

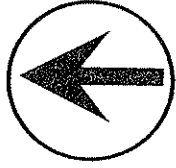
Date : 08/04/10

Count Number : TMC1028

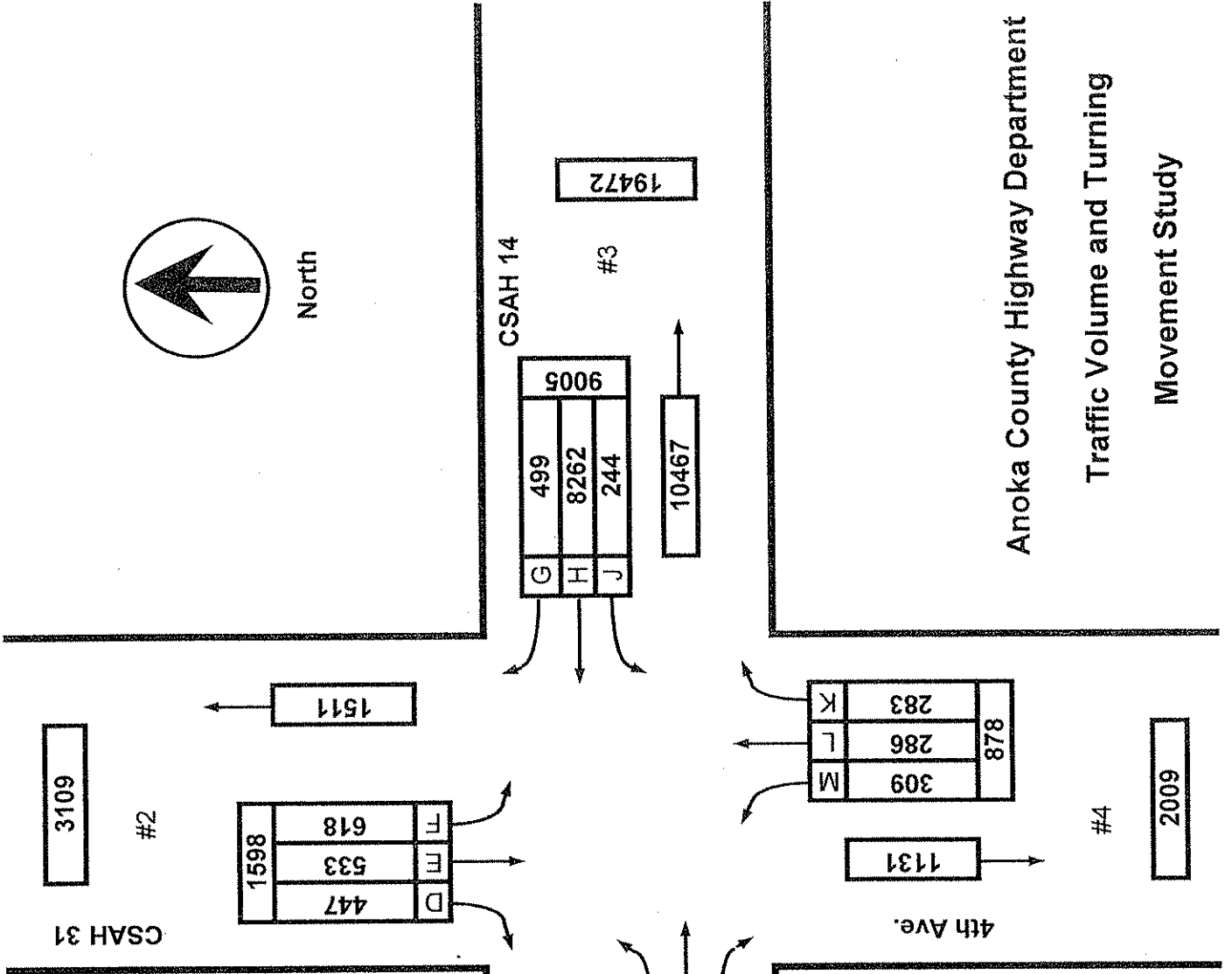
Location : CSAH 14 (Main St.)

@ CSAH 31 (4th Ave.)

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



North



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

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

3109

#2

1598	447	533	618
D	E	F	T

1511

CSAH 14

#1

19664

10646	726	9566	354
C	B	A	

9018

CSAH 14

#3

499	8262	244	9005
G	H	J	

10467

19472

283	286	309	878
K	L	M	

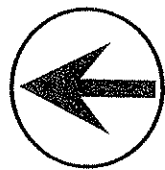
1131

4th Ave.

