

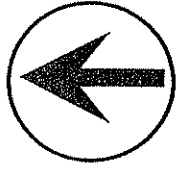
Date : 08/09/10

Count Number : TMC1029

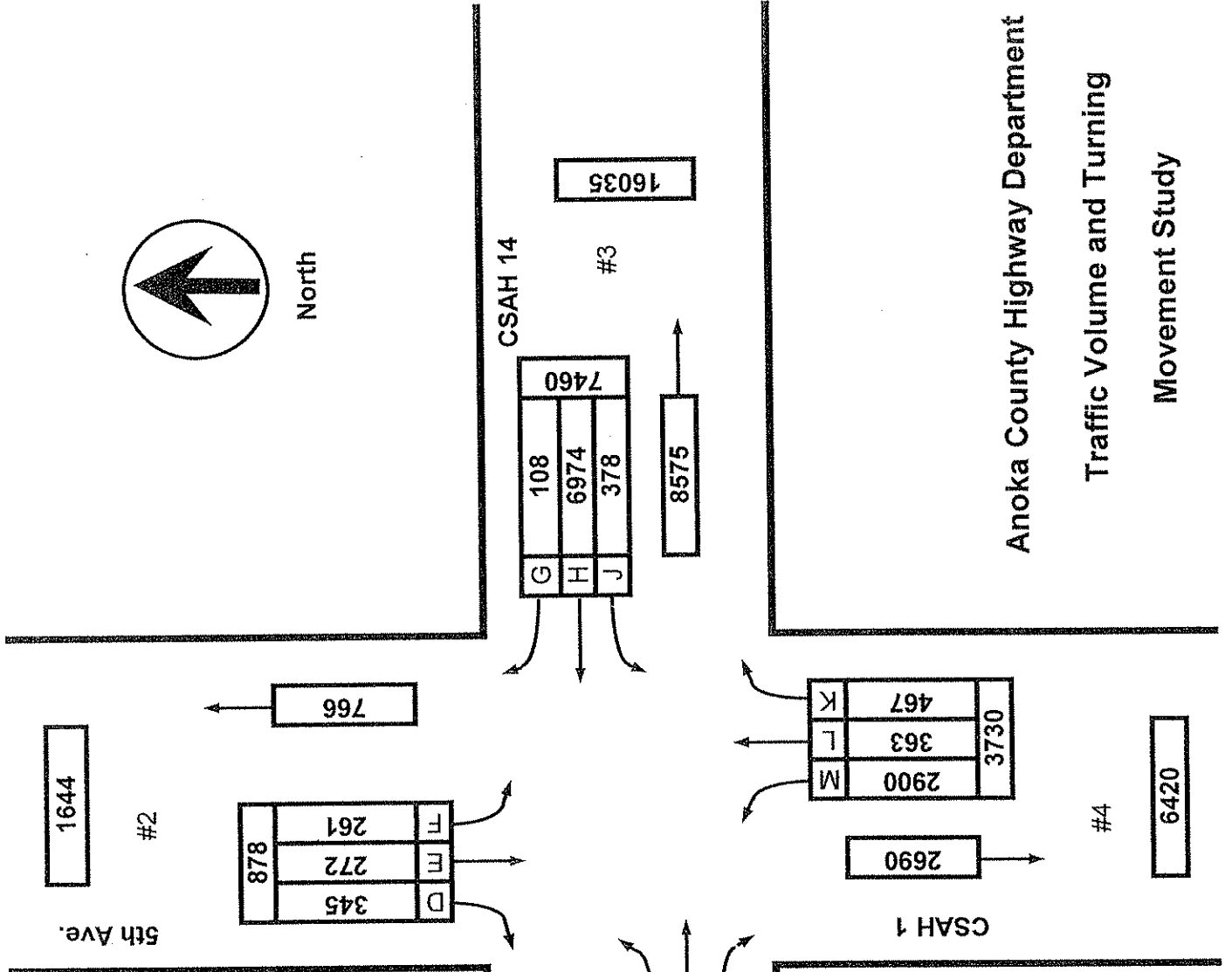
Location : CSAH 14 (Main St.)

@ CSAH 1 (5th Ave.)

