

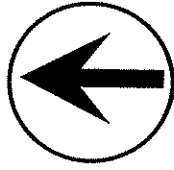
Date : 03/19/13

Count Number : TMC1312

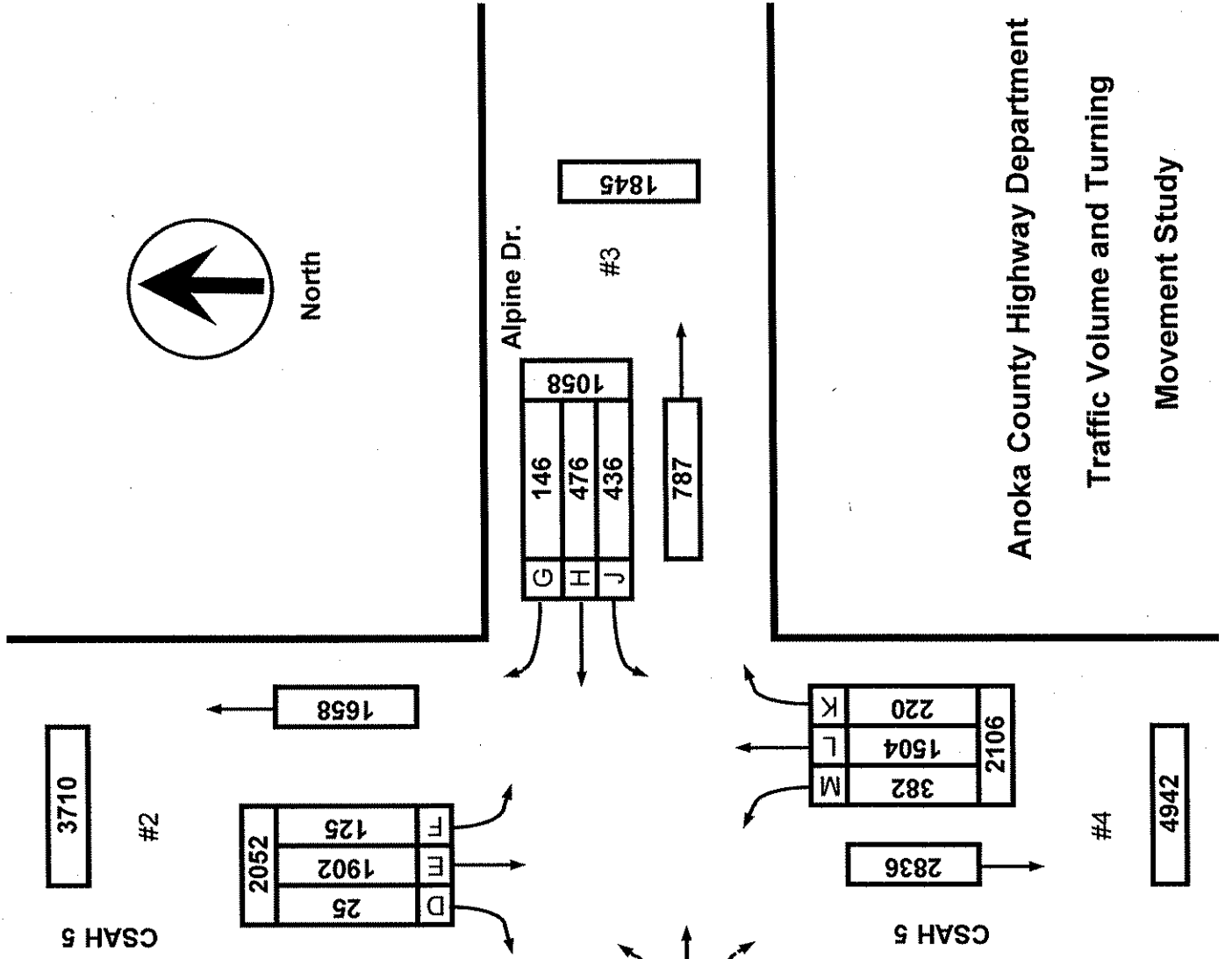
Location : CSAH 5 (Nowthen Blvd.)

@ Alpine Dr.

