



**ANOKA COUNTY HIGHWAY
PC-WARRANTS
TRAFFIC SIGNAL WARRANT ANALYSIS**

Study Name : TMC1206
Study Date : 05/17/12
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Northbound: CSAH 83 (Armstrong Blvd.)
Total Approach Volume: 2,535
85% Speed > 40 MPH.

Southbound: CSAH 83 (Armstrong Blvd.)
Total Approach Volume: 2,028
85% Speed > 40 MPH.

Minor Street Approaches

Eastbound: 161st Ave
Total Approach Volume: 322

Westbound: 161st Ave
Total Approach Volume: 373

Warrant Summary

Criteria A - Interim Measure Not Evaluated
If traffic signals are justified, stop signs can be installed as an interim measure.

Criteria B - Crash Experience Not Evaluated

Criteria C - Minimum Volumes and Delays Not Satisfied
Delay data not evaluated
Required volumes reached for 0 hours, 8 are needed

Criteria D - 80% of Volumes, Delays, and Crashes Not Evaluated
Delay data not evaluated
Number of crashes (-1) is less than the minimum required (4).
Required volumes reached for 0 hours, 8 are needed

Analysis of 8 Hour Volume Warrants:

Time	Major Total	Minor Total	Crit C			Crit D		
			Major	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00 - 01:00	28	1	210-No	140-No	No	240-No	160-No	No
01:00 - 02:00	10	0	210-No	140-No	No	240-No	160-No	No
02:00 - 03:00	11	1	210-No	140-No	No	240-No	160-No	No
03:00 - 04:00	26	6	210-No	140-No	No	240-No	160-No	No
04:00 - 05:00	49	9	210-No	140-No	No	240-No	160-No	No
05:00 - 06:00	126	15	210-No	140-No	No	240-No	160-No	No
06:00 - 07:00	290	31	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	367	35	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	234	28	210-No	140-No	No	240-No	160-No	No
09:00 - 10:00	193	28	210-No	140-No	No	240-No	160-No	No
10:00 - 11:00	182	18	210-No	140-No	No	240-No	160-No	No
11:00 - 12:00	261	39	210-Yes	140-No	Major	240-No	160-No	No
12:00 - 13:00	212	24	210-No	140-No	No	240-No	160-No	No
13:00 - 14:00	246	35	210-Yes	140-No	Major	240-No	160-No	No
14:00 - 15:00	293	24	210-Yes	140-No	Major	240-Yes	160-No	Major
15:00 - 16:00	319	29	210-Yes	140-No	Major	240-Yes	160-No	Major
16:00 - 17:00	491	39	210-Yes	140-No	Major	240-Yes	160-No	Major
17:00 - 18:00	533	62	210-Yes	140-No	Major	240-Yes	160-No	Major
18:00 - 19:00	465	47	210-Yes	140-No	Major	240-Yes	160-No	Major
19:00 - 20:00	385	118	210-Yes	140-No	Major	240-Yes	160-No	Major
20:00 - 21:00	257	79	210-No	140-No	No	240-No	160-No	No
21:00 - 22:00	157	18	210-No	140-No	No	240-No	160-No	No
22:00 - 23:00	84	7	210-No	140-No	No	240-No	160-No	No
23:00 - 00:00	39	2	210-No	140-No	No	240-No	160-No	No

Anoka County Highway Department

Location : CSAH 83 (Armstrong Blvd.)
 Cross Street : south of 161st Ave
 Weather : Rainy and Warm

Site: 8316102050212
 05/03/2012
 Thursday

Daily Volume, per Channel

NB					
Interval Start			Interval Start		
12:00 AM	8	19	12:00 PM	18	105
12:15 AM	5		12:15 PM	28	
12:30 AM	5		12:30 PM	30	
12:45 AM	1		12:45 PM	29	
1:00 AM	2	7	1:00 PM	29	123
1:15 AM	2		1:15 PM	23	
1:30 AM	1		1:30 PM	32	
1:45 AM	2		1:45 PM	39	
2:00 AM	3	5	2:00 PM	36	165
2:15 AM	1		2:15 PM	35	
2:30 AM	0		2:30 PM	40	
2:45 AM	1		2:45 PM	54	
3:00 AM	3	6	3:00 PM	48	198
3:15 AM	0		3:15 PM	49	
3:30 AM	2		3:30 PM	61	
3:45 AM	1		3:45 PM	40	
4:00 AM	0	5	4:00 PM	71	338
4:15 AM	2		4:15 PM	82	
4:30 AM	3		4:30 PM	100	
4:45 AM	0		4:45 PM	85	
5:00 AM	0	6	5:00 PM	99	361
5:15 AM	0		5:15 PM	92	
5:30 AM	4		5:30 PM	81	
5:45 AM	2		5:45 PM	89	
6:00 AM	6	32	6:00 PM	109	304
6:15 AM	9		6:15 PM	71	
6:30 AM	13		6:30 PM	60	
6:45 AM	4		6:45 PM	64	
7:00 AM	12	55	7:00 PM	66	190
7:15 AM	17		7:15 PM	41	
7:30 AM	12		7:30 PM	43	
7:45 AM	14		7:45 PM	40	
8:00 AM	10	66	8:00 PM	34	129
8:15 AM	21		8:15 PM	35	
8:30 AM	13		8:30 PM	27	
8:45 AM	22		8:45 PM	33	
9:00 AM	17	56	9:00 PM	33	92
9:15 AM	7		9:15 PM	25	
9:30 AM	17		9:30 PM	15	
9:45 AM	15		9:45 PM	19	
10:00 AM	17	79	10:00 PM	20	50
10:15 AM	21		10:15 PM	11	
10:30 AM	18		10:30 PM	17	
10:45 AM	23		10:45 PM	2	
11:00 AM	26	112	11:00 PM	7	32
11:15 AM	16		11:15 PM	7	
11:30 AM	30		11:30 PM	10	
11:45 AM	40		11:45 PM	8	

