



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH-13 & W. RIVER HILLS DR.

COUNTY: DAKOTA

REF. POINT: 099.641

DATE: 2/22/1995

OPERATOR: DR

Speed	Approach Description	Lanes
50	Major App1: TH-13 NB, S OF W. RIVER HILLS DR.	4
50	Major App3: TH-13 SB, N OF W. RIVER HILLS DR.	4
30	Minor App2: W. RIVER HILLS DR. EB, W OF TH-13	3
40	Minor App4: CO. RD. 11 WB, E OF TH-13	3

0.70 FACTOR USED? YES

POPULATION < 10,000? NO

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	120	117	237	/	33	39	/	/	/
1:00 - 2:00	108	87	195	/	26	21	/	/	/
2:00 - 3:00	42	52	94	/	14	17	/	/	/
3:00 - 4:00	35	33	68	/	13	15	/	/	/
4:00 - 5:00	46	41	87	/	14	40	/	/	/
5:00 - 6:00	150	165	315	/	12	130	/	/X	/
6:00 - 7:00	508	311	819	X/X	38	398	/	X/X	X/X
7:00 - 8:00	925	603	1528	X/X	85	671	/X	X/X	X/X
8:00 - 9:00	622	528	1150	X/X	72	381	/X	X/X	X/X
9:00 - 10:00	477	423	900	X/X	84	243	/X	X/X	X/X
10:00 - 11:00	478	448	926	X/X	99	226	/X	X/X	X/X
11:00 - 12:00	536	499	1035	X/X	103	219	/X	X/X	X/X
12:00 - 13:00	607	563	1170	X/X	122	285	/X	X/X	X/X
13:00 - 14:00	608	597	1205	X/X	132	276	/X	X/X	X/X
14:00 - 15:00	748	609	1357	X/X	155	317	X/X	X/X	X/X
15:00 - 16:00	740	877	1617	X/X	181	346	X/X	X/X	X/X
16:00 - 17:00	903	1105	2008	X/X	244	350	X/X	X/X	X/X
17:00 - 18:00	905	1140	2045	X/X	261	377	X/X	X/X	X/X
18:00 - 19:00	658	767	1425	X/X	216	339	X/X	X/X	X/X
19:00 - 20:00	464	545	1009	X/X	157	253	X/X	X/X	X/X
20:00 - 21:00	418	385	803	X/X	120	201	/X	X/X	X/X
21:00 - 22:00	400	408	808	X/X	103	163	/X	X/X	X/X
22:00 - 23:00	246	315	561	X/	69	99	/	/X	/
23:00 - 24:00	193	185	378	/	39	56	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	16	8	Satisfied
Warrant 2	16	8	Satisfied
Warrant 6	17	8	Satisfied, check accident record
Warrant 8	16	8	Satisfied
Warrant 9	16	4	Satisfied
Warrant 11	14	1	Satisfied