Collection Period : 6:00 AM - 8:00 PM



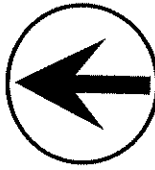
North



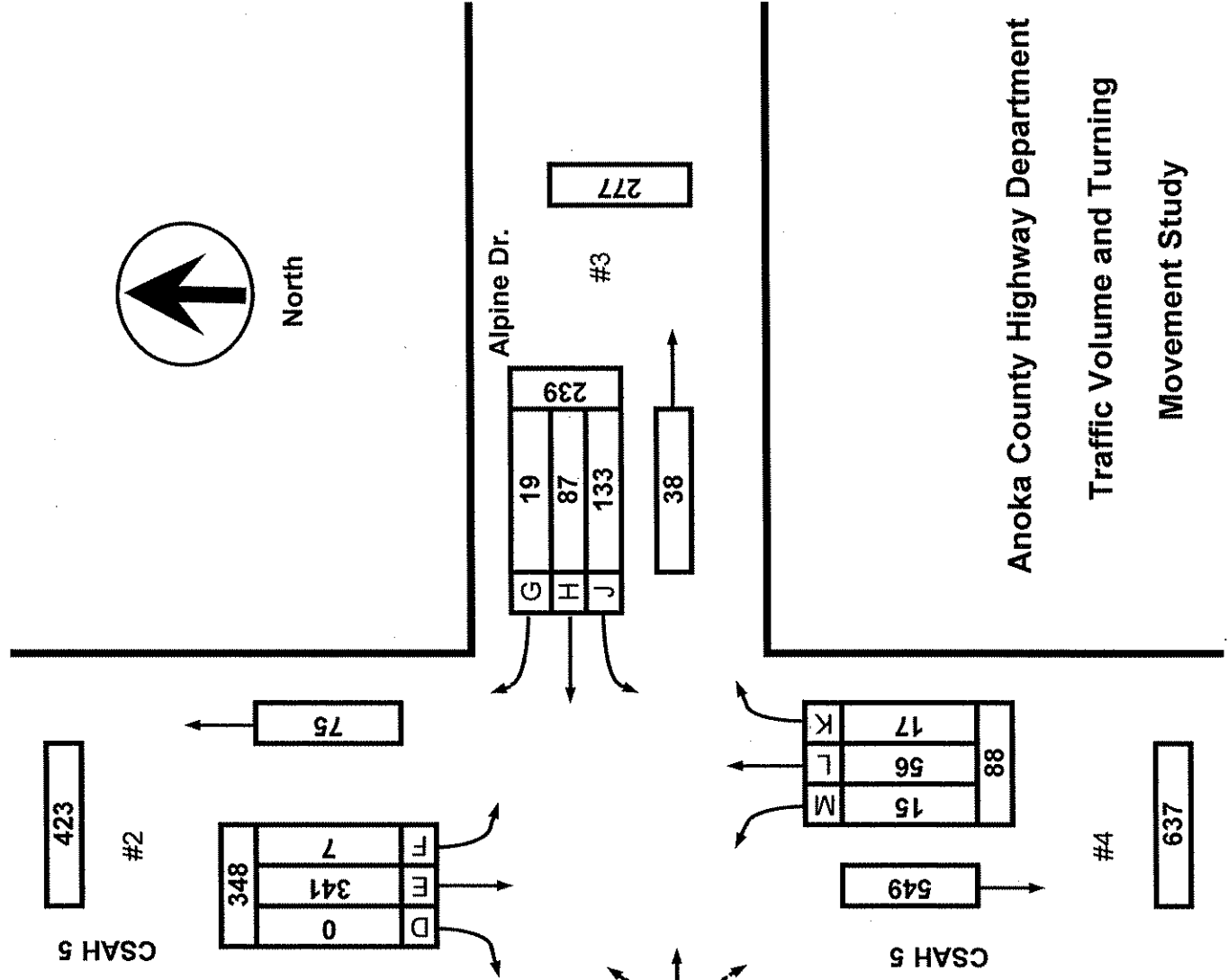
EXISTING LANES OF APPROACH				TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	1	0	1	2
#2	0	0	1	1
#3	0	0	1	1
#4	1	0	1	2

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

Date : 03/19/13  
 Count Number : TMC1312  
 Location : CSAH 5 (Nowthen Blvd.)  
 @ Alpine Dr.  
 Collection Period : AM PEAK  
 Hour : 7:00 AM - 8:00 AM



North



EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	0	1	2
#2	0	0	1	1
#3	0	0	1	1
#4	1	0	1	2

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

Date : 03/27/13

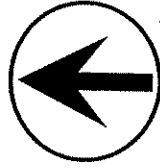
Count Number : TMC1312

Location : CSAH 5 (Nowthen Blvd.)

@ Alpine Dr.

Collection Period : PM PEAK

Hour : 4:30 PM - 5:30 PM



North

462

#2

CSAH 5

171	F
16	E
152	D
3	

291

Alpine Dr.

21	G
52	H
29	J
102	

#3

255

153

112

#1

255

143	C
98	B
43	A

Alpine Dr.

EXISTING LANES OF APPROACH				TOTAL
RIGHT TURN LANE	LEFT TURN LANE	THRU LANES		
#1	1	0	1	2
#2	0	0	1	1
#3	0	0	1	1
#4	1	0	1	2

39	K
268	L
57	M
364	

224

CSAH 5

#4

588

Anoka County Highway Department

Traffic Volume and Turning

Movement Study



# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC1312  
 Site Code : 13120104  
 Start Date : 03/27/2013  
 Page No : 1