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



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 08/10/10

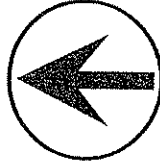
Count Number : TMC1029

Location : CSAH 14 (Main St.)

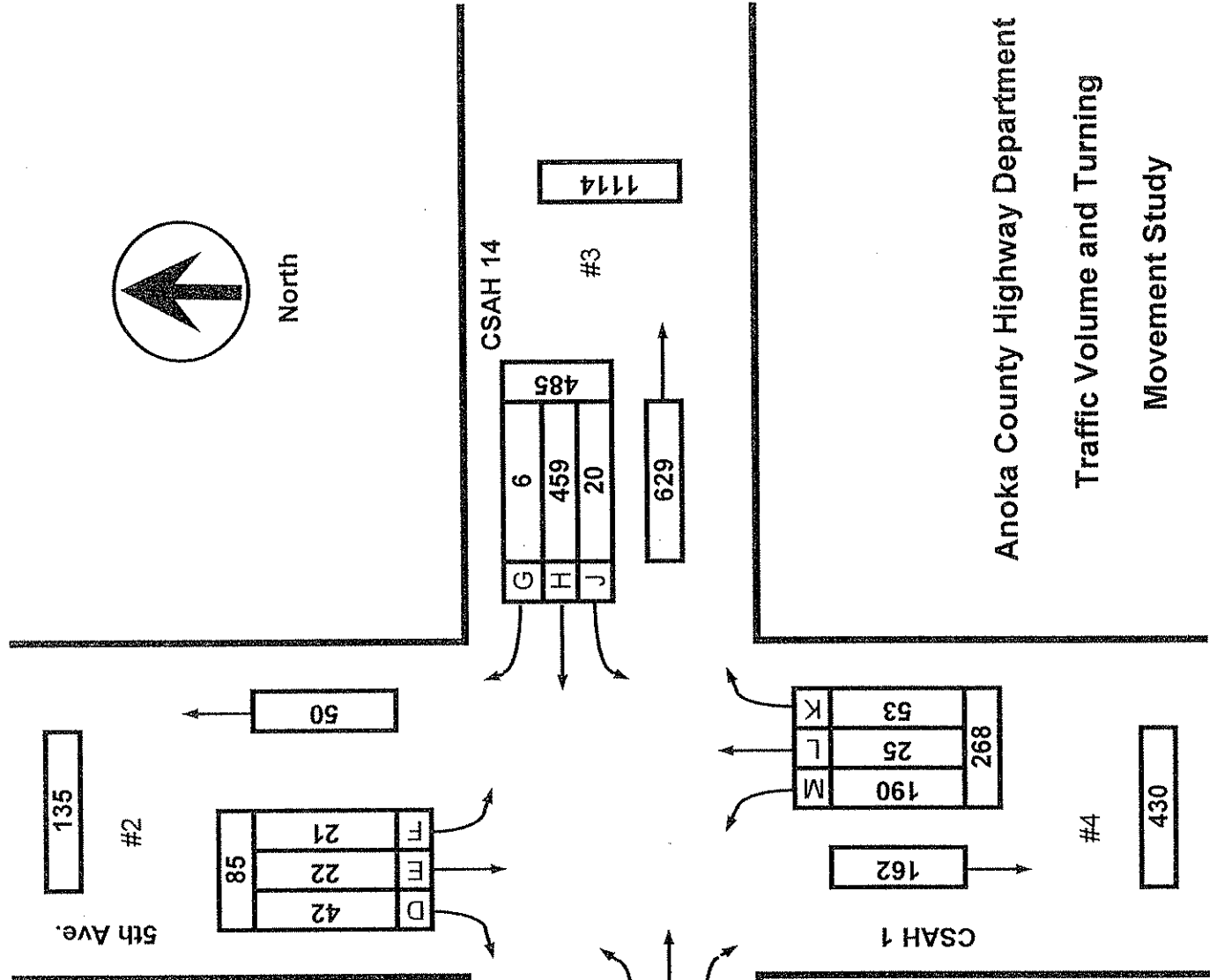
@ CSAH 1 (5th Ave.)

