

Date : 12/06/12

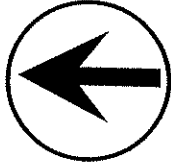
Count Number : TMC1245

Location : CSAH 11 (Northdale Blvd.)

@ Sorteberg School Entrance

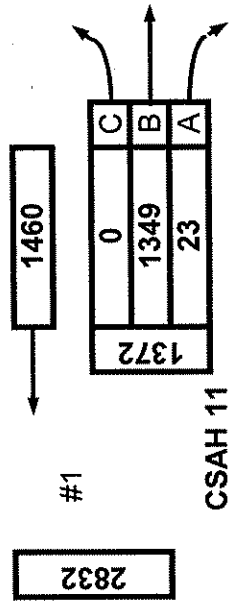
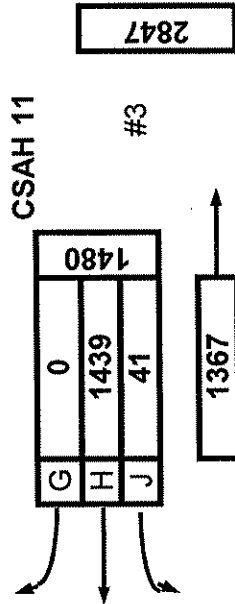
Collection Period : PEAK HOURS

7 - 9:00 AM & 4 - 6:00 PM



North

CSAH 11



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

Sorteberg School Access

Anoka County Highway Department
Traffic Volume and Turning
Movement Study

Date : 12/06/12

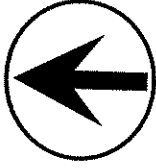
Count Number : TMC1245

Location : CSAH 11 (Northdale Blvd.)

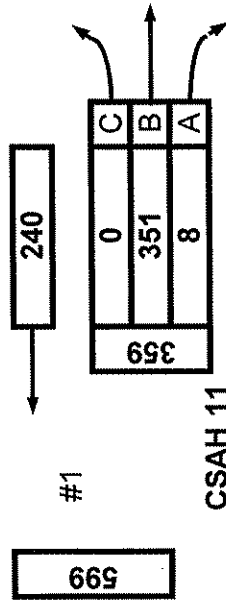
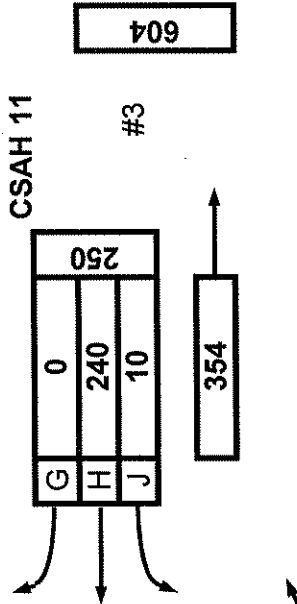
@ Sorteberg School Entrance

Collection Period : AM PEAK

Hour : 7:15 - 8:15 AM

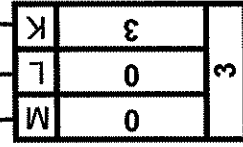


North



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

Sorteberg School Access



Anoka County Highway Department
Traffic Volume and Turning
Movement Study

Date : 12/06/12

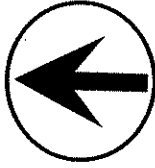
Count Number : TMC1245

Location : CSAH 11 (Northdale Blvd.)