Weather: Cloudy and Cool  
 Counter: DB-400  
 study conducted by: Josie/Terri

#### Groups Printed- Unshifted

Start Time	CSAH 5 Southbound					Alpine Drive Westbound					CSAH 5 Northbound					Alpine Drive Eastbound					Each. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total			
06:00	1	44	0	1	45	8	15	2	0	25	1	7	1	0	9	0	2	6	0	8	1	87	88
06:15	2	61	0	0	63	10	15	2	0	27	3	6	2	1	11	0	4	6	0	10	1	111	112
06:30	1	94	0	2	95	13	12	0	0	25	0	8	0	2	8	0	1	13	0	14	4	142	146
06:45	0	76	0	4	76	16	29	1	0	46	3	14	1	4	18	0	2	11	1	13	9	153	162
<b>Total</b>	<b>4</b>	<b>275</b>	<b>0</b>	<b>7</b>	<b>279</b>	<b>47</b>	<b>71</b>	<b>5</b>	<b>0</b>	<b>123</b>	<b>7</b>	<b>35</b>	<b>4</b>	<b>7</b>	<b>46</b>	<b>0</b>	<b>9</b>	<b>36</b>	<b>1</b>	<b>45</b>	<b>15</b>	<b>493</b>	<b>508</b>
07:00	1	83	0	2	84	29	12	2	0	43	3	5	5	3	13	0	3	18	0	21	5	161	166
07:15	1	97	0	2	98	45	21	6	1	72	6	16	4	2	26	0	1	23	0	24	5	220	225
07:30	2	84	0	3	86	36	26	4	2	66	0	12	3	1	15	0	2	19	1	21	7	188	195
07:45	3	77	0	3	80	23	28	7	1	58	6	23	5	0	34	0	8	15	0	23	4	195	199
<b>Total</b>	<b>7</b>	<b>341</b>	<b>0</b>	<b>10</b>	<b>348</b>	<b>133</b>	<b>87</b>	<b>19</b>	<b>4</b>	<b>239</b>	<b>15</b>	<b>56</b>	<b>17</b>	<b>6</b>	<b>88</b>	<b>0</b>	<b>14</b>	<b>75</b>	<b>1</b>	<b>89</b>	<b>21</b>	<b>764</b>	<b>785</b>
08:00	1	57	0	2	58	21	15	2	0	38	2	15	4	0	21	0	2	16	0	18	2	135	137
08:15	2	52	2	2	56	10	7	1	1	18	7	20	7	4	34	0	1	6	0	7	7	115	122
08:30	3	38	0	0	41	8	7	5	0	20	0	9	2	2	11	0	4	8	0	12	2	84	86
08:45	2	53	0	2	55	15	6	1	1	22	0	11	2	3	13	0	4	13	1	17	7	107	114
<b>Total</b>	<b>8</b>	<b>200</b>	<b>2</b>	<b>6</b>	<b>210</b>	<b>54</b>	<b>35</b>	<b>9</b>	<b>2</b>	<b>98</b>	<b>9</b>	<b>55</b>	<b>15</b>	<b>9</b>	<b>79</b>	<b>0</b>	<b>11</b>	<b>43</b>	<b>1</b>	<b>54</b>	<b>18</b>	<b>441</b>	<b>459</b>
09:00	2	33	0	2	35	25	6	1	7	32	3	13	2	0	18	0	4	23	5	27	14	112	126
09:15	2	37	0	0	39	16	9	0	3	25	5	20	5	1	30	0	4	17	2	21	6	115	121
09:30	1	26	0	2	27	3	6	6	1	15	6	18	1	1	25	0	4	12	0	16	4	83	87
09:45	2	26	1	3	29	3	5	2	0	10	6	7	4	3	17	0	5	5	1	10	7	66	73
<b>Total</b>	<b>7</b>	<b>122</b>	<b>1</b>	<b>7</b>	<b>130</b>	<b>47</b>	<b>26</b>	<b>9</b>	<b>11</b>	<b>82</b>	<b>20</b>	<b>58</b>	<b>12</b>	<b>5</b>	<b>90</b>	<b>0</b>	<b>17</b>	<b>57</b>	<b>8</b>	<b>74</b>	<b>31</b>	<b>376</b>	<b>407</b>
10:00	2	19	2	2	23	4	4	2	1	10	5	14	0	2	19	0	4	5	1	9	6	61	67
10:15	2	27	0	1	29	3	2	2	0	7	10	11	2	0	23	0	3	3	0	6	1	65	66
10:30	1	31	0	0	32	0	2	0	0	2	1	10	1	2	12	0	6	5	0	11	2	57	59
10:45	1	22	0	0	23	5	3	0	0	8	3	9	0	0	12	0	5	6	1	11	1	54	55
<b>Total</b>	<b>6</b>	<b>99</b>	<b>2</b>	<b>3</b>	<b>107</b>	<b>12</b>	<b>11</b>	<b>4</b>	<b>1</b>	<b>27</b>	<b>19</b>	<b>44</b>	<b>3</b>	<b>4</b>	<b>66</b>	<b>0</b>	<b>18</b>	<b>19</b>	<b>2</b>	<b>37</b>	<b>10</b>	<b>237</b>	<b>247</b>
11:00	0	13	0	1	13	1	1	2	0	4	4	13	3	0	20	0	4	7	0	11	1	48	49
11:15	3	22	1	1	26	2	7	1	1	10	9	16	5	1	30	0	4	4	0	8	3	74	77
11:30	0	27	0	0	27	0	7	1	0	8	4	8	0	2	12	1	5	5	0	11	2	58	60
11:45	2	20	0	2	22	2	1	3	0	6	5	21	1	1	27	0	2	8	0	10	3	65	68
