

Date : 06/20/11

Count Number : TMC1113

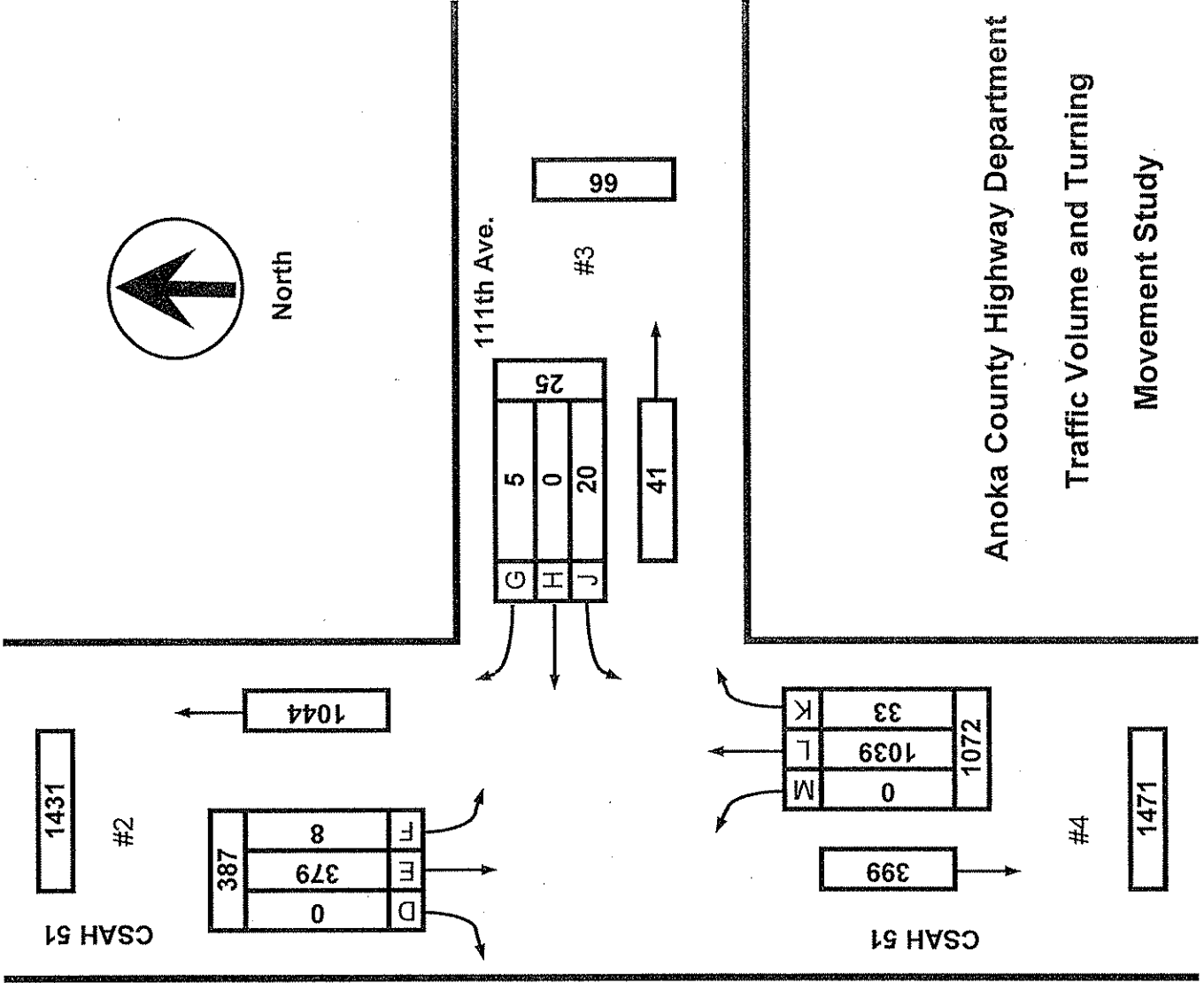
Location : CSAH 51 (University Ave.)

@ 111th Ave.