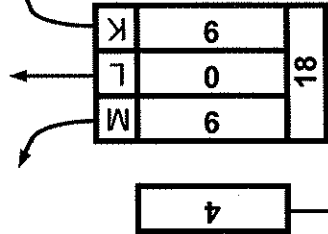
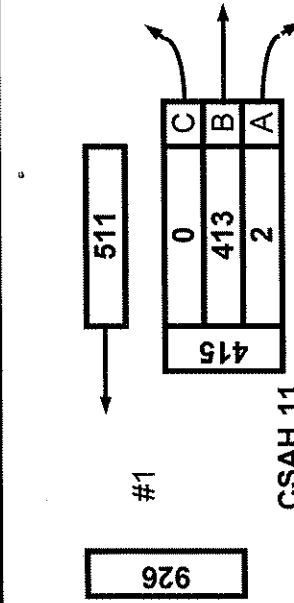
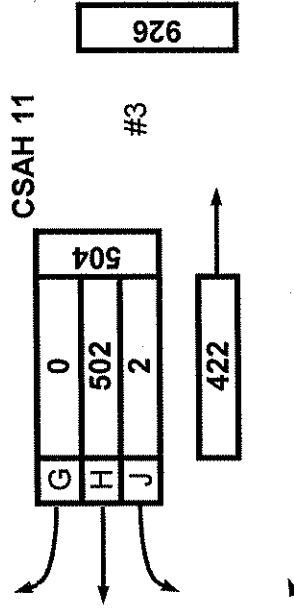
@ Sorteberg School Entrance

Collection Period : PM PEAK

Hour : 4:15 PM - 5:15 PM



North



Sorteberg School Access

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

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 and Mild
 Counter: DB-400
 study conducted by: Josie/Terri

File Name : TMC1245
 Site Code : 12450202
 Start Date : 12/06/2012
 Page No : 1

Groups Printed- Unshifted

Start Time	None Southbound					CSAH 11 Westbound					School Entrance Northbound					CSAH 11 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			
07:00	0	0	0	0	0	2	56	0	3	58	0	0	0	0	0	0	67	0	5	67	8	125	133
07:15	0	0	0	0	0	0	72	0	4	72	0	0	0	0	0	0	86	1	5	87	9	159	168
07:30	0	0	0	0	0	0	60	0	3	60	0	0	0	0	0	0	100	2	8	102	11	162	173
07:45	0	0	0	0	0	4	58	0	2	62	0	0	1	0	1	0	84	3	4	87	6	150	156
Total	0	0	0	0	0	6	246	0	12	252	0	0	1	0	1	0	337	6	22	343	34	596	630
08:00	0	0	0	0	0	6	50	0	3	56	0	0	2	1	2	0	81	2	2	83	6	141	147
08:15	0	0	0	0	0	3	58	0	4	61	0	0	0	0	0	0	71	2	4	73	8	134	142
08:30	0	0	0	0	0	5	50	0	4	55	1	0	1	0	2	0	55	0	8	55	12	112	124
08:45	0	0	0	0	0	15	63	0	4	78	1	0	1	0	2	0	54	4	1	58	5	138	143
Total	0	0	0	0	0	29	221	0	15	250	2	0	4	1	6	0	261	8	15	269	31	525	556
*** BREAK ***																							
16:00	0	0	0	0	0	2	109	0	7	111	6	0	3	0	9	0	93	4	4	97	11	217	228
16:15	0	0	0	0	0	0	125	0	1	125	5	0	4	0	9	0	110	2	3	112	4	246	250
16:30	0	0	0	0	0	1	133	0	1	134	2	0	0	0	2	0	108	0	1	108	2	244	246
16:45	0	0	0	0	0	0	118	0	1	118	1	0	3	0	4	0	90	0	1	90	2	212	214
Total	0	0	0	0	0	3	485	0	10	488	14	0	10	0	24	0	401	6	9	407	19	919	938
17:00	0	0	0	0	0	1	126	0	0	127	1	0	2	0	3	0	105	0	2	105	2	235	237
17:15	0	0	0	0	0	0	120	0	3	120	0	0	0	0	0	0	103	1	0	104	3	224	227
17:30	0	0	0	0	0	0	128	0	1	128	0	0	0	0	0	0	81	0	0	81	1	209	210
17:45	0	0	0	0	0	2	113	0	0	115	4	0	1	0	5	0	61	2	1	63	1	183	184
Total	0	0	0	0	0	3	487	0	4	490	5	0	3	0	8	0	350	3	3	353	7	851	858
Grand Total	0	0	0	0	0	41	1439	0	41	1480	21	0	18	1	39	0	1349	23	49	1372	91	2891	2982
Apprch %	0	0	0			2.8	97.2	0			53.8	0	46.2			0	98.3	1.7					
Total %	0	0	0			1.4	49.8	0		51.2	0.7	0	0.6		1.3	0	46.7	0.8		47.5	3.1	96.9	