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OPERATOR: DR

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

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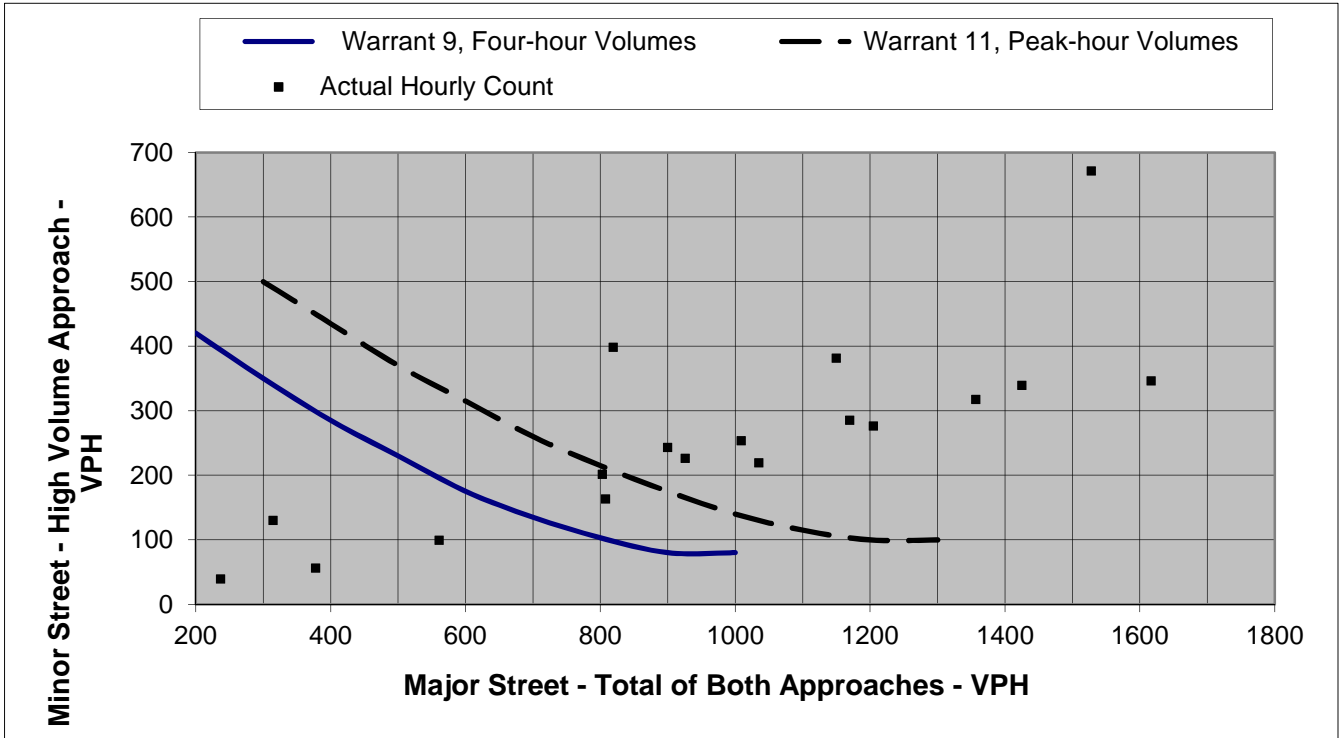


Figure 1. Four Hour and Peak Hour Warrant Analysis

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		237	39
300	350	500	195	26
400	285	435	94	17
500	230	370	68	15
600	175	315	87	40
700	135	260	315	130
800	103	215	819	398
900	80	175	1528	671
1000	80	140	1150	381
1100		115	900	243
1200		100	926	226
1300		100	1035	219
1400			1170	285
1500			1205	276
1600			1357	317
1700			1617	346
1800			2008	350
			2045	377
			1425	339
			1009	253
			803	201
			808	163
			561	99
			378	56

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-13 & W. RIVER HILLS DR.

COUNTY: DAKOTA

REF. POINT: 099.641

DATE: 2/22/1995

OPERATOR: DR

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50	Major App1: TH-13 NB, S OF W. RIVER HILLS DR.	4
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30	Minor App2: W. RIVER HILLS DR. EB, W OF TH-13	3
40	Minor App4: CO. RD. 11 WB, E OF TH-13	3

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	120	117	33	39	309	72	/
1:00 - 2:00	108	87	26	21	242	47	/
2:00 - 3:00	42	52	14	17	125	31	/
3:00 - 4:00	35	33	13	15	96	28	/
4:00 - 5:00	46	41	14	40	141	54	/
5:00 - 6:00	150	165	12	130	457	142	X/X
6:00 - 7:00	508	311	38	398	1255	436	X/X
7:00 - 8:00	925	603	85	671	2284	756	X/X
8:00 - 9:00	622	528	72	381	1603	453	X/X
9:00 - 10:00	477	423	84	243	1227	327	X/X
10:00 - 11:00	478	448	99	226	1251	325	X/X
11:00 - 12:00	536	499	103	219	1357	322	X/X
12:00 - 13:00	607	563	122	285	1577	407	X/X
13:00 - 14:00	608	597	132	276	1613	408	X/X
14:00 - 15:00	748	609	155	317	1829	472	X/X
15:00 - 16:00	740	877	181	346	2144	527	X/X
16:00 - 17:00	903	1105	244	350	2602	594	X/X
17:00 - 18:00	905	1140	261	377	2683	638	X/X
18:00 - 19:00	658	767	216	339	1980	555	X/X
19:00 - 20:00	464	545	157	253	1419	410	X/X
20:00 - 21:00	418	385	120	201	1124	321	X/X
21:00 - 22:00	400	408	103	163	1074	266	X/X
22:00 - 23:00	246	315	69	99	729	168	X/X
23:00 - 24:00	193	185	39	56	473	95	X/

Met (Hr) Required (Hr)

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

REMARKS: _____