Collection Period : PM PEAK

Hour : 4:45 PM - 5:45 PM

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



Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

Date : 06/22/11

Count Number : TMC1113

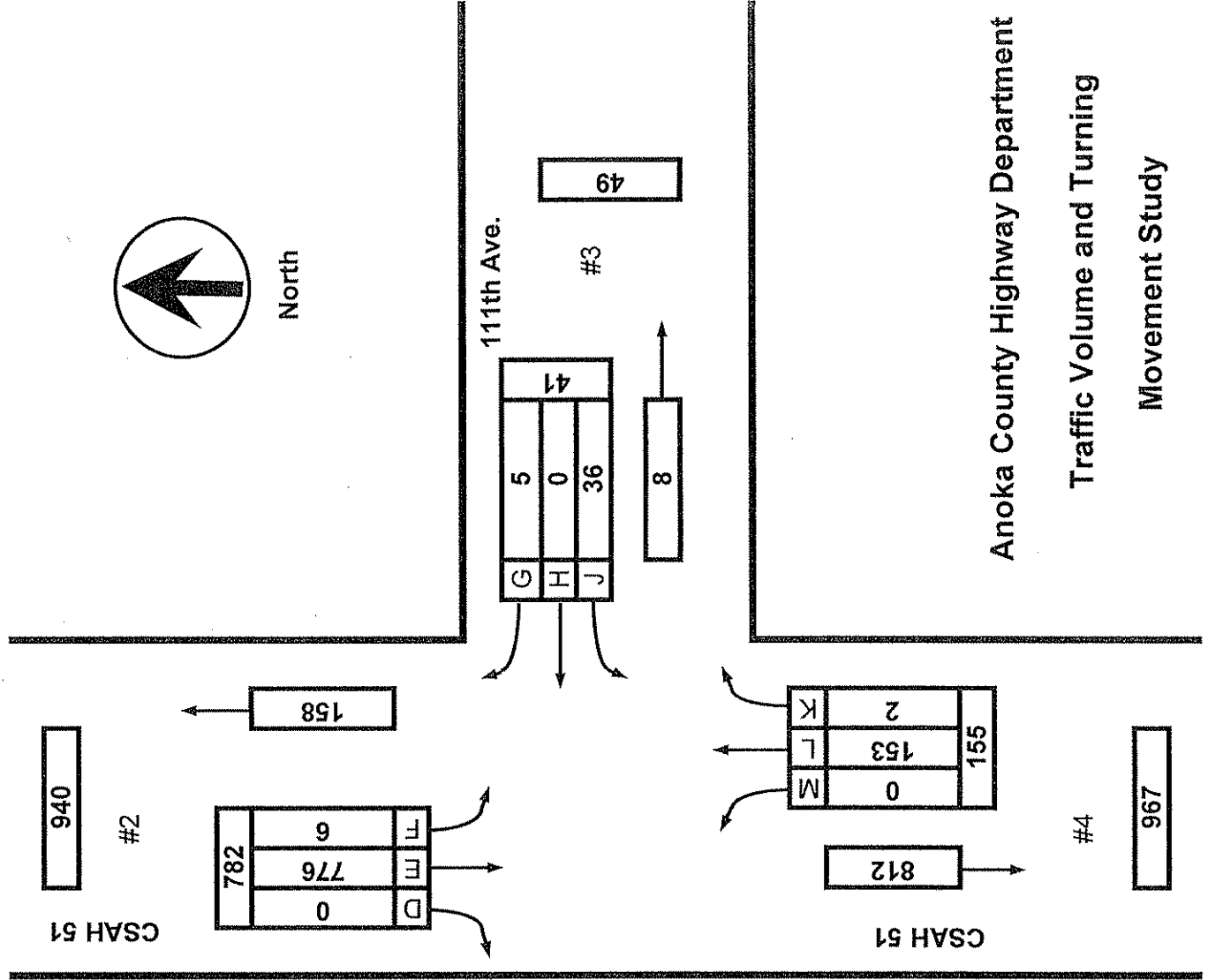
Location : CSAH 51 (University Ave.)

@ 111th Ave.