Start Time	None Southbound				CSAH 11 Westbound				School Entrance Northbound				CSAH 11 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 07:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	0	0	0	0	72	0	72	0	0	0	0	0	86	1	87	159
07:30	0	0	0	0	0	60	0	60	0	0	0	0	0	100	2	102	162
07:45	0	0	0	0	4	58	0	62	0	0	1	1	0	84	3	87	150
08:00	0	0	0	0	6	50	0	56	0	0	2	2	0	81	2	83	141
Total Volume	0	0	0	0	10	240	0	250	0	0	3	3	0	351	8	359	612
% App. Total	0	0	0	0	4	96	0	100	0	0	100		0	97.8	2.2		
PHF	.000	.000	.000	.000	.417	.833	.000	.868	.000	.000	.375	.375	.000	.878	.667	.880	.944

Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	0	0	0	0	0	125	0	125	5	0	4	9	0	110	2	112	246
16:30	0	0	0	0	1	133	0	134	2	0	0	2	0	108	0	108	244
16:45	0	0	0	0	0	118	0	118	1	0	3	4	0	90	0	90	212
17:00	0	0	0	0	1	126	0	127	1	0	2	3	0	105	0	105	235
Total Volume	0	0	0	0	2	502	0	504	9	0	9	18	0	413	2	415	937
% App. Total	0	0	0	0	0.4	99.6	0	100	50	0	50	100	0	99.5	0.5		
PHF	.000	.000	.000	.000	.500	.944	.000	.940	.450	.000	.563	.500	.000	.939	.250	.926	.952



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

Study Name : TMC1245
Study Date : 12/14/12
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 11

