

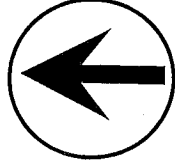
Date : 07/24/14

Count Number : TMC1418

Location : CSAH 17 (Lexington Ave.)

@ I-35W South Ramps

Collection Period : 6 AM - 10 PM



North

22389

#2

CSAH 17

7225	D	0
6007	E	
1218	F	
15164	G	

I-35W South Ramp

#3

2852

0	G
0	H
0	J

2852

0

#1

9018

9018	A	2162
55	B	55
6801	C	6801

I-35W South Ramp

8169

#4

18111

CSAH 17

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

Anoka County Highway Department

Traffic Volume and Turning

Movement Study

Date : 07/24/14

Count Number : TMC1418

Location : CSAH 17 (Lexington Ave.)

@ I-35W South Ramps

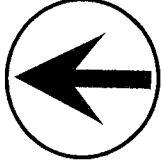
Collection Period : AM PEAK

Hour : 11:00 - 12:00 PM

CSAH 17
#2
1230

446	F	75
371	E	
0	D	

784



North

I-35W South Ramp

0	G
0	H
0	J

#3

169

169

390	C	278
7	B	
105	A	

#1

390

I-35W South Ramp

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

0	M
506	L
87	K

#4

476

1069

CSAH 17

Anoka County Highway Department
Traffic Volume and Turning
Movement Study

Date : 07/22/14

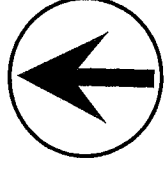
Count Number : TMC1418

Location : CSAH 17 (Lexington Ave.)

@ I-35W South Ramps

Collection Period : PM PEAK

Hour : 4:45 - 5:45 PM



North

2475

#2

CSAH 17

631			
0	D	471	F
160	T		H

1844

I-35W South Ramp

0	G	0
0	H	0
0	J	0

#3

373

373

0

#1

1174

I-35W South Ramp

1174			
890	C		
0	B		
284	A		

0	M	954	L	213	K
1167					

755

#4

1922

CSAH 17

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

Anoka County Highway Department

Traffic Volume and Turning

Movement Study



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Default Comments
 Weather: Warm and PCloudy
 Counter: DB-400
 Study Conducted By: Jack and Steven

File Name : TMC 1418
 Site Code : 14180202
 Start Date : 07/22/2014
 Page No : 2

Groups Printed- Unshifted

Start Time	CSAH 17 Southbound					None Westbound					CSAH 17 Northbound					I-35 W South Ramp 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			
17:45	41	117	0	0	158	0	0	0	0	0	0	215	31	2	246	249	1	46	2	296	4	700	704
Total	157	469	0	5	626	0	0	0	0	0	0	926	185	6	1111	988	1	248	9	1217	20	2954	2974
18:00	34	93	0	2	127	0	0	0	0	0	0	192	27	1	219	205	4	59	4	268	7	614	621
18:15	23	101	0	1	124	0	0	0	0	0	0	175	36	2	211	188	2	51	1	241	4	576	580
18:30	25	100	0	0	125	0	0	0	0	0	0	166	26	1	192	135	0	41	3	176	4	493	497
18:45	11	118	0	1	129	0	0	0	0	0	0	164	22	4	186	93	0	24	2	117	7	432	439
Total	93	412	0	4	505	0	0	0	0	0	0	697	111	8	808	621	6	175	10	802	22	2115	2137
19:00	19	78	0	0	97	0	0	0	0	0	0	162	19	3	181	89	0	29	3	118	6	396	402
19:15	18	114	0	0	132	0	0	0	0	0	0	154	21	1	175	140	4	20	0	164	1	471	472
19:30	17	76	0	0	93	0	0	0	0	0	0	91	25	3	116	85	1	32	4	118	7	327	334
19:45	12	63	0	0	75	0	0	0	0	0	0	108	15	0	123	77	1	29	1	107	1	305	306
Total	66	331	0	0	397	0	0	0	0	0	0	515	80	7	595	391	6	110	8	507	15	1499	1514
20:00	15	75	0	0	90	0	0	0	0	0	0	131	13	0	144	76	1	17	0	94	0	328	328
20:15	15	52	0	0	67	0	0	0	0	0	0	95	24	2	119	64	0	32	1	96	3	282	285
20:30	9	57	0	0	66	0	0	0	0	0	0	123	20	0	143	88	0	32	4	120	4	329	333
20:45	10	78	0	0	88	0	0	0	0	0	0	112	19	1	131	75	1	26	2	102	3	321	324
Total	49	262	0	0	311	0	0	0	0	0	0	461	76	3	537	303	2	107	7	412	10	1260	1270
21:00	11	55	0	0	66	0	0	0	0	0	0	108	17	0	125	75	0	18	0	93	0	284	284
21:15	13	54	0	0	67	0	0	0	0	0	0	80	18	0	98	76	1	19	2	96	2	261	263
21:30	18	55	0	0	73	0	0	0	0	0	0	69	12	0	81	89	0	21	0	110	0	264	264
21:45	8	49	0	0	57	0	0	0	0	0	0	50	12	0	62	84	0	21	1	105	1	224	225
Total	50	213	0	0	263	0	0	0	0	0	0	307	59	0	366	324	1	79	3	404	3	1033	1036
Grand Total	1218	6007	0	153	7225	0	0	0	0	0	0	8363	1579	190	9942	6801	55	2162	359	9018	702	26185	26887
Apprch %	16.9	83.1	0			0	0	0			0	84.1	15.9			75.4	0.6	24					
Total %	4.7	22.9	0		27.6	0	0	0			0	31.9	6		38	26	0.2	8.3		34.4	2.6	97.4	