Collection Period : AM PEAK

Hour : 6:45 AM - 7:45 AM

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



Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

Date : 06/20/11

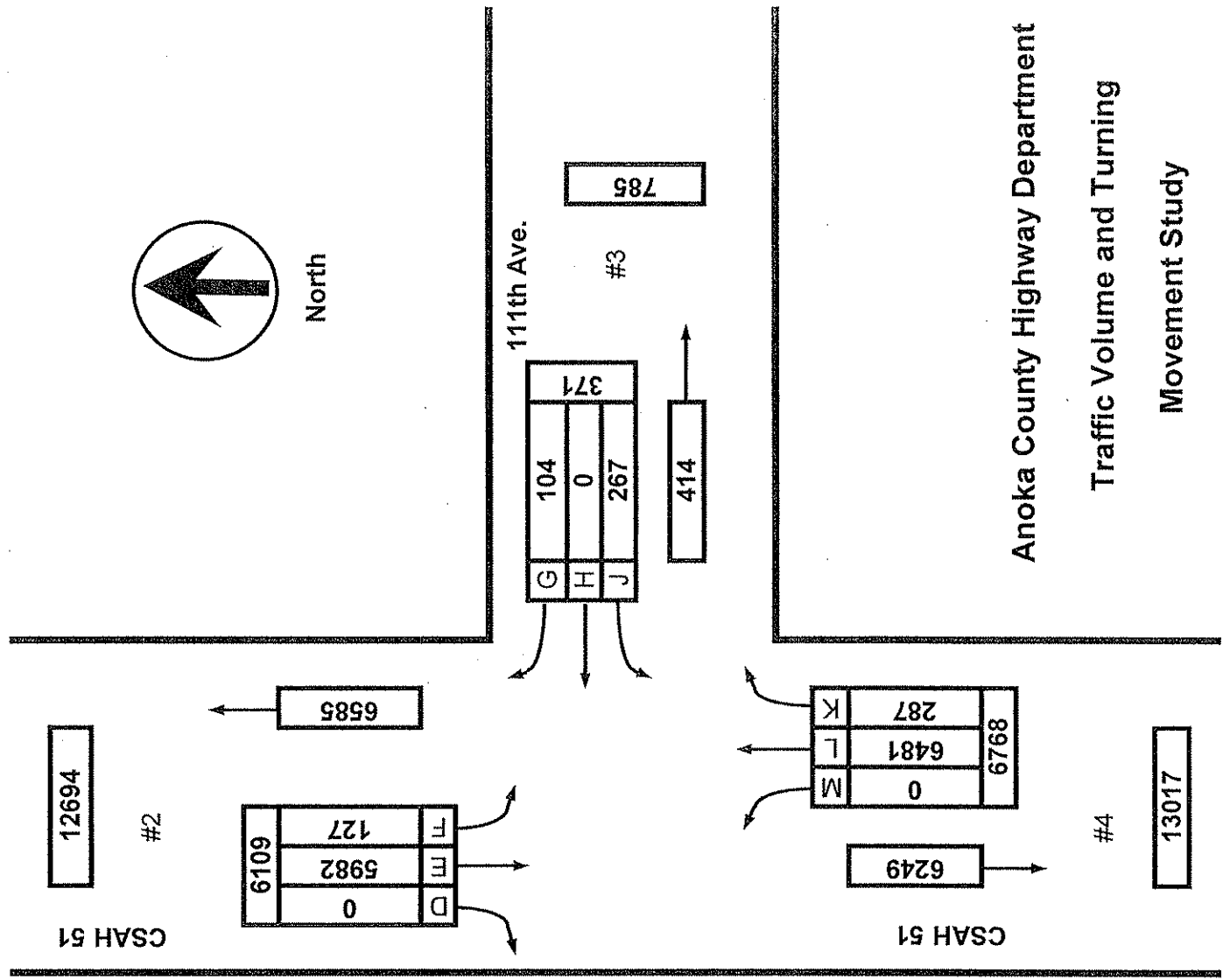
Count Number : TMC1113

Location : CSAH 51 (University Ave.)

@ 111th Ave.

Collection Period : 6:00AM - 10:00PM

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



Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study



# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

Weather: Cloudy/Rain  
 Counter: DB-400  
 Counted by: Rachel/Paige

File Name : TMC1113---USE  
 Site Code : 11130202  
 Start Date : 06/20/2011  
 Page No : 1