Collection Period : AM PEAK

Hour : 11:00 AM-12:00 PM



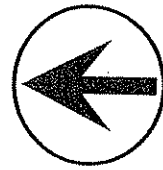
North



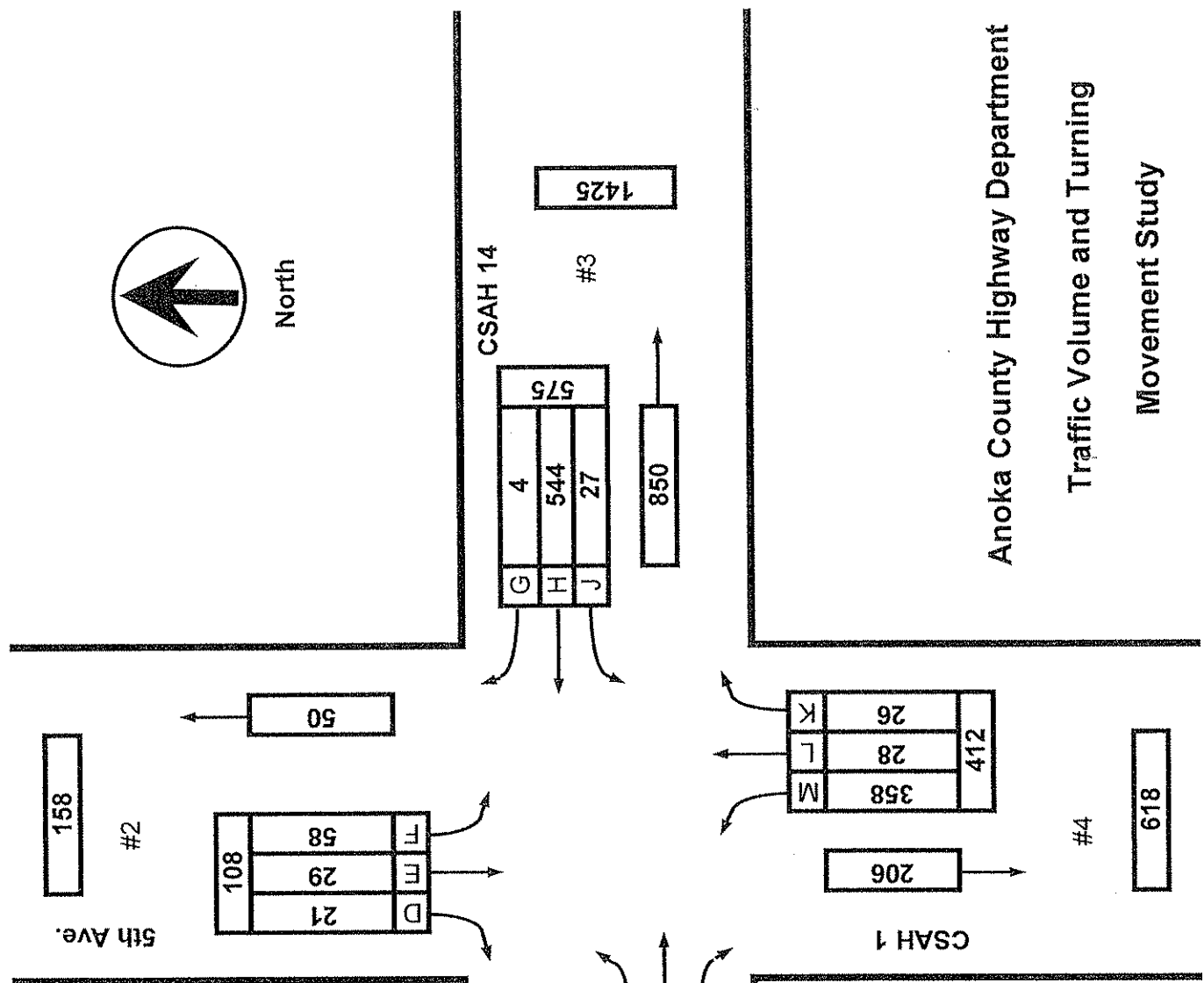
Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

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

Date : 08/09/10 _____
 Count Number : TMC1029 _____
 Location : CSAH 14 (Main St.) _____
 @ CSAH 1 (5th Ave.) _____
 Collection Period : PM PEAK _____
 Hour : 3:45-4:45 PM _____



