



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH-120 & 12TH ST. N

COUNTY: WASHINGTON

REF. POINT: 003.369

DATE: 4/17/1996

OPERATOR: RE

Speed	Approach Description	Lanes
40	Major App1: TH-120 NB, S OF 12TH ST. N (OAKDALE)	2
40	Major App3: TH-120 SB, N OF 12TH ST.N	2
0	Minor App2: N/A	0
30	Minor App4: 12TH ST. N WB, E OF TH-120	2

0.70 FACTOR USED? YES

POPULATION < 10,000? NO

EXISTING SIGNAL ? NO

HOUR	MAJOR APP. 1	MAJOR APP. 3	TOTAL 1+3	600/900		0/0		200/100		MET SAME HOURS
				WARRANT MET	MINOR APP. 2	MINOR APP. 4	WARRANT MET APP.2	WARRANT MET APP. 4		
0:00 - 1:00	68	39	107	/	0	25	/	/	/	
1:00 - 2:00	47	16	63	/	0	14	/	/	/	
2:00 - 3:00	32	17	49	/	0	3	/	/	/	
3:00 - 4:00	16	19	35	/	0	1	/	/	/	
4:00 - 5:00	21	47	68	/	0	4	/	/	/	
5:00 - 6:00	53	157	210	/	0	12	/	/	/	
6:00 - 7:00	167	546	713	X/	0	28	/	/	/	
7:00 - 8:00	318	921	1239	X/X	0	41	/	/	/	
8:00 - 9:00	318	490	808	X/	0	55	/	/	/	
9:00 - 10:00	384	480	864	X/	0	91	/	/	/	
10:00 - 11:00	422	412	834	X/	0	90	/	/	/	
11:00 - 12:00	572	481	1053	X/X	0	104	/	/X	/X	
12:00 - 13:00	485	547	1032	X/X	0	100	/	/X	/X	
13:00 - 14:00	477	474	951	X/X	0	82	/	/	/	
14:00 - 15:00	601	516	1117	X/X	0	99	/	/	/	
15:00 - 16:00	778	535	1313	X/X	0	109	/	/X	/X	
16:00 - 17:00	936	561	1497	X/X	0	103	/	/X	/X	
17:00 - 18:00	897	628	1525	X/X	0	90	/	/	/	
18:00 - 19:00	663	501	1164	X/X	0	68	/	/	/	
19:00 - 20:00	534	446	980	X/X	0	75	/	/	/	
20:00 - 21:00	417	388	805	X/	0	76	/	/	/	
21:00 - 22:00	359	272	631	X/	0	78	/	/	/	
22:00 - 23:00	207	144	351	/	0	30	/	/	/	
23:00 - 24:00	118	65	183	/	0	30	/	/	/	

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

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

Speed	Approach Description	Lanes
40	Major App1: TH-120 NB, S OF 12TH ST. N (OAKDALE)	2
40	Major App3: TH-120 SB, N OF 12TH ST.N	2
0	Minor App2: N/A	0
30	Minor App4: 12TH ST. N WB, E OF TH-120	2

