

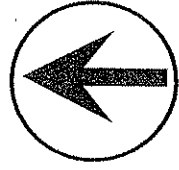
Date : 07/19/10

Count Number : TMC1024

Location : CSAH 14 (Main St.)

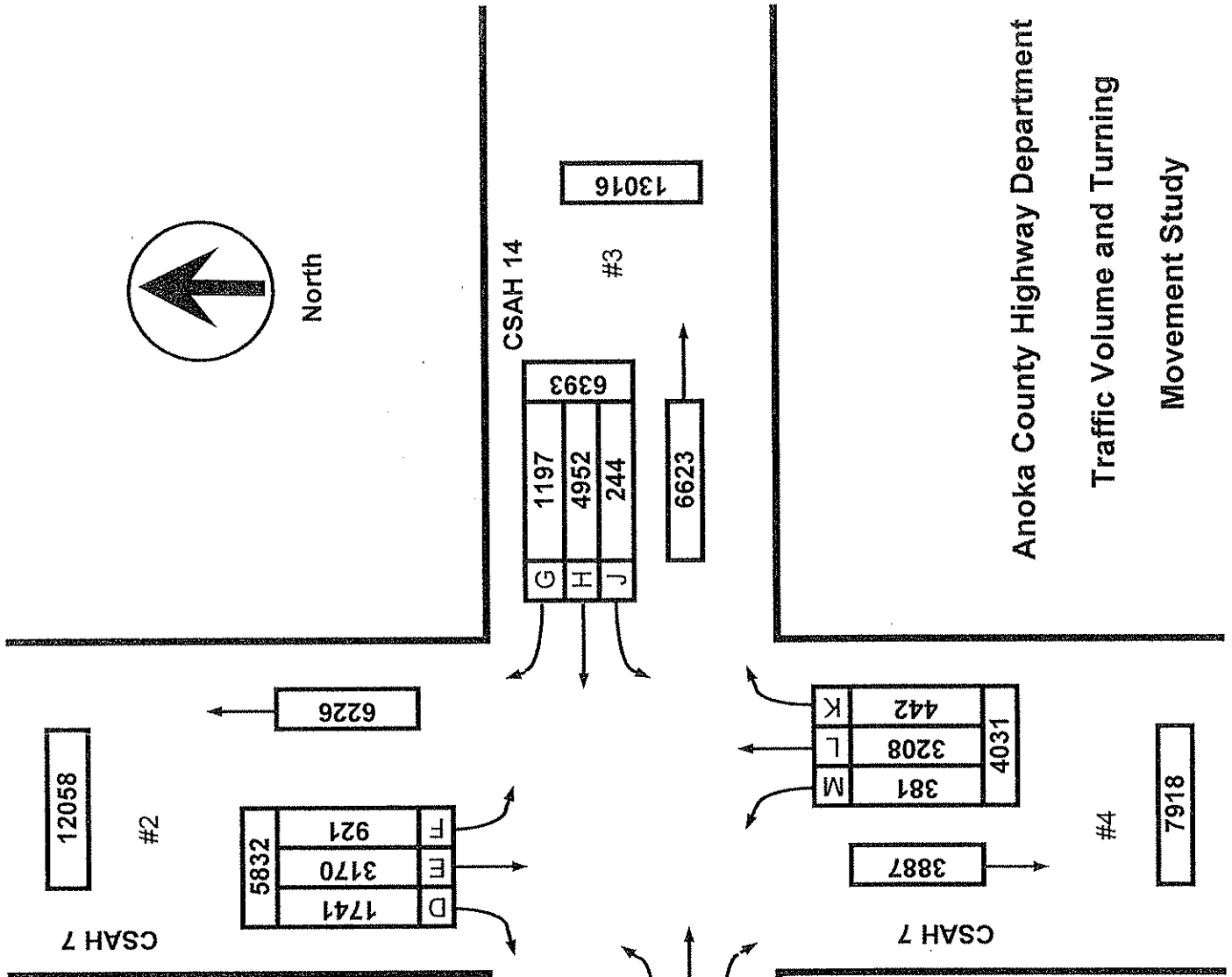
@ CSAH 7 (7th Ave.)

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



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	0	2	2
#2	0	0	2	2
#3	0	0	2	2
#4	0	0	2	2

Date : 07/20/10

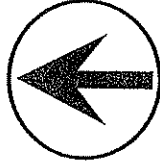
Count Number : TMC1024

Location : CSAH 14 (Main St.)