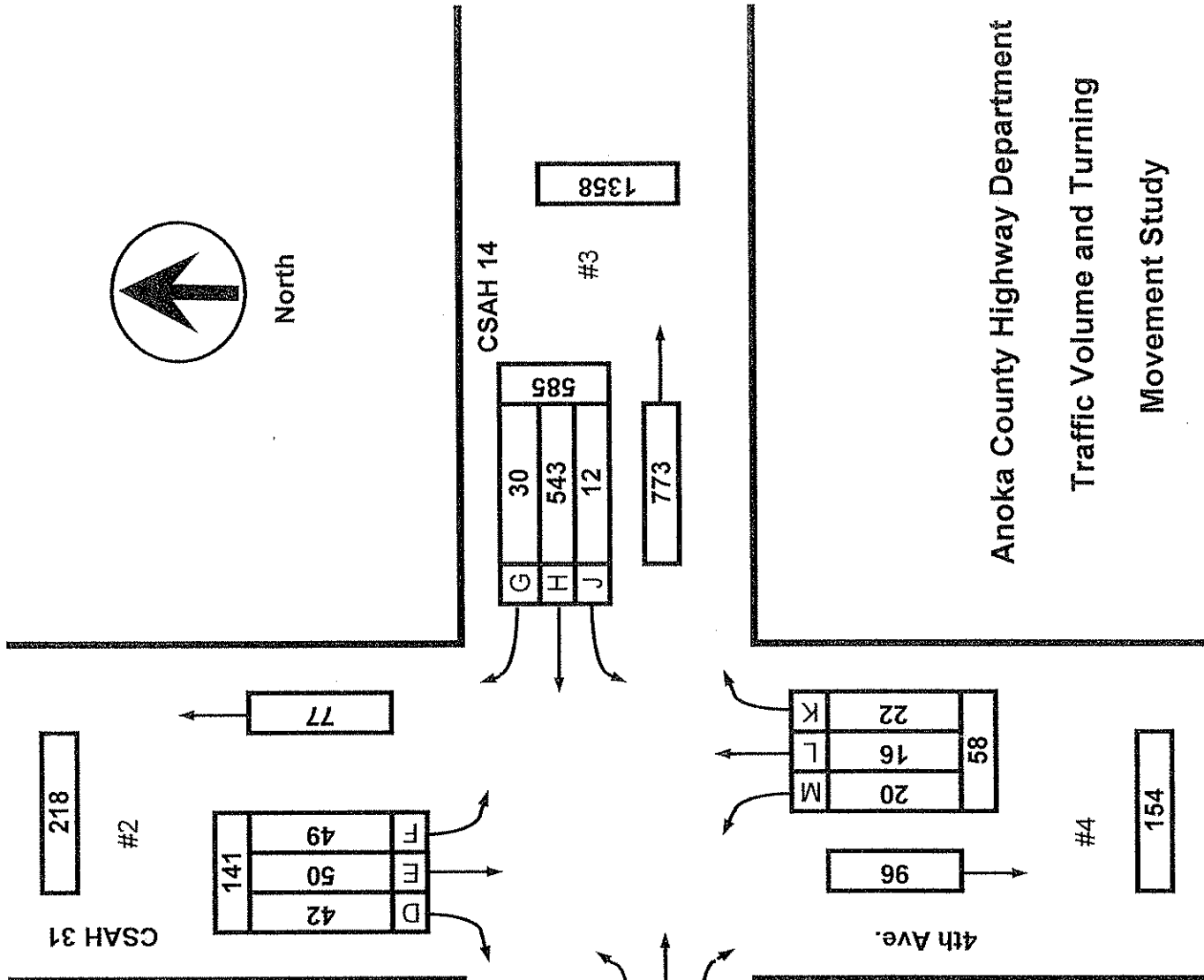
#4

2009

Date : 08/05/10  
 Count Number : TMC1028  
 Location : CSAH 14 (Main St.)  
 @ CSAH 31 (4th Ave.)  
 Collection Period : AM PEAK  
 Hour : 11:00 AM-12:00 PM



North



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

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

Date : 08/04/10

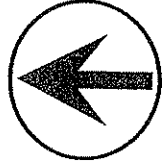
Count Number : TMC1028

Location : CSAH 14 (Main St.)

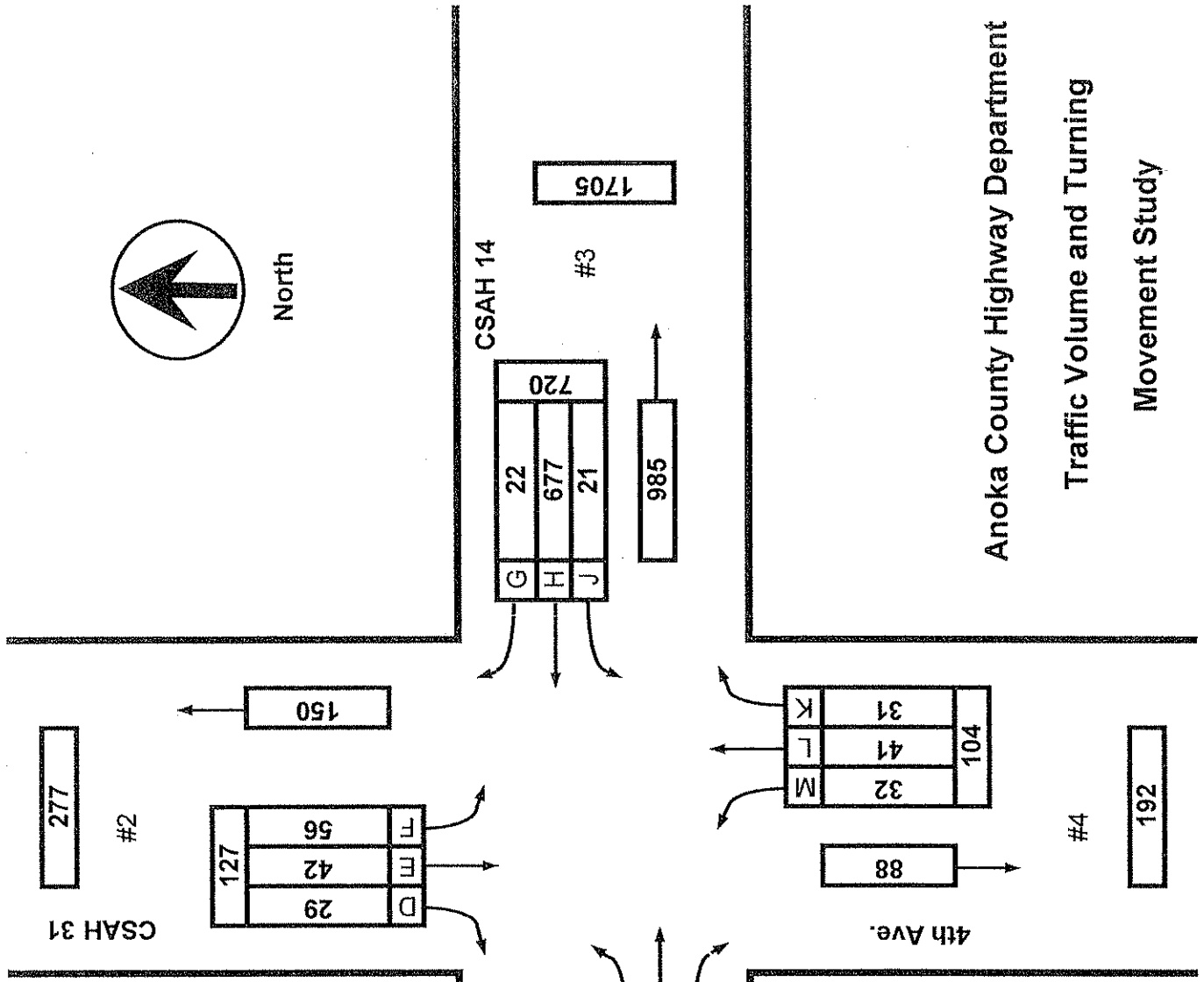
@ CSAH 31 (4th Ave.)