North



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

Counter: DB-400

Counted by: Andy/Brett

File Name : TMC1029

Site Code : 10290202

Start Date : 08/09/2010

Page No : 2

Groups Printed- Unshifted

Start Time	5th Ave Southbound					CSAH 14 Westbound					CSAH 1 Northbound					CSAH 14 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			
18:00	1	3	2	0	6	2	129	4	2	135	48	1	6	2	55	2	143	26	1	171	5	367	372
18:15	3	0	4	0	7	2	142	2	1	146	39	1	1	1	41	8	123	37	2	168	4	362	366
18:30	5	0	1	0	6	0	93	0	1	93	50	4	6	2	60	3	122	18	1	143	4	302	306
18:45	3	4	4	0	11	2	95	0	0	97	42	4	7	1	53	5	119	19	2	143	3	304	307
Total	12	7	11	0	30	6	459	6	4	471	179	10	20	6	209	18	507	100	6	625	16	1335	1351
19:00	2	0	4	0	6	4	108	1	1	113	43	8	2	0	53	3	107	19	1	129	2	301	303
19:15	0	3	1	0	4	1	70	0	0	71	26	5	8	0	39	0	71	27	1	98	1	212	213
19:30	2	1	1	0	4	3	87	1	1	91	28	2	5	2	35	2	88	19	1	109	4	239	243
19:45	1	2	0	0	3	1	68	1	1	70	26	0	5	0	31	3	91	11	1	105	2	209	211
Total	5	6	6	0	17	9	333	3	3	345	123	15	20	2	158	8	357	76	4	441	9	961	970
20:00	0	1	1	0	2	2	86	0	0	88	41	1	10	0	52	0	76	18	2	94	2	236	238
20:15	0	3	4	0	7	1	93	1	0	95	45	2	10	0	57	0	83	21	2	104	2	263	265
20:30	0	1	1	0	2	3	96	1	0	100	25	3	3	1	31	2	76	15	0	93	1	226	227
20:45	1	1	3	0	5	3	65	1	0	69	21	7	5	1	33	0	64	20	0	84	1	191	192
Total	1	6	9	0	16	9	340	3	0	352	132	13	28	2	173	2	299	74	4	375	6	916	922
21:00	0	3	1	0	4	3	63	0	2	66	29	1	0	0	30	4	83	13	1	100	3	200	203
21:15	0	2	2	0	4	6	56	2	0	64	17	2	2	0	21	3	72	12	0	87	0	176	176
21:30	1	2	1	0	4	5	55	1	1	61	18	1	2	0	21	5	70	17	0	92	1	178	179
21:45	1	2	2	0	5	5	50	0	0	55	24	1	0	0	25	2	64	13	0	79	0	164	164
Total	2	9	6	0	17	19	224	3	3	246	88	5	4	0	97	14	289	55	1	358	4	718	722
Grand Total	261	272	345	15	878	378	6974	108	129	7460	2900	363	467	81	3730	295	7847	2040	200	10182	425	22250	22675
Approch %	29.7	31	39.3			5.1	93.5	1.4			77.7	9.7	12.5			2.9	77.1	20			1.9	98.1	
Total %	1.2	1.2	1.6		3.9	1.7	31.3	0.5		33.5	13	1.6	2.1		16.8	1.3	35.3	9.2		45.8			

Start Time	5th Ave Southbound				CSAH 14 Westbound				CSAH 1 Northbound				CSAH 14 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	4	6	14	24	8	107	1	116	42	6	11	59	7	134	26	167	366
11:15	2	8	13	23	5	129	0	134	58	7	13	78	1	133	35	169	404
11:30	8	3	8	19	5	98	3	106	51	10	15	76	5	138	33	176	377
11:45	7	5	7	19	2	125	2	129	39	2	14	55	6	150	26	182	385
Total Volume	21	22	42	85	20	459	6	485	190	25	53	268	19	555	120	694	1532
% App. Total	24.7	25.9	49.4		4.1	94.6	1.2		70.9	9.3	19.8		2.7	80	17.3		
PHF	.656	.688	.750	.885	.625	.890	.500	.905	.819	.625	.883	.859	.679	.925	.857	.953	.948

