



# MINNESOTA DEPARTMENT OF TRANSPORTATION

## METRO DIVISION - TRAFFIC ENGINEERING

### SIGNAL WARRANTS ANALYSIS

LOCATION: WENTWORTH AVE. AT TH-52 W. RAMP

COUNTY: DAKOTA

REF. POINT: 127.00.059

DATE:

OPERATOR: DR

Speed	Approach Description	Lanes
30	Major App1: WENTWORTH AVE. EB, W. OF WATERLOO AVE	2
30	Major App3: WENTWORTH AVE. WB, E. OF WATERLOO AVE	2
30	Minor App2: WATERLOO AVE. SB, N. OF WENTWORTH AVE	2
0	Minor App4: N/A	0

0.70 FACTOR USED?

NO

POPULATION < 10,000?

NO

EXISTING SIGNAL ?

NO

THRESHOLDS 1A/1B:

600/900

200/100

HOUR	MAJOR APP. 1	MAJOR APP. 3	TOTAL 1+3	MAJOR 1A/1B	MINOR APP. 2	MINOR 2 1A/1B	MINOR APP. 4	MINOR 4 1A/1B	MET SAME 1A/1B
0:00 - 1:00	33	21	54	/	24	/	0		/
1:00 - 2:00	29	17	46	/	13	/	0		/
2:00 - 3:00	15	4	19	/	9	/	0		/
3:00 - 4:00	13	7	20	/	10	/	0		/
4:00 - 5:00	14	10	24	/	28	/	0		/
5:00 - 6:00	28	37	65	/	91	/	0		/
6:00 - 7:00	102	81	183	/	243	X/X	0		/
7:00 - 8:00	171	101	272	/	376	X/X	0		/
8:00 - 9:00	206	99	305	/	308	X/X	0		/
9:00 - 10:00	216	110	326	/	257	X/X	0		/
10:00 - 11:00	255	110	365	/	276	X/X	0		/
11:00 - 12:00	312	143	455	/	313	X/X	0		/
12:00 - 13:00	368	139	507	/	327	X/X	0		/
13:00 - 14:00	337	144	481	/	296	X/X	0		/
14:00 - 15:00	354	147	501	/	288	X/X	0		/
15:00 - 16:00	417	161	578	/	326	X/X	0		/
16:00 - 17:00	524	183	707	X/	375	X/X	0		X/
17:00 - 18:00	460	169	629	X/	385	X/X	0		X/
18:00 - 19:00	372	147	519	/	347	X/X	0		/
19:00 - 20:00	284	111	395	/	236	X/X	0		/
20:00 - 21:00	235	109	344	/	164	/X	0		/
21:00 - 22:00	211	85	296	/	127	/X	0		/
22:00 - 23:00	100	71	171	/	71	/	0		/
23:00 - 24:00	54	43	97	/	40	/	0		/

	Met (Hr)	Required (Hr)	
Warrant 1A	2	8	Not satisfied
Warrant 1B	0	8	Not satisfied
Warrant 2	2	4	Not satisfied
Warrant 3	0	1	Not satisfied
Warrant 7	7	8	Not satisfied

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	115
1400	80	80	115
1500	80	80	115
1600	80	80	115
1700	80	80	115
1800	80	80	115

Peak Hour Warrant

Major App	Minor App		
	1 & 1	2 & 1	2 & 2
400	475	570	725
500	425	520	665
600	370	465	600
700	330	420	540
800	280	370	480
900	240	330	425
1000	204	285	375
1100	175	250	330
1200	150	220	285
1300	130	190	250
1400	115	160	220
1500	100	140	187
1600	100	115	165
1700	100	100	150
1800	100	100	150

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
1100	60	60	80
1200	60	60	80
1300	60	60	80
1400	60	60	80
1500	60	60	80
1600	60	60	80
1700	60	60	80
1800	60	60	80

Peak Hour Warrant Factored

Major App	Minor App		
	1 & 1	2 & 1	2 & 2
300	320	380	500
400	270	335	435
500	225	285	370
600	180	240	315
700	145	200	260
800	115	160	215
900	90	135	175
1000	75	110	140
1100	75	95	115
1200	75	75	100
1300	75	75	100
1400	75	75	100
1500	75	75	100
1600	75	75	100
1700	75	75	100
1800	75	75	100

LOCATION: WENTWORTH AVE. AT TH-52 W. RAMP

COUNTY: DAKOTA

REF. POINT: 127.00.059

DATE:

OPERATOR: DR

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

Speed	Approach Description	Lanes
30	Major App1: WENTWORTH AVE. EB, W. OF WATERLOO AVE	2
30	Major App3: WENTWORTH AVE. WB, E. OF WATERLOO AVE	2
30	Minor App2: WATERLOO AVE. SB, N. OF WENTWORTH AVE	2
0	Minor App4: N/A	0

