



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: I-35W & CO.RD.E2, W RAMPS

COUNTY: RAMSEY

REF. POINT: 026.067

DATE: 10/7/1997

OPERATOR: RE

Speed	Approach Description	Lanes
35	Major App1: CO.RD.E2 EB, W OF W RAMPS OF I-35W	2
30	Major App3: CO.RD.E2 WB, E OF W RAMPS OF I-35W	1
0	Minor App2: N/A	0
30	Minor App4: I-35W SB RAMP TO CO.RD.E2	2

0.70 FACTOR USED? NO

POPULATION < 10,000? NO

EXISTING SIGNAL ? NO

HOUR	600/900			0/0		200/100		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	37	51	88	/	0	35	/	/	/
1:00 - 2:00	38	20	58	/	0	17	/	/	/
2:00 - 3:00	44	23	67	/	0	14	/	/	/
3:00 - 4:00	32	20	52	/	0	16	/	/	/
4:00 - 5:00	33	22	55	/	0	41	/	/	/
5:00 - 6:00	96	71	167	/	0	102	/	/X	/
6:00 - 7:00	337	207	544	/	0	220	/	X/X	/
7:00 - 8:00	751	341	1092	X/X	0	189	/	/X	/X
8:00 - 9:00	491	299	790	X/	0	211	/	X/X	X/
9:00 - 10:00	348	248	596	/	0	159	/	/X	/
10:00 - 11:00	344	269	613	X/	0	155	/	/X	/
11:00 - 12:00	385	298	683	X/	0	173	/	/X	/
12:00 - 13:00	378	310	688	X/	0	171	/	/X	/
13:00 - 14:00	378	355	733	X/	0	176	/	/X	/
14:00 - 15:00	385	420	805	X/	0	197	/	/X	/
15:00 - 16:00	518	490	1008	X/X	0	184	/	/X	/X
16:00 - 17:00	496	604	1100	X/X	0	209	/	X/X	X/X
17:00 - 18:00	567	589	1156	X/X	0	201	/	X/X	X/X
18:00 - 19:00	354	382	736	X/	0	166	/	/X	/
19:00 - 20:00	251	255	506	/	0	128	/	/X	/
20:00 - 21:00	184	215	399	/	0	98	/	/	/
21:00 - 22:00	156	202	358	/	0	112	/	/X	/
22:00 - 23:00	148	147	295	/	0	77	/	/	/
23:00 - 24:00	93	101	194	/	0	49	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	3	8	Not satisfied
Warrant 2	4	8	Not satisfied
Warrant 6	11	8	Satisfied, check accident record
Warrant 8	8	8	Satisfied
Warrant 9	3	4	Not satisfied
Warrant 11	0	1	Not satisfied

