

Date : 06/07/10

Count Number : TMC1016

Location : CSAH 52 (Radisson Road)

@ Cloud Drive

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

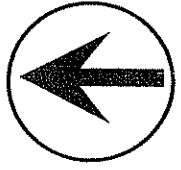
8140

#2

CSAH 52

D	82
E	3245
F	493
T	3820

4320



North

Cloud Drive

2925

#3

G	377
H	137
J	866
TOTAL	1380

1545

Anoka County Highway Department

Traffic Volume and Turning

Movement Study

553

#1

1147

C	66
B	210
A	318
TOTAL	594

Cloud Drive

M	334
L	3877
K	842
TOTAL	5053

4429

#4

9482

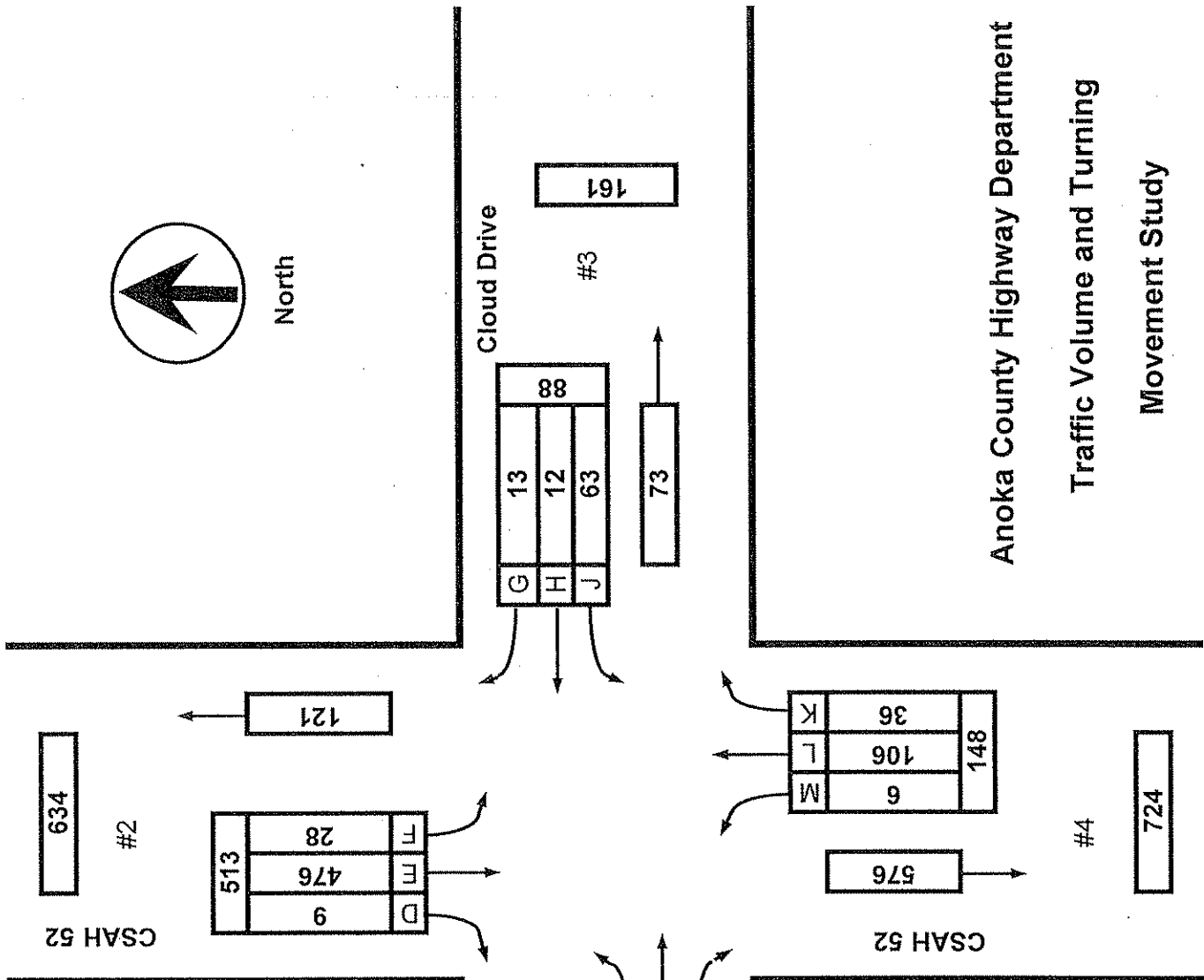
CSAH 52

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

Date : 06/09/10  
 Count Number : TMC1016  
 Location : CSAH 52 (Radisson Road)  
 @ Cloud Drive  
 Collection Period : AM PEAK  
 Hour : 7:15-8:15 AM



North



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

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

Date : 06/07/10

Count Number : TMC1016

Location : CSAH 52 (Radisson Road)

@ Cloud Drive

Collection Period : PM PEAK

Hour : 4:45-5:45 PM

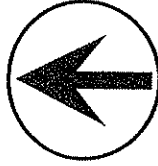
1039

#2

CSAH 52

316		
6	D	
256	E	
54	T	

723



North

Cloud Drive

#1

120

80		
40	A	
18	B	
21	C	
1		

Cloud Drive

#3

314

42	G	
20	H	
69	J	
131		

183

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

343

CSAH 52

54	M	
680	L	
108	K	
842		

#4

1185

Anoka County Highway Department

Traffic Volume and Turning

Movement Study





# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

Weather: Rainy and Mild  
 Counter: DB-400  
 Counted by: Andy/Brett

File Name : TMC1016  
 Site Code : 10160202  
 Start Date : 6/7/2010  
 Page No : 2

Groups Printed- Unshifted