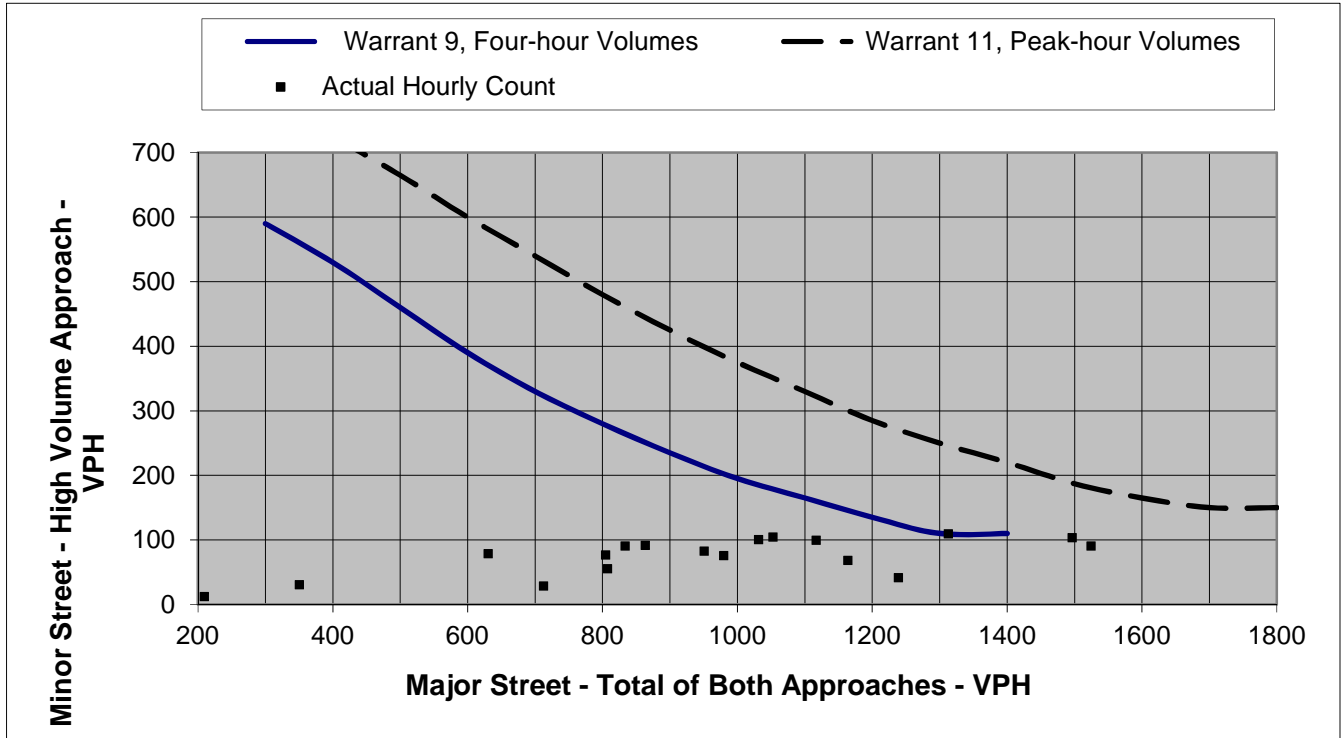


Figure 1. Four Hour and Peak Hour Warrant Analysis

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			107	25
300	590		63	14
400	530	725	49	3
500	460	665	35	1
600	390	600	68	4
700	330	540	210	12
800	280	480	713	28
900	235	425	1239	41
1000	195	375	808	55
1100	165	330	864	91
1200	135	285	834	90
1300	110	250	1053	104
1400	110	220	1032	100
1500		187	951	82
1600		165	1117	99
1700		150	1313	109
1800		150	1497	103
			1525	90
			1164	68
			980	75
			805	76
			631	78
			351	30
			183	30

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-120 & 12TH ST. N

COUNTY: WASHINGTON

REF. POINT: 003.369

DATE:

OPERATOR: RE

0.70 FACTOR USED?

Yes

Speed	Approach Description	Lanes
40	Major App1: TH-120 NB, S OF 12TH ST. N (OAKDALE)	2
40	Major App3: TH-120 SB, N OF 12TH ST.N	2
0	Minor App2: N/A	0
30	Minor App4: 12TH ST. N WB, E OF TH-120	2

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	68	39	0	25	132	25	/
1:00 - 2:00	47	16	0	14	77	14	/
2:00 - 3:00	32	17	0	3	52	3	/
3:00 - 4:00	16	19	0	1	36	1	/
4:00 - 5:00	21	47	0	4	72	4	/
5:00 - 6:00	53	157	0	12	222	12	/
6:00 - 7:00	167	546	0	28	741	28	X/
7:00 - 8:00	318	921	0	41	1280	41	X/
8:00 - 9:00	318	490	0	55	863	55	X/
9:00 - 10:00	384	480	0	91	955	91	X/
10:00 - 11:00	422	412	0	90	924	90	X/
11:00 - 12:00	572	481	0	104	1157	104	X/
12:00 - 13:00	485	547	0	100	1132	100	X/
13:00 - 14:00	477	474	0	82	1033	82	X/
14:00 - 15:00	601	516	0	99	1216	99	X/
15:00 - 16:00	778	535	0	109	1422	109	X/
16:00 - 17:00	936	561	0	103	1600	103	X/
17:00 - 18:00	897	628	0	90	1615	90	X/
18:00 - 19:00	663	501	0	68	1232	68	X/
19:00 - 20:00	534	446	0	75	1055	75	X/
20:00 - 21:00	417	388	0	76	881	76	X/
21:00 - 22:00	359	272	0	78	709	78	X/
22:00 - 23:00	207	144	0	30	381	30	X/
23:00 - 24:00	118	65	0	30	213	30	/

Met (Hr) Required (Hr)

Allway Stop Warrant:

0

8

Not satisfied

REMARKS:



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

TRAFFIC COUNT DATA

ROUTE #: TH-120 NB, S OF 12TH ST. N (OAKDALE)

COUNTY: WASHINGTON

REF. PT.: 003.369

SITE CODE: APPROACH

OPERATOR: RE

FOR COUNTS BEGINNING: **April 17, 1996**

DATE HOUR \ DAY	15 MON.	16 TUE.	17 WED.	18 THU.	19 FRI.	20 SAT.	21 SUN.	AVE. WK.DAY	AVE. WKEND
0:00 - 1:00				67	70			68	
1:00 - 2:00				48	47			47	
2:00 - 3:00				31	33			32	
3:00 - 4:00				16	17			16	
4:00 - 5:00				22	21			21	
5:00 - 6:00				52	55			53	
6:00 - 7:00				169	166			167	
7:00 - 8:00				336	301			318	
8:00 - 9:00				301	335			318	
9:00 - 10:00				315	453			384	
10:00 - 11:00				366	479			422	
11:00 - 12:00			538	524	656			572	
12:00 - 13:00			490	480				485	
13:00 - 14:00			471	484				477	
14:00 - 15:00			590	613				601	
15:00 - 16:00			778	779				778	
16:00 - 17:00			938	935				936	
17:00 - 18:00			917	877				897	
18:00 - 19:00			673	654				663	
19:00 - 20:00			600	469				534	
20:00 - 21:00			451	383				417	
21:00 - 22:00			361	358				359	
22:00 - 23:00			212	202				207	
23:00 - 24:00			119	118				118	
TOTAL			7138	8599	2633			8890	

