



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH-65 & CR 74/221ST AVE NE

COUNTY: ANOKA

REF. POINT: 027.409

DATE: 6/25/1997

OPERATOR: DR

Speed	Approach Description	Lanes
55	Major App1: TH-65 NB, S OF CR 74/221ST AVE NE	4
55	Major App3: TH-65 SB, N OF CR 74/221ST AVE NE	4
55	Minor App2: CR 74/221ST AVE NE EB, W OF TH-65	1
55	Minor App4: CR 74/221ST AVE NE WB, E OF TH-65	1

0.70 FACTOR USED? YES

POPULATION < 10,000? YES

EXISTING SIGNAL ? NO

HOUR	420/630				105/52		105/52		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	132	53	185	/	6	0	/	/	/
1:00 - 2:00	93	27	120	/	3	0	/	/	/
2:00 - 3:00	85	55	140	/	3	0	/	/	/
3:00 - 4:00	58	57	115	/	7	0	/	/	/
4:00 - 5:00	41	230	271	/	19	0	/	/	/
5:00 - 6:00	65	878	943	X/X	79	63	/X	/X	/X
6:00 - 7:00	210	1045	1255	X/X	105	110	X/X	X/X	X/X
7:00 - 8:00	379	755	1134	X/X	67	111	/X	X/X	X/X
8:00 - 9:00	342	487	829	X/X	52	73	/X	/X	/X
9:00 - 10:00	320	403	723	X/X	46	60	/	/X	/X
10:00 - 11:00	344	397	741	X/X	49	46	/	/	/
11:00 - 12:00	382	407	789	X/X	65	52	/X	/X	/X
12:00 - 13:00	426	408	834	X/X	63	50	/X	/	/X
13:00 - 14:00	469	443	912	X/X	62	53	/X	/X	/X
14:00 - 15:00	528	493	1021	X/X	83	62	/X	/X	/X
15:00 - 16:00	860	444	1304	X/X	59	54	/X	/X	/X
16:00 - 17:00	1190	463	1653	X/X	58	75	/X	/X	/X
17:00 - 18:00	1237	497	1734	X/X	89	89	/X	/X	/X
18:00 - 19:00	946	381	1327	X/X	105	90	X/X	/X	X/X
19:00 - 20:00	624	268	892	X/X	65	59	/X	/X	/X
20:00 - 21:00	464	252	716	X/X	40	88	/	/X	/X
21:00 - 22:00	450	244	694	X/X	41	24	/	/	/
22:00 - 23:00	300	174	474	X/	19	13	/	/	/
23:00 - 24:00	234	64	298	/	14	0	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	3	8	Not satisfied
Warrant 2	15	8	Satisfied
Warrant 6	16	8	Satisfied, check accident record
Warrant 8	5	8	Not satisfied
Warrant 9	7	4	Satisfied
Warrant 11	5	1	Satisfied

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

Speed	Approach Description	Lanes
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55	Minor App2: CR 74/221ST AVE NE EB, W OF TH-65	1
55	Minor App4: CR 74/221ST AVE NE WB, E OF TH-65	1