Collection Period : PM PEAK

Hour : 4:45-5:45 PM



North



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

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

277

#2

CSAH 31

127			
56	T	T	T
42			
29	D		

150

CSAH 14

#1

1748

738			
87	C		
898	B		
25	A		
1010			

CSAH 14

#3

22	G		
677	H		
21	J		
720			

985

1705

31	K		
41	L		
32	M		
104			

88

4th Ave.

#4

192

# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC1028  
 Site Code : 10280202  
 Start Date : 08/04/2010  
 Page No : 1

Weather: Warm/Sunny  
 Counter: DB-400  
 Counted by: Andy/Brett

Groups Printed- Unshifted - Bank 1

Start Time	CSAH 31 (4th Ave.) Southbound					CSAH 14 (Main St.) Westbound					4th Ave. Northbound					CSAH 14 (Main St.) 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			
06:00	4	3	5	0	12	2	71	4	2	77	0	1	1	0	2	1	53	2	5	56	7	147	154
06:15	5	5	7	0	17	0	67	4	1	71	1	2	2	0	5	4	60	2	1	66	2	159	161
06:30	7	5	6	0	18	1	81	10	3	92	1	2	1	1	4	5	74	2	3	81	7	195	202
06:45	4	3	6	0	13	0	87	4	2	91	4	1	1	1	6	13	121	4	3	138	6	248	254
Total	20	16	24	0	60	3	306	22	8	331	6	6	5	2	17	23	308	10	12	341	22	749	771
07:00	10	8	9	0	27	1	91	18	2	110	7	3	1	1	11	4	93	1	4	98	7	246	253
07:15	7	13	3	0	23	4	118	10	1	132	1	1	1	0	3	2	98	9	4	109	5	267	272
07:30	0	13	9	2	22	2	100	11	4	113	3	4	1	0	8	15	136	13	5	164	11	307	318
07:45	7	19	10	1	36	7	138	15	8	160	6	4	4	1	14	18	159	14	8	191	18	401	419
Total	24	53	31	3	108	14	447	54	15	515	17	12	7	2	36	39	486	37	21	562	41	1221	1262
08:00	9	4	6	0	19	3	96	14	5	113	4	1	1	0	6	14	81	3	1	98	6	236	242
08:15	3	3	7	0	13	8	105	21	1	134	1	4	4	0	9	14	83	4	2	101	3	257	260
08:30	2	12	9	0	23	3	99	17	6	119	8	8	3	1	19	12	110	9	4	131	11	292	303
08:45	7	11	7	2	25	5	125	12	3	142	4	2	2	1	8	8	114	2	2	124	8	299	307
Total	21	30	29	2	80	19	425	64	15	508	17	15	10	2	42	48	388	18	9	454	28	1084	1112
09:00	6	4	14	1	24	5	97	12	5	114	5	5	1	4	11	5	97	6	7	108	17	257	274
09:15	6	12	7	2	25	2	96	5	1	103	2	3	3	1	8	8	104	6	7	118	11	254	265
09:30	7	13	6	0	26	4	123	4	10	131	4	2	4	2	10	6	130	4	1	140	13	307	320
09:45	6	6	3	0	15	9	113	7	5	129	3	0	4	0	7	7	138	6	3	151	8	302	310
Total	25	35	30	3	90	20	429	28	21	477	14	10	12	7	36	26	469	22	18	517	49	1120	1169
10:00	5	3	4	1	12	1	107	6	3	114	5	4	2	1	11	11	156	5	5	172	10	309	319
10:15	5	15	13	1	33	6	117	6	0	129	4	2	3	0	9	8	160	5	5	173	6	344	350
10:30	8	6	5	0	19	3	111	6	4	120	4	6	3	2	13	10	159	8	8	177	14	329	343
10:45	7	8	5	1	20	6	137	4	7	147	4	5	6	0	15	12	156	12	6	180	14	362	376
Total	25	32	27	3	84	16	472	22	14	510	17	17	14	3	48	41	631	30	24	702	44	1344	1388
11:00	11	17	8	0	36	2	117	8	5	127	5	3	2	1	10	6	163	7	7	176	13	349	362
11:15	10	7	4	0	21	3	125	6	6	134	5	7	5	1	17	6	164	7	8	177	15	349	364
11:30	10	7	16	2	33	1	160	7	5	168	7	2	6	2	15	6	195	14	5	215	14	431	445
11:45	16	19	14	4	51	6	141	9	4	156	3	4	9	0	16	13	180	6	5	199	13	422	435
Total	49	50	42	6	141	12	543	30	20	585	20	16	22	4	58	31	702	34	25	767	55	1551	1606
12:00	17	13	2	0	32	3	147	5	5	155	7	5	9	1	21	18	162	11	3	191	9	399	408
12:15	11	12	9	0	32	6	200	14	3	220	8	7	6	0	21	16	167	8	6	191	9	464	473
12:30	20	17	8	0	45	8	145	11	8	164	10	5	10	1	25	11	163	6	5	180	14	414	428
12:45	4	6	8	0	18	8	155	13	5	176	5	6	13	3	24	21	181	15	4	217	12	435	447
Total	52	48	27	0	127	25	647	43	21	715	30	23	38	5	91	66	673	40	18	779	44	1712	1756
13:00	10	7	7	0	24	4	89	11	5	104	3	8	3	1	14	19	185	5	6	209	12	351	363
13:15	14	12	5	0	31	6	184	12	4	202	8	6	14	0	28	9	195	8	4	212	8	473	481
13:30	17	16	5	0	38	8	199	14	6	221	7	5	6	2	18	13	181	8	4	202	12	479	491
13:45	14	6	7	2	27	7	163	11	1	181	8	5	5	1	18	19	204	9	5	232	9	458	467
Total	55	41	24	2	120	25	635	48	16	708	26	24	28	4	78	60	765	30	19	855	41	1761	1802
14:00	16	8	11	0	35	3	148	9	6	160	11	4	6	2	21	9	162	6	2	177	10	393	403
14:15	9	11	6	0	26	1	144	6	7	151	3	5	2	0	10	14	154	3	7	171	14	358	372
14:30	15	8	17	2	40	2	152	10	4	164	10	8	5	2	23	16	187	6	6	209	14	436	450
14:45	14	14	4	0	32	4	122	4	7	130	3	10	6	2	19	13	177	4	5	194	14	375	389
Total	54	41	38	2	133	10	566	29	24	605	27	27	19	6	73	52	680	19	20	751	52	1562	1614
15:00	16	4	4	0	24	4	166	6	7	176	6	6	8	1	20	12	186	7	2	205	10	425	435
15:15	6	13	6	0	25	2	125	3	2	130	9	5	9	1	23	14	198	8	4	220	7	398	405
15:30	11	12	8	0	31	3	174	5	4	182	4	8	11	1	23	14	214	3	3	231	8	467	475
15:45	22	6	4	0	32	3	191	8	5	202	8	4	5	0	17	21	192	3	5	216	10	467	477
Total	55	35	22	0	112	12	656	22	18	690	27	23	33	3	83	61	790	21	14	872	35	1757	1792
16:00	15	6	4	0	25	5	176	8	2	189	9	14	4	1	27	21	220	2	4	243	7	484	491
16:15	13	14	6	0	33	9	158	3	4	170	16	10	3	0	29	19	171	6	2	196	6	428	434
16:30	31	9	13	1	53	3	134	3	1	140	11	6	6	0	23	9	214	4	1	227	3	443	446
16:45	12	14	7	1	33	2	180	4	3	186	4	9	12	0	25	21	232	12	2	265	6	509	515
Total	71	43	30	2	144	19	648	18	10	685	40	39	25	1	104	70	837	24	9	931	22	1864	1886
17:00	14	15	6	0	35	7	193	8	2	208	15	15	4	1	34	37	228	3	1	268	4	545	549
17:15	6	5	9	0	20	4	158	8	3	170	5	5	10	0	20	12	228	4	2	244	5	454	459
17:30	24	8	7	0	39	8	146	2	3	156	8	12	5	0	25	17	210	6	1	233	4	453	457
17:45	9	7	8	0	24	5	175	6	2	186	1	4	3	0	8	14	192	4	1	210	3	428	431
Total	53	35	30	0	118	24	672	24	10	720	29	36	22	1	87	60	858	17	5	955	16	1880	1896

# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC1028  
 Site Code : 10280202  
 Start Date : 08/04/2010  
 Page No : 2

Weather: Warm/Sunny  
 Counter: DB-400  
 Counted by: Andy/Brett

#### Groups Printed- Unshifted - Bank 1

Start Time	CSAH 31 (4th Ave.) Southbound					CSAH 14 (Main St.) Westbound				4th Ave. Northbound				CSAH 14 (Main St.) Eastbound					Excl. 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	15	6	13	0	34	5	193	16	2	214	6	2	8	1	16	21	175	2	2	198	5	462	467
18:15	6	13	9	0	28	2	151	3	2	156	4	3	2	0	9	12	176	7	2	195	4	388	392
18:30	10	5	3	1	18	1	104	1	3	106	3	1	7	0	11	12	170	8	0	190	4	325	329
18:45	7	5	6	0	18	2	117	6	2	125	0	2	0	0	2	13	145	11	2	169	4	314	318
<b>Total</b>	<b>38</b>	<b>29</b>	<b>31</b>	<b>1</b>	<b>98</b>	<b>10</b>	<b>565</b>	<b>26</b>	<b>9</b>	<b>601</b>	<b>13</b>	<b>8</b>	<b>17</b>	<b>1</b>	<b>38</b>	<b>58</b>	<b>666</b>	<b>28</b>	<b>6</b>	<b>752</b>	<b>17</b>	<b>1489</b>	<b>1506</b>
19:00	5	7	7	0	19	8	168	15	0	191	3	3	1	2	7	7	126	4	1	137	3	354	357
19:15	5	1	7	0	13	4	97	8	2	109	7	3	4	0	14	7	165	3	0	175	2	311	313
19:30	8	1	2	0	11	0	99	7	3	106	3	2	3	0	8	5	146	2	2	153	5	278	283
19:45	4	6	6	0	16	4	116	6	0	126	2	5	4	0	11	4	125	6	1	135	1	288	289
<b>Total</b>	<b>22</b>	<b>15</b>	<b>22</b>	<b>0</b>	<b>59</b>	<b>16</b>	<b>480</b>	<b>36</b>	<b>5</b>	<b>532</b>	<b>15</b>	<b>13</b>	<b>12</b>	<b>2</b>	<b>40</b>	<b>23</b>	<b>562</b>	<b>15</b>	<b>4</b>	<b>600</b>	<b>11</b>	<b>1231</b>	<b>1242</b>
20:00	11	1	5	0	17	2	108	7	1	117	1	4	3	0	8	8	119	0	0	127	1	269	270
20:15	7	4	4	0	15	3	122	7	0	132	2	1	2	0	5	6	88	0	2	94	2	246	248
20:30	24	2	6	0	32	1	121	1	1	123	3	0	1	0	4	7	127	0	1	134	2	293	295
20:45	4	7	3	0	14	1	61	3	0	65	2	2	1	0	5	6	96	0	0	102	0	186	186
<b>Total</b>	<b>46</b>	<b>14</b>	<b>18</b>	<b>0</b>	<b>78</b>	<b>7</b>	<b>412</b>	<b>18</b>	<b>2</b>	<b>437</b>	<b>8</b>	<b>7</b>	<b>7</b>	<b>0</b>	<b>22</b>	<b>27</b>	<b>430</b>	<b>0</b>	<b>3</b>	<b>457</b>	<b>5</b>	<b>994</b>	<b>999</b>
21:00	2	3	10	0	15	2	121	6	0	129	1	3	4	0	8	5	88	3	1	96	1	248	249
21:15	1	3	5	0	9	3	84	2	0	89	0	3	2	0	5	7	85	3	0	95	0	198	198
21:30	1	3	3	0	7	4	81	4	0	89	1	2	3	0	6	5	77	3	0	85	0	187	187
21:45	4	7	4	0	15	3	73	3	0	79	1	2	3	0	6	4	71	0	1	75	1	175	176
<b>Total</b>	<b>8</b>	<b>16</b>	<b>22</b>	<b>0</b>	<b>46</b>	<b>12</b>	<b>359</b>	<b>15</b>	<b>0</b>	<b>386</b>	<b>3</b>	<b>10</b>	<b>12</b>	<b>0</b>	<b>25</b>	<b>21</b>	<b>321</b>	<b>9</b>	<b>2</b>	<b>351</b>	<b>2</b>	<b>808</b>	<b>810</b>
<b>Grand Total</b>	<b>618</b>	<b>533</b>	<b>447</b>	<b>24</b>	<b>1598</b>	<b>244</b>	<b>8262</b>	<b>499</b>	<b>208</b>	<b>9005</b>	<b>309</b>	<b>286</b>	<b>283</b>	<b>43</b>	<b>878</b>	<b>726</b>	<b>9566</b>	<b>354</b>	<b>209</b>	<b>10646</b>	<b>484</b>	<b>22127</b>	<b>22611</b>
Apprch %	38.7	33.4	28			2.7	91.7	5.5			35.2	32.6	32.2			6.8	89.9	3.3					
Total %	2.8	2.4	2		7.2	1.1	37.3	2.3		40.7	1.4	1.3	1.3		4	3.3	43.2	1.6		48.1	2.1	97.9	
Unshifted	618	533	447		1622	244	8262	499		9213	309	286	283		921	726	9566	354		10855	0	0	22611
Shifted	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	0	100
Bank 1	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0
% Bank 1	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0

