



# MINNESOTA DEPARTMENT OF TRANSPORTATION

## METRO DIVISION - TRAFFIC ENGINEERING

### SIGNAL WARRANTS ANALYSIS

LOCATION: TH-61 & CHEMOLITE RD

COUNTY: WASHINGTON

REF. POINT: 123.015

DATE: 11/16/1995

OPERATOR: DR

Speed	Approach Description	Lanes
50	Major App1: CR 19A EB, W OF TH-61 WEST RAMPS	2
50	Major App3: CR 19A WB, E OF TH-61 WEST RAMPS	2
50	Minor App2: TH-61 SB RAMP TO CR 19A CHEMOLITE RD	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	7	4	11	/	6	0	/	/	/
1:00 - 2:00	6	2	8	/	5	0	/	/	/
2:00 - 3:00	8	2	10	/	3	0	/	/	/
3:00 - 4:00	6	1	7	/	4	0	/	/	/
4:00 - 5:00	3	7	10	/	8	0	/	/	/
5:00 - 6:00	20	30	50	/	68	0	/	/	/
6:00 - 7:00	70	144	214	/	265	0	X/X	/	/
7:00 - 8:00	44	94	138	/	231	0	X/X	/	/
8:00 - 9:00	48	63	111	/	101	0	/X	/	/
9:00 - 10:00	59	58	117	/	70	0	/X	/	/
10:00 - 11:00	66	41	107	/	79	0	/X	/	/
11:00 - 12:00	101	53	154	/	86	0	/X	/	/
12:00 - 13:00	99	59	158	/	93	0	/X	/	/
13:00 - 14:00	115	69	184	/	103	0	/X	/	/
14:00 - 15:00	209	65	274	/	132	0	/X	/	/
15:00 - 16:00	355	42	397	/	126	0	/X	/	/
16:00 - 17:00	201	40	241	/	166	0	X/X	/	/
17:00 - 18:00	104	34	138	/	157	0	X/X	/	/
18:00 - 19:00	48	27	75	/	84	0	/X	/	/
19:00 - 20:00	20	16	36	/	55	0	/	/	/
20:00 - 21:00	13	8	21	/	54	0	/	/	/
21:00 - 22:00	25	16	41	/	51	0	/	/	/
22:00 - 23:00	65	18	83	/	54	0	/	/	/
23:00 - 24:00	17	4	21	/	10	0	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	0	8	Not satisfied
Warrant 2	0	8	Not satisfied
Warrant 6	1	8	Not satisfied
Warrant 8	0	8	Not satisfied
Warrant 9	0	4	Not satisfied
Warrant 11	0	1	Not satisfied

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50	Major App3: CR 19A WB, E OF TH-61 WEST RAMPS	2
50	Minor App2: TH-61 SB RAMP TO CR 19A CHEMOLITE RD	2
0	Minor App4: N/A	0

