

Date : 07/07/10

Count Number : TMC1021

Location : CSAH 17 (Lexington Ave.)

@ CSAH 18 (Broadway Ave.)

Collection Period : PM PEAK

Hour : 4:30-5:30 PM

CSAH 17

328

#2

64	D
40	F
24	F

264

CSAH 18

598

#3

84	G
0	H
259	J

255



North

CSAH 17

299

#4

0	M
180	L
231	K

710

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

Anoka County Highway Department

Traffic Volume and Turning

Movement Study

Date : 07/08/10

Count Number : TMC1021

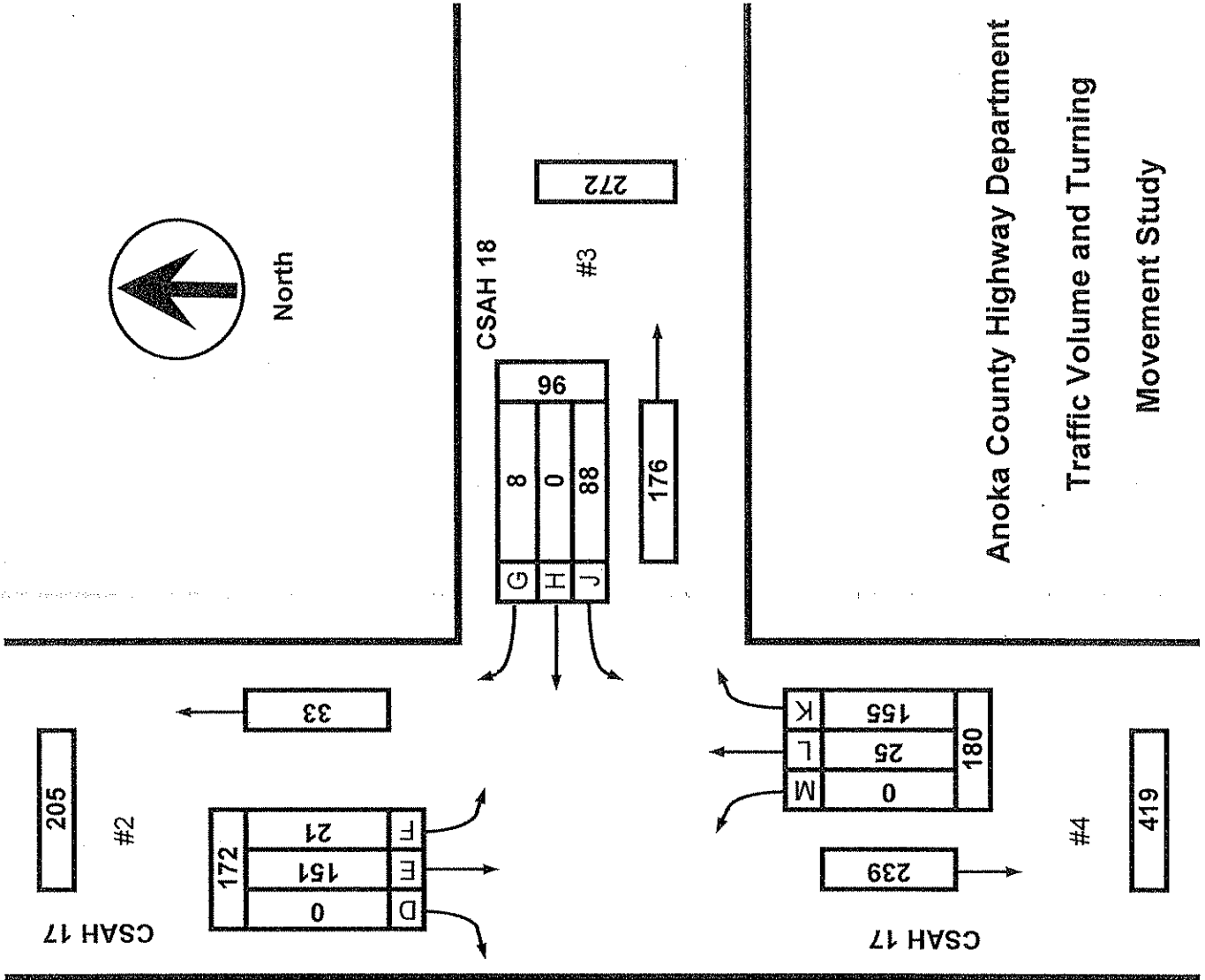
Location : CSAH 17 (Lexington Ave.)