Start Time	CSAH 31 (4th Ave.) Southbound				CSAH 14 (Main St.) Westbound				4th Ave. Northbound				CSAH 14 (Main St.) 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 11:00																		
11:00	11	17	8	36	2	117	8	127	5	3	2	10	6	163	7	176	349	
11:15	10	7	4	21	3	125	6	134	5	7	5	17	6	164	7	177	349	
11:30	10	7	16	33	1	160	7	168	7	2	6	15	6	195	14	215	431	
11:45	18	19	14	51	6	141	9	156	3	4	9	16	13	180	6	199	422	
<b>Total Volume</b>	<b>49</b>	<b>50</b>	<b>42</b>	<b>141</b>	<b>12</b>	<b>543</b>	<b>30</b>	<b>585</b>	<b>20</b>	<b>16</b>	<b>22</b>	<b>58</b>	<b>31</b>	<b>702</b>	<b>34</b>	<b>767</b>	<b>1551</b>	
<b>% App. Total</b>	<b>34.8</b>	<b>35.5</b>	<b>29.8</b>		<b>2.1</b>	<b>92.8</b>	<b>5.1</b>		<b>34.5</b>	<b>27.6</b>	<b>37.9</b>		<b>4</b>	<b>91.5</b>	<b>4.4</b>			
PHF	.681	.658	.656	.691	.500	.848	.833	.871	.714	.571	.611	.853	.596	.900	.607	.892	.900	
Peak Hour Analysis From 12:00 to 21:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 16:45																		
16:45	12	14	7	33	2	180	4	186	4	9	12	25	21	232	12	265	509	
17:00	14	15	6	35	7	193	8	208	15	15	4	34	37	228	3	268	545	
17:15	6	5	9	20	4	158	8	170	5	5	10	20	12	228	4	244	454	
17:30	24	8	7	39	8	146	2	156	8	12	5	25	17	210	6	233	453	
<b>Total Volume</b>	<b>56</b>	<b>42</b>	<b>29</b>	<b>127</b>	<b>21</b>	<b>677</b>	<b>22</b>	<b>720</b>	<b>32</b>	<b>41</b>	<b>31</b>	<b>104</b>	<b>87</b>	<b>898</b>	<b>25</b>	<b>1010</b>	<b>1961</b>	
<b>% App. Total</b>	<b>44.1</b>	<b>33.1</b>	<b>22.8</b>		<b>2.9</b>	<b>94</b>	<b>3.1</b>		<b>30.8</b>	<b>39.4</b>	<b>29.8</b>		<b>8.6</b>	<b>88.9</b>	<b>2.5</b>			
PHF	.583	.700	.806	.814	.656	.877	.688	.865	.533	.683	.646	.765	.588	.968	.521	.942	.900	

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

Study Name : TMC1028-2  
Study Date : 08/04/10  
Page No. : 1

**Signal Warrants - Summary**

**Major Street Approaches**

**Eastbound: CSAH 14 (Main St.)**

Number of Lanes: 2  
Approach Speed: 30  
Total Approach Volume: 10,646

**Westbound: CSAH 14 (Main St.)**

Number of Lanes: 2  
Approach Speed: 30  
Total Approach Volume: 9,005

**Minor Street Approaches**

**Northbound: 4th Ave.**

Number of Lanes: 1  
  
Total Approach Volume: 878

**Southbound: CSAH 31 (4th Ave.)**

Number of Lanes: 1  
  
Total Approach Volume: 1,598

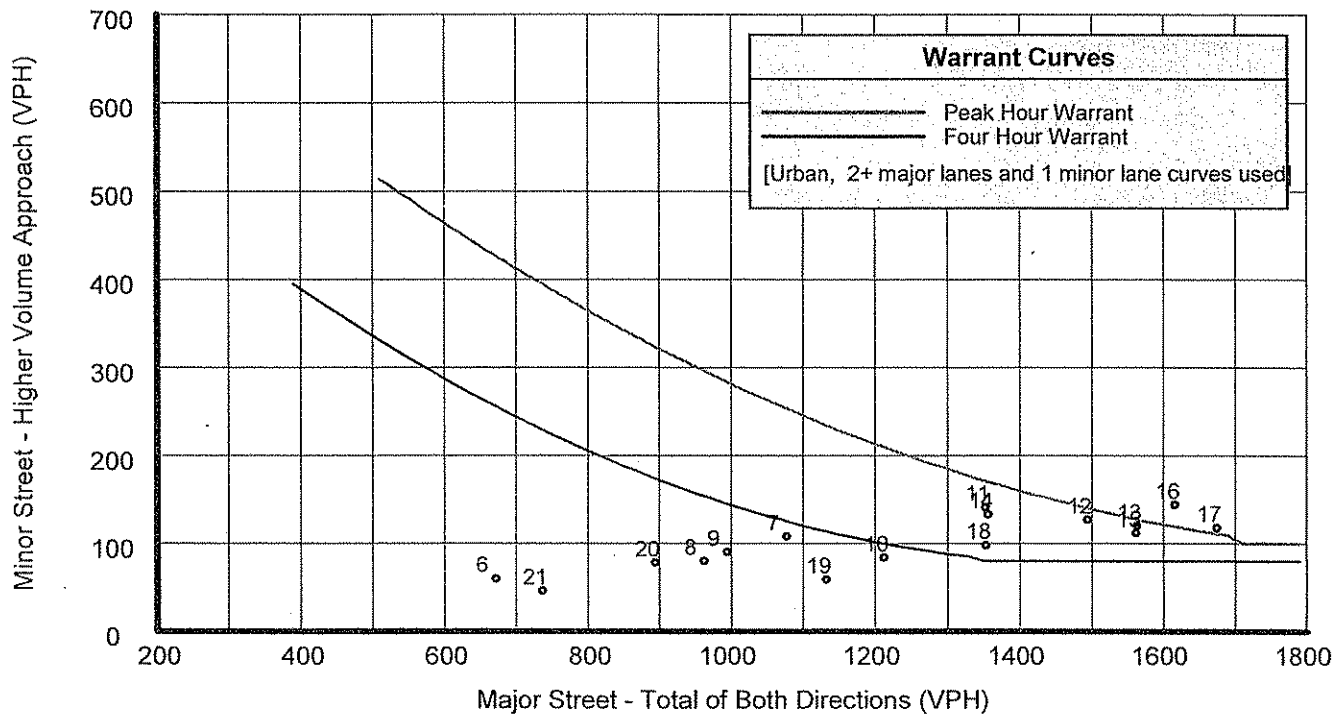
**Warrant Summary (Urban values apply.)**