Start Time	CSAH 17 Southbound				None Westbound				CSAH 17 Northbound				I-35 W South Ramp 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	12	81	0	93	0	0	0	0	0	127	20	147	58	1	42	101	341
11:15	24	93	0	117	0	0	0	0	0	131	20	151	78	4	20	102	370
11:30	23	101	0	124	0	0	0	0	0	134	15	149	66	0	22	88	361
11:45	16	96	0	112	0	0	0	0	0	114	32	146	76	2	21	99	357
Total Volume	75	371	0	446	0	0	0	0	0	506	87	593	278	7	105	390	1429
% App. Total	16.8	83.2	0		0	0	0		0	85.3	14.7		71.3	1.8	26.9		
PHF	.781	.918	.000	.899	.000	.000	.000	.000	.000	.944	.680	.982	.891	.438	.625	.956	.966

Peak Hour Analysis From 12:00 to 21:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	44	119	0	163	0	0	0	0	0	243	59	302	171	0	82	253	718
17:00	46	108	0	154	0	0	0	0	0	225	58	283	229	0	68	297	734
17:15	46	134	0	180	0	0	0	0	0	228	39	267	233	0	75	308	755
17:30	24	110	0	134	0	0	0	0	0	258	57	315	257	0	59	316	765
Total Volume	160	471	0	631	0	0	0	0	0	954	213	1167	890	0	284	1174	2972
% App. Total	25.4	74.6	0		0	0	0		0	81.7	18.3		75.8	0	24.2		
PHF	.870	.879	.000	.876	.000	.000	.000	.000	.000	.924	.903	.926	.866	.000	.866	.929	.971



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

Study Name : TMC 1418
Study Date : 07/30/14
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 17
Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: **9,942**

Southbound: CSAH 17
Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: **7,225**

Minor Street Approaches

Eastbound: I-35 W South Ramp
Number of Lanes: 2

Total Approach Volume: **9,018**

Warrant Summary (Rural values apply.)

Warrant 1 - Eight Hour Vehicular Volumes	Satisfied
Warrant 1A - Minimum Vehicular Volume	Satisfied
Required volumes reached for 16 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic	Satisfied
Required volumes reached for 15 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants	Satisfied
Required volumes reached for 16 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Satisfied
Number of hours (16) volumes exceed minimum >= minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Delay	Satisfied
Number of hours (62) 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
Warrant 9 - Intersection Near a Grade Crossing	Not Evaluated