**Groups Printed- Unshifted**

Start Time	CSAH 51 Southbound					111th Ave. Westbound					CSAH 51 Northbound					NONE Eastbound					Exclu. Total	Indiv. Total	Int. Total		
	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total					
06:00	2	118	0	0	120	5	0	1	0	6	0	15	0	0	15	0	0	0	0	0	0	0	0	141	141
06:15	0	166	0	1	166	4	0	2	0	6	0	36	3	1	39	0	0	0	0	0	0	0	2	211	213
06:30	1	173	0	1	174	5	0	2	0	7	0	17	1	0	18	0	0	0	0	0	0	0	1	199	200
06:45	2	176	0	1	178	10	0	1	0	11	0	38	0	1	38	0	0	0	0	0	0	0	2	227	229
<b>Total</b>	<b>5</b>	<b>633</b>	<b>0</b>	<b>3</b>	<b>638</b>	<b>24</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>30</b>	<b>0</b>	<b>106</b>	<b>4</b>	<b>2</b>	<b>110</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>778</b>	<b>783</b>
07:00	0	195	0	2	195	9	0	4	0	13	0	30	0	0	30	0	0	0	0	0	0	0	2	238	240
07:15	2	194	0	0	196	8	0	0	0	8	0	43	1	1	44	0	0	0	0	0	0	0	1	248	249
07:30	2	211	0	2	213	9	0	0	0	9	0	42	1	2	43	0	0	0	0	0	0	0	4	265	269
07:45	2	162	0	2	164	5	0	1	0	6	0	34	2	3	36	0	0	0	0	0	0	0	5	206	211
<b>Total</b>	<b>6</b>	<b>762</b>	<b>0</b>	<b>6</b>	<b>768</b>	<b>31</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>36</b>	<b>0</b>	<b>149</b>	<b>4</b>	<b>6</b>	<b>153</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>957</b>	<b>969</b>
08:00	5	118	0	3	123	3	0	2	0	5	0	45	3	3	48	0	0	0	0	0	0	0	6	176	182
08:15	2	94	0	1	96	2	0	1	0	3	0	37	0	3	37	0	0	0	0	0	0	0	4	136	140
08:30	1	128	0	2	129	10	0	2	0	12	0	34	4	1	38	0	0	0	0	0	0	0	3	179	182
08:45	1	116	0	1	117	7	0	4	2	11	0	49	0	2	49	0	0	0	0	0	0	0	5	177	182
<b>Total</b>	<b>9</b>	<b>456</b>	<b>0</b>	<b>7</b>	<b>465</b>	<b>22</b>	<b>0</b>	<b>9</b>	<b>2</b>	<b>31</b>	<b>0</b>	<b>165</b>	<b>7</b>	<b>9</b>	<b>172</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>668</b>	<b>686</b>
09:00	2	96	0	2	98	9	0	0	0	9	0	43	3	0	46	0	0	0	0	0	0	0	2	153	155
09:15	1	82	0	0	83	5	0	2	0	7	0	41	3	1	44	0	0	0	0	0	0	0	1	134	135
09:30	1	85	0	1	86	4	0	0	0	4	0	50	7	2	57	0	0	0	0	0	0	0	3	147	150
09:45	2	84	0	1	86	4	0	1	0	5	0	47	3	2	50	0	0	0	0	0	0	0	3	141	144
<b>Total</b>	<b>6</b>	<b>347</b>	<b>0</b>	<b>4</b>	<b>353</b>	<b>22</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>25</b>	<b>0</b>	<b>181</b>	<b>16</b>	<b>5</b>	<b>197</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>575</b>	<b>584</b>
10:00	2	77	0	2	79	2	0	1	0	3	0	47	3	4	50	0	0	0	0	0	0	0	6	132	138
10:15	0	75	0	2	75	4	0	1	0	5	0	54	3	1	57	0	0	0	0	0	0	0	3	137	140
10:30	0	81	0	2	81	6	0	2	0	8	0	66	4	0	70	0	0	0	0	0	0	0	2	159	161
10:45	2	88	0	1	90	7	0	2	0	9	0	71	1	4	72	0	0	0	0	0	0	0	5	171	176
<b>Total</b>	<b>4</b>	<b>321</b>	<b>0</b>	<b>7</b>	<b>325</b>	<b>19</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>25</b>	<b>0</b>	<b>238</b>	<b>11</b>	<b>9</b>	<b>249</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>599</b>	<b>615</b>
11:00	2	75	0	7	77	3	0	0	0	3	0	27	1	2	28	0	0	0	0	0	0	0	9	108	117
11:15	0	96	0	7	96	2	0	1	0	3	0	69	4	2	73	0	0	0	0	0	0	0	9	172	181
11:30	3	98	0	3	101	2	0	1	0	3	0	74	3	1	77	0	0	0	0	0	0	0	4	181	185
11:45	3	81	0	2	84	2	0	4	0	6	0	73	1	1	74	0	0	0	0	0	0	0	3	164	167
<b>Total</b>	<b>8</b>	<b>350</b>	<b>0</b>	<b>19</b>	<b>358</b>	<b>9</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>243</b>	<b>9</b>	<b>6</b>	<b>252</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>625</b>	<b>650</b>
12:00	1	90	0	3	91	1	0	2	1	3	0	97	6	7	103	0	0	0	0	0	0	0	11	197	208
12:15	1	92	0	2	93	2	0	0	0	2	0	84	3	4	87	0	0	0	0	0	0	0	6	182	188
12:30	2	84	0	1	86	5	0	1	0	6	0	72	6	3	78	0	0	0	0	0	0	0	4	170	174
12:45	2	80	0	1	82	0	0	2	0	2	0	90	2	1	92	0	0	0	0	0	0	0	2	176	178
<b>Total</b>	<b>6</b>	<b>346</b>	<b>0</b>	<b>7</b>	<b>352</b>	<b>8</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>13</b>	<b>0</b>	<b>343</b>	<b>17</b>	<b>15</b>	<b>360</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>23</b>	<b>725</b>	<b>748</b>
13:00	3	83	0	1	86	4	0	1	0	5	0	69	2	2	71	0	0	0	0	0	0	0	3	162	165
13:15	1	84	0	1	85	3	0	3	0	6	0	78	4	1	82	0	0	0	0	0	0	0	2	173	175
13:30	3	78	0	2	81	2	0	6	0	8	0	79	7	3	86	0	0	0	0	0	0	0	5	175	180
13:45	2	87	0	2	89	5	0	3	0	8	0	105	5	7	110	0	0	0	0	0	0	0	9	207	216
<b>Total</b>	<b>9</b>	<b>332</b>	<b>0</b>	<b>6</b>	<b>341</b>	<b>14</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>27</b>	<b>0</b>	<b>331</b>	<b>18</b>	<b>13</b>	<b>349</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>717</b>	<b>736</b>
14:00	2	65	0	2	67	7	0	0	0	7	0	98	5	4	103	0	0	0	0	0	0	0	6	177	183
14:15	2	71	0	1	73	6	0	1	0	7	0	104	8	5	112	0	0	0	0	0	0	0	6	192	198
14:30	5	81	0	4	86	5	0	1	0	6	0	96	4	3	100	0	0	0	0	0	0	0	7	192	199
14:45	2	84	0	1	86	1	0	3	0	4	0	127	4	2	131	0	0	0	0	0	0	0	3	221	224
<b>Total</b>	<b>11</b>	<b>301</b>	<b>0</b>	<b>8</b>	<b>312</b>	<b>19</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>425</b>	<b>21</b>	<b>14</b>	<b>446</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>782</b>	<b>804</b>
15:00	2	81	0	2	83	4	0	0	0	4	0	119	8	0	127	0	0	0	0	0	0	0	2	214	216
15:15	1	72	0	2	73	3	0	1	0	4	0	176	5	3	181	0	0	0	0	0	0	0	5	258	263
15:30	1	97	0	3	98	6	0	5	0	11	0	167	8	2	175	0	0	0	0	0	0	0	5	284	289
15:45	2	94	0	3	96	9	0	2	0	11	0	200	5	2	205	0	0	0	0	0	0	0	5	312	317
<b>Total</b>	<b>6</b>	<b>344</b>	<b>0</b>	<b>10</b>	<b>350</b>	<b>22</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>30</b>	<b>0</b>	<b>662</b>	<b>26</b>	<b>7</b>	<b>688</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17</b>	<b>1068</b>	<b>1085</b>
16:00	1	69	0	2	70	1	0	0	0	1	0	186	9	1	195	0	0	0	0	0	0	0	3	266	269
16:15	0	88	0	3	88	6	0	3	0	9	0	214	6	2	220	0	0	0	0	0	0	0	5	317	322
16:30	3	76	0	1	79	5	0	2	0	7	0	212	10	2	222	0	0	0	0	0	0	0	3	308	311
16:45	3	84	0	1	87	4	0	1	0	5	0	254	7	3	261	0	0	0	0	0	0	0	4	353	357
<b>Total</b>	<b>7</b>	<b>317</b>	<b>0</b>	<b>7</b>	<b>324</b>	<b>16</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>22</b>	<b>0</b>	<b>866</b>	<b>32</b>	<b>8</b>	<b>898</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>1244</b>	<b>1259</b>
17:00	2	102	0	2	104	2	0	1	0	3	0	236	8	1	244	0	0	0	0	0	0	0	3	351	354
17:15	2	91	0	0	93	6	0	1	0	7	0	299	6	2	305	0	0	0	0	0	0	0	2	405	407
17:30	1	102	0	1	103	8	0	2	0	10	0	250	12	1	262	0	0	0	0	0	0	0	2	375	377
17:45	0	77	0	0	77	4	0	1	0	5	0	225	11	1	236	0	0	0	0	0	0	0	1	318	319
<b>Total</b>	<b>5</b>	<b>372</b>	<b>0</b>	<b>3</b>	<b>377</b>	<b>20</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>25</b>	<b>0</b>	<b>1010</b>	<b>37</b>	<b>5</b>	<b>1047</b>	<b>0</b>	<b>0</b>	<b>0</b>	<						



# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC1113---USE  
 Site Code : 11130202  
 Start Date : 06/20/2011  
 Page No : 2

Weather: Cloudy/Rain  
 Counter: DB-400  
 Counted by: Rachel/Paige

#### Groups Printed- Unshifted

Start Time	CSAH 51 Southbound					111th Ave. Westbound					CSAH 51 Northbound					NONE Eastbound					Excl. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total			
18:00	1	75	0	0	76	3	0	6	1	9	0	226	9	1	235	0	0	0	0	0	2	320	322
18:15	4	87	0	1	91	3	0	0	0	3	0	174	6	1	180	0	0	0	0	0	2	274	276
18:30	6	90	0	1	96	3	0	2	1	5	0	117	6	1	123	0	0	0	0	0	3	224	227
18:45	4	106	0	0	110	4	0	1	0	5	0	151	13	0	164	0	0	0	0	0	0	279	279
<b>Total</b>	<b>15</b>	<b>358</b>	<b>0</b>	<b>2</b>	<b>373</b>	<b>13</b>	<b>0</b>	<b>9</b>	<b>2</b>	<b>22</b>	<b>0</b>	<b>668</b>	<b>34</b>	<b>3</b>	<b>702</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>1097</b>	<b>1104</b>
19:00	8	77	0	1	85	3	0	1	0	4	0	109	6	1	115	0	0	0	0	0	2	204	206
19:15	4	70	0	0	74	2	0	1	0	3	0	117	5	0	122	0	0	0	0	0	0	199	199
19:30	4	73	0	1	77	0	0	2	0	2	0	88	3	0	91	0	0	0	0	0	1	170	171
19:45	1	68	0	0	69	4	0	2	0	6	0	109	3	0	112	0	0	0	0	0	0	187	187
<b>Total</b>	<b>17</b>	<b>288</b>	<b>0</b>	<b>2</b>	<b>305</b>	<b>9</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>423</b>	<b>17</b>	<b>1</b>	<b>440</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>760</b>	<b>763</b>
20:00	2	88	0	0	90	1	0	2	0	3	0	93	7	0	100	0	0	0	0	0	0	193	193
20:15	3	56	0	0	59	3	0	2	0	5	0	98	4	0	102	0	0	0	0	0	0	166	166
20:30	2	68	0	0	70	1	0	0	0	1	0	96	6	0	102	0	0	0	0	0	0	173	173
20:45	1	60	0	0	61	3	0	3	0	6	0	89	5	0	94	0	0	0	0	0	0	161	161
<b>Total</b>	<b>8</b>	<b>272</b>	<b>0</b>	<b>0</b>	<b>280</b>	<b>8</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>376</b>	<b>22</b>	<b>0</b>	<b>398</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>693</b>	<b>693</b>
21:00	2	47	0	0	49	3	0	1	0	4	0	90	5	1	95	0	0	0	0	0	1	148	149
21:15	0	59	0	0	59	3	0	1	0	4	0	77	1	0	78	0	0	0	0	0	0	141	141
21:30	2	44	0	0	46	5	0	1	2	6	0	72	3	0	75	0	0	0	0	0	2	127	129
21:45	1	33	0	0	34	0	0	2	0	2	0	56	3	0	59	0	0	0	0	0	0	95	95
<b>Total</b>	<b>5</b>	<b>183</b>	<b>0</b>	<b>0</b>	<b>188</b>	<b>11</b>	<b>0</b>	<b>5</b>	<b>2</b>	<b>16</b>	<b>0</b>	<b>295</b>	<b>12</b>	<b>1</b>	<b>307</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>511</b>	<b>514</b>
<b>Grand Total</b>	<b>127</b>	<b>5982</b>	<b>0</b>	<b>91</b>	<b>6109</b>	<b>267</b>	<b>0</b>	<b>104</b>	<b>7</b>	<b>371</b>	<b>0</b>	<b>6481</b>	<b>287</b>	<b>104</b>	<b>6768</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>202</b>	<b>13248</b>	<b>13450</b>
<b>Avch %</b>	<b>2.1</b>	<b>97.9</b>	<b>0</b>			<b>72</b>	<b>0</b>	<b>28</b>			<b>0</b>	<b>95.8</b>	<b>4.2</b>			<b>0</b>	<b>0</b>	<b>0</b>					
<b>Total %</b>	<b>1</b>	<b>45.2</b>	<b>0</b>		<b>46.1</b>	<b>2</b>	<b>0</b>	<b>0.8</b>		<b>2.8</b>	<b>0</b>	<b>48.9</b>	<b>2.2</b>		<b>51.1</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>1.5</b>	<b>98.5</b>	

Start Time	CSAH 51 Southbound				111th Ave. Westbound				CSAH 51 Northbound				NONE 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 06:45																	
06:45	2	176	0	178	10	0	1	11	0	38	0	38	0	0	0	0	227
07:00	0	195	0	195	9	0	4	13	0	30	0	30	0	0	0	0	238
07:15	2	194	0	196	8	0	0	8	0	43	1	44	0	0	0	0	248
07:30	2	211	0	213	9	0	0	9	0	42	1	43	0	0	0	0	265
<b>Total Volume</b>	<b>6</b>	<b>776</b>	<b>0</b>	<b>782</b>	<b>36</b>	<b>0</b>	<b>5</b>	<b>41</b>	<b>0</b>	<b>153</b>	<b>2</b>	<b>155</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>978</b>
<b>% App. Total</b>	<b>0.8</b>	<b>99.2</b>	<b>0</b>		<b>87.8</b>	<b>0</b>	<b>12.2</b>		<b>0</b>	<b>98.7</b>	<b>1.3</b>		<b>0</b>	<b>0</b>	<b>0</b>		
<b>PHF</b>	<b>.750</b>	<b>.919</b>	<b>.000</b>	<b>.918</b>	<b>.900</b>	<b>.000</b>	<b>.313</b>	<b>.788</b>	<b>.000</b>	<b>.890</b>	<b>.500</b>	<b>.881</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>	<b>.923</b>