<b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....	<b>Satisfied</b>
<b>Warrant 1A - Minimum Vehicular Volume</b> ..... <b>Not Satisfied</b>	
Required volumes reached for 0 hours, 8 are needed	
<b>Warrant 1B - Interruption of Continuous Traffic</b> ..... <b>Satisfied</b>	
Required volumes reached for 12 hours, 8 are needed	
<b>Warrant 1 A&amp;B - Combination of Warrants</b> ..... <b>Not Satisfied</b>	
Required volumes reached for 5 hours, 8 are needed	
<b>Warrant 2 - Four Hour Volumes</b> .....	<b>Satisfied</b>
Number of hours (8) volumes exceed minimum >= minimum required (4).	
<b>Warrant 3 - Peak Hour</b> .....	<b>Satisfied</b>
<b>Warrant 3A - Peak Hour Delay</b> ..... <b>Satisfied</b>	
Number of hours (33) volumes exceed minimum >= required (1). Delay data not evaluated.	
<b>Warrant 3B - Peak Hour Volumes</b> ..... <b>Satisfied</b>	
Volumes exceed minimums for at least one hour.	
<b>Warrant 4 - Pedestrian Volumes</b> .....	<b>Not Evaluated</b>
<b>Warrant 5 - School Crossing</b> .....	<b>Not Evaluated</b>
<b>Warrant 6 - Coordinated Signal System</b> .....	<b>Not Evaluated</b>
<b>Warrant 7 - Crash Experience</b> .....	<b>Not Evaluated</b>
<b>Warrant 8 - Roadway Network</b> .....	<b>Not Evaluated</b>

# ANOKA COUNTY HIGHWAY PC-WARRANTS TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC1028-2  
Study Date : 08/04/10  
Page No. : 2

## Signal Warrants - Summary



### Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor		War-1A			War-1B			War-1A&B		
		Vol	Dir	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
01:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
02:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
03:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
04:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
05:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
06:00	672	60	SB	600-Yes	150-No	Major	900-No	75-No	---	720-No	120-No	---
07:00	1,077	108	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-No	Major
08:00	962	80	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-No	Major
09:00	994	90	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-No	Major
10:00	1,212	84	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-No	Major
11:00	1,352	141	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
12:00	1,494	127	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
13:00	1,563	120	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
14:00	1,356	133	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
15:00	1,562	112	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-No	Major
16:00	1,616	144	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-Yes	Both
17:00	1,675	118	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-No	Major
18:00	1,353	98	SB	600-Yes	150-No	Major	900-Yes	75-Yes	Both	720-Yes	120-No	Major
19:00	1,132	59	SB	600-Yes	150-No	Major	900-Yes	75-No	Major	720-Yes	120-No	Major
20:00	894	78	SB	600-Yes	150-No	Major	900-No	75-Yes	Minor	720-Yes	120-No	Major
21:00	737	46	SB	600-Yes	150-No	Major	900-No	75-No	---	720-Yes	120-No	Major
22:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
23:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---