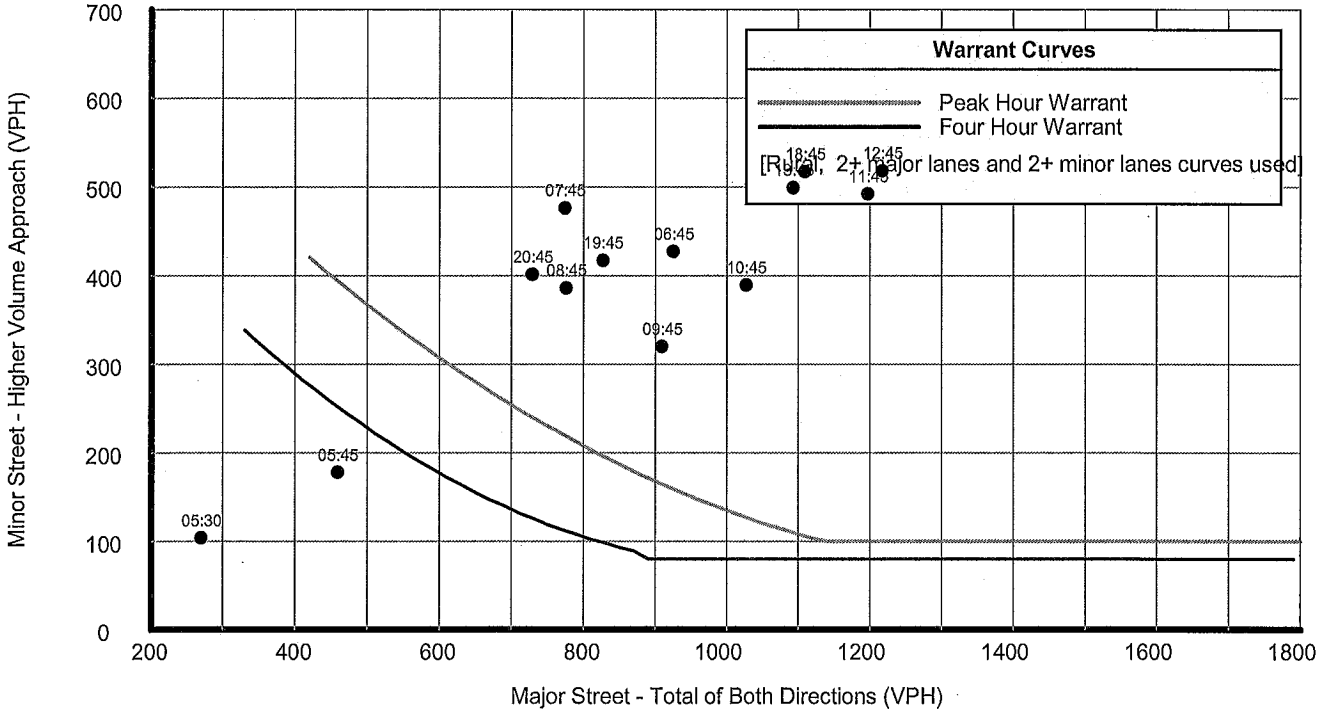


ANOKA COUNTY HIGHWAY PC-WARRANTS TRAFFIC SIGNAL WARRANT ANALYSIS

16:45

Study Name : TMC 1418
Study Date : 07/30/14
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 420	Min 140	Hour Begin	Major Total	Minor Vol Dir	Maj 630	Min 70	Hour Begin	Major Total	Minor Vol Dir	Maj 504	Min 112
16:45	1,798	1,17 EB	Yes	Yes	17:00	1,737	1,21 EB	Yes	Yes	17:00	1,737	1,21 EB	Yes	Yes
15:45	1,532	1,01 EB	Yes	Yes	16:00	1,628	1,01 EB	Yes	Yes	16:00	1,628	1,01 EB	Yes	Yes
17:45	1,402	981 EB	Yes	Yes	15:00	1,328	808 EB	Yes	Yes	15:00	1,328	808 EB	Yes	Yes
14:45	1,274	719 EB	Yes	Yes	18:00	1,313	802 EB	Yes	Yes	18:00	1,313	802 EB	Yes	Yes
12:45	1,217	518 EB	Yes	Yes	12:00	1,255	547 EB	Yes	Yes	12:00	1,255	547 EB	Yes	Yes
11:45	1,197	492 EB	Yes	Yes	13:00	1,175	490 EB	Yes	Yes	13:00	1,175	490 EB	Yes	Yes
18:45	1,109	517 EB	Yes	Yes	14:00	1,134	543 EB	Yes	Yes	14:00	1,134	543 EB	Yes	Yes
13:45	1,093	499 EB	Yes	Yes	11:00	1,039	390 EB	Yes	Yes	11:00	1,039	390 EB	Yes	Yes
10:45	1,027	389 EB	Yes	Yes	19:00	992	507 EB	Yes	Yes	19:00	992	507 EB	Yes	Yes
06:45	925	427 EB	Yes	Yes	10:00	960	335 EB	Yes	Yes	10:00	960	335 EB	Yes	Yes
09:45	909	320 EB	Yes	Yes	07:00	950	408 EB	Yes	Yes	07:00	950	408 EB	Yes	Yes
19:45	827	417 EB	Yes	Yes	20:00	848	412 EB	Yes	Yes	20:00	848	412 EB	Yes	Yes
08:45	776	386 EB	Yes	Yes	09:00	758	352 EB	Yes	Yes	09:00	758	352 EB	Yes	Yes
07:45	774	476 EB	Yes	Yes	08:00	755	482 EB	Yes	Yes	08:00	755	482 EB	Yes	Yes
20:45	729	401 EB	Yes	Yes	06:00	666	308 EB	Yes	Yes	06:00	666	308 EB	Yes	Yes
05:45	459	178 EB	Yes	Yes	21:00	629	404 EB	No	Yes	21:00	629	404 EB	Yes	Yes
05:30	270	104 EB	No	No	05:45	459	178 EB	No	Yes	05:45	459	178 EB	No	Yes
21:45	119	105 EB	No	No	21:15	438	311 EB	No	Yes	05:30	270	104 EB	No	No
05:15	112	43 EB	No	No	21:30	273	215 EB	No	Yes	05:15	112	43 EB	No	No
22:45	0	0 W	No	No	05:30	270	104 EB	No	Yes	22:45	0	0 W	No	No
22:30	0	0 W	No	No	21:45	119	105 EB	No	Yes	22:30	0	0 W	No	No
22:15	0	0 W	No	No	05:15	112	43 EB	No	No	22:15	0	0 W	No	No
22:00	0	0 W	No	No	22:45	0	0 W	No	No	22:00	0	0 W	No	No
05:00	0	0 W	No	No	22:30	0	0 W	No	No	05:00	0	0 W	No	No