<b>Total</b>	<b>5</b>	<b>82</b>	<b>1</b>	<b>4</b>	<b>88</b>	<b>5</b>	<b>16</b>	<b>7</b>	<b>1</b>	<b>28</b>	<b>22</b>	<b>58</b>	<b>9</b>	<b>4</b>	<b>89</b>	<b>1</b>	<b>15</b>	<b>24</b>	<b>0</b>	<b>40</b>	<b>9</b>	<b>245</b>	<b>254</b>
12:00	1	14	3	1	18	1	5	4	0	10	6	20	3	2	29	0	6	6	0	12	3	69	72
12:15	0	29	0	1	29	3	4	2	0	9	2	20	1	2	23	1	3	7	0	11	3	72	75
12:30	4	20	1	2	25	1	1	1	0	3	8	16	1	2	25	0	4	6	0	10	4	63	67
12:45	1	25	0	1	26	2	6	1	0	9	5	22	2	1	29	0	6	4	0	10	2	74	76
<b>Total</b>	<b>6</b>	<b>88</b>	<b>4</b>	<b>5</b>	<b>98</b>	<b>7</b>	<b>16</b>	<b>8</b>	<b>0</b>	<b>31</b>	<b>21</b>	<b>78</b>	<b>7</b>	<b>7</b>	<b>106</b>	<b>1</b>	<b>19</b>	<b>23</b>	<b>0</b>	<b>43</b>	<b>12</b>	<b>278</b>	<b>290</b>
13:00	0	15	0	0	15	1	7	1	0	9	3	22	2	1	27	0	4	4	1	8	2	59	61
13:15	0	19	1	0	20	3	4	0	0	7	4	18	1	1	23	0	8	3	1	11	2	61	63
13:30	5	23	0	2	28	2	2	1	0	5	5	19	1	0	25	0	3	4	0	7	2	65	67
13:45	1	20	1	0	22	2	6	1	1	9	1	15	2	1	18	0	7	7	1	14	3	63	66
<b>Total</b>	<b>6</b>	<b>77</b>	<b>2</b>	<b>2</b>	<b>85</b>	<b>8</b>	<b>19</b>	<b>3</b>	<b>1</b>	<b>30</b>	<b>13</b>	<b>74</b>	<b>6</b>	<b>3</b>	<b>93</b>	<b>0</b>	<b>22</b>	<b>18</b>	<b>3</b>	<b>40</b>	<b>9</b>	<b>248</b>	<b>257</b>
14:00	1	25	0	2	26	2	8	1	0	11	7	29	5	3	41	0	8	2	0	10	5	88	93
14:15	1	32	1	1	34	1	6	1	1	8	4	39	2	5	45	0	6	5	0	11	7	98	105
14:30	2	19	0	0	21	2	4	3	2	9	9	35	3	6	47	0	5	9	1	14	9	91	100
14:45	3	28	0	0	31	3	10	1	1	14	8	34	4	1	46	0	6	8	1	14	3	105	108
<b>Total</b>	<b>7</b>	<b>104</b>	<b>1</b>	<b>3</b>	<b>112</b>	<b>8</b>	<b>28</b>	<b>6</b>	<b>4</b>	<b>42</b>	<b>28</b>	<b>137</b>	<b>14</b>	<b>15</b>	<b>179</b>	<b>0</b>	<b>25</b>	<b>24</b>	<b>2</b>	<b>49</b>	<b>24</b>	<b>382</b>	<b>406</b>
15:00	0	10	2	3	12	2	3	0	1	5	12	49	3	1	64	0	10	7	2	17	7	98	105
15:15	2	24	0	2	26	4	10	3	0	17	9	40	5	0	54	1	8	5	0	14	2	111	113
15:30	5	25	0	0	30	10	8	4	4	22	8	46	5	3	59	0	30	12	1	42	8	153	161
15:45	5	25	1	3	31	19	6	4	4	29	9	44	3	2	56	0	17	19	2	36	11	152	163
<b>Total</b>	<b>12</b>	<b>84</b>	<b>3</b>	<b>8</b>	<b>99</b>	<b>35</b>	<b>27</b>	<b>11</b>	<b>9</b>	<b>73</b>	<b>38</b>	<b>179</b>	<b>16</b>	<b>6</b>	<b>233</b>	<b>1</b>	<b>65</b>	<b>43</b>	<b>5</b>	<b>109</b>	<b>28</b>	<b>514</b>	<b>542</b>
16:00	6	21	0	2	27	4	8	5	1	17	16	70	10	13	96	0	26	10	1	36	17	176	193
16:15	2	15	0	2	17	6	12	8	4	26	14	47	9	3	70	0	17	13	1	30	10	143	153
16:30	1	33	0	1	34	6	12	7	1	25	12	75	10	0	97	0	39	8	0	47	2	203	205
16:45	5	38	1	2	44	12	13	6	0	31	10	69	6	3	85	1	23	15	0	39	5	199	204
<b>Total</b>	<b>14</b>	<b>107</b>	<b>1</b>	<b>7</b>	<b>122</b>	<b>28</b>	<b>45</b>	<b>26</b>	<b>6</b>	<b>99</b>	<b>52</b>	<b>261</b>	<b>35</b>	<b>19</b>	<b>348</b>	<b>1</b>	<b>105</b>	<b>46</b>	<b>2</b>	<b>152</b>	<b>34</b>	<b>721</b>	<b>755</b>
17:00	4	30	0	0	34	8	15	0	0	23	15	58	8	1	81	1	24	4	0	29	1	167	168
17:15	6	51	2	1	59	3	12	8	0	23	20	66	15	1	101	0	12	16	0	28	2	211	213
17:30	3	33	0	0	36	3	3	4	1	10	20	46	8	0	74	1	16	10	0	27	1	147	148
17:45	3	37	0	0	40	7	12	4	2	23	17	48	12	0	77	1	5	14	0	20	2	160	162
<b>Total</b>	<b>16</b>	<b>151</b>	<b>2</b>	<b>1</b>	<b>169</b>	<b>21</b>	<b>42</b>	<b>16</b>	<b>3</b>	<b>79</b>	<b>72</b>	<b>218</b>	<b>43</b>	<b>2</b>	<b>333</b>	<b>3</b>	<b>57</b>	<b>44</b>	<b>0</b>	<b>104</b>	<b>6</b>	<b>685</b>	<b>691</b>



# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

Weather: Cloudy and Cool  
 Counter: DB-400  
 study conducted by: Josie/Terri

File Name : TMC1312  
 Site Code : 13120104  
 Start Date : 03/27/2013  
 Page No : 2

#### Groups Printed- Unshifted

Start Time	CSAH 5 Southbound					Alpine Drive Westbound					CSAH 5 Northbound					Alpine Drive Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total			
18:00	3	29	1	1	33	3	10	3	0	16	9	49	3	1	61	0	10	7	1	17	3	127	130
18:15	6	29	0	0	35	1	8	3	0	12	14	43	10	1	67	0	5	7	0	12	1	126	127
18:30	4	23	1	0	28	7	8	1	1	16	13	21	7	1	41	1	9	8	0	18	2	103	105
18:45	2	22	0	0	24	3	9	4	0	16	5	33	5	0	43	0	6	7	0	13	0	96	96
<b>Total</b>	15	103	2	1	120	14	35	11	1	60	41	146	25	3	212	1	30	29	1	60	6	452	458
19:00	3	13	0	0	16	4	4	2	0	10	6	25	5	0	36	0	8	10	0	18	0	80	80
19:15	1	16	1	0	18	3	1	2	0	6	9	35	5	1	49	0	10	3	0	13	1	86	87
19:30	6	25	1	0	32	2	5	5	0	12	5	18	1	0	24	0	9	2	0	11	0	79	79
19:45	2	15	2	1	19	8	8	3	0	19	5	27	3	0	35	0	8	2	0	10	1	83	84
<b>Total</b>	12	69	4	1	85	17	18	12	0	47	25	105	14	1	144	0	35	17	0	52	2	328	330
<b>Grand Total</b>	125	1902	25	65	2052	436	476	146	43	1058	382	1504	220	91	2106	8	442	498	26	948	225	6164	6389
Apprch %	6.1	92.7	1.2			41.2	45	13.8			18.1	71.4	10.4			0.8	46.6	52.5					
Total %	2	30.9	0.4		33.3	7.1	7.7	2.4		17.2	6.2	24.4	3.6		34.2	0.1	7.2	8.1		15.4	3.5	96.5	

Start Time	CSAH 5 Southbound				Alpine Drive Westbound				CSAH 5 Northbound				Alpine Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	1	83	0	84	29	12	2	43	3	5	5	13	0	3	18	21	161
07:15	1	97	0	98	45	21	6	72	6	16	4	26	0	1	23	24	220
07:30	2	84	0	86	36	26	4	66	0	12	3	15	0	2	19	21	188
07:45	3	77	0	80	23	28	7	58	6	23	5	34	0	8	15	23	195
<b>Total Volume</b>	7	341	0	348	133	87	19	239	15	56	17	88	0	14	75	89	764
% App. Total	2	98	0		55.6	36.4	7.9		17	63.6	19.3		0	15.7	84.3		
PHF	.583	.879	.000	.888	.739	.777	.679	.830	.625	.609	.850	.647	.000	.438	.815	.927	.868

Start Time	CSAH 5 Southbound				Alpine Drive Westbound				CSAH 5 Northbound				Alpine Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 12:00 to 19:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	1	33	0	34	6	12	7	25	12	75	10	97	0	39	8	47	203
16:45	5	38	1	44	12	13	6	31	10	69	6	85	1	23	15	39	199
17:00	4	30	0	34	8	15	0	23	15	58	8	81	1	24	4	29	167
17:15	6	51	2	59	3	12	8	23	20	66	15	101	0	12	16	28	211
<b>Total Volume</b>	16	152	3	171	29	52	21	102	57	268	39	364	2	98	43	143	780
% App. Total	9.4	88.9	1.8		28.4	51	20.6		15.7	73.6	10.7		1.4	68.5	30.1		
PHF	.667	.745	.375	.725	.604	.867	.656	.823	.713	.893	.650	.901	.500	.628	.672	.761	.924



