290	/	X/X	X/X
13:00 - 14:00	587	461	1048	X/X	10	252	/	X/X	X/X
14:00 - 15:00	794	681	1475	X/X	13	299	/	X/X	X/X
15:00 - 16:00	1060	618	1678	X/X	8	280	/	X/X	X/X
16:00 - 17:00	1248	597	1845	X/X	28	264	/	X/X	X/X
17:00 - 18:00	1257	573	1830	X/X	7	225	/	X/X	X/X
18:00 - 19:00	928	559	1487	X/X	3	210	/	X/X	X/X
19:00 - 20:00	618	355	973	X/X	2	178	/	X/X	X/X
20:00 - 21:00	444	204	648	X/	5	143	/	/X	/
21:00 - 22:00	357	194	551	/	3	86	/	/X	/
22:00 - 23:00	205	169	374	/	1	93	/	/X	/
23:00 - 24:00	318	118	436	/	0	41	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	10	8	Satisfied
Warrant 2	13	8	Satisfied
Warrant 6	15	8	Satisfied, check accident record
Warrant 8	11	8	Satisfied
Warrant 9	12	4	Satisfied
Warrant 11	6	1	Satisfied

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OPERATOR: DR

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

Speed	Approach Description	Lanes
35	Major App1: TH-288 NB, S OF CR 79/NORTH ST	3
35	Major App3: TH-288 SB, N OF CR 79/NORTH ST	3
30	Minor App2: NORTH ST EB, W OF TH-288	1
30	Minor App4: CR 79/NORTH ST WB, E OF TH-288	1