Start Time	CSAH 52 Southbound					Cloud Dr Westbound					CSAH 52 Northbound					Cloud Dr Eastbound					Excl. Total	Incl. 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	6	59	0	0	65	14	3	3	0	20	17	128	16	1	161	1	2	6	0	9	1	255	256
18:15	18	37	5	0	60	12	2	11	0	25	14	102	18	0	134	2	4	4	0	10	0	229	229
18:30	13	52	5	1	70	12	4	13	0	29	8	82	20	1	110	1	7	5	0	13	2	222	224
18:45	7	47	1	1	55	10	2	6	0	18	4	71	18	1	93	1	2	7	0	10	2	176	178
Total	44	195	11	2	250	48	11	33	0	92	43	383	72	3	498	5	15	22	0	42	5	882	887
19:00	6	44	0	0	50	20	2	5	0	27	5	75	16	0	96	1	0	3	0	4	0	177	177
19:15	11	43	1	0	55	18	0	11	0	29	6	56	10	1	72	3	5	1	0	9	1	165	166
19:30	7	32	1	2	40	11	0	4	0	15	4	49	12	0	65	0	4	4	0	8	2	128	130
19:45	10	34	0	0	44	6	7	12	0	25	4	50	13	1	67	0	4	1	0	5	1	141	142
Total	34	153	2	2	189	55	9	32	0	96	19	230	51	2	300	4	13	9	0	26	4	611	615
20:00	10	57	2	0	69	9	0	6	0	15	6	52	6	0	64	2	6	11	0	19	0	167	167
20:15	10	37	0	0	47	2	2	3	0	7	6	55	11	1	72	2	4	2	0	8	1	134	135
20:30	10	31	0	2	41	12	5	9	0	26	2	54	7	0	63	0	2	5	0	7	2	137	139
20:45	8	20	0	0	28	2	1	4	0	7	4	41	7	0	52	2	5	5	0	12	0	99	99
Total	38	145	2	2	185	25	8	22	0	55	18	202	31	1	251	6	17	23	0	46	3	537	540
21:00	6	15	0	0	21	8	2	4	0	14	4	32	2	0	38	0	2	5	0	7	0	80	80
21:15	7	20	0	0	27	2	0	5	0	7	2	24	7	0	33	0	3	8	0	11	0	78	78
21:30	7	21	4	1	32	3	1	5	0	9	1	26	7	0	34	0	1	5	0	6	1	81	82
21:45	0	19	0	0	19	6	3	3	0	12	0	24	4	0	28	0	0	4	0	4	0	63	63
Total	20	75	4	1	99	19	6	17	0	42	7	106	20	0	133	0	6	22	0	28	1	302	303
Grand Total	493	3245	82	145	3820	866	137	377	41	1380	334	3877	842	165	5053	66	210	318	18	594	369	10847	11216
Branch %	12.9	84.9	2.1			62.8	9.9	27.3			6.6	76.7	16.7			11.1	35.4	53.5					
Total %	4.5	29.9	0.8		35.2	8	1.3	3.5		12.7	3.1	35.7	7.8		46.6	0.6	1.9	2.9		5.5	3.3	96.7	