Number of Lanes: 1
85% Speed < 40 MPH.
Total Approach Volume: 1,376

Westbound: CSAH 11

Number of Lanes: 1
85% Speed < 40 MPH.
Total Approach Volume: 1,484

Minor Street Approaches

Northbound: School Entrance

Number of Lanes: 1

Total Approach Volume: 43

Southbound: None

Number of Lanes: 1

Total Approach Volume: 0

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

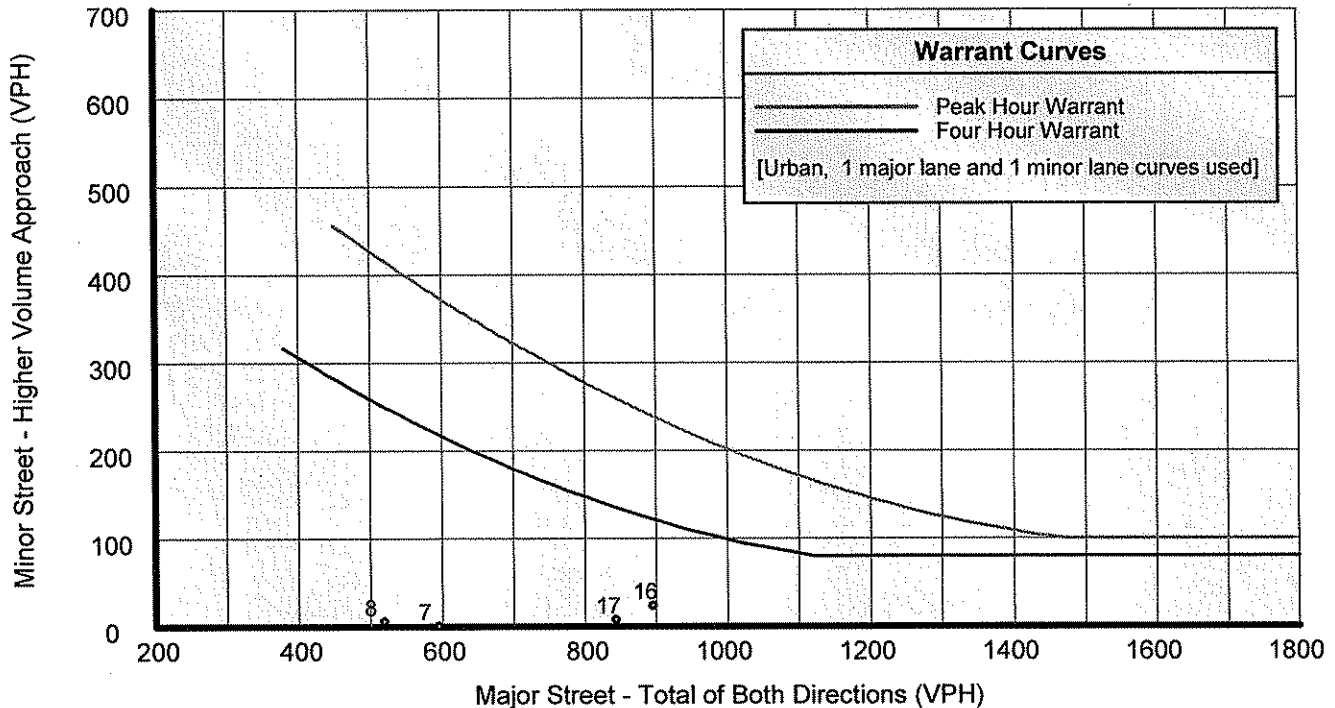
- Warrant 9 - Intersection Near a Grade Crossing** Not Evaluated



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

Study Name : TMC1245
Study Date : 12/14/12
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 500	Min 150	Hour Begin	Major Total	Minor Vol	Dir	Maj 750	Min 75	Hour Begin	Major Total	Minor Vol	Dir	Maj 600	Min 120
16:15	919	18	NB	Yes	No	16:15	919	18	NB	Yes	No	16:15	919	18	NB	Yes	No
16:30	906	9	NB	Yes	No	16:30	906	9	NB	Yes	No	16:30	906	9	NB	Yes	No
16:00	895	24	NB	Yes	No	16:00	895	24	NB	Yes	No	16:00	895	24	NB	Yes	No
16:45	873	7	NB	Yes	No	16:45	873	7	NB	Yes	No	16:45	873	7	NB	Yes	No
17:00	843	8	NB	Yes	No	17:00	843	8	NB	Yes	No	17:00	843	8	NB	Yes	No
15:45	687	20	NB	Yes	No	15:45	687	20	NB	No	No	15:45	687	20	NB	Yes	No
17:15	611	5	NB	Yes	No	17:15	611	5	NB	No	No	17:15	611	5	NB	Yes	No
07:15	609	3	NB	Yes	No	07:15	609	3	NB	No	No	07:15	609	3	NB	Yes	No
07:00	595	1	NB	Yes	No	07:00	595	1	NB	No	No	07:00	595	1	NB	No	No
07:30	584	3	NB	Yes	No	07:30	584	3	NB	No	No	07:30	584	3	NB	No	No
07:45	532	5	NB	Yes	No	07:45	532	5	NB	No	No	07:45	532	5	NB	No	No
08:00	519	6	NB	Yes	No	08:00	519	6	NB	No	No	08:00	519	6	NB	No	No
06:45	446	0	SB	No	No	06:45	446	0	SB	No	No	06:45	446	0	SB	No	No
15:30	445	18	NB	No	No	15:30	445	18	NB	No	No	15:30	445	18	NB	No	No
17:30	387	6	NB	No	No	17:30	387	6	NB	No	No	17:30	387	6	NB	No	No
08:15	380	4	NB	No	No	08:15	380	4	NB	No	No	08:15	380	4	NB	No	No
06:30	286	1	NB	No	No	06:30	286	1	NB	No	No	06:30	286	1	NB	No	No
08:30	248	5	NB	No	No	08:30	248	5	NB	No	No	08:30	248	5	NB	No	No
15:15	208	9	NB	No	No	15:15	208	9	NB	No	No	15:15	208	9	NB	No	No
17:45	178	6	NB	No	No	17:45	178	6	NB	No	No	17:45	178	6	NB	No	No
08:45	138	3	NB	No	No	08:45	138	3	NB	No	No	08:45	138	3	NB	No	No
06:15	127	1	NB	No	No	06:15	127	1	NB	No	No	06:15	127	1	NB	No	No
18:45	2	0	SB	No	No	18:45	2	0	SB	No	No	18:45	2	0	SB	No	No
18:30	2	0	SB	No	No	18:30	2	0	SB	No	No	18:30	2	0	SB	No	No