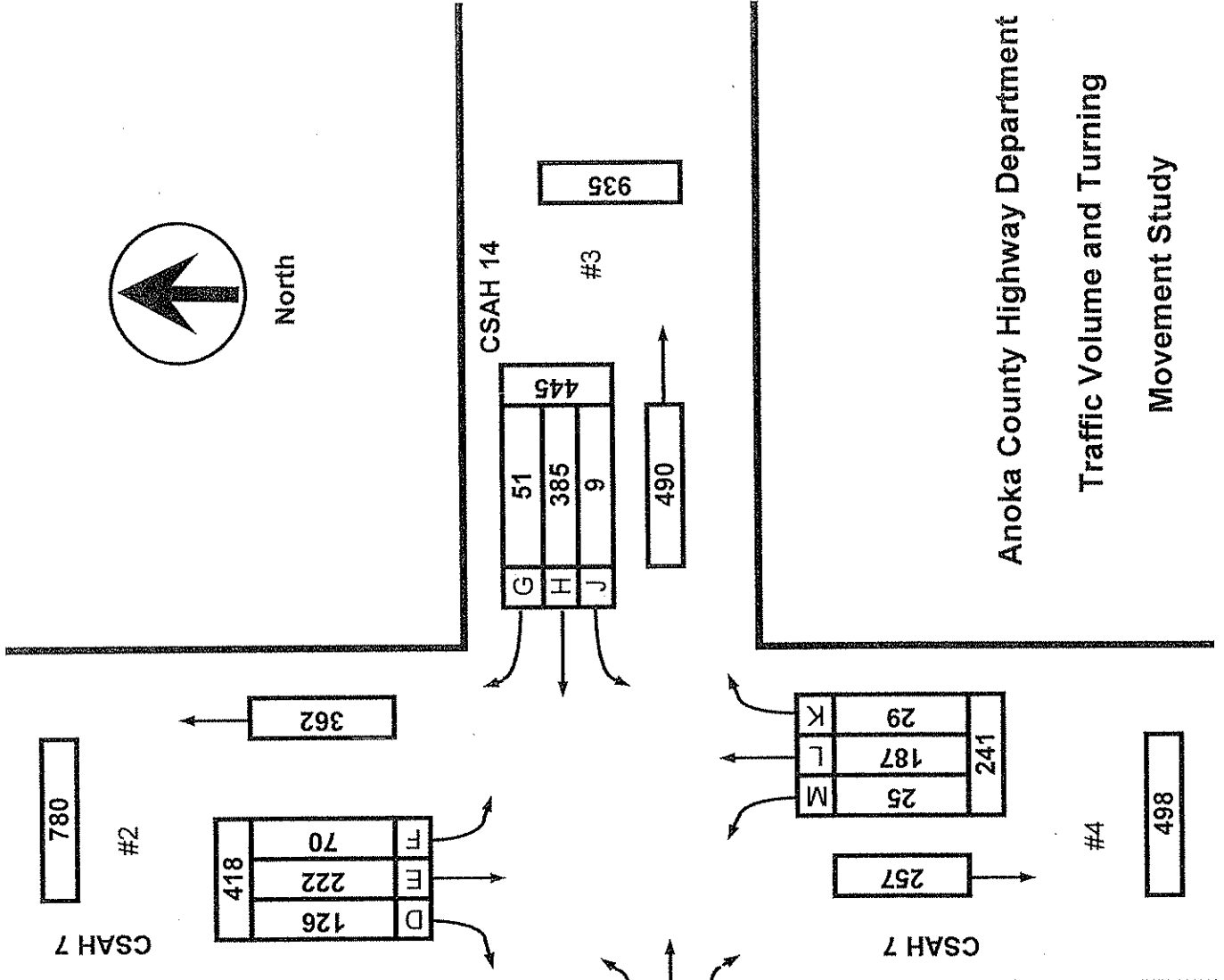
@ CSAH 7 (7th Ave.)

Collection Period : AM PEAK

Hour : 11:00 AM-12:00 PM



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 07/19/10

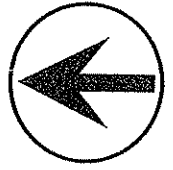
Count Number : TMC1024

Location : CSAH 14 (Main St.)