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

Study Name : tmc1312  
Study Date : 03/28/13  
Page No. : 1

**Signal Warrants - Summary**

**Major Street Approaches**

**Northbound: CSAH 5**  
Number of Lanes: 2  
85% Speed > 40 MPH.  
Total Approach Volume: 2,106

**Southbound: CSAH 5**  
Number of Lanes: 1  
85% Speed > 40 MPH.  
Total Approach Volume: 2,052

**Minor Street Approaches**

**Eastbound: Alpine Drive**  
Number of Lanes: 2  
  
Total Approach Volume: 948

**Westbound: Alpine Drive**  
Number of Lanes: 1  
  
Total Approach Volume: 1,058

**Warrant Summary (Rural values apply.)**

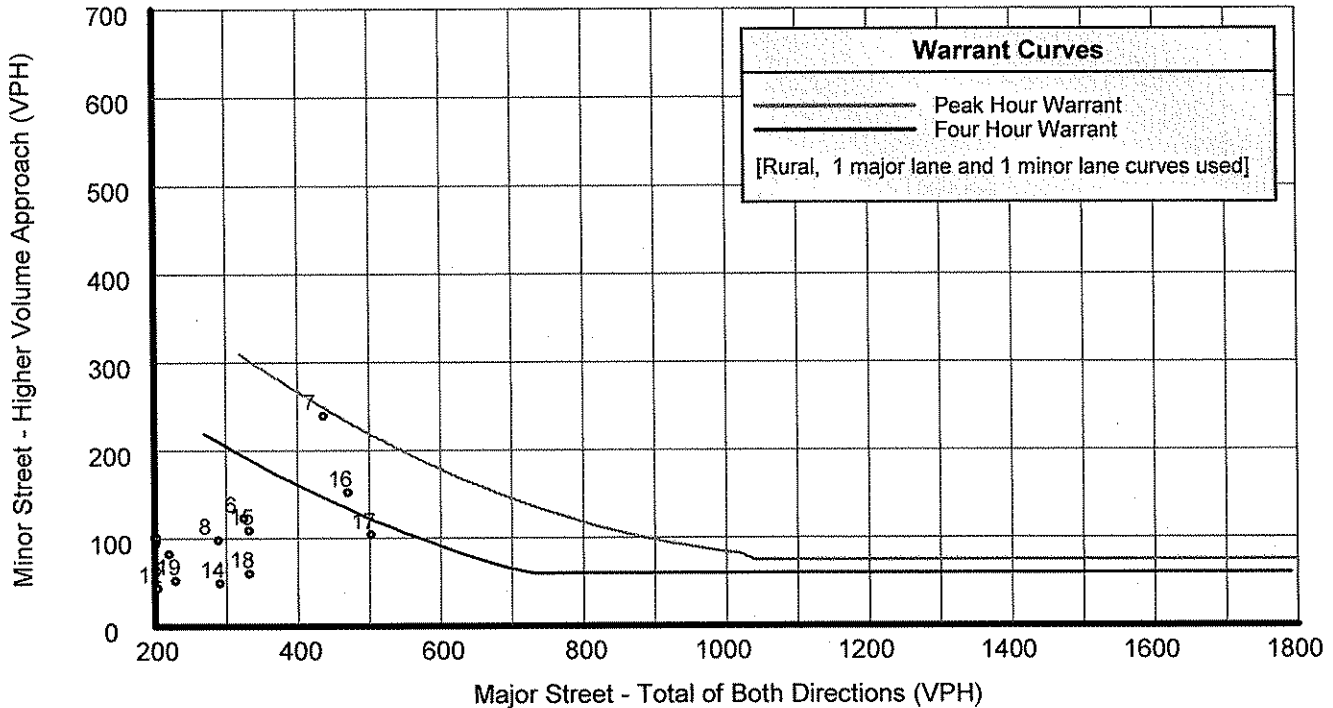
- Warrant 1 - Eight Hour Vehicular Volumes** ..... Not Satisfied
  - Warrant 1A - Minimum Vehicular Volume** ..... Not Satisfied  
Required volumes reached for 5 hours, 8 are needed
  - Warrant 1B - Interruption of Continuous Traffic** ..... Not Satisfied  
Required volumes reached for 1 hours, 8 are needed
  - Warrant 1 A&B - Combination of Warrants** ..... Not Satisfied  
Required volumes reached for 3 hours, 8 are needed
  
- Warrant 2 - Four Hour Volumes** ..... Not Satisfied  
Number of hours (3) volumes exceed minimum < minimum required (4).
  
- Warrant 3 - Peak Hour** ..... Not Satisfied
  - Warrant 3A - Peak Hour Delay** ..... Not Satisfied  
Approach volumes on minor street don't exceed minimums for any hour. Delay data not evaluated.
  - Warrant 3B - Peak Hour Volumes** ..... Not Satisfied  
Volumes do not exceed minimums for any hour.
  
- Warrant 4 - Pedestrian Volumes** ..... Not Evaluated
  
- Warrant 5 - School Crossing** ..... Not Evaluated
  
- Warrant 6 - Coordinated Signal System** ..... Not Evaluated
  
- Warrant 7 - Crash Experience** ..... Not Evaluated
  
- Warrant 8 - Roadway Network** ..... Not Evaluated
  
- Warrant 9 - Intersection Near a Grade Crossing** ..... Not Evaluated



# ANOKA COUNTY HIGHWAY PC-WARRANTS TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : tmc1312  
Study Date : 03/28/13  
Page No. : 2