Peak Hour Analysis From 12:00 to 21:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	3	84	0	87	4	0	1	5	0	254	7	261	0	0	0	0	353
17:00	2	102	0	104	2	0	1	3	0	236	8	244	0	0	0	0	351
17:15	2	91	0	93	6	0	1	7	0	299	6	305	0	0	0	0	405
17:30	1	102	0	103	8	0	2	10	0	250	12	262	0	0	0	0	375
<b>Total Volume</b>	<b>8</b>	<b>379</b>	<b>0</b>	<b>387</b>	<b>20</b>	<b>0</b>	<b>5</b>	<b>25</b>	<b>0</b>	<b>1039</b>	<b>33</b>	<b>1072</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1484</b>
<b>% App. Total</b>	<b>2.1</b>	<b>97.9</b>	<b>0</b>		<b>80</b>	<b>0</b>	<b>20</b>		<b>0</b>	<b>96.9</b>	<b>3.1</b>		<b>0</b>	<b>0</b>	<b>0</b>		
<b>PHF</b>	<b>.667</b>	<b>.929</b>	<b>.000</b>	<b>.930</b>	<b>.625</b>	<b>.000</b>	<b>.625</b>	<b>.625</b>	<b>.000</b>	<b>.869</b>	<b>.688</b>	<b>.879</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>	<b>.916</b>



**Anoka County Highway**  
**PC-WARRANTS**  
 Traffic Signal Warrant Analysis

Study Name : TMC1113  
 Study Date : 06/30/11  
 Page No. : 1

**Signal Warrants - Summary**

**Major Street Approaches**

**Northbound: CSAH 51**  
 Number of Lanes: 2  
 Approach Speed: 40  
 Total Approach Volume: 6,768

**Southbound: CSAH 51**  
 Number of Lanes: 2  
 Approach Speed: 40  
 Total Approach Volume: 6,109

**Minor Street Approaches**

**Westbound: 111th Ave.**  
 Number of Lanes: 2  
  
 Total Approach Volume: 371

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

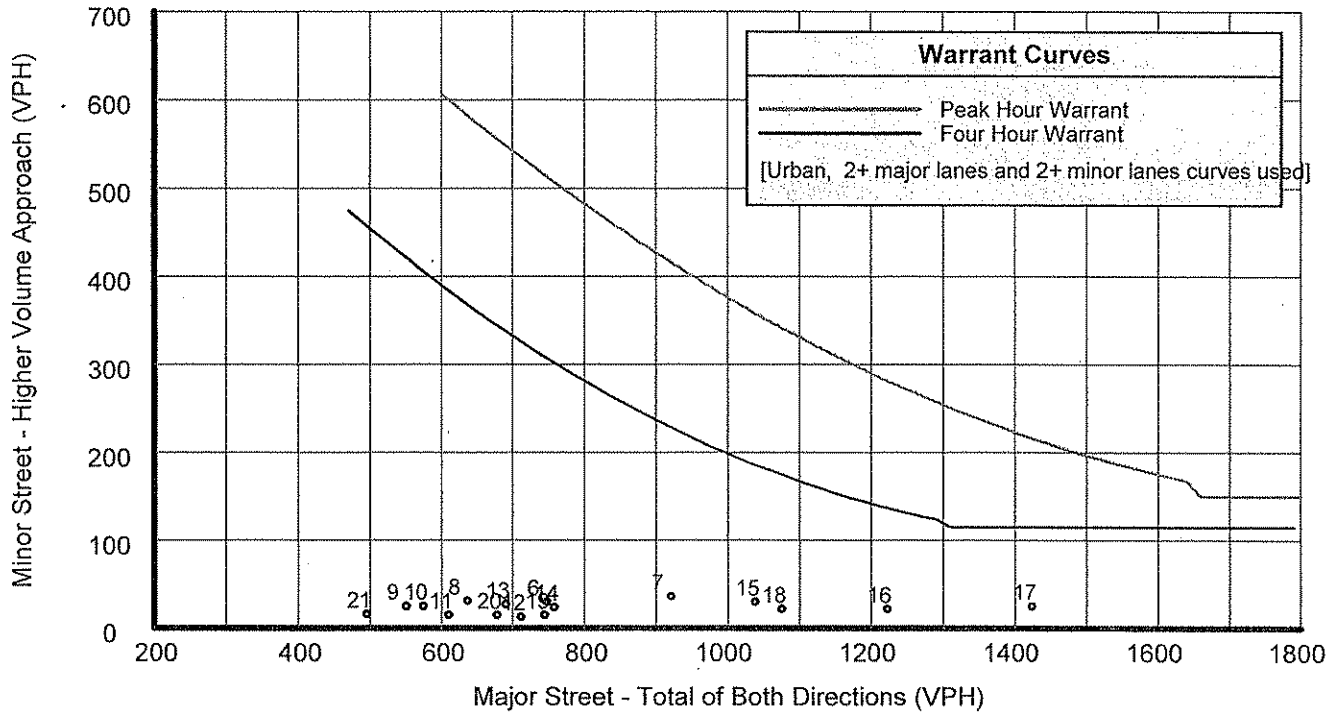
- Warrant 1 - Eight Hour Vehicular Volumes** ..... Not Satisfied
  - Warrant 1A - Minimum Vehicular Volume** ..... Not Satisfied  
 Required volumes reached for 0 hours, 8 are needed
  - Warrant 1B - Interruption of Continuous Traffic** ..... Not Satisfied  
 Required volumes reached for 0 hours, 8 are needed
  - Warrant 1 A&B - Combination of Warrants** ..... Not Satisfied  
 Required volumes reached for 0 hours, 8 are needed
  