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

Study Name : TMC1245
Study Date : 12/14/12
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Eastbound: CSAH 11
Total Approach Volume: 1,372
85% Speed < 40 MPH.

Westbound: CSAH 11
Total Approach Volume: 1,480
85% Speed < 40 MPH.

Minor Street Approaches

Northbound: School Entrance
Total Approach Volume: 39

Southbound: None
Total Approach Volume: 0

Warrant Summary

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

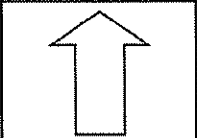
Criteria B - Crash Experience Not Evaluated

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?
06:45 - 07:45	446	0	300-Yes	200-No	Major	240-Yes	160-No	Major
07:00 - 08:00	595	1	300-Yes	200-No	Major	240-Yes	160-No	Major
07:15 - 08:15	609	3	300-Yes	200-No	Major	240-Yes	160-No	Major
07:30 - 08:30	584	3	300-Yes	200-No	Major	240-Yes	160-No	Major
07:45 - 08:45	532	5	300-Yes	200-No	Major	240-Yes	160-No	Major
08:00 - 09:00	519	6	300-Yes	200-No	Major	240-Yes	160-No	Major
08:15 - 09:15	380	4	300-Yes	200-No	Major	240-Yes	160-No	Major
15:30 - 16:30	445	18	300-Yes	200-No	Major	240-Yes	160-No	Major
15:45 - 16:45	687	20	300-Yes	200-No	Major	240-Yes	160-No	Major
16:00 - 17:00	895	24	300-Yes	200-No	Major	240-Yes	160-No	Major
16:15 - 17:15	919	18	300-Yes	200-No	Major	240-Yes	160-No	Major
16:30 - 17:30	906	9	300-Yes	200-No	Major	240-Yes	160-No	Major
16:45 - 17:45	873	7	300-Yes	200-No	Major	240-Yes	160-No	Major
17:00 - 18:00	843	8	300-Yes	200-No	Major	240-Yes	160-No	Major
17:15 - 18:15	611	5	300-Yes	200-No	Major	240-Yes	160-No	Major
17:30 - 18:30	387	5	300-Yes	200-No	Major	240-Yes	160-No	Major
00:00 - 01:00	0	0	300-No	200-No	No	240-No	160-No	No
00:15 - 01:15	0	0	300-No	200-No	No	240-No	160-No	No
00:30 - 01:30	0	0	300-No	200-No	No	240-No	160-No	No
00:45 - 01:45	0	0	300-No	200-No	No	240-No	160-No	No
01:00 - 02:00	0	0	300-No	200-No	No	240-No	160-No	No
01:15 - 02:15	0	0	300-No	200-No	No	240-No	160-No	No
01:30 - 02:30	0	0	300-No	200-No	No	240-No	160-No	No
01:45 - 02:45	0	0	300-No	200-No	No	240-No	160-No	No