@ CSAH 18 (Broadway Ave.)

Collection Period : AM PEAK

Hour : 6:15 AM-7:15 AM

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



Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 07/07/10

Count Number : TMC1021

Location : CSAH 17 (Lexington Ave.)

@ CSAH 18 (Broadway Ave.)

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

2592

#2

CSAH 17

1202	D	0
850	M	850
352	T	352

1390

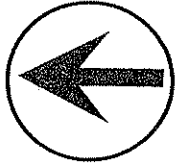
CSAH 18

#3

450	G	450
0	H	0
1911	J	1911

4748

2387



North

2035	K	2035
940	L	940
0	M	0
2975		2975

2761

CSAH 17

#4

5736

	EXISTING LANES OF APPROACH			TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	0	0	0	0
#2	0	0	1	1
#3	1	1	0	2
#4	1	0	1	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: Warm and Sunny
 Counter: DB-400
 Counted by: Andy/Brett

File Name : TMC1021
 Site Code : 10210202
 Start Date : 07/07/2010
 Page No : 1

Groups Printed- Unshifted

Start Time	CSAH 17 Southbound					CSAH 18 Westbound					CSAH 17 Northbound					None Eastbound					Exclu. Total	Inclu. Total	Inl. 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	6	28	0	0	34	14	0	0	0	14	0	3	28	3	31	0	0	0	0	0	3	79	82
06:15	7	51	0	1	58	28	0	0	0	28	0	3	38	3	41	0	0	0	0	0	4	127	131
06:30	2	42	0	1	44	23	0	2	1	25	0	4	42	4	46	0	0	0	0	0	6	115	121
06:45	8	25	0	0	33	24	0	4	0	28	0	12	46	5	58	0	0	0	0	0	5	119	124
Total	23	146	0	2	169	89	0	6	1	95	0	22	154	15	176	0	0	0	0	0	18	440	458
07:00	4	33	0	0	37	13	0	2	2	15	0	6	29	6	35	0	0	0	0	0	8	87	95
07:15	9	25	0	3	34	25	0	2	0	27	0	1	44	1	45	0	0	0	0	0	4	106	110
07:30	13	23	0	0	36	16	0	1	1	17	0	5	47	1	52	0	0	0	0	0	2	105	107
07:45	10	32	0	1	42	24	0	3	0	27	0	3	44	1	47	0	0	0	0	0	2	116	118
Total	36	113	0	4	149	78	0	8	3	86	0	15	164	9	179	0	0	0	0	0	16	414	430
08:00	5	15	0	1	20	15	0	2	1	17	0	1	33	1	34	0	0	0	0	0	3	71	74
08:15	10	13	0	1	23	33	0	2	6	35	0	6	49	1	55	0	0	0	0	0	8	113	121
08:30	7	13	0	0	20	22	0	3	2	25	0	2	32	4	34	0	0	0	0	0	6	79	85
08:45	4	12	0	2	16	22	0	6	1	28	0	6	26	2	32	0	0	0	0	0	5	76	81
Total	26	53	0	4	79	92	0	13	10	105	0	15	140	8	155	0	0	0	0	0	22	339	361
09:00	8	5	0	0	13	12	0	1	0	13	0	5	25	2	30	0	0	0	0	0	2	56	58
09:15	7	12	0	1	19	30	0	1	1	31	0	7	29	4	36	0	0	0	0	0	6	86	92
09:30	3	12	0	1	15	31	0	6	2	37	0	8	33	3	41	0	0	0	0	0	6	93	99
09:45	3	5	0	1	8	27	0	3	0	30	0	5	27	4	32	0	0	0	0	0	5	70	75
Total	21	34	0	3	55	100	0	11	3	111	0	25	114	13	139	0	0	0	0	0	19	305	324
10:00	7	11	0	0	18	21	0	8	1	29	0	3	29	2	32	0	0	0	0	0	3	79	82
10:15	11	10	0	0	21	34	0	7	2	41	0	9	32	0	41	0	0	0	0	0	2	103	105
