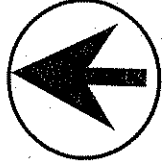


Date : 06/22/05

Count Number : TMC0515

Location : CSAH 83 (Armstrong Blvd.)

@ CR116 (Industry Ave.)



North

CSAH 83

6074

#2

3371	D	19
2206	M	
1146	T	

2703

CR 116

46

#1

75

29	A	12
	B	3
	C	14

Service Rd.

562	G	
13	H	
1368	J	

3483

#3

1540

CSAH 83

3586

#4

6118

14	M	
2127	L	
391	K	

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

Anoka County Highway Department  
Traffic Volume and Turning  
Movement Study

Anoka County Highway Department  
 Traffic Engineering  
 Traffic Volume and Turning Movement Study

File Name : TMC0515  
 Site Code : 05150102  
 Start Date : 06/22/2005  
 Page No : 1

Weather: Warm and Sunny  
 Counter: TDC-8  
 Counted by: Danielle/Samantha

Groups Printed- Unshifted

Start Time	CSAH 83 Southbound					CR 116 Westbound					CSAH 83 Northbound					CR 116 Eastbound					Exclu. 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			
06:00	19	49	0	3	68	4	0	1	0	5	0	5	3	0	8	0	0	0	0	0	3	81	84
06:15	26	84	2	3	112	9	0	5	0	14	0	9	8	1	17	1	0	0	0	0	4	144	148
06:30	40	51	0	1	91	5	0	5	0	10	0	7	11	0	18	0	0	0	0	0	1	119	120
06:45	60	49	0	1	109	9	1	6	1	16	2	11	13	0	26	0	0	0	0	0	2	151	153
Total	145	233	2	8	380	27	1	17	1	45	2	32	35	1	69	1	0	0	0	0	10	495	505
07:00	57	53	0	3	110	6	1	5	0	12	1	9	17	2	27	0	0	1	0	1	5	150	155
07:15	59	49	0	1	108	7	0	2	0	9	0	11	17	6	28	0	0	3	3	6	7	151	158
07:30	35	53	1	1	89	9	0	7	0	16	1	8	11	1	20	0	0	0	0	0	2	125	127
07:45	58	46	0	0	104	10	0	9	0	19	0	13	16	0	29	0	0	1	0	1	0	153	153
Total	209	201	1	5	411	32	1	23	0	56	2	41	61	9	104	0	0	5	3	8	14	579	593
08:00	35	42	0	4	77	12	0	9	2	21	0	9	8	0	17	0	0	0	0	0	6	115	121
08:15	33	48	0	1	81	8	0	15	0	23	1	11	7	0	19	0	0	2	1	3	1	126	127
08:30	15	57	1	0	73	3	0	6	0	9	0	9	6	0	15	1	0	0	0	1	0	98	98
08:45	18	35	2	5	55	8	0	15	5	23	1	22	5	0	28	2	0	0	0	2	10	108	118
Total	101	182	3	10	286	31	0	45	7	76	2	51	26	0	79	3	0	2	1	6	17	447	464
09:00	11	31	0	1	42	7	0	10	2	17	0	13	5	1	18	0	0	0	0	0	4	77	81
09:15	14	38	0	2	52	7	0	9	1	16	0	20	5	0	25	0	0	0	0	0	3	93	96
09:30	11	39	0	1	50	8	0	5	0	13	0	10	4	1	14	0	0	0	0	0	2	77	79
09:45	12	34	0	1	46	8	1	3	2	12	0	15	6	0	21	0	0	0	0	0	3	79	82
Total	48	142	0	5	190	30	1	27	5	58	0	58	20	2	78	0	0	0	0	0	12	326	338
10:00	12	31	0	1	43	8	1	8	3	17	0	21	1	2	22	1	0	0	0	1	6	83	89
10:15	18	25	0	4	43	5	0	12	4	17	0	19	5	1	24	0	0	0	0	0	9	84	93
10:30	11	31	0	2	42	5	0	12	0	17	0	18	2	0	20	0	0	0	0	0	2	79	81