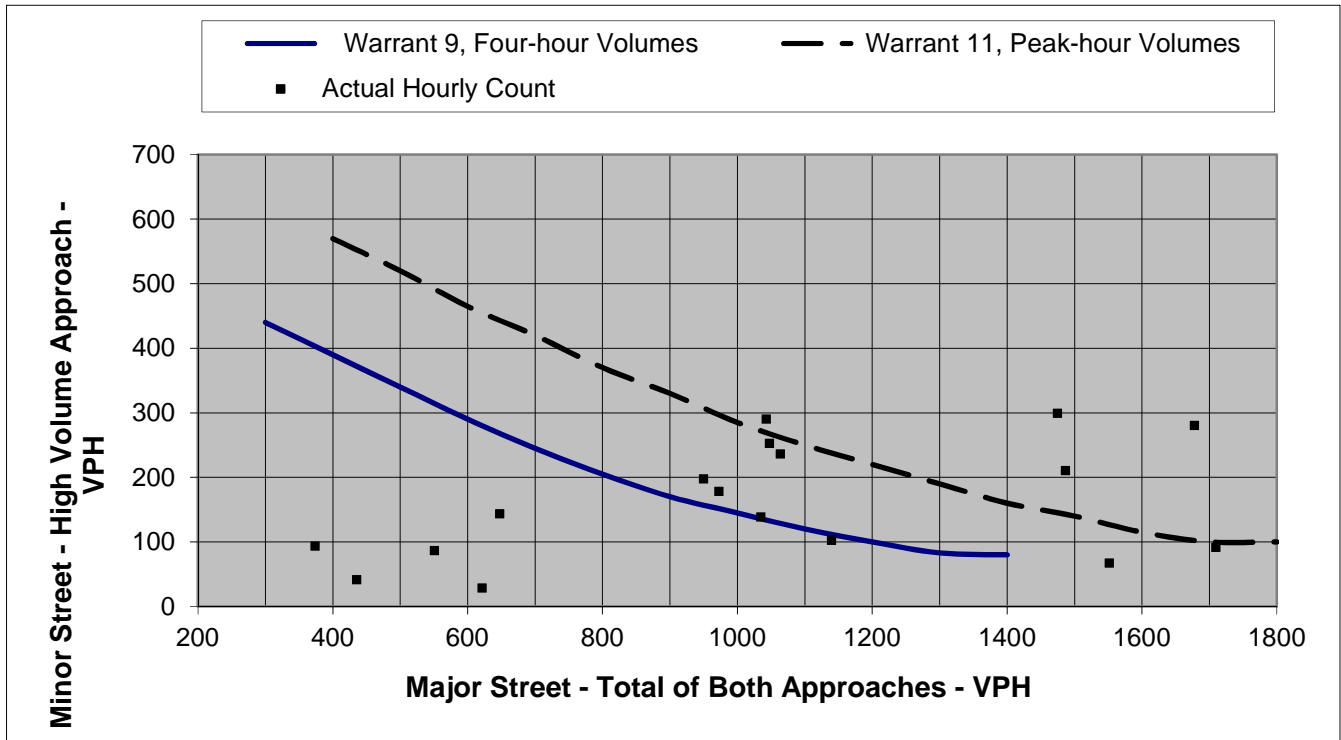


Figure 1. Four Hour and Peak Hour Warrant Analysis

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			145	31
300	440		93	19
400	390	570	67	11
500	340	520	84	7
600	290	465	150	12
700	245	420	622	28
800	205	370	1552	67
900	170	330	1710	91
1000	145	285	1140	102
1100	120	250	1035	138
1200	100	220	950	197
1300	83	190	1064	236
1400	80	160	1043	290
1500		140	1048	252
1600		115	1475	299
1700		100	1678	280
1800		100	1845	264
			1830	225
			1487	210
			973	178
			648	143
			551	86
			374	93
			436	41

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-288 & CR 79/NORTH ST

COUNTY: ANOKA

REF. POINT: 000.200

DATE: 12/3/1997

OPERATOR: DR

Speed	Approach Description	Lanes
35	Major App1: TH-288 NB, S OF CR 79/NORTH ST	3
35	Major App3: TH-288 SB, N OF CR 79/NORTH ST	3
30	Minor App2: NORTH ST EB, W OF TH-288	1
30	Minor App4: CR 79/NORTH ST WB, E OF TH-288	1

0.70 FACTOR USED? No

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	500	200	WARRANT MET
					TOTAL Σ (APP.1 to APP. 4)	MINOR TOTAL APP. 2 + APP. 4	
0:00 - 1:00	118	27	1	31	177	32	/
1:00 - 2:00	69	24	0	19	112	19	/
2:00 - 3:00	43	24	0	11	78	11	/
3:00 - 4:00	42	42	1	7	92	8	/
4:00 - 5:00	26	124	5	12	167	17	/
5:00 - 6:00	91	531	5	28	655	33	X/
6:00 - 7:00	400	1152	1	67	1620	68	X/
7:00 - 8:00	547	1163	7	91	1808	98	X/
8:00 - 9:00	449	691	9	102	1251	111	X/
9:00 - 10:00	487	548	8	138	1181	146	X/
10:00 - 11:00	511	439	10	197	1157	207	X/X
11:00 - 12:00	627	437	10	236	1310	246	X/X
12:00 - 13:00	594	449	11	290	1344	301	X/X
13:00 - 14:00	587	461	10	252	1310	262	X/X
14:00 - 15:00	794	681	13	299	1787	312	X/X
15:00 - 16:00	1060	618	8	280	1966	288	X/X
16:00 - 17:00	1248	597	28	264	2137	292	X/X
17:00 - 18:00	1257	573	7	225	2062	232	X/X
18:00 - 19:00	928	559	3	210	1700	213	X/X
19:00 - 20:00	618	355	2	178	1153	180	X/
20:00 - 21:00	444	204	5	143	796	148	X/
21:00 - 22:00	357	194	3	86	640	89	X/
22:00 - 23:00	205	169	1	93	468	94	/
23:00 - 24:00	318	118	0	41	477	41	/

Met (Hr) Required (Hr)

Allway Stop Warrant: **9** **8** **Satisfied**

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