24 HOURS FACTOR:

FACTORED ADT:

REMARKS:

CORRECTED AADT:

DATA FILE --> A:\120&12TH.da1



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

TRAFFIC COUNT DATA

ROUTE #: N/A
COUNTY: WASHINGTON
REF. PT.: 003.369

SITE CODE: APPROACH

OPERATOR: RE

FOR COUNTS BEGINNING:

DATE HOUR \ DAY	MON.	TUE.	WED.	THU.	FRI.	SAT.	SUN.	AVE. WK.DAY	AVE. WKEND
0:00 - 1:00									
1:00 - 2:00									
2:00 - 3:00									
3:00 - 4:00									
4:00 - 5:00									
5:00 - 6:00									
6:00 - 7:00									
7:00 - 8:00									
8:00 - 9:00									
9:00 - 10:00									
10:00 - 11:00									
11:00 - 12:00									
12:00 - 13:00									
13:00 - 14:00									
14:00 - 15:00									
15:00 - 16:00									
16:00 - 17:00									
17:00 - 18:00									
18:00 - 19:00									
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									

TOTAL

24 HOURS FACTOR:

FACTORED ADT:

REMARKS: _____

CORRECTED AADT: _____

DATA FILE --> A:\120&12TH.da2



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

TRAFFIC COUNT DATA

ROUTE #: TH-120 SB, N OF 12TH ST.N

COUNTY: WASHINGTON

REF. PT.: 003.369

SITE CODE: APPROACH

OPERATOR: RE

FOR COUNTS BEGINNING: **April 17, 1996**

DATE HOUR \ DAY	15 MON.	16 TUE.	17 WED.	18 THU.	19 FRI.	20 SAT.	21 SUN.	AVE. WK.DAY	AVE. WKEND
0:00 - 1:00				35	43			39	
1:00 - 2:00				14	18			16	
2:00 - 3:00				20	14			17	
3:00 - 4:00				18	21			19	
4:00 - 5:00				50	45			47	
5:00 - 6:00				157	158			157	
6:00 - 7:00				545	548			546	
7:00 - 8:00				944	898			921	
8:00 - 9:00				502	479			490	
9:00 - 10:00				414	546			480	
10:00 - 11:00				355	470			412	
11:00 - 12:00			510	452				481	
12:00 - 13:00			558	537				547	
13:00 - 14:00			504	444				474	
14:00 - 15:00			513	519				516	
15:00 - 16:00			532	538				535	
16:00 - 17:00			568	554				561	
17:00 - 18:00			649	607				628	
18:00 - 19:00			531	472				501	
19:00 - 20:00			499	394				446	
20:00 - 21:00			446	331				388	
21:00 - 22:00			266	278				272	
22:00 - 23:00			150	138				144	
23:00 - 24:00			59	71				65	
TOTAL			5785	8389	3240			8702	

24 HOURS FACTOR:

FACTORED ADT:

REMARKS: _____

CORRECTED AADT: _____

DATA FILE --> A:\120&12TH.da3



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

TRAFFIC COUNT DATA

ROUTE #: 12TH ST. N WB, E OF TH-120

COUNTY: WASHINGTON

REF. PT.: 003.369

SITE CODE: APPROACH

OPERATOR: RE

FOR COUNTS BEGINNING: **April 17, 1996**

DATE HOUR \ DAY	15 MON.	16 TUE.	17 WED.	18 THU.	19 FRI.	20 SAT.	21 SUN.	AVE. WK.DAY	AVE. WKEND
0:00 - 1:00				21	30			25	
1:00 - 2:00				13	15			14	
2:00 - 3:00				3	4			3	
3:00 - 4:00				0	3			1	
4:00 - 5:00				4	4			4	
5:00 - 6:00				10	14			12	
6:00 - 7:00				24	33			28	
7:00 - 8:00				44	39			41	
8:00 - 9:00				64	46			55	
9:00 - 10:00				92	91			91	
10:00 - 11:00				83	97			90	
11:00 - 12:00			117	83	113			104	
12:00 - 13:00			105	95				100	
13:00 - 14:00			96	68				82	
14:00 - 15:00			119	80				99	
15:00 - 16:00			122	97				109	
16:00 - 17:00			95	112				103	
17:00 - 18:00			89	92				90	
18:00 - 19:00			72	64				68	
19:00 - 20:00			90	61				75	
20:00 - 21:00			94	59				76	
21:00 - 22:00			83	73				78	
22:00 - 23:00			24	36				30	
23:00 - 24:00			38	22				30	
TOTAL			1144	1300	489			1408	

24 HOURS FACTOR:

FACTORED ADT:

REMARKS:

CORRECTED AADT:

DATA FILE --> A:\120&12TH.da4