10:30	4	18	0	0	22	19	0	5	1	24	0	7	22	3	29	0	0	0	0	0	4	75	79
10:45	10	7	0	0	17	30	0	4	5	34	0	4	24	2	28	0	0	0	0	0	7	79	86
Total	32	46	0	0	78	104	0	24	9	128	0	23	107	7	130	0	0	0	0	0	16	336	352
11:00	8	11	0	3	19	18	0	9	3	27	0	11	32	1	43	0	0	0	0	0	7	89	96
11:15	5	6	0	1	11	22	0	5	4	27	0	6	26	1	32	0	0	0	0	0	6	70	76
11:30	5	10	0	0	15	30	0	9	1	39	0	10	28	2	38	0	0	0	0	0	3	92	95
11:45	7	14	0	0	21	31	0	1	2	32	0	11	23	2	34	0	0	0	0	0	4	87	91
Total	25	41	0	4	66	101	0	24	10	125	0	38	109	6	147	0	0	0	0	0	20	338	358
12:00	2	11	0	2	13	24	0	7	4	31	0	4	23	2	27	0	0	0	0	0	8	71	79
12:15	7	13	0	2	20	35	0	4	0	39	0	19	38	3	57	0	0	0	0	0	5	116	121
12:30	6	8	0	0	14	23	0	14	2	37	0	11	40	2	51	0	0	0	0	0	4	102	106
12:45	5	14	0	0	19	31	0	2	2	33	0	16	27	1	43	0	0	0	0	0	3	95	98
Total	20	46	0	4	66	113	0	27	8	140	0	50	128	8	178	0	0	0	0	0	20	384	404
13:00	6	11	0	1	17	26	0	11	4	37	0	14	26	3	40	0	0	0	0	0	8	94	102
13:15	5	13	0	2	18	28	0	7	1	35	0	15	37	3	52	0	0	0	0	0	6	105	111
13:30	11	11	0	0	22	24	0	11	3	35	0	7	41	0	48	0	0	0	0	0	3	105	108
13:45	4	13	0	1	17	31	0	4	3	35	0	10	32	3	42	0	0	0	0	0	7	94	101
Total	26	48	0	4	74	109	0	33	11	142	0	46	136	9	182	0	0	0	0	0	24	398	422
14:00	8	12	0	1	20	25	0	3	2	28	0	15	19	2	34	0	0	0	0	0	5	82	87
14:15	7	13	0	0	20	36	0	7	1	43	0	25	21	1	46	0	0	0	0	0	2	109	111
14:30	4	5	0	0	9	37	0	10	6	47	0	12	25	1	37	0	0	0	0	0	7	93	100
14:45	5	13	0	0	18	29	0	13	1	42	0	16	12	0	28	0	0	0	0	0	1	86	89
Total	24	43	0	1	67	127	0	33	10	160	0	68	77	4	145	0	0	0	0	0	15	372	387
15:00	5	9	0	0	14	30	0	15	8	45	0	15	40	3	55	0	0	0	0	0	11	114	125
15:15	7	9	0	1	16	32	0	7	3	39	0	23	32	5	55	0	0	0	0	0	9	110	119
15:30	10	20	0	1	30	54	0	13	3	67	0	30	43	2	73	0	0	0	0	0	6	170	176
15:45	9	8	0	1	17	52	0	13	2	65	0	11	34	0	45	0	0	0	0	0	3	127	130
Total	31	46	0	3	77	168	0	48	16	216	0	79	149	10	228	0	0	0	0	0	29	521	550
16:00	4	17	0	1	21	51	0	11	4	62	0	35	42	4	77	0	0	0	0	0	9	160	169
16:15	8	18	0	0	26	66	0	9	1	75	0	52	45	2	97	0	0	0	0	0	3	198	201
16:30	7	6	0	0	13	46	0	13	4	59	0	47	45	5	92	0	0	0	0	0	9	164	173
16:45	9	8	0	0	17	72	0	34	3	106	0	50	60	4	110	0	0	0	0	0	7	233	240
Total	28	49	0	1	77	235	0	67	12	302	0	184	192	15	376	0	0	0	0	0	28	755	783
17:00	2	15	0	0	17	69	0	17	1	86	0	43	63	1	106	0	0	0	0	0	2	209	211
17:15	6	11	0	0	17	72	0	20	1	92	0	40	63	1	103	0	0	0	0	0	2	212	214
17:30	7	10	0	0	17	50	0	22	0	72	0	31	42	2	73	0	0	0	0	0	2	162	164
17:45	5	13	0	0	18	46	0	8	0	54	0	38	36	0	74	0	0	0	0	0	0	146	146
Total	20	49	0	0	69	237	0	67	2	304	0	152	204	4	356	0	0	0	0	0	6	729	735