10:45	11	28	0	3	39	7	1	10	2	18	0	14	3	2	17	0	0	0	0	0	7	74	81
Total	52	115	0	10	167	25	2	42	9	69	0	72	11	5	83	1	0	0	0	1	24	320	344
11:00	6	28	1	0	35	6	0	9	0	15	0	25	2	2	27	0	0	0	0	0	2	77	79
11:15	8	17	0	0	25	4	0	5	0	9	0	14	4	0	18	0	0	0	0	0	0	52	52
11:30	9	23	0	1	32	7	0	13	1	20	0	22	15	2	37	0	0	0	0	0	4	89	93
11:45	10	20	0	0	30	5	0	11	1	16	0	23	5	2	28	0	0	0	0	0	3	74	77
Total	33	88	1	1	122	22	0	38	2	60	0	84	26	6	110	0	0	0	0	0	9	292	301
12:00	11	23	0	4	34	8	2	13	1	23	3	20	3	5	26	0	0	0	0	0	10	83	93
12:15	11	19	0	1	30	6	0	17	1	23	0	24	6	1	30	0	0	0	0	0	3	83	86
12:30	18	20	0	3	38	5	0	9	1	14	0	37	3	1	40	0	0	2	2	4	5	96	101
12:45	13	28	0	1	41	6	0	21	0	27	0	26	3	0	29	0	0	0	0	0	1	97	98
Total	53	90	0	9	143	25	2	60	3	87	3	107	15	7	125	0	0	2	2	4	19	359	378
13:00	5	23	0	1	28	4	0	12	0	16	1	19	1	2	21	0	0	0	0	0	3	65	68
13:15	10	17	0	1	27	7	0	13	0	20	0	29	8	1	37	0	0	0	0	0	2	84	86
13:30	15	31	0	2	46	7	0	16	2	23	0	17	6	0	23	0	0	0	0	0	4	92	96
13:45	10	32	0	2	42	6	0	18	2	24	1	32	3	2	36	0	0	0	0	0	6	102	108
Total	40	103	0	6	143	24	0	59	4	83	2	97	18	5	117	0	0	0	0	0	15	343	358
14:00	14	30	0	0	44	5	0	12	2	17	0	27	6	3	33	0	0	0	0	0	5	94	99
14:15	9	26	1	0	36	8	0	23	0	31	1	21	5	3	27	2	0	0	0	2	3	96	99
14:30	13	26	0	3	39	11	0	21	1	32	0	26	4	2	30	0	0	0	0	0	6	101	107
14:45	9	35	0	1	44	11	0	35	0	46	0	33	10	1	43	0	0	0	0	0	2	133	135
Total	45	117	1	4	163	35	0	91	3	126	1	107	25	9	133	2	0	0	0	2	16	424	440
15:00	10	25	0	1	35	12	0	18	0	30	0	35	10	2	45	0	1	0	0	1	3	111	114
15:15	8	29	0	3	37	9	3	38	6	50	0	47	9	2	56	0	0	0	0	0	11	143	154
15:30	11	25	0	2	36	10	1	29	1	40	0	46	8	2	54	0	0	0	0	0	5	130	135
15:45	14	28	0	2	42	17	0	49	0	66	0	54	5	1	59	0	0	0	0	0	3	167	170
Total	43	107	0	8	150	48	4	134	7	186	0	182	32	7	214	0	1	0	0	1	22	551	573
16:00	13	19	0	0	32	16	1	37	0	54	1	58	8	4	67	0	0	1	0	1	4	154	158
16:15	14	34	0	1	48	16	0	40	2	56	0	70	5	3	75	0	0	0	0	0	6	179	185
16:30	15	31	0	4	46	28	0	31	1	59	0	60	9	0	69	0	0	0	0	0	5	174	179
16:45	13	24	0	3	37	22	0	63	1	85	0	64	7	0	71	0	0	0	0	0	4	193	197
Total	55	108	0	8	163	82	1	171	4	254	1	252	29	7	282	0	0	1	0	1	19	700	719
17:00	12	37	0	2	49	16	0	45	0	61	0	71	15	2	86	0	0	0	0	0	4	196	200
17:15	15	42	1	3	58	22	0	63	2	85	0	71	6	3	77	0	0	1	0	1	8	221	229
17:30	10	36	0	0	46	18	0	37	1	55	0	58	1	0	59	0	0	0	0	0	1	160	161
17:45	25	42	0	1	67	16	0	54	0	70	0	61	10	0	71	0	0	0	0	0	1	208	209
Total	62	157	1	6	220	72	0	199	3	271	0	261	32	5	293	0	0	1	0	1	14	785	799