Peak Hour Analysis From 12:00 to 21:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	8	4	3	15	9	131	1	141	86	8	5	99	7	192	45	244	499
16:00	18	3	6	27	7	154	0	161	87	9	7	103	5	193	48	246	537
16:15	9	6	6	21	7	117	0	124	93	7	3	103	4	173	29	206	454
16:30	23	16	6	45	4	142	3	149	92	4	11	107	2	208	28	238	539
Total Volume	58	29	21	108	27	544	4	575	358	28	26	412	18	766	150	934	2029
% App. Total	53.7	26.9	19.4		4.7	94.6	0.7		86.9	6.8	6.3		1.9	82	16.1		
PHF	.630	.453	.875	.600	.750	.883	.333	.893	.962	.778	.591	.963	.643	.921	.781	.949	.941

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

Study Name : TMC1029
Study Date : 08/09/10
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 14
Number of Lanes: 2
Approach Speed: 30
Total Approach Volume: 10,182

Westbound: CSAH 14
Number of Lanes: 2
Approach Speed: 30
Total Approach Volume: 7,460

Minor Street Approaches

Northbound: CSAH 1
Number of Lanes: 2

Total Approach Volume: 3,730

Southbound: 5th Ave
Number of Lanes: 1

Total Approach Volume: 878

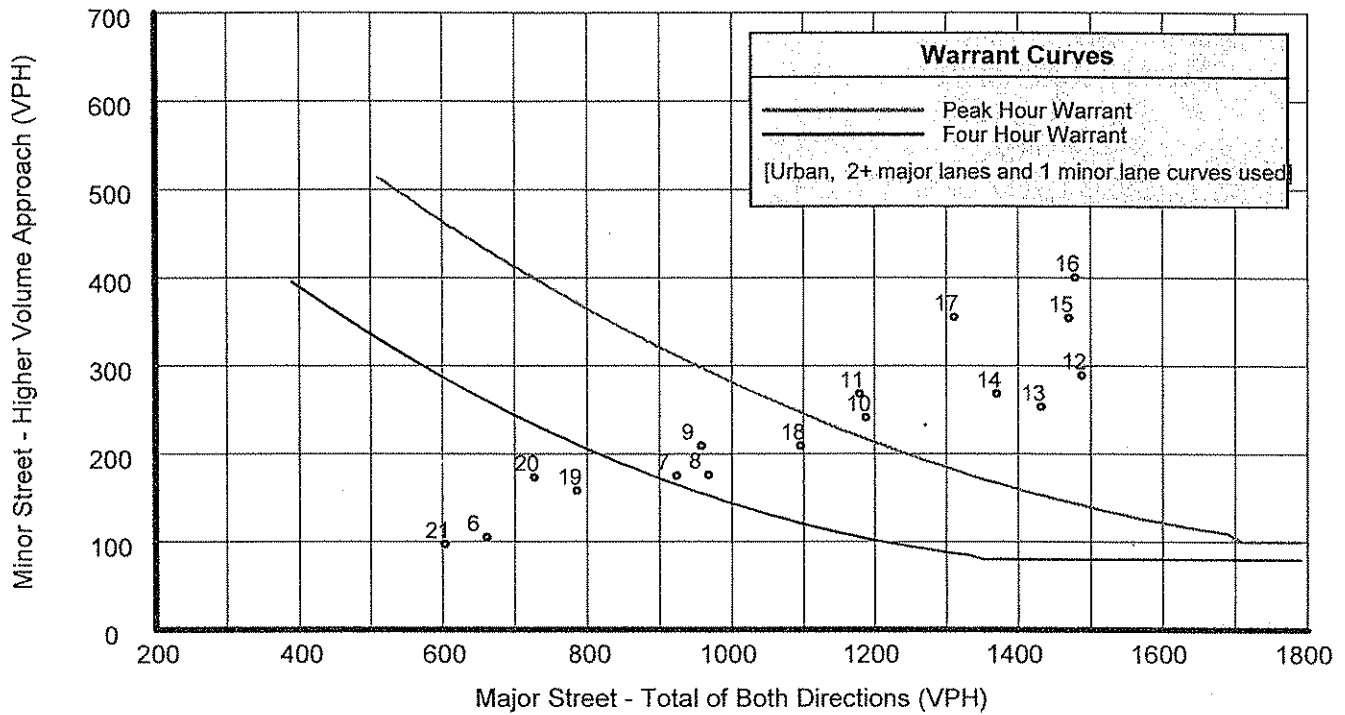
Warrant Summary (Urban values apply.)

