



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: I-35 & CSAH-70

COUNTY: DAKOTA

REF. POINT: 081.839

DATE: 10/30/1995

OPERATOR: DR

Speed	Approach Description	Lanes
40	Major App1: CSAH-70 EB, W OF I-35 EAST RAMPS	2
40	Major App3: CSAH-70 WB, E OF I-35 EAST RAMPS	2
40	Minor App2: I-35 NB RAMP TO CSAH-70	2
0	Minor App4: N/A	0

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

HOUR	420/630			140/70			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	70	138	208	/	26	0	/	/	/
1:00 - 2:00	51	57	108	/	21	0	/	/	/
2:00 - 3:00	49	64	113	/	12	0	/	/	/
3:00 - 4:00	31	33	64	/	14	0	/	/	/
4:00 - 5:00	59	83	142	/	38	0	/	/	/
5:00 - 6:00	197	215	412	/	80	0	/X	/	/
6:00 - 7:00	475	554	1029	X/X	119	0	/X	/	/X
7:00 - 8:00	659	646	1305	X/X	132	0	/X	/	/X
8:00 - 9:00	441	436	877	X/X	111	0	/X	/	/X
9:00 - 10:00	430	470	900	X/X	83	0	/X	/	/X
10:00 - 11:00	399	453	852	X/X	101	0	/X	/	/X
11:00 - 12:00	486	468	954	X/X	94	0	/X	/	/X
12:00 - 13:00	516	546	1062	X/X	107	0	/X	/	/X
13:00 - 14:00	537	506	1043	X/X	103	0	/X	/	/X
14:00 - 15:00	472	533	1005	X/X	112	0	/X	/	/X
15:00 - 16:00	576	625	1201	X/X	103	0	/X	/	/X
16:00 - 17:00	589	634	1223	X/X	122	0	/X	/	/X
17:00 - 18:00	583	525	1108	X/X	140	0	X/X	/	X/X
18:00 - 19:00	445	378	823	X/X	100	0	/X	/	/X
19:00 - 20:00	262	242	504	X/	57	0	/	/	/
20:00 - 21:00	220	203	423	X/	63	0	/	/	/
21:00 - 22:00	237	162	399	/	56	0	/	/	/

22:00 - 23:00	157	150	307	/	40	0	/	/	/
23:00 - 24:00	160	173	333	/	32	0	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	1	8	Not satisfied
Warrant 2	13	8	Satisfied
Warrant 6	14	8	Satisfied, check accident record
Warrant 8	5	8	Not satisfied
Warrant 9	13	4	Satisfied
Warrant 11	4	1	Satisfied

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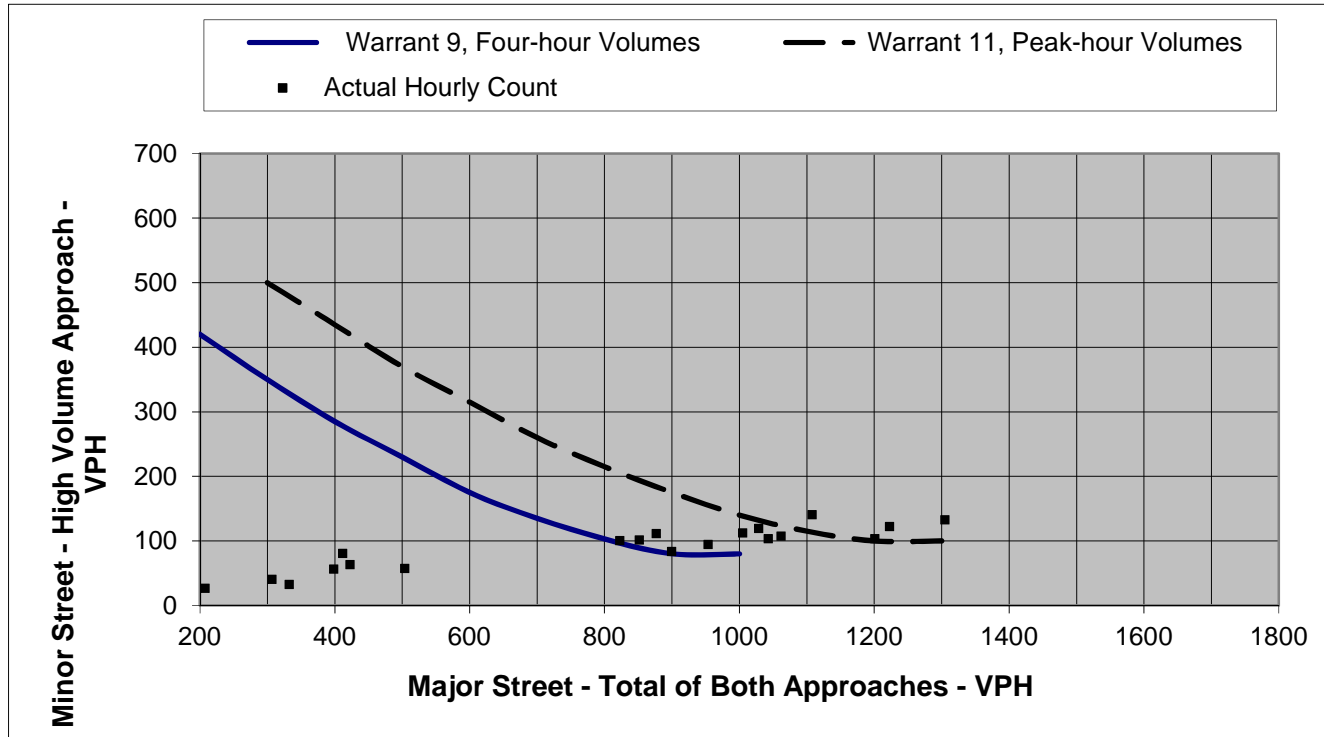


Figure 1. Four Hour and Peak Hour Warrant Analysis

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		208	26
300	350	500	108	21
400	285	435	113	12
500	230	370	64	14
600	175	315	142	38
700	135	260	412	80
800	103	215	1029	119
900	80	175	1305	132

1000	80	140	877	111
1100		115	900	83
1200		100	852	101
1300		100	954	94
1400			1062	107
1500			1043	103
1600			1005	112
1700			1201	103
1800			1223	122
			1108	140
			823	100
			504	57
			423	63
			399	56
			307	40
			333	32

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 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

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