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

Study Name : TMC0515  
Study Date : 06/24/05  
Page No. : 1

**Signal Warrants - Summary**

**Major Street Approaches**

**Northbound: CSAH 83**  
Number of Lanes: 2  
Approach Speed: 55  
Total Approach Volume: 2,532

**Southbound: CSAH 83**  
Number of Lanes: 1  
Approach Speed: 55  
Total Approach Volume: 3,371

**Minor Street Approaches**

**Eastbound: CR 116**  
Number of Lanes: 1  
  
Total Approach Volume: 29

**Westbound: CR 116**  
Number of Lanes: 2  
  
Total Approach Volume: 1,943

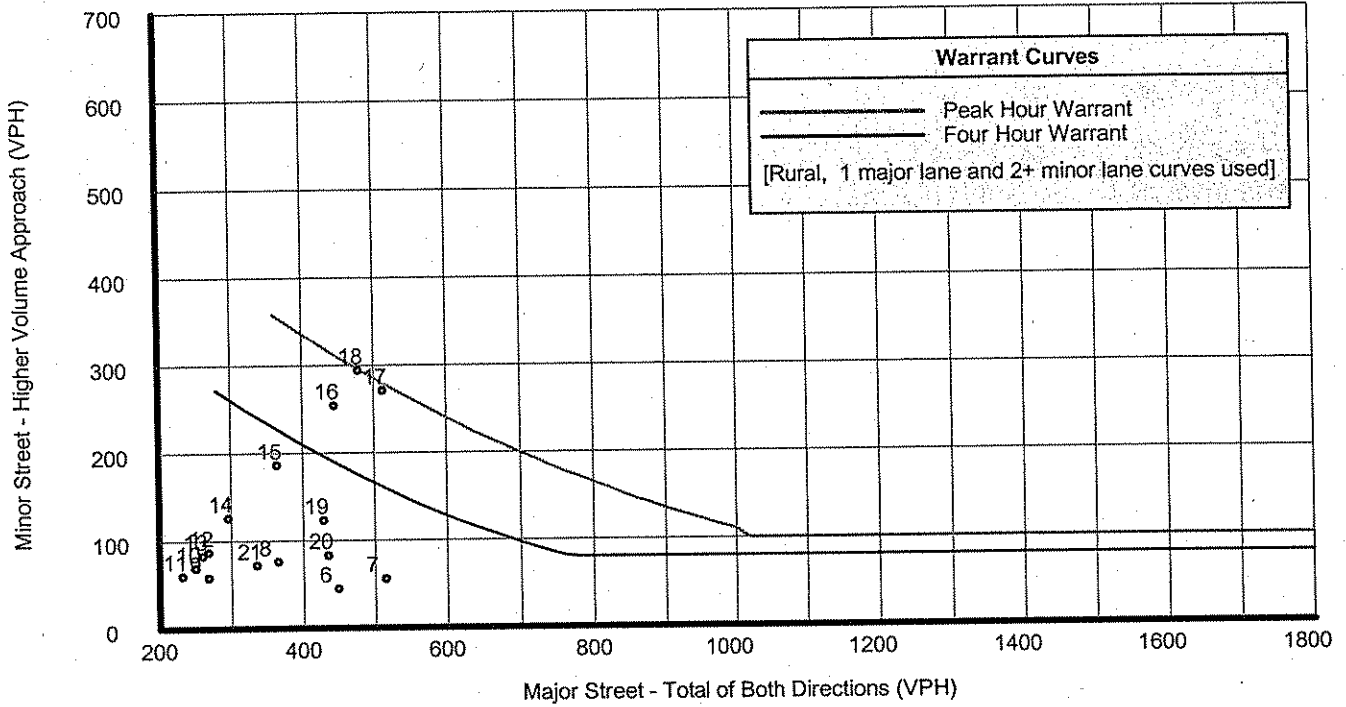
**Warrant Summary** (Rural values apply.)

