



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH-242 & SHENANDOAH BLVD

COUNTY: ANOKA

REF. POINT: 003.675

DATE: 9/7/1995

OPERATOR: DR

Speed	Approach Description	Lanes
50	Major App1: TH-242 EB, W OF SHENANDOAH BLVD	2
50	Major App3: TH-242 WB, E OF SHENANDOAH BLVD	2
30	Minor App2: SHENANDOAH BLVD NB, S OF TH-242	2
40	Minor App4: SHENANDOAH BLVD SB, N OF TH-242	2

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	59	37	96	/	4	4	/	/	/
1:00 - 2:00	29	25	54	/	4	2	/	/	/
2:00 - 3:00	22	17	39	/	3	1	/	/	/
3:00 - 4:00	21	20	41	/	2	6	/	/	/
4:00 - 5:00	30	30	60	/	1	21	/	/	/
5:00 - 6:00	98	102	200	/	8	87	/	/X	/
6:00 - 7:00	316	418	734	X/X	26	244	/	X/X	X/X
7:00 - 8:00	538	575	1113	X/X	40	286	/	X/X	X/X
8:00 - 9:00	346	462	808	X/X	32	138	/	/X	/X
9:00 - 10:00	365	449	814	X/X	21	85	/	/X	/X
10:00 - 11:00	358	373	731	X/X	16	74	/	/X	/X
11:00 - 12:00	442	369	811	X/X	29	59	/	/	/
12:00 - 13:00	452	410	862	X/X	23	71	/	/X	/X
13:00 - 14:00	449	447	896	X/X	32	70	/	/X	/X
14:00 - 15:00	564	514	1078	X/X	40	78	/	/X	/X
15:00 - 16:00	673	550	1223	X/X	35	80	/	/X	/X
16:00 - 17:00	787	560	1347	X/X	47	104	/	/X	/X
17:00 - 18:00	859	616	1475	X/X	55	119	/	/X	/X
18:00 - 19:00	681	529	1210	X/X	46	148	/	X/X	X/X
19:00 - 20:00	532	450	982	X/X	45	114	/	/X	/X
20:00 - 21:00	442	349	791	X/X	41	59	/	/	/
21:00 - 22:00	337	250	587	X/	35	48	/	/	/
22:00 - 23:00	177	156	333	/	16	22	/	/	/
23:00 - 24:00	158	65	223	/	9	14	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	3	8	Not satisfied
Warrant 2	13	8	Satisfied
Warrant 6	15	8	Satisfied, check accident record
Warrant 8	6	8	Not satisfied
Warrant 9	8	4	Satisfied
Warrant 11	4	1	Satisfied

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OPERATOR: DR

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

Speed	Approach Description	Lanes
50	Major App1: TH-242 EB, W OF SHENANDOAH BLVD	2
50	Major App3: TH-242 WB, E OF SHENANDOAH BLVD	2
30	Minor App2: SHENANDOAH BLVD NB, S OF TH-242	2
40	Minor App4: SHENANDOAH BLVD SB, N OF TH-242	2