Start Time	CSAH 52 Southbound				Cloud Dr Westbound				CSAH 52 Northbound				Cloud Dr Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
06:00	6	131	3	140	14	0	3	17	2	30	9	41	2	5	17	24	222
07:30	8	120	0	128	16	4	0	20	3	31	8	42	0	1	6	7	197
07:45	8	119	2	129	15	4	5	24	1	19	10	30	0	2	11	13	196
08:00	6	106	4	116	18	4	5	27	0	26	9	35	0	1	3	4	182
Total Volume	28	476	9	513	63	12	13	88	6	106	36	148	2	9	37	48	797
% App. Total	5.5	92.8	1.8		71.6	13.6	14.8		4.1	71.6	24.3		4.2	18.8	77.1		
PHF	.875	.908	.563	.916	.875	.750	.650	.815	.500	.855	.900	.881	.250	.450	.544	.500	.898

Start Time	CSAH 52 Southbound				Cloud Dr Westbound				CSAH 52 Northbound				Cloud Dr Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
16:45	9	61	2	72	16	9	12	37	15	167	17	199	0	4	4	8	316
17:00	17	57	2	76	14	6	10	30	13	180	27	220	0	5	4	9	335
17:15	7	77	0	84	15	2	9	26	18	171	34	223	0	7	3	10	343
17:30	21	61	2	84	24	3	11	38	8	162	30	200	1	5	7	13	335
Total Volume	54	256	6	316	69	20	42	131	54	680	108	842	1	21	18	40	1329
% App. Total	17.1	81	1.9		52.7	15.3	32.1		6.4	80.8	12.8		2.5	52.5	45		
PHF	.643	.831	.750	.940	.719	.556	.875	.862	.750	.944	.794	.944	.250	.750	.643	.769	.969