24 Hour Total 2535

12:00 AM - 12:00 PM
 12 Hour Count 448
 Peak Hour 11:00 AM
 Peak Volume 112
 Factor 0.70

12:00 PM - 12:00 AM
 12 Hour Count 2087
 Peak Hour 4:30 PM
 Peak Volume 376
 Factor 0.94

Anoka County Highway Department

Location : CSAH 83 (Armstrong Blvd.)
 Cross Street : north of 161st Ave
 Weather : Rainy and Warm

Site: 8316101050212
 05/03/2012
 Thursday

Daily Volume, per Channel

SB					
Interval Start			Interval Start		
12:00 AM	3	8	12:00 PM	23	83
12:15 AM	4		12:15 PM	20	
12:30 AM	0		12:30 PM	19	
12:45 AM	1		12:45 PM	21	
1:00 AM	0	3	1:00 PM	21	88
1:15 AM	1		1:15 PM	22	
1:30 AM	2		1:30 PM	16	
1:45 AM	0		1:45 PM	29	
2:00 AM	1	5	2:00 PM	20	104
2:15 AM	2		2:15 PM	31	
2:30 AM	0		2:30 PM	30	
2:45 AM	2		2:45 PM	23	
3:00 AM	1	14	3:00 PM	19	92
3:15 AM	5		3:15 PM	19	
3:30 AM	5		3:30 PM	34	
3:45 AM	3		3:45 PM	20	
4:00 AM	8	35	4:00 PM	29	114
4:15 AM	11		4:15 PM	31	
4:30 AM	5		4:30 PM	19	
4:45 AM	11		4:45 PM	35	
5:00 AM	16	105	5:00 PM	31	110
5:15 AM	17		5:15 PM	30	
5:30 AM	27		5:30 PM	30	
5:45 AM	45		5:45 PM	19	
6:00 AM	45	227	6:00 PM	35	114
6:15 AM	59		6:15 PM	25	
6:30 AM	65		6:30 PM	36	
6:45 AM	58		6:45 PM	18	
7:00 AM	59	277	7:00 PM	20	77
7:15 AM	88		7:15 PM	26	
7:30 AM	68		7:30 PM	16	
7:45 AM	62		7:45 PM	15	
8:00 AM	35	140	8:00 PM	14	49
8:15 AM	38		8:15 PM	14	
8:30 AM	39		8:30 PM	14	
8:45 AM	28		8:45 PM	7	
9:00 AM	38	109	9:00 PM	13	47
9:15 AM	29		9:15 PM	8	
9:30 AM	20		9:30 PM	15	
9:45 AM	22		9:45 PM	11	
10:00 AM	12	85	10:00 PM	11	27
10:15 AM	25		10:15 PM	6	
10:30 AM	27		10:30 PM	7	
10:45 AM	21		10:45 PM	3	
11:00 AM	26	110	11:00 PM	1	5
11:15 AM	23		11:15 PM	4	
11:30 AM	31		11:30 PM	0	
11:45 AM	30		11:45 PM	0	

24 Hour Total 2028

12:00 AM - 12:00 PM
 12 Hour Count 1118
 Peak Hour 7:00 AM
 Peak Volume 277
 Factor 0.79

12:00 PM - 12:00 AM
 12 Hour Count 910
 Peak Hour 4:45 PM
 Peak Volume 126
 Factor 0.90

Anoka County Highway Department

Location : 161st Ave
 Cross Street : west of CSAH 83 (Armstrong Blvd.)
 Weather : Rainy and Warm