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

Study Name : **TMC1021**
Study Date : **07/07/10**
Page No. : **1**

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 17

Number of Lanes: **2**
Approach Speed: **55**
Total Approach Volume: **2,975**

Southbound: CSAH 17

Number of Lanes: **1**
Approach Speed: **55**
Total Approach Volume: **1,202**

Minor Street Approaches

Westbound: CSAH 18

Number of Lanes: **2**
Total Approach Volume: **2,361**

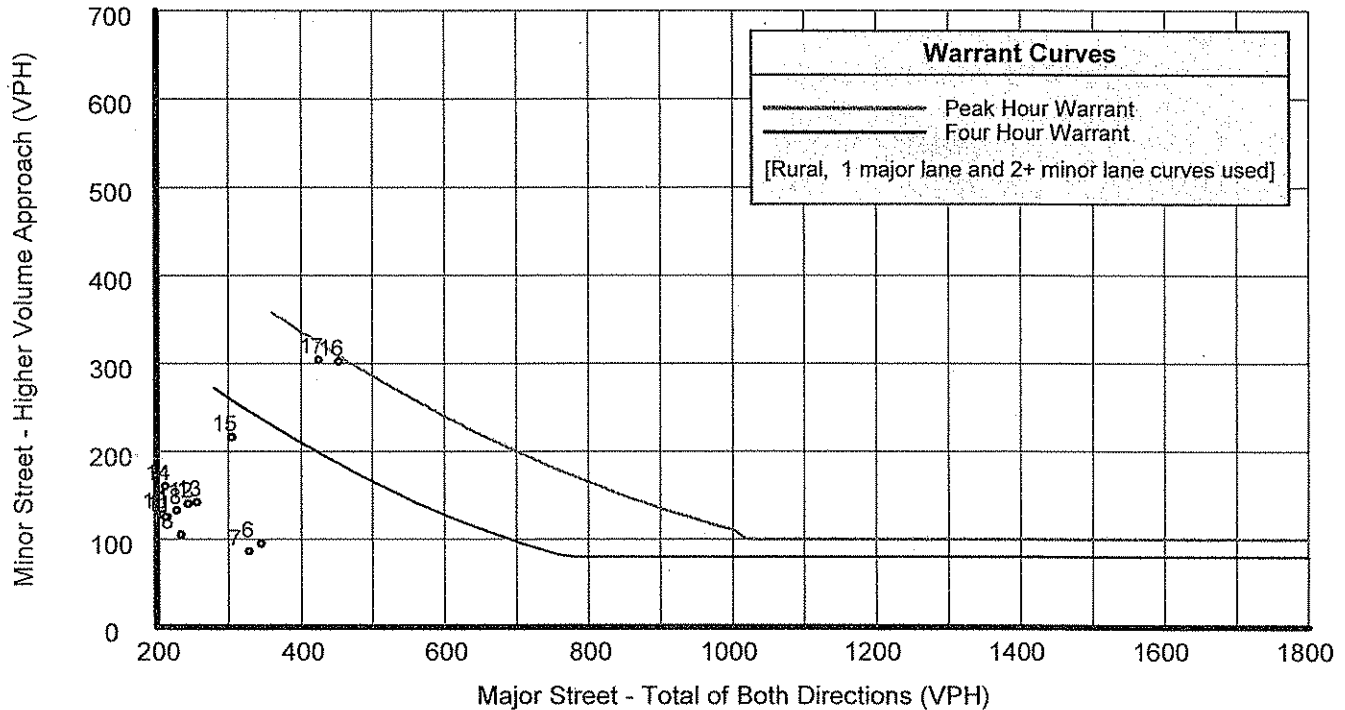
Warrant Summary (Rural values apply.)