Warrant 1 - Eight Hour Vehicular Volumes	Satisfied
Warrant 1A - Minimum Vehicular Volume	Satisfied
Required volumes reached for 10 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic	Satisfied
Required volumes reached for 12 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants	Satisfied
Required volumes reached for 13 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Satisfied
Number of hours (12) volumes exceed minimum >= minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Delay	Satisfied
Number of hours (57) 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 : TMC1029
Study Date : 08/09/10
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	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
01:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
02:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
03:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
04:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
05:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
06:00	662	105	NB	600-Yes	200-No	Major	900-No	100-Yes	Minor	720-No	160-No	---
07:00	924	175	NB	600-Yes	200-No	Major	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
08:00	968	176	NB	600-Yes	200-No	Major	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
09:00	958	209	NB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
10:00	1,188	241	NB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
11:00	1,179	268	NB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
12:00	1,488	289	NB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
13:00	1,432	253	NB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
14:00	1,370	268	NB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
15:00	1,470	354	NB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
16:00	1,479	400	NB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
17:00	1,311	355	NB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
18:00	1,096	209	NB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
19:00	786	158	NB	600-Yes	200-No	Major	900-No	100-Yes	Minor	720-Yes	160-No	Major
20:00	727	173	NB	600-Yes	200-No	Major	900-No	100-Yes	Minor	720-Yes	160-Yes	Both
21:00	604	97	NB	600-Yes	200-No	Major	900-No	100-No	---	720-No	160-No	---
22:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---
23:00	0	0	NB	600-No	150-No	---	900-No	75-No	---	720-No	120-No	---

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

Study Name : TMC1029
Study Date : 08/09/10
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Eastbound: CSAH 14
Total Approach Volume: 10,182
Approach Speed: 30

Westbound: CSAH 14
Total Approach Volume: 7,460
Approach Speed: 30

Minor Street Approaches

Northbound: CSAH 1
Total Approach Volume: 3,730

Southbound: 5th Ave
Total Approach Volume: 878

Warrant Summary

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

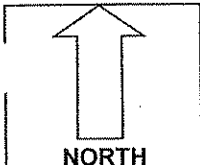
Criteria B - Crash Experience Not Evaluated

Criteria C - Minimum Volumes and Delays Satisfied
Delay data not evaluated
Required volumes reached for 12 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?
07:00 - 08:00	924	209	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
08:00 - 09:00	968	242	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
09:00 - 10:00	958	271	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
10:00 - 11:00	1,188	307	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
11:00 - 12:00	1,179	353	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
12:00 - 13:00	1,488	350	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
13:00 - 14:00	1,432	338	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
14:00 - 15:00	1,370	327	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
15:00 - 16:00	1,470	429	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
16:00 - 17:00	1,479	518	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
17:00 - 18:00	1,311	423	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
18:00 - 19:00	1,096	239	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
05:45 - 06:45	454	89	300-Yes	200-No	Major	240-Yes	160-No	Major
06:00 - 07:00	662	124	300-Yes	200-No	Major	240-Yes	160-No	Major
06:15 - 07:15	735	119	300-Yes	200-No	Major	240-Yes	160-No	Major
06:30 - 07:30	786	134	300-Yes	200-No	Major	240-Yes	160-No	Major
06:45 - 07:45	860	171	300-Yes	200-No	Major	240-Yes	160-Yes	Both
19:00 - 20:00	786	175	300-Yes	200-No	Major	240-Yes	160-Yes	Both
19:15 - 20:15	726	170	300-Yes	200-No	Major	240-Yes	160-Yes	Both
19:30 - 20:30	756	191	300-Yes	200-No	Major	240-Yes	160-Yes	Both
19:45 - 20:45	749	185	300-Yes	200-No	Major	240-Yes	160-Yes	Both
20:00 - 21:00	727	189	300-Yes	200-No	Major	240-Yes	160-Yes	Both
20:15 - 21:15	711	169	300-Yes	200-No	Major	240-Yes	160-Yes	Both
20:30 - 21:30	663	130	300-Yes	200-No	Major	240-Yes	160-No	Major



COUNT LOCATION:

CSAH 14 (Main St.)