- Warrant 2 - Four Hour Volumes** ..... Not Satisfied  
 Number of hours (0) 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



# Anoka County Highway PC-WARRANTS Traffic Signal Warrant Analysis

Study Name : TMC1113  
Study Date : 06/30/11  
Page No. : 2

## Signal Warrants - Summary



### Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor Vol	Dir	War-1A			War-1B			War-1A&B		
				Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	0	0	EB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
01:00	0	0	EB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
02:00	0	0	EB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
03:00	0	0	EB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
04:00	0	0	EB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
05:00	0	0	EB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
06:00	748	30	WB	600-Yes	200-No	Major	900-No	100-No	---	720-Yes	160-No	Major
07:00	921	36	WB	600-Yes	200-No	Major	900-Yes	100-No	Major	720-Yes	160-No	Major
08:00	637	31	WB	600-Yes	200-No	Major	900-No	100-No	---	720-No	160-No	---
09:00	550	25	WB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
10:00	574	25	WB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
11:00	610	15	WB	600-Yes	200-No	Major	900-No	100-No	---	720-No	160-No	---
12:00	712	13	WB	600-Yes	200-No	Major	900-No	100-No	---	720-No	160-No	---
13:00	690	27	WB	600-Yes	200-No	Major	900-No	100-No	---	720-No	160-No	---
14:00	758	24	WB	600-Yes	200-No	Major	900-No	100-No	---	720-Yes	160-No	Major
15:00	1,038	30	WB	600-Yes	200-No	Major	900-Yes	100-No	Major	720-Yes	160-No	Major
16:00	1,222	22	WB	600-Yes	200-No	Major	900-Yes	100-No	Major	720-Yes	160-No	Major
17:00	1,424	25	WB	600-Yes	200-No	Major	900-Yes	100-No	Major	720-Yes	160-No	Major
18:00	1,075	22	WB	600-Yes	200-No	Major	900-Yes	100-No	Major	720-Yes	160-No	Major
19:00	745	15	WB	600-Yes	200-No	Major	900-No	100-No	---	720-Yes	160-No	Major
20:00	678	15	WB	600-Yes	200-No	Major	900-No	100-No	---	720-No	160-No	---
21:00	495	16	WB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
22:00	0	0	EB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
23:00	0	0	EB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---



**Anoka County Highway**  
**PC-WARRANTS**  
 Traffic Signal Warrant Analysis

Study Name : TMC1113  
 Study Date : 06/30/11  
 Page No. : 1

**Multi-Way Stop Warrant Report**

**Major Street Approaches**

**Northbound: CSAH 51**  
 Total Approach Volume: 6,768  
 Approach Speed: 40

**Southbound: CSAH 51**  
 Total Approach Volume: 6,109  
 Approach Speed: 40

**Minor Street Approaches**

**Westbound: 111th Ave.**  
 Total Approach Volume: 371

**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

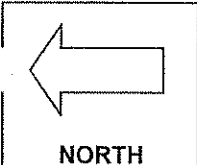
**Criteria C - Minimum Volumes and Delays** ..... Not Satisfied  
 Delay data not evaluated  
 Required volumes reached for 0 hours, 8 are needed

**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?
05:30 - 06:30	340	12	300-Yes	200-No	Major	240-Yes	160-No	Major
05:45 - 06:45	532	19	300-Yes	200-No	Major	240-Yes	160-No	Major
06:00 - 07:00	748	30	300-Yes	200-No	Major	240-Yes	160-No	Major
06:15 - 07:15	838	37	300-Yes	200-No	Major	240-Yes	160-No	Major
06:30 - 07:30	873	39	300-Yes	200-No	Major	240-Yes	160-No	Major
06:45 - 07:45	937	41	300-Yes	200-No	Major	240-Yes	160-No	Major
07:00 - 08:00	921	36	300-Yes	200-No	Major	240-Yes	160-No	Major
07:15 - 08:15	867	28	300-Yes	200-No	Major	240-Yes	160-No	Major
07:30 - 08:30	760	23	300-Yes	200-No	Major	240-Yes	160-No	Major
07:45 - 08:45	671	26	300-Yes	200-No	Major	240-Yes	160-No	Major
08:00 - 09:00	637	31	300-Yes	200-No	Major	240-Yes	160-No	Major
08:15 - 09:15	610	35	300-Yes	200-No	Major	240-Yes	160-No	Major
08:30 - 09:30	604	39	300-Yes	200-No	Major	240-Yes	160-No	Major
08:45 - 09:45	580	31	300-Yes	200-No	Major	240-Yes	160-No	Major
09:00 - 10:00	550	25	300-Yes	200-No	Major	240-Yes	160-No	Major
09:15 - 10:15	535	19	300-Yes	200-No	Major	240-Yes	160-No	Major
09:30 - 10:30	540	17	300-Yes	200-No	Major	240-Yes	160-No	Major
09:45 - 10:45	548	21	300-Yes	200-No	Major	240-Yes	160-No	Major
10:00 - 11:00	574	25	300-Yes	200-No	Major	240-Yes	160-No	Major
10:15 - 11:15	550	25	300-Yes	200-No	Major	240-Yes	160-No	Major
10:30 - 11:30	587	23	300-Yes	200-No	Major	240-Yes	160-No	Major
10:45 - 11:45	614	18	300-Yes	200-No	Major	240-Yes	160-No	Major
11:00 - 12:00	610	15	300-Yes	200-No	Major	240-Yes	160-No	Major
11:15 - 12:15	699	15	300-Yes	200-No	Major	240-Yes	160-No	Major