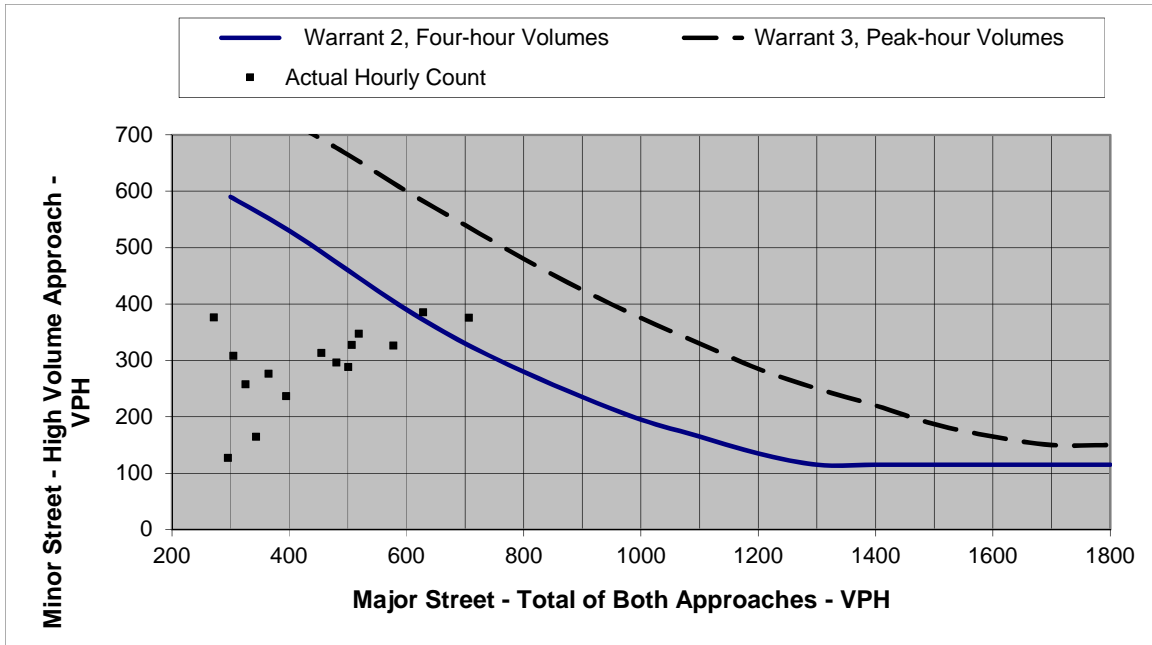


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Major	Warrant Criteria		Actual Hourly Count	
	Warrant 2, F	Warrant 3, Pe	Major	Actual Hourly Count
200			54	24
300	590		46	13
400	530	725	19	9
500	460	665	20	10
600	390	600	24	28
700	330	540	65	91
800	280	480	183	243
900	235	425	272	376
1000	195	375	305	308
1100	165	330	326	257
1200	135	285	365	276
1300	115	250	455	313
1400	115	220	507	327
1500	115	187	481	296
1600	115	165	501	288
1700	115	150	578	326
1800	115	150	707	375
			629	385
			519	347
			395	236
			344	164
			296	127
			171	71
			97	40



# MINNESOTA DEPARTMENT OF TRANSPORTATION

## METRO DIVISION - TRAFFIC ENGINEERING

### ALL WAY STOP WARRANT

LOCATION: WENTWORTH AVE. AT TH-52 W. RAMP

COUNTY: DAKOTA

REF. POINT: 127.00.059

DATE:

OPERATOR: DR

Speed	Approach Description	Lanes
30	Major App1: WENTWORTH AVE. EB, W. OF WATERLOO AV	2
30	Major App3: WENTWORTH AVE. WB, E. OF WATERLOO AV	2
30	Minor App2: WATERLOO AVE. SB, N. OF WENTWORTH AVE	2
0	Minor App4: N/A	0

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	33	21	24		78	24	/
1:00 - 2:00	29	17	13		59	13	/
2:00 - 3:00	15	4	9		28	9	/
3:00 - 4:00	13	7	10		30	10	/
4:00 - 5:00	14	10	28		52	28	/
5:00 - 6:00	28	37	91		156	91	/
6:00 - 7:00	102	81	243		426	243	/X
7:00 - 8:00	171	101	376		648	376	X/X
8:00 - 9:00	206	99	308		613	308	X/X
9:00 - 10:00	216	110	257		583	257	X/X
10:00 - 11:00	255	110	276		641	276	X/X
11:00 - 12:00	312	143	313		768	313	X/X
12:00 - 13:00	368	139	327		834	327	X/X
13:00 - 14:00	337	144	296		777	296	X/X
14:00 - 15:00	354	147	288		789	288	X/X
15:00 - 16:00	417	161	326		904	326	X/X
16:00 - 17:00	524	183	375		1082	375	X/X
17:00 - 18:00	460	169	385		1014	385	X/X
18:00 - 19:00	372	147	347		866	347	X/X
19:00 - 20:00	284	111	236		631	236	X/X
20:00 - 21:00	235	109	164		508	164	X/
21:00 - 22:00	211	85	127		423	127	/
22:00 - 23:00	100	71	71		242	71	/
23:00 - 24:00	54	43	40		137	40	/

Met (Hr) Required (Hr)

Allway Stop Warrant: **13** 8 **Satisfied**

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