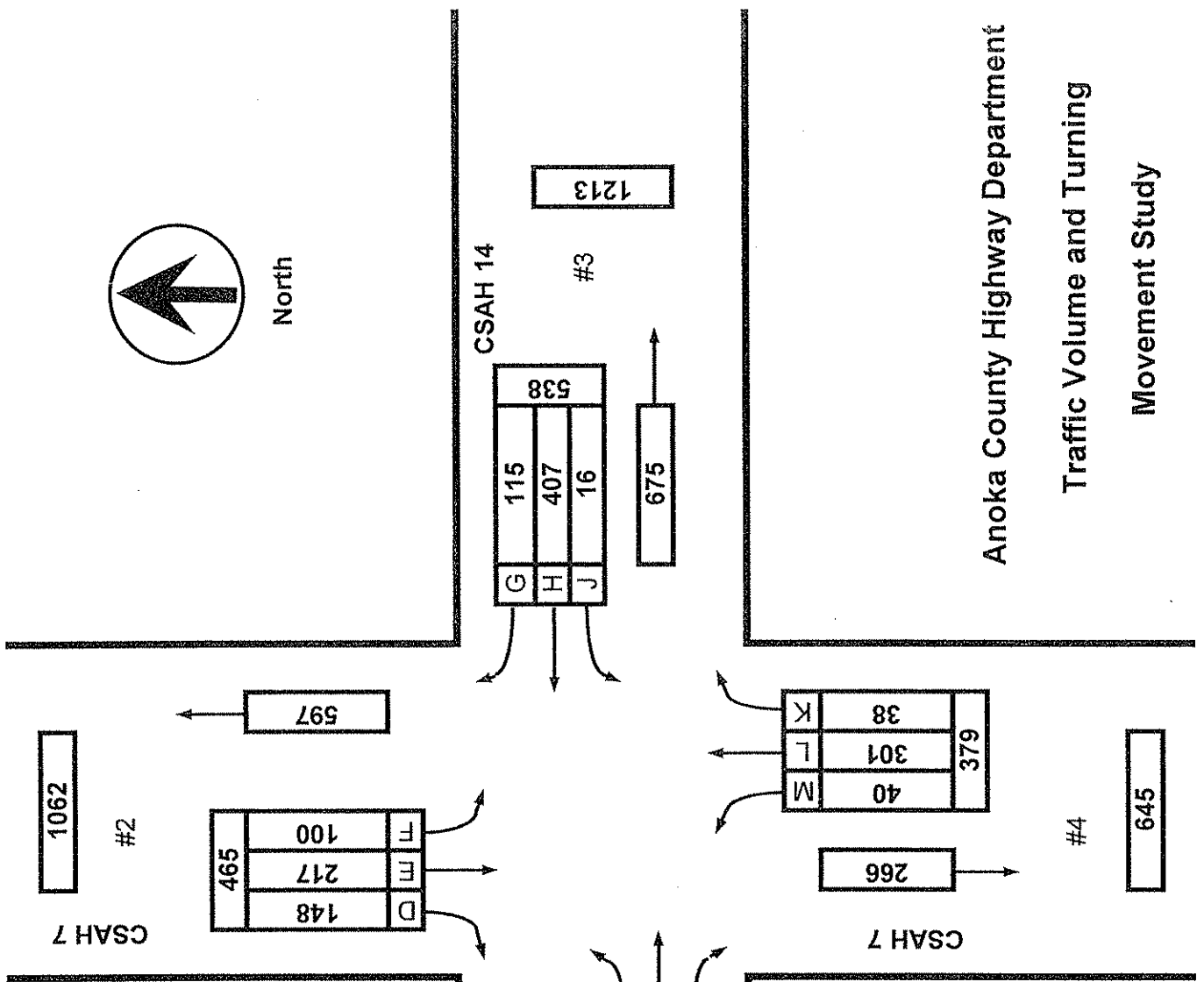
@ CSAH 7 (7th Ave.)