COUNT LOCATION:

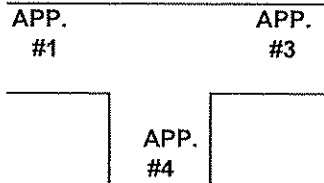
CSAH 51 (University Ave.) @

DATE:

06/22/2011

111th Ave.

<b>NORTH</b>
APP. #1 = CSAH 51
APP. #2 = NONE
APP. #3 = CSAH 51
APP. #4 = 111th Ave.

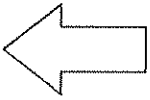


HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT

- 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								
6:15-6:30								2
6:30-6:45								1
6:45-7:00						2		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>5</b>
7:00-7:15								2
7:15-7:30								1
7:30-7:45			2		2			4
7:45-8:00								5
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>		<b>12</b>
8:00-8:15						3		3
8:15-8:30						2		2
8:30-8:45						2		2
8:45-9:00			1		1	2		2
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>18</b>
9:00-9:15			1		1	1		
9:15-9:30				1	1	1		
9:30-9:45						1		3
9:45-10:00						3		
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>		<b>9</b>
10:00-10:15						6		
10:15-10:30						3		1
10:30-10:45				1	1	1		
10:45-11:00			2	1	3	2		2
<b>HOURLY TOTAL</b>					<b>4</b>	<b>HOURLY TOTAL</b>		<b>15</b>
11:00-11:15						1		9
11:15-11:30			4	1	5	5		4
11:30-11:45			2		2			4
11:45-12:00			1		1	2		1
<b>HOURLY TOTAL</b>					<b>8</b>	<b>HOURLY TOTAL</b>		<b>26</b>
12:00-12:15			2	1	3	9	1	2
12:15-12:30			1		1	4		2
12:30-12:45			1	3	4	1		3
12:45-1:00						2		
<b>HOURLY TOTAL</b>					<b>8</b>	<b>HOURLY TOTAL</b>		<b>24</b>
1:00-1:15						1		2
1:15-1:30				4	4	2		1
1:30-1:45				1	1	4		2
1:45-2:00			4		4	8		1
<b>HOURLY TOTAL</b>					<b>9</b>	<b>HOURLY TOTAL</b>		<b>21</b>
<b>TOTAL</b>					<b>34</b>	<b>TOTAL</b>		<b>130</b>

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COUNT LOCATION:

CSAH 51 (University Ave.) @

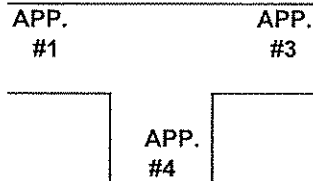
DATE:

06/20/2011

111th Ave.

NORTH

APP. #1 = CSAH 51
APP. #2 = NONE
APP. #3 = CSAH 51
APP. #4 = 111th Ave.



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.
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- 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						6		1
2:15-2:30			3	2	5	5		2
2:30-2:45			1	1	2	4		2
2:45-3:00			5		5	3		
<b>HOURLY TOTAL</b>					<b>12</b>	<b>HOURLY TOTAL</b>		<b>23</b>
3:00-3:15				3	3	2		
3:15-3:30			1		1	6		
3:30-3:45				2	2	1	1	3
3:45-4:00			1		1	4		1
<b>HOURLY TOTAL</b>					<b>7</b>	<b>HOURLY TOTAL</b>		<b>18</b>
4:00-4:15				2	2	2		
4:15-4:30				3	3	5		1
4:30-4:45				1	1	1		2
4:45-5:00				3	3	3	1	
<b>HOURLY TOTAL</b>					<b>9</b>	<b>HOURLY TOTAL</b>		<b>15</b>
5:00-5:15			4	1	5	3		
5:15-5:30			2		2	1		1
5:30-5:45				1	1			2
5:45-6:00			2	2	4			1
<b>HOURLY TOTAL</b>					<b>12</b>	<b>HOURLY TOTAL</b>		<b>8</b>
6:00-6:15			2	2	4	2		
6:15-6:30				1	1	1		1
6:30-6:45				2	2	2		1
6:45-7:00								
<b>HOURLY TOTAL</b>					<b>7</b>	<b>HOURLY TOTAL</b>		<b>7</b>
7:00-7:15			1	1	2	2		
7:15-7:30			1	1	2			
7:30-7:45						1		
7:45-8:00								
<b>HOURLY TOTAL</b>					<b>4</b>	<b>HOURLY TOTAL</b>		<b>3</b>
8:00-8:15								
8:15-8:30								
8:30-8:45				2	2			
8:45-9:00				2	2			
<b>HOURLY TOTAL</b>					<b>4</b>	<b>HOURLY TOTAL</b>		
9:00-9:15			1	3	4			1
9:15-9:30				2	2			
9:30-9:45								
9:45-10:00								
<b>HOURLY TOTAL</b>					<b>6</b>	<b>HOURLY TOTAL</b>		<b>1</b>
			<b>TOTAL</b>		<b>95</b>		<b>TOTAL</b>	<b>205</b>

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