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

Study Name : TMC1016  
Study Date : 06/15/10  
Page No. : 1

**Signal Warrants - Summary**

**Major Street Approaches**

**Northbound: CSAH 52**  
Number of Lanes: 2  
Approach Speed: 55  
Total Approach Volume: 5,053

**Southbound: CSAH 52**  
Number of Lanes: 2  
Approach Speed: 55  
Total Approach Volume: 3,820

**Minor Street Approaches**

**Eastbound: Cloud Dr**  
Number of Lanes: 1  
  
Total Approach Volume: 594

**Westbound: Cloud Dr**  
Number of Lanes: 1  
  
Total Approach Volume: 1,380

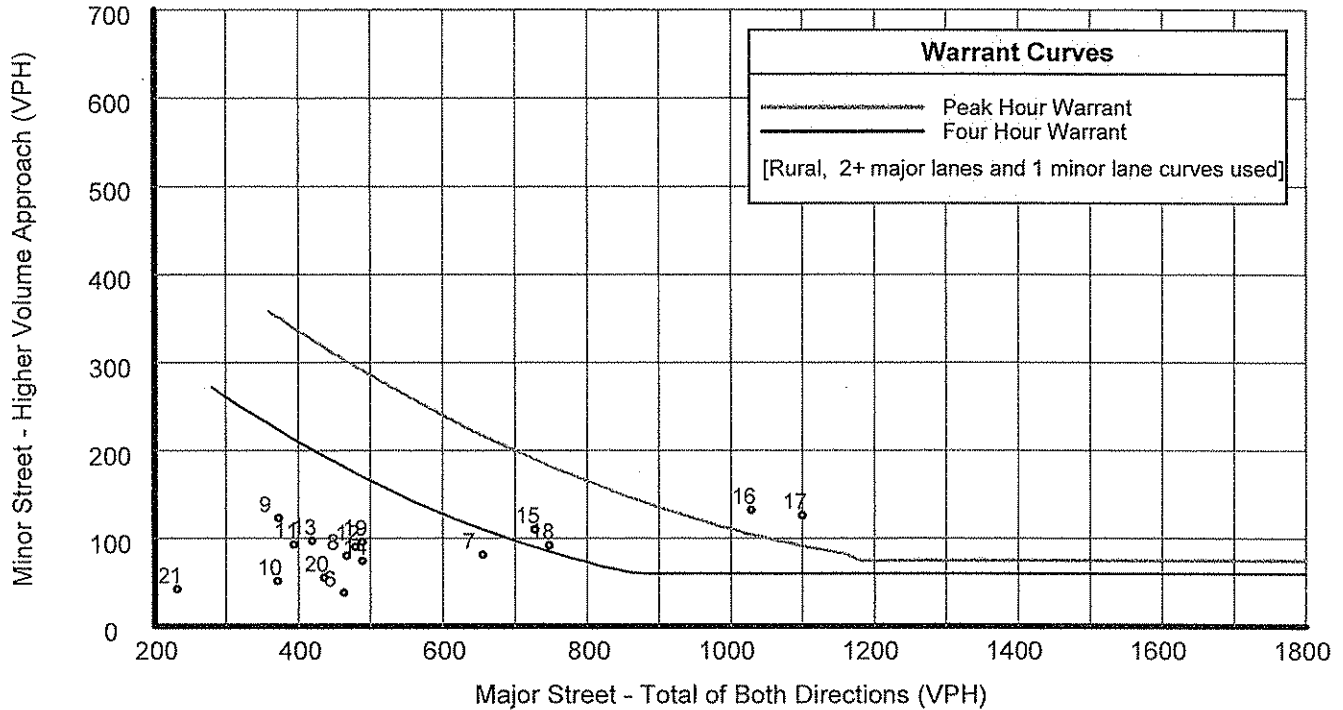
**Warrant Summary (Rural values apply.)**

- Warrant 1 - Eight Hour Vehicular Volumes** ..... **Not Satisfied**
- Warrant 1A - Minimum Vehicular Volume** ..... **Not Satisfied**  
Required volumes reached for 3 hours, 8 are needed
- Warrant 1B - Interruption of Continuous Traffic** ..... **Not Satisfied**  
Required volumes reached for 5 hours, 8 are needed
- Warrant 1 A&B - Combination of Warrants** ..... **Not Satisfied**  
Required volumes reached for 4 hours, 8 are needed
- Warrant 2 - Four Hour Volumes** ..... **Satisfied**  
Number of hours (4) volumes exceed minimum >= minimum required (4).
- Warrant 3 - Peak Hour** ..... **Satisfied**
- Warrant 3A - Peak Hour Delay** ..... **Satisfied**  
Number of hours (12) volumes exceed minimum >= required (1). Delay data not evaluated.
- Warrant 3B - Peak Hour Volumes** ..... **Satisfied**  
Volumes exceed minimums for at least one 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 : TMC1016  
Study Date : 06/15/10  
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	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
01:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
02:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
03:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
04:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
05:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
06:00	463	38	WB	420-Yes	105-No	Major	630-No	53-No	---	504-No	84-No	---
07:00	656	81	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
08:00	467	80	WB	420-Yes	105-No	Major	630-No	53-Yes	Minor	504-No	84-No	---
09:00	373	123	WB	420-No	105-Yes	Minor	630-No	53-Yes	Minor	504-No	84-Yes	Minor
10:00	371	51	WB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
11:00	394	93	WB	420-No	105-No	---	630-No	53-Yes	Minor	504-No	84-Yes	Minor
12:00	479	90	WB	420-Yes	105-No	Major	630-No	53-Yes	Minor	504-No	84-Yes	Minor
13:00	419	97	WB	420-No	105-No	---	630-No	53-Yes	Minor	504-No	84-Yes	Minor
14:00	489	74	WB	420-Yes	105-No	Major	630-No	53-Yes	Minor	504-No	84-No	---
15:00	728	110	WB	420-Yes	105-Yes	Both	630-Yes	53-Yes	Both	504-Yes	84-Yes	Both
16:00	1,029	132	WB	420-Yes	105-Yes	Both	630-Yes	53-Yes	Both	504-Yes	84-Yes	Both
17:00	1,100	126	WB	420-Yes	105-Yes	Both	630-Yes	53-Yes	Both	504-Yes	84-Yes	Both
18:00	748	92	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-Yes	Both
19:00	489	96	WB	420-Yes	105-No	Major	630-No	53-Yes	Minor	504-No	84-Yes	Minor
20:00	436	55	WB	420-Yes	105-No	Major	630-No	53-Yes	Minor	504-No	84-No	---
21:00	232	42	WB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
22:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
23:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---