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POPULATION < 10,000? NO

EXISTING SIGNAL ? NO

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0	Minor App2: N/A	0
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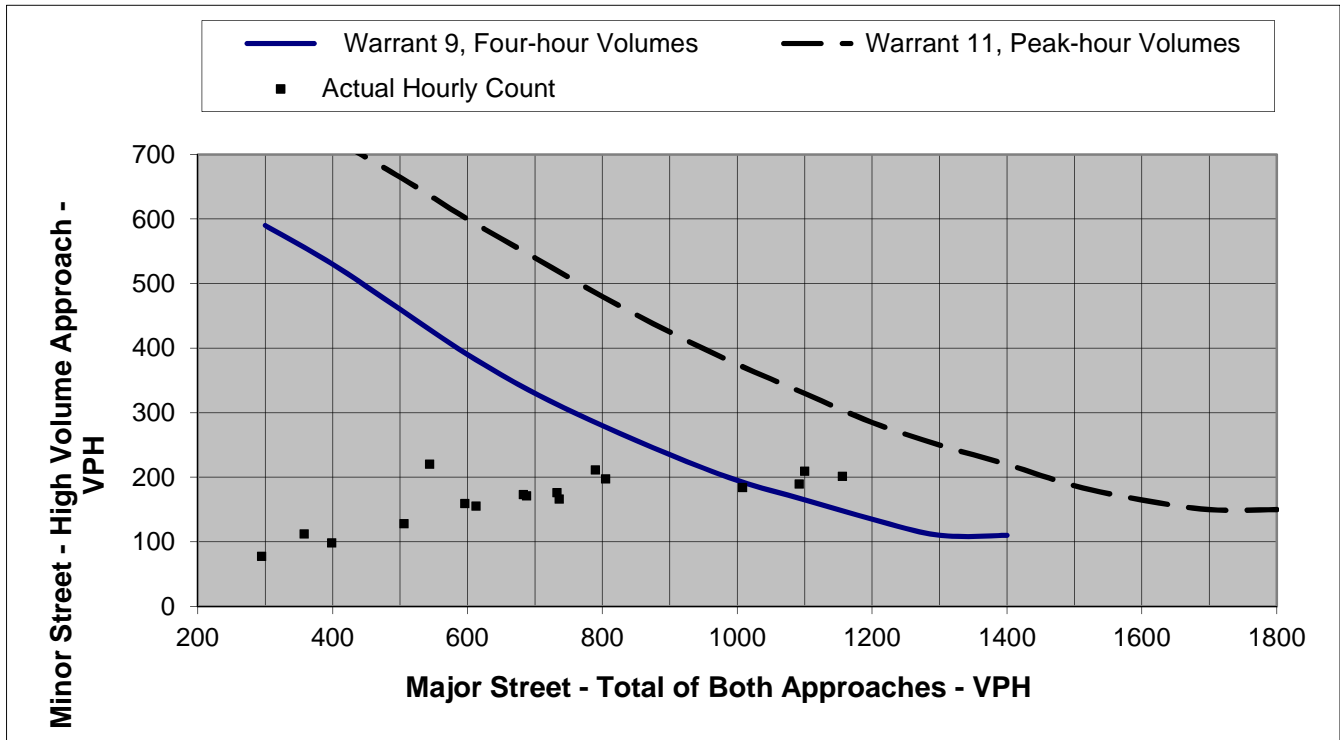


Figure 1. Four Hour and Peak Hour Warrant Analysis

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			88	35
300	590		58	17
400	530	725	67	14
500	460	665	52	16
600	390	600	55	41
700	330	540	167	102
800	280	480	544	220
900	235	425	1092	189
1000	195	375	790	211
1100	165	330	596	159
1200	135	285	613	155
1300	110	250	683	173
1400	110	220	688	171
1500		187	733	176
1600		165	805	197
1700		150	1008	184
1800		150	1100	209
			1156	201
			736	166
			506	128
			399	98
			358	112
			295	77
			194	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: I-35W & CO.RD.E2, W RAMPS

COUNTY: RAMSEY

REF. POINT: 026.067

DATE:

OPERATOR: RE

Speed	Approach Description	Lanes
35	Major App1: CO.RD.E2 EB, W OF W RAMPS OF I-35W	2
30	Major App3: CO.RD.E2 WB, E OF W RAMPS OF I-35W	1
0	Minor App2: N/A	0
30	Minor App4: I-35W SB RAMP TO CO.RD.E2	2

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	37	51	0	35	123	35	/
1:00 - 2:00	38	20	0	17	75	17	/
2:00 - 3:00	44	23	0	14	81	14	/
3:00 - 4:00	32	20	0	16	68	16	/
4:00 - 5:00	33	22	0	41	96	41	/
5:00 - 6:00	96	71	0	102	269	102	/
6:00 - 7:00	337	207	0	220	764	220	X/X
7:00 - 8:00	751	341	0	189	1281	189	X/
8:00 - 9:00	491	299	0	211	1001	211	X/X
9:00 - 10:00	348	248	0	159	755	159	X/
10:00 - 11:00	344	269	0	155	768	155	X/
11:00 - 12:00	385	298	0	173	856	173	X/
12:00 - 13:00	378	310	0	171	859	171	X/
13:00 - 14:00	378	355	0	176	909	176	X/
14:00 - 15:00	385	420	0	197	1002	197	X/
15:00 - 16:00	518	490	0	184	1192	184	X/
16:00 - 17:00	496	604	0	209	1309	209	X/X
17:00 - 18:00	567	589	0	201	1357	201	X/X
18:00 - 19:00	354	382	0	166	902	166	X/
19:00 - 20:00	251	255	0	128	634	128	X/
20:00 - 21:00	184	215	0	98	497	98	/
21:00 - 22:00	156	202	0	112	470	112	/
22:00 - 23:00	148	147	0	77	372	77	/
23:00 - 24:00	93	101	0	49	243	49	/

Met (Hr) Required (Hr)

Allway Stop Warrant: 4 8 Not satisfied

REMARKS: _____