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

Study Name : TMC1028  
Study Date : 08/04/10  
Page No. : 1

**Signal Warrants - Summary**

**Major Street Approaches**

**Eastbound: CSAH 14 (Main St.)**  
Number of Lanes: 2  
Approach Speed: 30  
Total Approach Volume: 10,646

**Westbound: CSAH 14 (Main St.)**  
Number of Lanes: 2  
Approach Speed: 30  
Total Approach Volume: 9,005

**Minor Street Approaches**

**Northbound: 4th Ave.**  
Number of Lanes: 2  
  
Total Approach Volume: 878

**Southbound: CSAH 31 (4th Ave.)**  
Number of Lanes: 2  
  
Total Approach Volume: 1,598

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

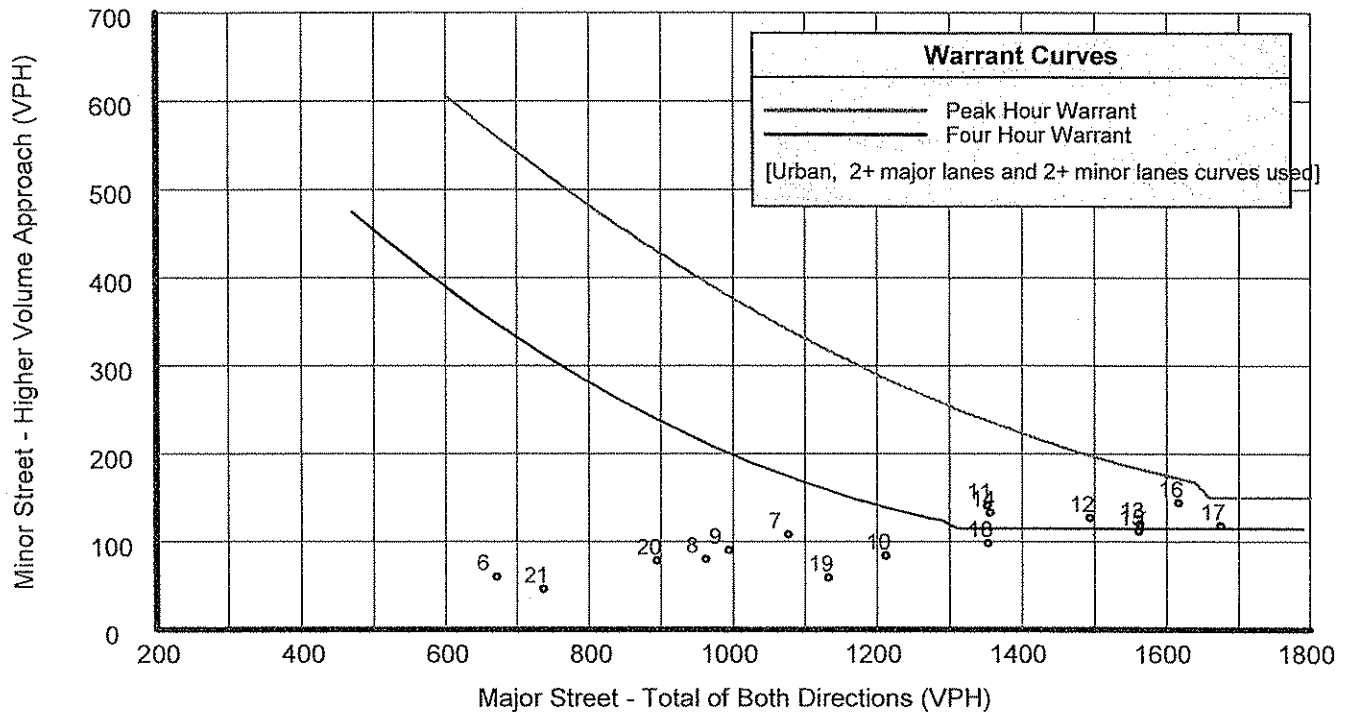
<b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....	<b>Satisfied</b>
<b>Warrant 1A - Minimum Vehicular Volume</b> ..... <b>Not Satisfied</b>	
Required volumes reached for 0 hours, 8 are needed	
<b>Warrant 1B - Interruption of Continuous Traffic</b> ..... <b>Satisfied</b>	
Required volumes reached for 8 hours, 8 are needed	
<b>Warrant 1 A&amp;B - Combination of Warrants</b> ..... <b>Not Satisfied</b>	
Required volumes reached for 0 hours, 8 are needed	
<b>Warrant 2 - Four Hour Volumes</b> .....	<b>Satisfied</b>
Number of hours (6) volumes exceed minimum >= minimum required (4).	
<b>Warrant 3 - Peak Hour</b> .....	<b>Satisfied</b>
<b>Warrant 3A - Peak Hour Delay</b> ..... <b>Satisfied</b>	
Number of hours (2) volumes exceed minimum >= required (1). Delay data not evaluated.	
<b>Warrant 3B - Peak Hour Volumes</b> ..... <b>Satisfied</b>	
Volumes exceed minimums for at least one hour.	
<b>Warrant 4 - Pedestrian Volumes</b> .....	<b>Not Evaluated</b>
<b>Warrant 5 - School Crossing</b> .....	<b>Not Evaluated</b>
<b>Warrant 6 - Coordinated Signal System</b> .....	<b>Not Evaluated</b>
<b>Warrant 7 - Crash Experience</b> .....	<b>Not Evaluated</b>
<b>Warrant 8 - Roadway Network</b> .....	<b>Not Evaluated</b>



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

Study Name : TMC1028  
Study Date : 08/04/10  
Page No. : 2

**Signal Warrants - Summary**



**Analysis of 8-Hour Volume Warrants:**

Hour Begin	Major Total	Higher Minor		War-1A			War-1B			War-1A&B		
		Vol	Dir	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
01:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
02:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
03:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
04:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
05:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
06:00	672	60	SB	600-Yes	200-No	Major	900-No	100-No	---	720-No	160-No	---
07:00	1,077	108	SB	600-Yes	200-No	Major	900-Yes	100-Yes	Both	720-Yes	160-No	Major
08:00	962	80	SB	600-Yes	200-No	Major	900-Yes	100-No	Major	720-Yes	160-No	Major
09:00	994	90	SB	600-Yes	200-No	Major	900-Yes	100-No	Major	720-Yes	160-No	Major
10:00	1,212	84	SB	600-Yes	200-No	Major	900-Yes	100-No	Major	720-Yes	160-No	Major
11:00	1,352	141	SB	600-Yes	200-No	Major	900-Yes	100-Yes	Both	720-Yes	160-No	Major
12:00	1,494	127	SB	600-Yes	200-No	Major	900-Yes	100-Yes	Both	720-Yes	160-No	Major
13:00	1,563	120	SB	600-Yes	200-No	Major	900-Yes	100-Yes	Both	720-Yes	160-No	Major
14:00	1,356	133	SB	600-Yes	200-No	Major	900-Yes	100-Yes	Both	720-Yes	160-No	Major
15:00	1,562	112	SB	600-Yes	200-No	Major	900-Yes	100-Yes	Both	720-Yes	160-No	Major
16:00	1,616	144	SB	600-Yes	200-No	Major	900-Yes	100-Yes	Both	720-Yes	160-No	Major
17:00	1,675	118	SB	600-Yes	200-No	Major	900-Yes	100-Yes	Both	720-Yes	160-No	Major
18:00	1,353	98	SB	600-Yes	200-No	Major	900-Yes	100-No	Major	720-Yes	160-No	Major
19:00	1,132	59	SB	600-Yes	200-No	Major	900-Yes	100-No	Major	720-Yes	160-No	Major
20:00	894	78	SB	600-Yes	200-No	Major	900-No	100-No	---	720-Yes	160-No	Major
21:00	737	46	SB	600-Yes	200-No	Major	900-No	100-No	---	720-Yes	160-No	Major
22:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
23:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---