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

Study Name : TMC1016  
Study Date : 06/15/10  
Page No. : 1

**Multi-Way Stop Warrant Report**

**Major Street Approaches**

**Northbound: CSAH 52**  
Total Approach Volume: 5,053  
Approach Speed: 55

**Southbound: CSAH 52**  
Total Approach Volume: 3,820  
Approach Speed: 55

**Minor Street Approaches**

**Eastbound: Cloud Dr**  
Total Approach Volume: 594

**Westbound: Cloud Dr**  
Total Approach Volume: 1,380

**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

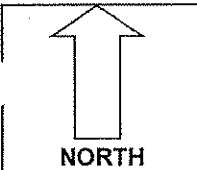
**Criteria C - Minimum Volumes and Delays** ..... Not Satisfied  
Delay data not evaluated  
Required volumes reached for 5 hours, 8 are needed

**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?
08:15 - 09:15	432	147	210-Yes	140-Yes	Both	240-Yes	160-No	Major
13:00 - 14:00	419	152	210-Yes	140-Yes	Both	240-Yes	160-No	Major
15:00 - 16:00	728	148	210-Yes	140-Yes	Both	240-Yes	160-No	Major
16:00 - 17:00	1,029	160	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
17:00 - 18:00	1,100	167	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
05:45 - 06:45	302	45	210-Yes	140-No	Major	240-Yes	160-No	Major
06:00 - 07:00	463	73	210-Yes	140-No	Major	240-Yes	160-No	Major
06:15 - 07:15	530	96	210-Yes	140-No	Major	240-Yes	160-No	Major
06:30 - 07:30	603	118	210-Yes	140-No	Major	240-Yes	160-No	Major
06:45 - 07:45	658	129	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	656	138	210-Yes	140-No	Major	240-Yes	160-No	Major
07:15 - 08:15	661	136	210-Yes	140-No	Major	240-Yes	160-No	Major
07:30 - 08:30	599	122	210-Yes	140-No	Major	240-Yes	160-No	Major
07:45 - 08:45	521	115	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	467	112	210-Yes	140-No	Major	240-Yes	160-No	Major
09:15 - 10:15	346	115	210-Yes	140-No	Major	240-Yes	160-No	Major
09:30 - 10:30	342	92	210-Yes	140-No	Major	240-Yes	160-No	Major
09:45 - 10:45	374	95	210-Yes	140-No	Major	240-Yes	160-No	Major
10:00 - 11:00	371	92	210-Yes	140-No	Major	240-Yes	160-No	Major
10:15 - 11:15	371	111	210-Yes	140-No	Major	240-Yes	160-No	Major
10:30 - 11:30	378	104	210-Yes	140-No	Major	240-Yes	160-No	Major
10:45 - 11:45	368	109	210-Yes	140-No	Major	240-Yes	160-No	Major
11:00 - 12:00	394	122	210-Yes	140-No	Major	240-Yes	160-No	Major
11:15 - 12:15	419	106	210-Yes	140-No	Major	240-Yes	160-No	Major





COUNT LOCATION:

CSAH 52 (Radisson Road)

DATE:

6/9/2010

@ Cloud Drive

APP. #1 = Cloud Drive
APP. #2 = CSAH 52
APP. #3 = Cloud Drive
APP. #4 = CSAH 52

APP. #1	APP. #2	APP. #3	APP. #4
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HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT

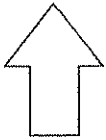
A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.