DATE:

08/10/2010

@ CSAH 1 (5th Ave.)

APP. #1 = CSAH 14

APP. #2 = 5th Ave.

APP. #3 = CSAH 14

APP. #4 = CSAH 1

APP. #2

APP. #1

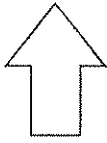
APP. #3

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								
6:30-6:45						4		2
6:45-7:00						4		1
HOURLY TOTAL						HOURLY TOTAL		13
7:00-7:15						7		1
7:15-7:30						5		
7:30-7:45						8		2
7:45-8:00						10		
HOURLY TOTAL						HOURLY TOTAL		33
8:00-8:15						11		1
8:15-8:30						7		
8:30-8:45						10		2
8:45-9:00						6		
HOURLY TOTAL						HOURLY TOTAL		37
9:00-9:15						12		
9:15-9:30						9		1
9:30-9:45						8		1
9:45-10:00						5		
HOURLY TOTAL						HOURLY TOTAL		36
10:00-10:15						8		
10:15-10:30						13		1
10:30-10:45						10		1
10:45-11:00						12		
HOURLY TOTAL						HOURLY TOTAL		45
11:00-11:15						8		1
11:15-11:30						9		2
11:30-11:45						9		1
11:45-12:00						9		
HOURLY TOTAL						HOURLY TOTAL		39
12:00-12:15						11		
12:15-12:30						13		1
12:30-12:45						16		4
12:45-1:00						7		
HOURLY TOTAL						HOURLY TOTAL		52
1:00-1:15						8		
1:15-1:30						8		1
1:30-1:45						10		1
1:45-2:00						9		1
HOURLY TOTAL						HOURLY TOTAL		38
					TOTAL		TOTAL	293

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NORTH

COUNT LOCATION:

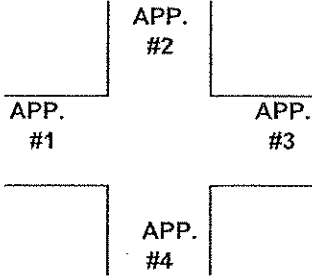
CSAH 14 (Main St.)

DATE:

08/09/2010

@ CSAH 1 (5th Ave.)

APP. #1 = CSAH 14
APP. #2 = 5th Ave.
APP. #3 = CSAH 14
APP. #4 = CSAH 1



- 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				15 MIN TOT	HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4		TRUCKS	RV	BUS
2:00-2:15PM						6		
2:15-2:30						11		4
2:30-2:45						9		2
2:45-3:00						12		
HOURLY TOTAL						HOURLY TOTAL		44
3:00-3:15						6		
3:15-3:30						3	1	
3:30-3:45						4		1
3:45-4:00						2		
HOURLY TOTAL						HOURLY TOTAL		17
4:00-4:15						2		
4:15-4:30						7		2
4:30-4:45						5		1
4:45-5:00						2		
HOURLY TOTAL						HOURLY TOTAL		19
5:00-5:15						5		
5:15-5:30								1
5:30-5:45						5		1
5:45-6:00						2		1
HOURLY TOTAL						HOURLY TOTAL		15
6:00-6:15						4		1
6:15-6:30						2		2
6:30-6:45						3		1
6:45-7:00						1		2
HOURLY TOTAL						HOURLY TOTAL		16
7:00-7:15						2		
7:15-7:30								1
7:30-7:45						3		1
7:45-8:00						2		
HOURLY TOTAL						HOURLY TOTAL		9
8:00-8:15						2		
8:15-8:30						1		1
8:30-8:45								1
8:45-9:00						1		
HOURLY TOTAL						HOURLY TOTAL		6
9:00-9:15						3		
9:15-9:30								
9:30-9:45						1		
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		4
					TOTAL		TOTAL	423

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