Warrant 1 - Eight Hour Vehicular Volumes	Not Satisfied
Warrant 1A - Minimum Vehicular Volume	Not Satisfied
Required volumes reached for 2 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 2 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Not Satisfied
Number of hours (2) volumes exceed minimum < minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Delay	Satisfied
Number of hours (6) 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 : TMC1021
Study Date : 07/07/10
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	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	345	95	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-No	---
07:00	328	86	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-No	---
08:00	234	105	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-No	---
09:00	194	111	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-No	---
10:00	208	128	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-Yes	Minor
11:00	213	125	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-Yes	Minor
12:00	244	140	WB	350-No	140-Yes	Minor	525-No	70-Yes	Minor	420-No	112-Yes	Minor
13:00	256	142	WB	350-No	140-Yes	Minor	525-No	70-Yes	Minor	420-No	112-Yes	Minor
14:00	212	160	WB	350-No	140-Yes	Minor	525-No	70-Yes	Minor	420-No	112-Yes	Minor
15:00	305	216	WB	350-No	140-Yes	Minor	525-No	70-Yes	Minor	420-No	112-Yes	Minor
16:00	453	302	WB	350-Yes	140-Yes	Both	525-No	70-Yes	Minor	420-Yes	112-Yes	Both
17:00	425	304	WB	350-Yes	140-Yes	Both	525-No	70-Yes	Minor	420-Yes	112-Yes	Both
18:00	228	133	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-Yes	Minor
19:00	197	134	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-Yes	Minor
20:00	166	96	WB	350-No	140-No	---	525-No	70-Yes	Minor	420-No	112-No	---
21:00	169	84	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 : TMC1021
Study Date : 07/07/10
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Northbound: CSAH 17

Total Approach Volume: 2,975
Approach Speed: 55

Southbound: CSAH 17

Total Approach Volume: 1,202
Approach Speed: 55

Minor Street Approaches

Westbound: CSAH 18

Total Approach Volume: 2,361

Warrant Summary

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

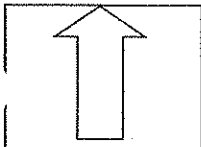
Criteria B - Crash Experience Not Evaluated

Criteria C - Minimum Volumes and Delays Satisfied
Delay data not evaluated
Required volumes reached for 8 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?
11:30 - 12:30	225	141	210-Yes	140-Yes	Both	240-No	160-No	No
12:30 - 13:30	254	142	210-Yes	140-Yes	Both	240-Yes	160-No	Major
13:30 - 14:30	249	141	210-Yes	140-Yes	Both	240-Yes	160-No	Major
14:30 - 15:30	232	173	210-Yes	140-Yes	Both	240-No	160-Yes	Minor
15:30 - 16:30	386	269	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
16:30 - 17:30	475	343	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
17:30 - 18:30	303	195	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
18:30 - 19:30	216	142	210-Yes	140-Yes	Both	240-No	160-No	No
05:45 - 06:45	254	67	210-Yes	140-No	Major	240-Yes	160-No	Major
06:00 - 07:00	345	95	210-Yes	140-No	Major	240-Yes	160-No	Major
06:15 - 07:15	352	96	210-Yes	140-No	Major	240-Yes	160-No	Major
06:30 - 07:30	332	95	210-Yes	140-No	Major	240-Yes	160-No	Major
06:45 - 07:45	330	87	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	328	86	210-Yes	140-No	Major	240-Yes	160-No	Major
07:15 - 08:15	310	88	210-Yes	140-No	Major	240-Yes	160-No	Major
07:30 - 08:30	309	96	210-Yes	140-No	Major	240-Yes	160-No	Major
07:45 - 08:45	275	104	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	234	105	210-Yes	140-No	Major	240-No	160-No	No
08:15 - 09:15	223	101	210-Yes	140-No	Major	240-No	160-No	No
10:15 - 11:15	220	126	210-Yes	140-No	Major	240-No	160-No	No
11:00 - 12:00	213	125	210-Yes	140-No	Major	240-No	160-No	No
00:00 - 01:00	0	0	210-No	140-No	No	240-No	160-No	No
00:15 - 01:15	0	0	210-No	140-No	No	240-No	160-No	No
00:30 - 01:30	0	0	210-No	140-No	No	240-No	160-No	No