<b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....	<b>Not Satisfied</b>
<b>Warrant 1A - Minimum Vehicular Volume</b> .....	<b>Not Satisfied</b>
Required volumes reached for 4 hours, 8 are needed	
<b>Warrant 1B - Interruption of Continuous Traffic</b> .....	<b>Not Satisfied</b>
Required volumes reached for 0 hours, 8 are needed	
<b>Warrant 1 A&amp;B - Combination of Warrants</b> .....	<b>Not Satisfied</b>
Required volumes reached for 4 hours, 8 are needed	
<b>Warrant 2 - Four Hour Volumes</b> .....	<b>Not Satisfied</b>
Number of hours (3) 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 (1) 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 : TMC0515  
Study Date : 06/24/05  
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	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
01:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
02:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
03:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
04:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
05:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
06:00	449	45	WB	350-Yes	140-No	Major	525-No	70-No	---	420-Yes	112-No	Major
07:00	515	56	WB	350-Yes	140-No	Major	525-No	70-No	---	420-Yes	112-No	Major
08:00	365	76	WB	350-Yes	140-No	Major	525-No	70-Yes	Minor	420-No	112-No	---
09:00	268	58	WB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
10:00	250	69	WB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
11:00	232	60	WB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
12:00	268	87	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-No	---
13:00	260	83	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-No	---
14:00	296	126	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-Yes	Minor
15:00	364	186	WB	350-Yes	140-Yes	Both	525-No	70-Yes	Minor	420-No	112-Yes	Minor
16:00	445	254	WB	350-Yes	140-Yes	Both	525-No	70-Yes	Minor	420-Yes	112-Yes	Both
17:00	513	271	WB	350-Yes	140-Yes	Both	525-No	70-Yes	Minor	420-Yes	112-Yes	Both
18:00	479	294	WB	350-Yes	140-Yes	Both	525-No	70-Yes	Minor	420-Yes	112-Yes	Both
19:00	429	123	WB	350-Yes	140-No	Major	525-No	70-Yes	Minor	420-Yes	112-Yes	Both
20:00	435	83	WB	350-Yes	140-No	Major	525-No	70-Yes	Minor	420-Yes	112-No	Major
21:00	335	72	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-No	---
22:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
23:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---

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

Study Name : TMC0515  
Study Date : 06/24/05

**Multi-Way Stop Warrant Report**

**Major Street Approaches**

**Northbound: CSAH 83**  
Total Approach Volume: 2,532  
Approach Speed: 55

**Southbound: CSAH 83**  
Total Approach Volume: 3,371  
Approach Speed: 55

**Minor Street Approaches**

**Eastbound: CR 116**  
Total Approach Volume: 29

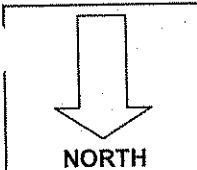
**Westbound: CR 116**  
Total Approach Volume: 1,943

**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 4 hours, 8 are needed
- Criteria D - 80% of Volumes, Delays, and Crashes** ..... Not Evaluated  
Delay data not evaluated  
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	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
02:00 - 03:00	0	0	210-No	140-No	No	240-No	160-No	No
03:00 - 04:00	0	0	210-No	140-No	No	240-No	160-No	No
04:00 - 05:00	0	0	210-No	140-No	No	240-No	160-No	No
05:00 - 06:00	0	0	210-No	140-No	No	240-No	160-No	No
06:00 - 07:00	449	46	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	515	61	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	365	81	210-Yes	140-No	Major	240-Yes	160-No	Major
09:00 - 10:00	268	58	210-Yes	140-No	Major	240-Yes	160-No	Major
10:00 - 11:00	250	70	210-Yes	140-No	Major	240-Yes	160-No	Major
11:00 - 12:00	232	60	210-Yes	140-No	Major	240-No	160-No	No
12:00 - 13:00	268	89	210-Yes	140-No	Major	240-Yes	160-No	Major
13:00 - 14:00	260	83	210-Yes	140-No	Major	240-Yes	160-No	Major
14:00 - 15:00	296	128	210-Yes	140-No	Major	240-Yes	160-No	Major
15:00 - 16:00	364	187	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
16:00 - 17:00	445	255	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
17:00 - 18:00	513	272	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
18:00 - 19:00	479	295	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
19:00 - 20:00	429	124	210-Yes	140-No	Major	240-Yes	160-No	Major
20:00 - 21:00	435	85	210-Yes	140-No	Major	240-Yes	160-No	Major
21:00 - 22:00	335	78	210-Yes	140-No	Major	240-Yes	160-No	Major
22:00 - 23:00	0	0	210-No	140-No	No	240-No	160-No	No
23:00 - 00:00	0	0	210-No	140-No	No	240-No	160-No	No



COUNT LOCATION:

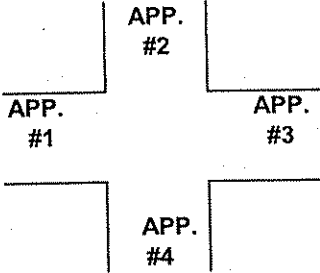
CSAH 83 (Armstrong Blvd.)