ANOKA COUNTY HIGHWAY PC-WARRANTS TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC 1418
Study Date : 07/30/14
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Northbound: CSAH 17
Total Approach Volume: 9,942
85% Speed > 40 MPH.

Southbound: CSAH 17
Total Approach Volume: 7,225
85% Speed > 40 MPH.

Minor Street Approaches

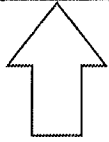
Eastbound: I-35 W South Ramp
Total Approach Volume: 9,018

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 16 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?
05:45 - 06:45	459	178	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
06:45 - 07:45	925	427	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
07:45 - 08:45	774	476	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
08:45 - 09:45	776	386	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
09:45 - 10:45	909	320	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
10:45 - 11:45	1,027	389	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
11:45 - 12:45	1,197	492	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
12:45 - 13:45	1,217	518	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
13:45 - 14:45	1,093	499	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
14:45 - 15:45	1,274	719	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
15:45 - 16:45	1,532	1,019	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
16:45 - 17:45	1,798	1,174	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
17:45 - 18:45	1,402	981	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
18:45 - 19:45	1,109	517	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
19:45 - 20:45	827	417	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
20:45 - 21:45	729	401	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
05:30 - 06:30	270	104	210-Yes	140-No	Major	240-Yes	160-No	Major
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
00:45 - 01:45	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
01:15 - 02:15	0	0	210-No	140-No	No	240-No	160-No	No
01:30 - 02:30	0	0	210-No	140-No	No	240-No	160-No	No



NORTH

COUNT LOCATION:

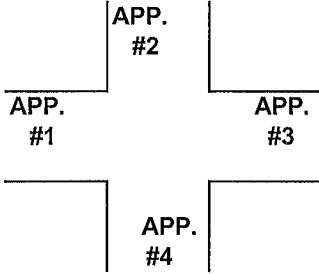
CSAH 17 (Lexington Ave.)