Site: 1618301050212
 05/03/2012
 Thursday

24 Hour Volume, per Channel

EB					
Interval Start			Interval Start		
12:00 AM	0	0	12:00 PM	3	12
12:15 AM	0		12:15 PM	1	
12:30 AM	0		12:30 PM	2	
12:45 AM	0		12:45 PM	6	
1:00 AM	0	0	1:00 PM	6	22
1:15 AM	0		1:15 PM	2	
1:30 AM	0		1:30 PM	7	
1:45 AM	0		1:45 PM	7	
2:00 AM	0	0	2:00 PM	3	20
2:15 AM	0		2:15 PM	6	
2:30 AM	0		2:30 PM	4	
2:45 AM	0		2:45 PM	7	
3:00 AM	1	6	3:00 PM	6	14
3:15 AM	2		3:15 PM	2	
3:30 AM	3		3:30 PM	1	
3:45 AM	0		3:45 PM	5	
4:00 AM	0	8	4:00 PM	0	20
4:15 AM	3		4:15 PM	5	
4:30 AM	2		4:30 PM	8	
4:45 AM	3		4:45 PM	7	
5:00 AM	4	11	5:00 PM	8	25
5:15 AM	2		5:15 PM	7	
5:30 AM	1		5:30 PM	6	
5:45 AM	4		5:45 PM	4	
6:00 AM	2	25	6:00 PM	5	22
6:15 AM	6		6:15 PM	6	
6:30 AM	12		6:30 PM	5	
6:45 AM	5		6:45 PM	6	
7:00 AM	8	26	7:00 PM	7	16
7:15 AM	4		7:15 PM	5	
7:30 AM	10		7:30 PM	3	
7:45 AM	4		7:45 PM	1	
8:00 AM	4	21	8:00 PM	2	8
8:15 AM	2		8:15 PM	2	
8:30 AM	7		8:30 PM	2	
8:45 AM	8		8:45 PM	2	
9:00 AM	6	18	9:00 PM	5	13
9:15 AM	3		9:15 PM	0	
9:30 AM	7		9:30 PM	6	
9:45 AM	2		9:45 PM	2	
10:00 AM	2	9	10:00 PM	0	1
10:15 AM	3		10:15 PM	1	
10:30 AM	0		10:30 PM	0	
10:45 AM	4		10:45 PM	0	
11:00 AM	7	24	11:00 PM	0	1
11:15 AM	12		11:15 PM	0	
11:30 AM	2		11:30 PM	1	
11:45 AM	3		11:45 PM	0	

24 Hour Total 322

12:00 AM - 12:00 PM
 12 Hour Count 148
 Peak Hour 6:15 AM
 Peak Volume 31
 Factor 0.65

12:00 PM - 12:00 AM
 12 Hour Count 174
 Peak Hour 4:30 PM
 Peak Volume 30
 Factor 0.94

Anoka County Highway Department

Location : 161st Ave
 Cross Street : east of CSAH 83 (Armstrong Blvd.)
 Weather : Sunny and Warm

Site: 1618302051412
 05/15/2012
 Tuesday

Daily Volume, per Channel

WB					
Interval Start			Interval Start		
12:00 AM	0	1	12:00 PM	3	12
12:15 AM	1		12:15 PM	6	
12:30 AM	0		12:30 PM	3	
12:45 AM	0		12:45 PM	0	
1:00 AM	0	0	1:00 PM	3	13
1:15 AM	0		1:15 PM	3	
1:30 AM	0		1:30 PM	6	
1:45 AM	0		1:45 PM	1	
2:00 AM	1	1	2:00 PM	0	4
2:15 AM	0		2:15 PM	3	
2:30 AM	0		2:30 PM	1	
2:45 AM	0		2:45 PM	0	
3:00 AM	0	0	3:00 PM	3	15
3:15 AM	0		3:15 PM	4	
3:30 AM	0		3:30 PM	4	
3:45 AM	0		3:45 PM	4	
4:00 AM	0	1	4:00 PM	5	19
4:15 AM	1		4:15 PM	5	
4:30 AM	0		4:30 PM	4	
4:45 AM	0		4:45 PM	5	
5:00 AM	1	4	5:00 PM	3	37
5:15 AM	0		5:15 PM	5	
5:30 AM	1		5:30 PM	21	
5:45 AM	2		5:45 PM	8	
6:00 AM	1	6	6:00 PM	4	25
6:15 AM	1		6:15 PM	4	
6:30 AM	2		6:30 PM	7	
6:45 AM	2		6:45 PM	10	
7:00 AM	0	9	7:00 PM	46	102
7:15 AM	3		7:15 PM	40	
7:30 AM	2		7:30 PM	10	
7:45 AM	4		7:45 PM	6	
8:00 AM	0	7	8:00 PM	30	71
8:15 AM	1		8:15 PM	14	
8:30 AM	4		8:30 PM	23	
8:45 AM	2		8:45 PM	4	
9:00 AM	5	10	9:00 PM	1	5
9:15 AM	3		9:15 PM	2	
9:30 AM	0		9:30 PM	0	
9:45 AM	2		9:45 PM	2	
10:00 AM	3	9	10:00 PM	2	6
10:15 AM	1		10:15 PM	2	
10:30 AM	4		10:30 PM	2	
10:45 AM	1		10:45 PM	0	
11:00 AM	3	15	11:00 PM	1	1
11:15 AM	4		11:15 PM	0	
11:30 AM	3		11:30 PM	0	
11:45 AM	5		11:45 PM	0	

24 Hour Total 373

12:00 AM - 12:00 PM
 12 Hour Count 63
 Peak Hour 11:00 AM
 Peak Volume 15
 Factor 0.75

12:00 PM - 12:00 AM
 12 Hour Count 310
 Peak Hour 6:45 PM
 Peak Volume 106
 Factor 0.58