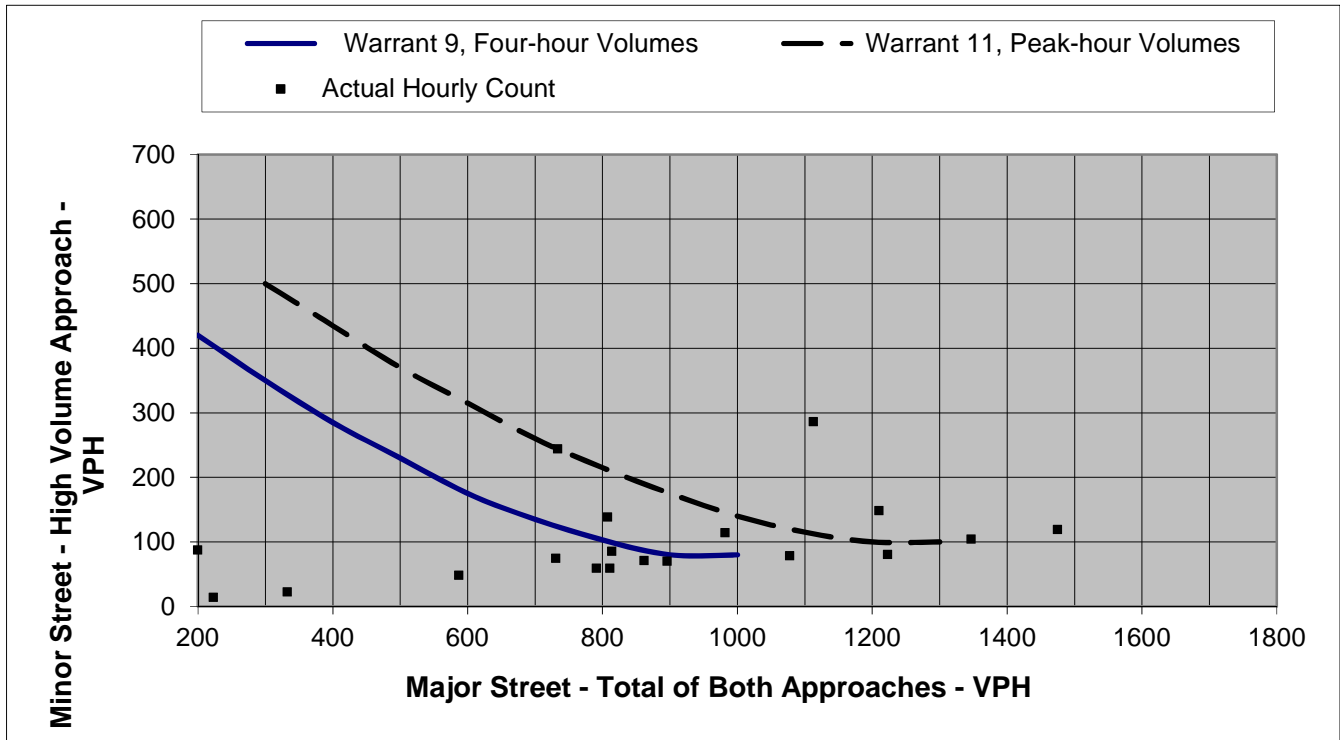


Figure 1. Four Hour and Peak Hour Warrant Analysis

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		96	4
300	350	500	54	4
400	285	435	39	3
500	230	370	41	6
600	175	315	60	21
700	135	260	200	87
800	103	215	734	244
900	80	175	1113	286
1000	80	140	808	138
1100		115	814	85
1200		100	731	74
1300		100	811	59
1400			862	71
1500			896	70
1600			1078	78
1700			1223	80
1800			1347	104
			1475	119
			1210	148
			982	114
			791	59
			587	48
			333	22
			223	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-242 & SHENANDOAH BLVD

COUNTY: ANOKA

REF. POINT: 003.675

DATE: 9/7/1995

OPERATOR: DR

Speed	Approach Description	Lanes
50	Major App1: TH-242 EB, W OF SHENANDOAH BLVD	2
50	Major App3: TH-242 WB, E OF SHENANDOAH BLVD	2
30	Minor App2: SHENANDOAH BLVD NB, S OF TH-242	2
40	Minor App4: SHENANDOAH BLVD SB, N OF TH-242	2

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	59	37	4	4	104	8	/
1:00 - 2:00	29	25	4	2	60	6	/
2:00 - 3:00	22	17	3	1	43	4	/
3:00 - 4:00	21	20	2	6	49	8	/
4:00 - 5:00	30	30	1	21	82	22	/
5:00 - 6:00	98	102	8	87	295	95	/
6:00 - 7:00	316	418	26	244	1004	270	X/X
7:00 - 8:00	538	575	40	286	1439	326	X/X
8:00 - 9:00	346	462	32	138	978	170	X/X
9:00 - 10:00	365	449	21	85	920	106	X/
10:00 - 11:00	358	373	16	74	821	90	X/
11:00 - 12:00	442	369	29	59	899	88	X/
12:00 - 13:00	452	410	23	71	956	94	X/
13:00 - 14:00	449	447	32	70	998	102	X/
14:00 - 15:00	564	514	40	78	1196	118	X/
15:00 - 16:00	673	550	35	80	1338	115	X/
16:00 - 17:00	787	560	47	104	1498	151	X/X
17:00 - 18:00	859	616	55	119	1649	174	X/X
18:00 - 19:00	681	529	46	148	1404	194	X/X
19:00 - 20:00	532	450	45	114	1141	159	X/X
20:00 - 21:00	442	349	41	59	891	100	X/
21:00 - 22:00	337	250	35	48	670	83	X/
22:00 - 23:00	177	156	16	22	371	38	X/
23:00 - 24:00	158	65	9	14	246	23	/

Allway Stop Warrant: Met (Hr) 7 Required (Hr) 8 Not satisfied

REMARKS: _____