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

Study Name : TMC1028  
Study Date : 08/04/10  
Page No. : 1

**Multi-Way Stop Warrant Report**

**Major Street Approaches**

**Eastbound: CSAH 14 (Main St.)**  
Total Approach Volume: 10,646  
Approach Speed: 30

**Westbound: CSAH 14 (Main St.)**  
Total Approach Volume: 9,005  
Approach Speed: 30

**Minor Street Approaches**

**Northbound: 4th Ave.**  
Total Approach Volume: 878

**Southbound: CSAH 31 (4th Ave.)**  
Total Approach Volume: 1,598

**Warrant Summary**

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

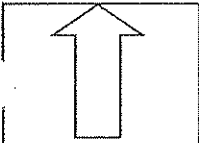
**Criteria B - Crash Experience** ..... Not Evaluated

**Criteria C - Minimum Volumes and Delays** ..... Not Satisfied  
Delay data not evaluated  
Required volumes reached for 6 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?
11:15 - 12:15	1,395	206	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
12:15 - 13:15	1,461	203	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
13:15 - 14:15	1,587	216	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
14:30 - 15:30	1,428	206	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
15:30 - 16:30	1,629	217	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
16:30 - 17:30	1,708	243	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
05:45 - 06:45	443	58	300-Yes	200-No	Major	240-Yes	160-No	Major
06:00 - 07:00	672	77	300-Yes	200-No	Major	240-Yes	160-No	Major
06:15 - 07:15	747	101	300-Yes	200-No	Major	240-Yes	160-No	Major
06:30 - 07:30	851	105	300-Yes	200-No	Major	240-Yes	160-No	Major
06:45 - 07:45	955	113	300-Yes	200-No	Major	240-Yes	160-No	Major
07:00 - 08:00	1,077	144	300-Yes	200-No	Major	240-Yes	160-No	Major
07:15 - 08:15	1,080	131	300-Yes	200-No	Major	240-Yes	160-No	Major
07:30 - 08:30	1,074	127	300-Yes	200-No	Major	240-Yes	160-No	Major
07:45 - 08:45	1,047	139	300-Yes	200-No	Major	240-Yes	160-No	Major
08:00 - 09:00	962	122	300-Yes	200-No	Major	240-Yes	160-No	Major
08:15 - 09:15	973	132	300-Yes	200-No	Major	240-Yes	160-No	Major
08:30 - 09:30	959	143	300-Yes	200-No	Major	240-Yes	160-No	Major
08:45 - 09:45	980	137	300-Yes	200-No	Major	240-Yes	160-No	Major
09:00 - 10:00	994	126	300-Yes	200-No	Major	240-Yes	160-No	Major
09:15 - 10:15	1,058	114	300-Yes	200-No	Major	240-Yes	160-No	Major
09:30 - 10:30	1,139	123	300-Yes	200-No	Major	240-Yes	160-No	Major
09:45 - 10:45	1,165	119	300-Yes	200-No	Major	240-Yes	160-No	Major
10:00 - 11:00	1,212	132	300-Yes	200-No	Major	240-Yes	160-No	Major



COUNT LOCATION:

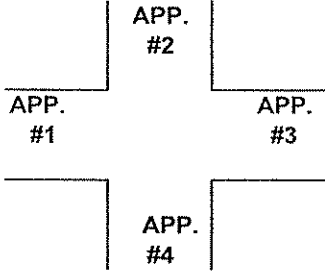
CSAH 14 (Main St.)

DATE:

08/05/2010

@ CSAH 31 (4th Ave.)

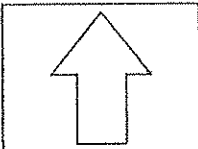
NORTH
APP. #1 = CSAH 14
APP. #2 = CSAH 31
APP. #3 = CSAH 14
APP. #4 = 4th Ave.



- 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		1
6:15-6:30						2		
6:30-6:45						4		3
6:45-7:00						3		3
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>22</b>
7:00-7:15						6		1
7:15-7:30						5		
7:30-7:45						9		2
7:45-8:00						18		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>41</b>
8:00-8:15						6		
8:15-8:30						2		1
8:30-8:45						10		1
8:45-9:00						8		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>28</b>
9:00-9:15						13		4
9:15-9:30						7		4
9:30-9:45						9		4
9:45-10:00						8		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>49</b>
10:00-10:15						10		
10:15-10:30						4		2
10:30-10:45						12		3
10:45-11:00						13		1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>45</b>
11:00-11:15						13		
11:15-11:30						12		2
11:30-11:45						12		3
11:45-12:00						14		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>56</b>
12:00-12:15						9		
12:15-12:30						7		2
12:30-12:45						12		2
12:45-1:00						11		1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>44</b>
1:00-1:15						12		
1:15-1:30						6		2
1:30-1:45						10		2
1:45-2:00						9	1	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>42</b>
					<b>TOTAL</b>			
						<b>TOTAL</b>		<b>327</b>

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**NORTH**

APP. #1 = CSAH 14
APP. #2 = CSAH 31
APP. #3 = CSAH 14
APP. #4 = 4th Ave.

**COUNT LOCATION:**

CSAH 14 (Main St.)

**DATE:**

08/04/2010

@ CSAH 31 (4th Ave.)

APP. #2

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

APP. #1

APP. #3

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.

APP. #4

TIME	PEDESTRIANS					HEAVY VEHICLES			
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS	
2:00-2:15PM						9		1	1
2:15-2:30						12		2	2
2:30-2:45						12		2	3
2:45-3:00						12		2	4
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>52</b>	
3:00-3:15						9		1	5
3:15-3:30						4		2	6
3:30-3:45						7		1	7
3:45-4:00						7		2	8
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>33</b>	
4:00-4:15						5		2	9
4:15-4:30						4		2	10
4:30-4:45						3			11
4:45-5:00						6			12
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>22</b>	
5:00-5:15						2		2	13
5:15-5:30						4		1	14
5:30-5:45						3		1	15
5:45-6:00						2		1	16
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>16</b>	
6:00-6:15						3		2	17
6:15-6:30						2		2	18
6:30-6:45						4			19
6:45-7:00						2		2	20
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>17</b>	
7:00-7:15						2		1	21
7:15-7:30						2			22
7:30-7:45						3		1	23
7:45-8:00						1			24
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>10</b>	
8:00-8:15						1			25
8:15-8:30						1		1	26
8:30-8:45						1		1	27
8:45-9:00									28
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>5</b>	
9:00-9:15						1			29
9:15-9:30									30
9:30-9:45									31
9:45-10:00									32
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>1</b>	
					<b>TOTAL</b>		<b>TOTAL</b>	<b>483</b>	