COUNT LOCATION:

CSAH 17 (Lexington Ave.)

DATE:

07/08/2010

@ CSAH 18 (Broadway Ave.)

NORTH

APP. #1 =
APP. #2 = CSAH 17
APP. #3 = CSAH 18
APP. #4 = CSAH 17

APP. #2

APP. #3

APP. #4

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						2		
6:15-6:30						4		
6:30-6:45						5		1
6:45-7:00		2			2	5		
HOURLY TOTAL					2	HOURLY TOTAL		17
7:00-7:15						7		1
7:15-7:30						3		1
7:30-7:45						2		
7:45-8:00						2		
HOURLY TOTAL						HOURLY TOTAL		16
8:00-8:15						2		1
8:15-8:30						8		
8:30-8:45						6		
8:45-9:00						2	1	1
HOURLY TOTAL						HOURLY TOTAL		21
9:00-9:15						2		
9:15-9:30						6		
9:30-9:45						6		
9:45-10:00						5		
HOURLY TOTAL						HOURLY TOTAL		19
10:00-10:15						3		
10:15-10:30						2		
10:30-10:45						3		1
10:45-11:00						7		
HOURLY TOTAL						HOURLY TOTAL		16
11:00-11:15						7		
11:15-11:30						4	2	
11:30-11:45						3		
11:45-12:00						3	1	
HOURLY TOTAL						HOURLY TOTAL		20
12:00-12:15						7		1
12:15-12:30						4		1
12:30-12:45						4		
12:45-1:00						3		
HOURLY TOTAL						HOURLY TOTAL		20
1:00-1:15						8		
1:15-1:30						6		
1:30-1:45						3		
1:45-2:00						7		
HOURLY TOTAL						HOURLY TOTAL		24
					TOTAL	2		
							TOTAL	153

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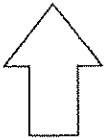
28

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NORTH

COUNT LOCATION:

CSAH 17 (Lexington Ave.)

DATE:

07/07/2010

@ CSAH 18 (Broadway Ave.)

APP. #1 =
APP. #2 = CSAH 17
APP. #3 = CSAH 18
APP. #4 = CSAH 17

APP. #2

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

APP. #3

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

APP. #4

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						3		
2:30-2:45						6		1
2:45-3:00						1		
HOURLY TOTAL						HOURLY TOTAL		16
3:00-3:15						11		
3:15-3:30						7		2
3:30-3:45						6		
3:45-4:00						2		1
HOURLY TOTAL						HOURLY TOTAL		29
4:00-4:15						8	1	
4:15-4:30						3		
4:30-4:45						9		
4:45-5:00						5	1	1
HOURLY TOTAL						HOURLY TOTAL		28
5:00-5:15						2		
5:15-5:30						2		
5:30-5:45						2		
5:45-6:00								
HOURLY TOTAL						HOURLY TOTAL		6
6:00-6:15						1		
6:15-6:30						2		
6:30-6:45						1	1	
6:45-7:00						1		
HOURLY TOTAL						HOURLY TOTAL		6
7:00-7:15								
7:15-7:30						1		
7:30-7:45								
7:45-8:00						1		
HOURLY TOTAL						HOURLY TOTAL		2
8:00-8:15								
8:15-8:30						1		
8:30-8:45								
8:45-9:00								
HOURLY TOTAL						HOURLY TOTAL		1
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		
					TOTAL	2		
							TOTAL	241

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