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						1		
6:30-6:45						4		
6:45-7:00						5		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>10</b>
7:00-7:15			2		2	9		
7:15-7:30						7		2
7:30-7:45				1	1	2		2
7:45-8:00						5		1
<b>HOURLY TOTAL</b>					<b>3</b>	<b>HOURLY TOTAL</b>		<b>28</b>
8:00-8:15						5		1
8:15-8:30						5		
8:30-8:45						12		
8:45-9:00						8		6
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>37</b>
9:00-9:15						6		10
9:15-9:30	1		1		2	10		1
9:30-9:45						3		
9:45-10:00	1				1	9		
<b>HOURLY TOTAL</b>					<b>3</b>	<b>HOURLY TOTAL</b>		<b>39</b>
10:00-10:15						4		
10:15-10:30						6		
10:30-10:45			1		1	10		
10:45-11:00						7		
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>27</b>
11:00-11:15	1				1	8		
11:15-11:30						8	1	
11:30-11:45						10		
11:45-12:00						12		2
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>41</b>
12:00-12:15						7		
12:15-12:30						1		
12:30-12:45						7		
12:45-1:00						4		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>19</b>
1:00-1:15						8		2
1:15-1:30						9		1
1:30-1:45						9		
1:45-2:00						8		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>37</b>
					<b>TOTAL</b>	<b>8</b>		
							<b>TOTAL</b>	<b>238</b>

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NORTH

APP. #1 = Cloud Drive
APP. #2 = CSAH 52
APP. #3 = Cloud Drive
APP. #4 = CSAH 52

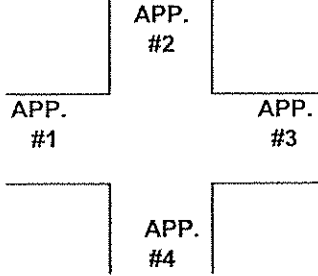
COUNT LOCATION:

CSAH 52 (Radisson Road)

DATE:

6/7/2010

@ Cloud Drive



- 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		5	12		
2:15-2:30			3		3	5		1
2:30-2:45	3		2		5	5		2
2:45-3:00	2				2	9		1
<b>HOURLY TOTAL</b>					<b>15</b>	<b>HOURLY TOTAL</b>		<b>35</b>
3:00-3:15						5		1
3:15-3:30	3				3	6		4
3:30-3:45						6		3
3:45-4:00						3		5
<b>HOURLY TOTAL</b>					<b>3</b>	<b>HOURLY TOTAL</b>		<b>33</b>
4:00-4:15						4		
4:15-4:30						7		1
4:30-4:45						7		
4:45-5:00			1	1	2	3		2
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>		<b>24</b>
5:00-5:15				3	3	7		
5:15-5:30						4		
5:30-5:45	2		1		3	6		
5:45-6:00			2		2	5		
<b>HOURLY TOTAL</b>					<b>8</b>	<b>HOURLY TOTAL</b>		<b>22</b>
6:00-6:15	4		3	1	8	1		
6:15-6:30								
6:30-6:45	2		2		4	2		
6:45-7:00	4				4	2		
<b>HOURLY TOTAL</b>					<b>16</b>	<b>HOURLY TOTAL</b>		<b>5</b>
7:00-7:15	3				3			
7:15-7:30						1		
7:30-7:45	5				5	1		1
7:45-8:00						1		
<b>HOURLY TOTAL</b>					<b>8</b>	<b>HOURLY TOTAL</b>		<b>4</b>
8:00-8:15								
8:15-8:30						1		
8:30-8:45						2		
8:45-9:00								
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>3</b>
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		
					<b>TOTAL</b>	<b>60</b>	<b>TOTAL</b>	<b>364</b>

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