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

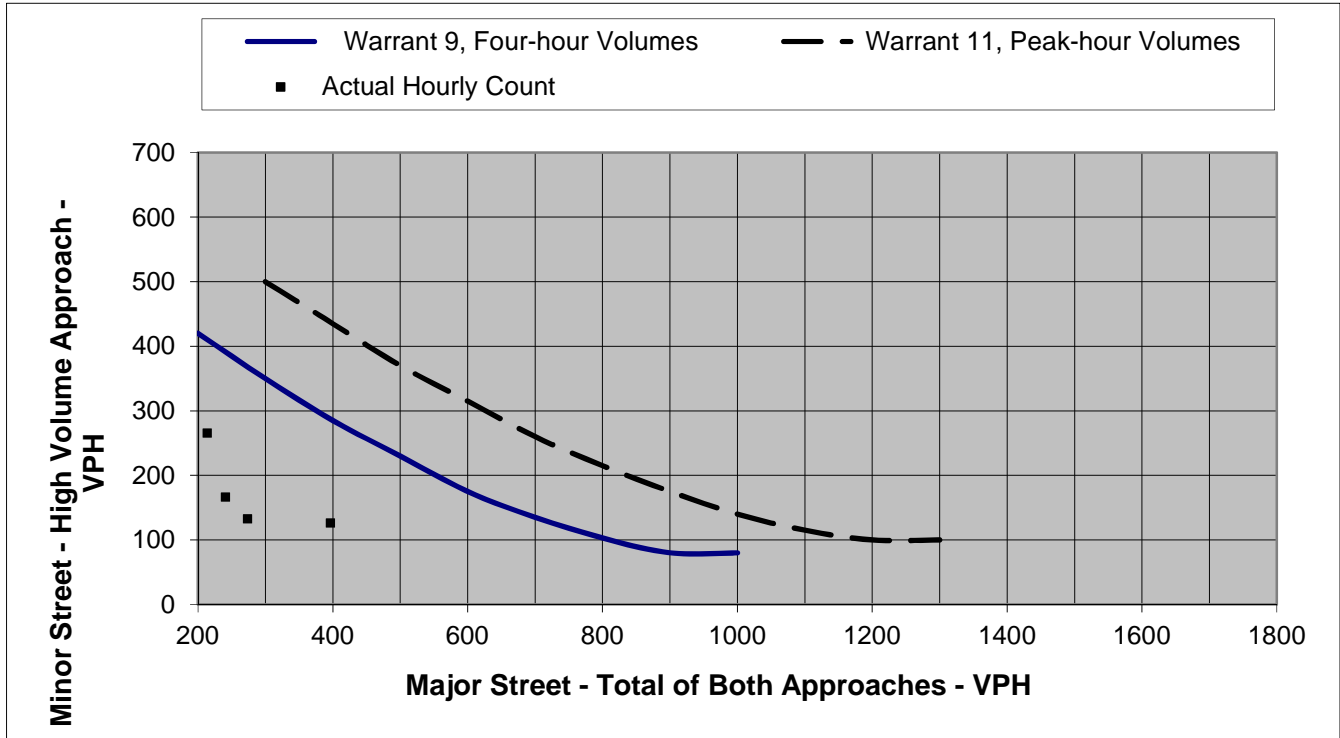


Figure 1. Four Hour and Peak Hour Warrant Analysis

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		11	6
300	350	500	8	5
400	285	435	10	3
500	230	370	7	4
600	175	315	10	8
700	135	260	50	68
800	103	215	214	265
900	80	175	138	231
1000	80	140	111	101
1100		115	117	70
1200		100	107	79
1300		100	154	86
1400			158	93
1500			184	103
1600			274	132
1700			397	126
1800			241	166
			138	157
			75	84
			36	55
			21	54
			41	51
			83	54
			21	10

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-61 & CHEMOLITE RD

COUNTY: WASHINGTON

REF. POINT: 123.015

DATE: 11/16/1995

OPERATOR: DR

Speed	Approach Description	Lanes
50	Major App1: CR 19A EB, W OF TH-61 WEST RAMPS	2
50	Major App3: CR 19A WB, E OF TH-61 WEST RAMPS	2
50	Minor App2: TH-61 SB RAMP TO CR 19A CHEMOLITE RD	2
0	Minor App4: N/A	0

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	7	4	6	0	17	6	/
1:00 - 2:00	6	2	5	0	13	5	/
2:00 - 3:00	8	2	3	0	13	3	/
3:00 - 4:00	6	1	4	0	11	4	/
4:00 - 5:00	3	7	8	0	18	8	/
5:00 - 6:00	20	30	68	0	118	68	/
6:00 - 7:00	70	144	265	0	479	265	X/X
7:00 - 8:00	44	94	231	0	369	231	X/X
8:00 - 9:00	48	63	101	0	212	101	/
9:00 - 10:00	59	58	70	0	187	70	/
10:00 - 11:00	66	41	79	0	186	79	/
11:00 - 12:00	101	53	86	0	240	86	/
12:00 - 13:00	99	59	93	0	251	93	/
13:00 - 14:00	115	69	103	0	287	103	/
14:00 - 15:00	209	65	132	0	406	132	X/
15:00 - 16:00	355	42	126	0	523	126	X/
16:00 - 17:00	201	40	166	0	407	166	X/X
17:00 - 18:00	104	34	157	0	295	157	/X
18:00 - 19:00	48	27	84	0	159	84	/
19:00 - 20:00	20	16	55	0	91	55	/
20:00 - 21:00	13	8	54	0	75	54	/
21:00 - 22:00	25	16	51	0	92	51	/
22:00 - 23:00	65	18	54	0	137	54	/
23:00 - 24:00	17	4	10	0	31	10	/

Met (Hr) Required (Hr)

Allway Stop Warrant: 3 8 Not satisfied

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