COUNT LOCATION:

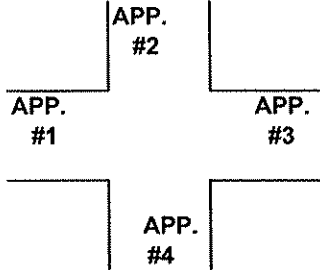
CSAH 11 (Northdale Blvd.)

DATE:

12/06/2012

@ Sorteberg School Entrance

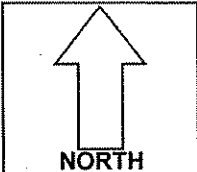
NORTH
APP. #1 = CSAH 11
APP. #2 = None
APP. #3 = CSAH 11
APP. #4 = School Ent.



- 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								
6:30-6:45								
6:45-7:00								
HOURLY TOTAL						HOURLY TOTAL		
7:00-7:15						2		7
7:15-7:30						3		5
7:30-7:45						6		9
7:45-8:00						1		1
HOURLY TOTAL						HOURLY TOTAL		34
8:00-8:15						2		3
8:15-8:30						6		2
8:30-8:45						5		7
8:45-9:00						2		3
HOURLY TOTAL						HOURLY TOTAL		30
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		
10:00-10:15								
10:15-10:30								
10:30-10:45								
10:45-11:00								
HOURLY TOTAL						HOURLY TOTAL		
11:00-11:15								
11:15-11:30								
11:30-11:45								
11:45-12:00								
HOURLY TOTAL						HOURLY TOTAL		
12:00-12:15								
12:15-12:30								
12:30-12:45								
12:45-1:00								
HOURLY TOTAL						HOURLY TOTAL		
1:00-1:15								
1:15-1:30								
1:30-1:45								
1:45-2:00								
HOURLY TOTAL						HOURLY TOTAL		
					TOTAL		TOTAL	64

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COUNT LOCATION:

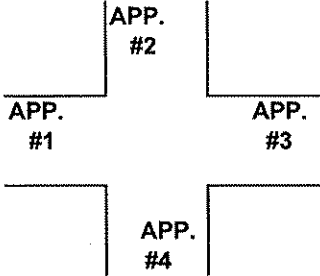
CSAH 11 (Northdale Blvd.)

DATE:

12/06/2012

@ Sorteberg School Entrance

APP. #1 = CSAH 11
APP. #2 = None
APP. #3 = CSAH 11
APP. #4 = School Ent.



- HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT
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TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
2:00-2:15PM								
2:15-2:30								
2:30-2:45								
2:45-3:00								
HOURLY TOTAL						HOURLY TOTAL		
3:00-3:15								
3:15-3:30								
3:30-3:45								
3:45-4:00								
HOURLY TOTAL						HOURLY TOTAL		
4:00-4:15				1	1	2		9
4:15-4:30						3		2
4:30-4:45								1
4:45-5:00						2		
HOURLY TOTAL					1	HOURLY TOTAL		19
5:00-5:15				1	1	1		1
5:15-5:30						2		1
5:30-5:45								1
5:45-6:00								1
HOURLY TOTAL					1	HOURLY TOTAL		7
6:00-6:15								
6:15-6:30								
6:30-6:45								
6:45-7:00								
HOURLY TOTAL						HOURLY TOTAL		
7:00-7:15								
7:15-7:30								
7:30-7:45								
7:45-8:00								
HOURLY TOTAL						HOURLY TOTAL		
8:00-8:15								
8:15-8:30								
8:30-8:45								
8:45-9:00								
HOURLY TOTAL						HOURLY TOTAL		
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		
				TOTAL	2		TOTAL	90

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