DATE:

06/23/2005

CR 116 (Industry Ave.)

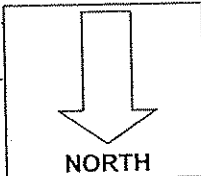
APP.#1 = CR 116
APP.#2= CSAH 83
APP.#3= CR116
APP.#4= CSAH83



- 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						3		
6:15-6:30						4		
6:30-6:45						1		
6:45-7:00						1		1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>	<b>10</b>	
7:00-7:15						5		
7:15-7:30						6		1
7:30-7:45			1		1	2		
7:45-8:00								
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>	<b>14</b>	
8:00-8:15						6		
8:15-8:30						1		1
8:30-8:45								
8:45-9:00						4		3
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>	<b>15</b>	
9:00-9:15				1	1	4		
9:15-9:30						3		
9:30-9:45						2		
9:45-10:00						2	1	
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>	<b>12</b>	
10:00-10:15						5		
10:15-10:30						9		
10:30-10:45						2		
10:45-11:00						7		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>	<b>23</b>	
11:00-11:15						2		
11:15-11:30								
11:30-11:45						3		1
11:45-12:00						3		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>	<b>9</b>	
12:00-12:15						10		
12:15-12:30						3		
12:30-12:45						5		2
12:45-1:00						1		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>	<b>21</b>	
1:00-1:15						2		
1:15-1:30							1	
1:30-1:45							1	
1:45-2:00	2				2	3		
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>	<b>7</b>	
<b>TOTAL</b>					<b>4</b>	<b>TOTAL</b>	<b>111</b>	

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COUNT LOCATION:

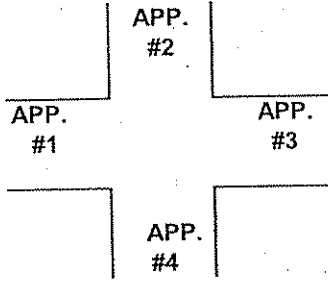
CSAH 83 (Armstrong blvd.)

DATE:

06/22/2005

CR 116 (IndustryAve.)

NORTH
APP.#1 = CR 116
APP.#2= CSAH 83
APP.#3= CR116
APP.#4= CSAH83



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						2		
2:30-2:45						6		
2:45-3:00						2		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>	<b>15</b>	
3:00-3:15						3		
3:15-3:30	3				3	8		
3:30-3:45						4		
3:45-4:00						3		
<b>HOURLY TOTAL</b>					<b>3</b>	<b>HOURLY TOTAL</b>	<b>18</b>	
4:00-4:15						4		
4:15-4:30						6		
4:30-4:45						3		
4:45-5:00						4		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>	<b>17</b>	
5:00-5:15						4		
5:15-5:30						8		
5:30-5:45						1		
5:45-6:00						1		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>	<b>14</b>	
6:00-6:15						2		
6:15-6:30						3		
6:30-6:45						1		
6:45-7:00	1	1	1		3			
<b>HOURLY TOTAL</b>					<b>3</b>	<b>HOURLY TOTAL</b>	<b>6</b>	
7:00-7:15						1		
7:15-7:30	1	1			2	2		
7:30-7:45						2		
7:45-8:00	1				1			
<b>HOURLY TOTAL</b>					<b>3</b>	<b>HOURLY TOTAL</b>	<b>5</b>	
8:00-8:15						1		
8:15-8:30	2	1	1		4			
8:30-8:45						1		
8:45-9:00						2		
<b>HOURLY TOTAL</b>					<b>4</b>	<b>HOURLY TOTAL</b>	<b>4</b>	
9:00-9:15						1		
9:15-9:30								
9:30-9:45						3		
9:45-10:00						2		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>	<b>6</b>	
					<b>TOTAL</b>		<b>TOTAL</b>	<b>196</b>
					<b>13</b>			

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