## Signal Warrants - Summary



### Analysis of 8-Hour Volume Warrants:

#### War 1A-Minimum Volume

#### War 1B-Interruption of Traffic

#### War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Dir	Maj 350	Min 0	Hour Begin	Major Total	Minor Vol	Dir	Maj 525	Min 0	Hour Begin	Major Total	Minor Vol	Dir	Maj 420	Min 0
17:15	481	92	EB	Yes	Yes	16:30	535	143	EB	Yes	Yes	16:45	514	123	EB	Yes	Yes
16:15	462	145	EB	Yes	Yes	16:00	470	152	EB	No	Yes	07:00	436	239	W	Yes	Yes
07:15	418	234	W	Yes	Yes	16:15	462	145	EB	No	Yes	15:45	428	149	EB	Yes	Yes
15:15	379	128	EB	Yes	Yes	07:00	436	239	W	No	Yes	06:30	418	186	W	No	Yes
06:15	368	141	W	Yes	Yes	15:45	428	149	EB	No	Yes	06:45	416	227	W	No	Yes
15:00	332	109	EB	No	Yes	17:30	423	76	EB	No	Yes	15:30	386	144	EB	No	Yes
06:00	325	123	W	No	Yes	07:15	418	234	W	No	Yes	17:45	382	67	W	No	Yes
14:45	322	87	EB	No	Yes	06:30	418	186	W	No	Yes	15:15	379	128	EB	No	Yes
14:30	301	59	EB	No	Yes	06:45	416	227	W	No	Yes	06:15	368	141	W	No	Yes
14:15	300	56	EB	No	Yes	15:30	386	144	EB	No	Yes	18:00	332	60	W	No	Yes
14:00	291	49	EB	No	Yes	07:30	384	180	W	No	Yes	15:00	332	109	EB	No	Yes
18:15	290	61	EB	No	Yes	17:45	382	67	W	No	Yes	06:00	325	123	W	No	Yes
08:15	263	92	W	No	Yes	15:15	379	128	EB	No	Yes	14:45	322	87	EB	No	Yes
18:30	255	62	EB	No	Yes	06:15	368	141	W	No	Yes	14:30	301	59	EB	No	Yes
13:45	254	49	EB	No	Yes	07:45	335	134	W	No	Yes	14:15	300	56	EB	No	Yes
18:45	242	55	EB	No	Yes	18:00	332	60	W	No	Yes	14:00	291	49	EB	No	Yes
08:45	242	94	W	No	Yes	15:00	332	109	EB	No	Yes	18:15	290	61	EB	No	Yes
08:30	242	99	W	No	Yes	06:00	325	123	W	No	Yes	08:00	289	98	W	No	Yes
13:30	239	42	EB	No	Yes	14:45	322	87	EB	No	Yes	08:15	263	92	W	No	Yes
05:45	231	77	W	No	Yes	14:30	301	59	EB	No	Yes	18:30	255	62	EB	No	Yes
19:00	229	52	EB	No	Yes	14:15	300	56	EB	No	Yes	13:45	254	49	EB	No	Yes
09:00	220	82	W	No	Yes	14:00	291	49	EB	No	Yes	18:45	242	55	EB	No	Yes
09:15	209	60	W	No	Yes	18:15	290	61	EB	No	Yes	08:45	242	94	W	No	Yes
12:00	204	43	EB	No	Yes	08:00	289	98	W	No	Yes	08:30	242	99	W	No	Yes



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

Study Name : tmc1312  
Study Date : 03/28/13  
Page No. : 1

**Multi-Way Stop Warrant Report**

**Major Street Approaches**

**Northbound: CSAH 5**  
Total Approach Volume: 2,106  
85% Speed > 40 MPH.

**Southbound: CSAH 5**  
Total Approach Volume: 2,052  
85% Speed > 40 MPH.

**Minor Street Approaches**

**Eastbound: Alpine Drive**  
Total Approach Volume: 948

**Westbound: Alpine Drive**  
Total Approach Volume: 1,058

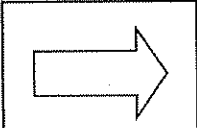
**Warrant Summary**

- 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 7 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?
06:00 - 07:00	325	168	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
07:00 - 08:00	436	328	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
08:00 - 09:00	289	152	210-Yes	140-Yes	Both	240-Yes	160-No	Major
09:00 - 10:00	220	156	210-Yes	140-Yes	Both	240-No	160-No	No
14:45 - 15:45	322	145	210-Yes	140-Yes	Both	240-Yes	160-No	Major
15:45 - 16:45	428	246	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
16:45 - 17:45	514	210	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
05:45 - 06:45	231	109	210-Yes	140-No	Major	240-No	160-No	No
13:30 - 14:30	239	75	210-Yes	140-No	Major	240-No	160-No	No
13:45 - 14:45	254	86	210-Yes	140-No	Major	240-Yes	160-No	Major
14:00 - 15:00	291	91	210-Yes	140-No	Major	240-Yes	160-No	Major
14:15 - 15:15	300	92	210-Yes	140-No	Major	240-Yes	160-No	Major
14:30 - 15:30	301	104	210-Yes	140-No	Major	240-Yes	160-No	Major
17:45 - 18:45	382	134	210-Yes	140-No	Major	240-Yes	160-No	Major
18:00 - 19:00	332	120	210-Yes	140-No	Major	240-Yes	160-No	Major
18:15 - 19:15	290	115	210-Yes	140-No	Major	240-Yes	160-No	Major
18:30 - 19:30	255	110	210-Yes	140-No	Major	240-Yes	160-No	Major
18:45 - 19:45	242	99	210-Yes	140-No	Major	240-Yes	160-No	Major
19:00 - 20:00	229	99	210-Yes	140-No	Major	240-No	160-No	No
00:00 - 01:00	0	0	210-No	140-No	No	240-No	160-No	No
00:15 - 01:15	0	0	210-No	140-No	No	240-No	160-No	No
00:30 - 01:30	0	0	210-No	140-No	No	240-No	160-No	No
00:45 - 01:45	0	0	210-No	140-No	No	240-No	160-No	No
01:00 - 02:00	0	0	210-No	140-No	No	240-No	160-No	No





COUNT LOCATION:

CSAH 5 (Nowthen Blvd.)