DATE:

07/24/2014

@ I-35W South Ramps

APP. #1 = I-35W (Off)
APP. #2 = CSAH 17
APP. #3 = I-35W (On)
APP. #4 = CSAH 17

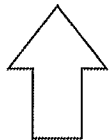


HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT

- 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						9		1
6:15-6:30						7		3
6:30-6:45						12		
6:45-7:00						10		
HOURLY TOTAL						HOURLY TOTAL	42	
7:00-7:15						7		
7:15-7:30						13		1
7:30-7:45						4		2
7:45-8:00	1				1	13		
HOURLY TOTAL	1					HOURLY TOTAL	40	
8:00-8:15	1				1	18		
8:15-8:30						11		
8:30-8:45						14		
8:45-9:00	2				2	16		
HOURLY TOTAL	3					HOURLY TOTAL	59	
9:00-9:15						18		
9:15-9:30	1				1	24		
9:30-9:45						15		
9:45-10:00						19		
HOURLY TOTAL	1					HOURLY TOTAL	76	
10:00-10:15	3				3	17		
10:15-10:30						6	1	
10:30-10:45	1				1	17		
10:45-11:00	1				1	20		
HOURLY TOTAL	5					HOURLY TOTAL	61	
11:00-11:15	1				1	13		
11:15-11:30	4				4	19		
11:30-11:45	3				3	12		
11:45-12:00	2				2	19		2
HOURLY TOTAL	10					HOURLY TOTAL	65	
12:00-12:15	2				2	12	2	1
12:15-12:30						9		
12:30-12:45	2				2	21		1
12:45-1:00						23		1
HOURLY TOTAL	4					HOURLY TOTAL	70	
1:00-1:15	3				3	12		1
1:15-1:30	4				4	15		
1:30-1:45	1				1	15		
1:45-2:00	2				2	13		
HOURLY TOTAL	10					HOURLY TOTAL	56	
TOTAL					34	TOTAL		469

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NORTH

COUNT LOCATION:

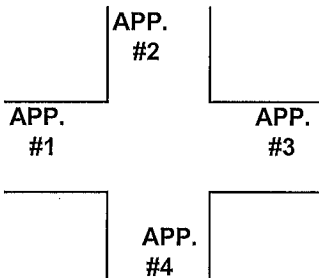
CSAH 17 (Lexington Ave.)

DATE:

07/22/2014

@ I-35W South Ramps

APP. #1 = I-35W (Off)
APP. #2 = CSAH 17
APP. #3 = I-35W (On)
APP. #4 = CSAH 17



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	1				1	18		
2:15-2:30	1				1	12		
2:30-2:45						17		
2:45-3:00						22		1
HOURLY TOTAL					2	HOURLY TOTAL		70
3:00-3:15						9		2
3:15-3:30	4				4	17		1
3:30-3:45	1				1	13		2
3:45-4:00						9		
HOURLY TOTAL					5	HOURLY TOTAL		53
4:00-4:15						8		2
4:15-4:30	2				2	10		
4:30-4:45						9	1	1
4:45-5:00	3				3	6		
HOURLY TOTAL					5	HOURLY TOTAL		37
5:00-5:15						5		
5:15-5:30						5		
5:30-5:45	2				2	5		
5:45-6:00						4		
HOURLY TOTAL					2	HOURLY TOTAL		19
6:00-6:15	1				1	7		
6:15-6:30	1				1	4		
6:30-6:45						4		
6:45-7:00	5				5	6		
HOURLY TOTAL					7	HOURLY TOTAL		21
7:00-7:15	5				5	5		
7:15-7:30	3				3	2		
7:30-7:45						6		
7:45-8:00	1				1	1		
HOURLY TOTAL					9	HOURLY TOTAL		14
8:00-8:15	3				3			
8:15-8:30						3		
8:30-8:45	1				1	3	1	
8:45-9:00	3				3	2		1
HOURLY TOTAL					7	HOURLY TOTAL		10
9:00-9:15	1				1			
9:15-9:30						2		
9:30-9:45								
9:45-10:00	2				2	1		
HOURLY TOTAL					3	HOURLY TOTAL		3
TOTAL					74	TOTAL		696

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