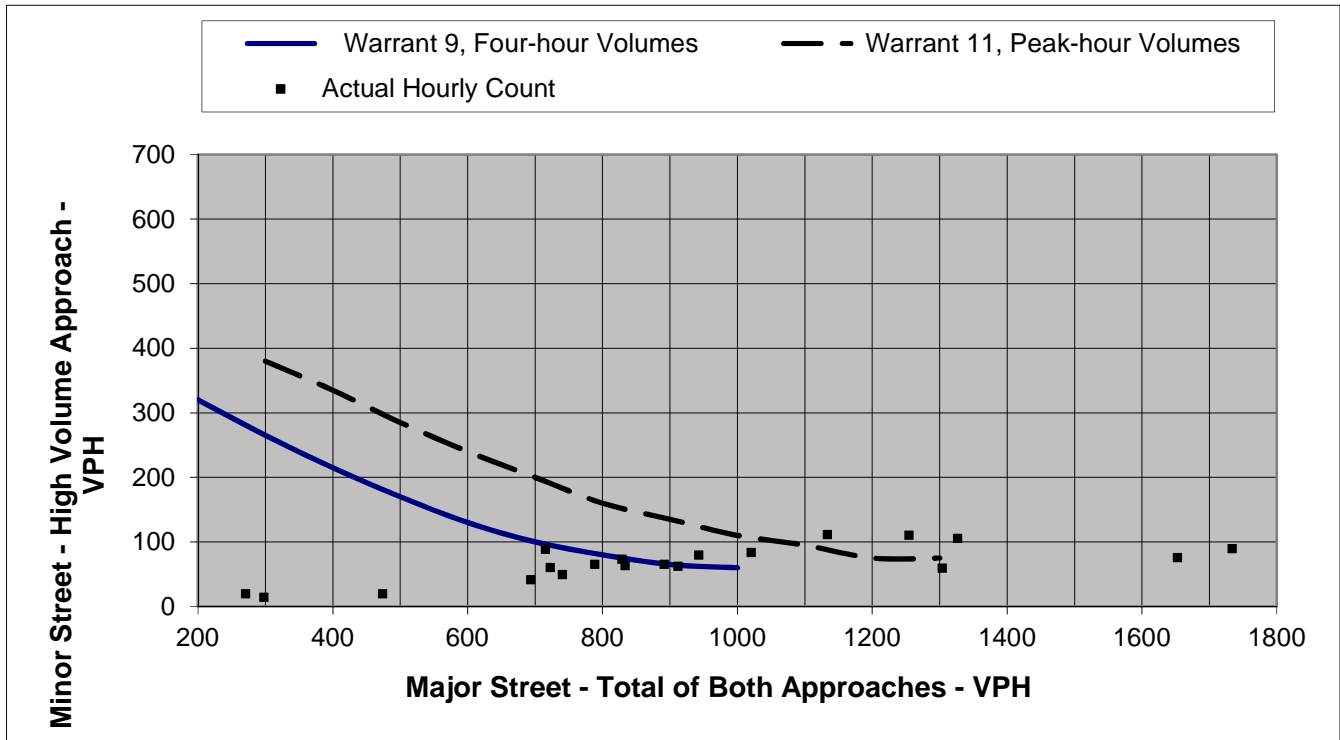


Figure 1. Four Hour and Peak Hour Warrant Analysis

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	320		185	6
300	265	380	120	3
400	215	335	140	3
500	170	285	115	7
600	130	240	271	19
700	100	200	943	79
800	80	160	1255	110
900	65	135	1134	111
1000	60	110	829	73
1100		95	723	60
1200		75	741	49
1300		75	789	65
1400			834	63
1500			912	62
1600			1021	83
1700			1304	59
1800			1653	75
			1734	89
			1327	105
			892	65
			716	88
			694	41
			474	19
			298	14

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-65 & CR 74/221ST AVE NE

COUNTY: ANOKA

REF. POINT: 027.409

DATE: 6/25/1997

OPERATOR: DR

Speed	Approach Description	Lanes
55	Major App1: TH-65 NB, S OF CR 74/221ST AVE NE	4
55	Major App3: TH-65 SB, N OF CR 74/221ST AVE NE	4
55	Minor App2: CR 74/221ST AVE NE EB, W OF TH-65	1
55	Minor App4: CR 74/221ST AVE NE WB, E OF TH-65	1

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	132	53	6	0	191	6	/
1:00 - 2:00	93	27	3	0	123	3	/
2:00 - 3:00	85	55	3	0	143	3	/
3:00 - 4:00	58	57	7	0	122	7	/
4:00 - 5:00	41	230	19	0	290	19	/
5:00 - 6:00	65	878	79	63	1085	142	X/X
6:00 - 7:00	210	1045	105	110	1470	215	X/X
7:00 - 8:00	379	755	67	111	1312	178	X/X
8:00 - 9:00	342	487	52	73	954	125	X/
9:00 - 10:00	320	403	46	60	829	106	X/
10:00 - 11:00	344	397	49	46	836	95	X/
11:00 - 12:00	382	407	65	52	906	117	X/
12:00 - 13:00	426	408	63	50	947	113	X/
13:00 - 14:00	469	443	62	53	1027	115	X/
14:00 - 15:00	528	493	83	62	1166	145	X/X
15:00 - 16:00	860	444	59	54	1417	113	X/
16:00 - 17:00	1190	463	58	75	1786	133	X/
17:00 - 18:00	1237	497	89	89	1912	178	X/X
18:00 - 19:00	946	381	105	90	1522	195	X/X
19:00 - 20:00	624	268	65	59	1016	124	X/
20:00 - 21:00	464	252	40	88	844	128	X/
21:00 - 22:00	450	244	41	24	759	65	X/
22:00 - 23:00	300	174	19	13	506	32	X/
23:00 - 24:00	234	64	14	0	312	14	/

Allway Stop Warrant: Met (Hr) 6 Required (Hr) 8 Not satisfied

REMARKS: _____