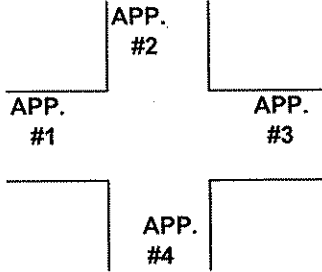
DATE:

03/19/2013

@ Alpine Drive

NORTH

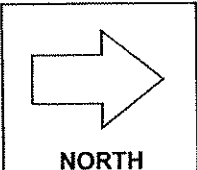
APP. #1 = CSAH 5
APP. #2 = Alpine Dr.
APP. #3 = CSAH 5
APP. #4 = Alpine Dr.



- HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT
- A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.
  - B. RV- A HEAVY VEHICLE OPERATED BY A PRIVATE MOTORIST AND INVOLVED IN THE TRANSPORT OF RECREATIONAL EQUIPMENT OR FACILITIES.
  - C. BUSES- A HEAVY VEHICLE INVOLVED IN THE TRANSPORTATION OF GROUPS OF PEOPLE.

TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
6:00-6:15AM						1		
6:15-6:30								1
6:30-6:45						3		3
6:45-7:00						2		5
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>15</b>
7:00-7:15						1		4
7:15-7:30						2		3
7:30-7:45						2		5
7:45-8:00						2		2
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>21</b>
8:00-8:15								1
8:15-8:30						1		6
8:30-8:45						2		1
8:45-9:00						2		5
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>18</b>
9:00-9:15						1		13
9:15-9:30						2		4
9:30-9:45						4		
9:45-10:00						7		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>31</b>
10:00-10:15						6		
10:15-10:30						1		
10:30-10:45						2		
10:45-11:00								1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>10</b>
11:00-11:15						1		
11:15-11:30						3		
11:30-11:45						1		1
11:45-12:00						1		2
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>9</b>
12:00-12:15						2		1
12:15-12:30						2		1
12:30-12:45						3		1
12:45-1:00						2		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>12</b>
1:00-1:15						2		
1:15-1:30						2		1
1:30-1:45						1		
1:45-2:00		1			1	2		1
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>9</b>
					<b>TOTAL</b>		<b>TOTAL</b>	<b>125</b>
					<b>1</b>			

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32



COUNT LOCATION:

CSAH 5 (Nowthen Blvd.)

DATE:

03/27/2013

@ Alpine Drive

NORTH

APP. #1 = CSAH 5
APP. #2 = Alpine Dr.
APP. #3 = CSAH 5
APP. #4 = Alpine Dr.

APP. #2

APP. #1

APP. #3

APP. #4

HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT

- A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.
- B. RV- A HEAVY VEHICLE OPERATED BY A PRIVATE MOTORIST AND INVOLVED IN THE TRANSPORT OF RECREATIONAL EQUIPMENT OR FACILITIES.
- C. BUSES- A HEAVY VEHICLE INVOLVED IN THE TRANSPORTATION OF GROUPS OF PEOPLE.

TIME	PEDESTRIANS					HEAVY VEHICLES			
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS	
2:00-2:15PM						5			
2:15-2:30						7			
2:30-2:45		2			2	5		4	
2:45-3:00						2		1	
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>		<b>24</b>	
3:00-3:15						1		6	
3:15-3:30								2	
3:30-3:45						2		8	
3:45-4:00						2		7	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>28</b>	
4:00-4:15		2			2	2		15	
4:15-4:30	4	4			8	6		4	
4:30-4:45						1		1	
4:45-5:00	3	2	1		6	1		4	
<b>HOURLY TOTAL</b>					<b>16</b>	<b>HOURLY TOTAL</b>		<b>34</b>	
5:00-5:15	3	3			6	1			
5:15-5:30	1	1			2	1		1	
5:30-5:45						1			
5:45-6:00		2			2			2	
<b>HOURLY TOTAL</b>					<b>10</b>	<b>HOURLY TOTAL</b>		<b>6</b>	
6:00-6:15	3	5		2	10	3			
6:15-6:30	1	6			7	1			
6:30-6:45	4				4	2			
6:45-7:00		1			1				
<b>HOURLY TOTAL</b>					<b>22</b>	<b>HOURLY TOTAL</b>		<b>6</b>	
7:00-7:15			2		2				
7:15-7:30		1		1	2	1			
7:30-7:45		1			1				
7:45-8:00						1			
<b>HOURLY TOTAL</b>					<b>5</b>	<b>HOURLY TOTAL</b>		<b>2</b>	
	<b>TOTAL</b>					<b>56</b>	<b>TOTAL</b>		<b>225</b>

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24