Collection Period : PM PEAK

Hour : 4:15-5:15 PM



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC1024

Site Code : 10240202

Start Date : 07/19/2010

Page No : 2

ather: Sunny/Warm
Counter: DB-400
Counted by: Andy/Brett

Groups Printed- Unshifted - Bank 1

Start Time	CSAH 7 (7th Ave.) Southbound					CSAH 14 (Main St.) Westbound					CSAH 7 (7th Ave.) Northbound					CSAH 14 (Main St.) Eastbound					Excl. 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			
18:00	12	63	25	0	100	2	73	17	2	92	7	39	5	1	51	44	98	9	3	151	6	394	400
18:15	11	39	39	0	89	3	78	27	3	108	6	36	5	1	47	22	74	8	0	104	4	348	352
18:30	22	61	17	0	100	10	67	26	0	103	2	50	7	0	59	22	97	15	0	134	0	396	396
18:45	12	41	32	0	85	7	63	13	2	83	2	32	6	1	40	19	57	9	1	85	4	293	297
Total	57	204	113	0	374	22	281	83	7	386	17	157	23	3	197	107	326	41	4	474	14	1431	1445
19:00	15	40	20	1	75	3	70	38	0	111	5	36	4	0	45	22	86	3	1	111	2	342	344
19:15	13	43	17	0	73	2	72	17	0	91	6	28	5	1	39	24	54	6	1	84	2	287	289
19:30	7	23	13	0	43	5	71	13	2	89	1	33	4	0	38	25	69	2	1	96	3	266	269
19:45	5	33	14	0	52	2	51	15	0	68	2	31	11	0	44	25	60	6	2	91	2	255	257
Total	40	139	64	1	243	12	264	83	2	359	14	128	24	1	166	96	269	17	5	382	9	1150	1159
20:00	9	43	11	0	63	1	48	9	1	58	2	34	8	0	44	18	79	5	3	102	4	267	271
20:15	6	36	17	0	59	3	49	7	0	59	3	36	5	0	44	14	79	3	1	96	1	258	259
20:30	11	32	13	1	56	1	60	17	1	78	4	30	6	0	40	21	72	3	0	96	2	270	272
20:45	8	18	11	0	37	0	56	3	0	59	1	27	4	0	32	10	52	2	0	64	0	192	192
Total	34	129	52	1	215	5	213	36	2	254	10	127	23	0	160	63	282	13	4	358	7	987	994
21:00	14	17	8	0	39	3	33	15	0	51	2	47	5	0	54	14	35	6	0	55	0	199	199
21:15	5	23	14	0	42	4	45	8	1	57	5	44	4	0	53	17	49	4	0	70	1	222	223
21:30	5	19	13	1	37	5	44	10	0	59	2	34	3	0	39	18	46	5	0	69	1	204	205
21:45	5	20	12	0	37	5	45	10	0	60	2	33	3	0	38	15	45	2	0	62	0	197	197
Total	29	79	47	1	155	17	167	43	1	227	11	158	15	0	184	64	175	17	0	256	2	822	824
Grand Total	921	3170	1741	215	5832	244	4952	1197	137	6393	381	3208	442	202	4031	1821	5260	473	143	7554	697	23810	24507
Apprch %	15.8	54.4	29.9			3.8	77.5	18.7			9.5	79.6	11			24.1	69.6	6.3			2.8	97.2	
Total %	3.9	13.3	7.3		24.5	1	20.8	5		26.9	1.6	13.5	1.9		16.9	7.6	22.1	2		31.7			
shifted	921	3170	1741		6047	244	4952	1197		6530	381	3208	442		4233	1821	5260	473		7697	0	0	24507
Bank 1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	0	100
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	CSAH 7 (7th Ave.) Southbound					CSAH 14 (Main St.) Westbound					CSAH 7 (7th Ave.) Northbound					CSAH 14 (Main St.) Eastbound					Int. Total
	Left	Thru	Right	App. Total	PHF	Left	Thru	Right	App. Total	PHF	Left	Thru	Right	App. Total	PHF	Left	Thru	Right	App. Total	PHF	
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00																					
11:00	14	58	30	102	.909	0	112	17	129	.862	4	32	11	47	.849	29	98	7	134	.980	412
11:15	15	47	35	97		3	76	14	93		7	45	9	61		38	88	7	133		384
11:30	19	58	27	104		1	91	14	106		5	51	6	62		28	104	6	138		410
11:45	22	59	34	115		5	106	6	117		9	59	3	71		29	101	6	136		439
Total Volume	70	222	126	418		9	385	51	445		25	187	29	241		124	391	26	541		1645
% App. Total	16.7	53.1	30.1			2	86.5	11.5			10.4	77.6	12			22.9	72.3	4.8			
PHF	.795	.941	.900			.450	.859	.750			.694	.792	.659			.816	.940	.929			.937

Start Time	CSAH 7 (7th Ave.) Southbound					CSAH 14 (Main St.) Westbound					CSAH 7 (7th Ave.) Northbound					CSAH 14 (Main St.) Eastbound					Int. Total
	Left	Thru	Right	App. Total	PHF	Left	Thru	Right	App. Total	PHF	Left	Thru	Right	App. Total	PHF	Left	Thru	Right	App. Total	PHF	
Peak Hour Analysis From 12:00 to 21:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	22	62	35	119	.969	5	98	25	128	.903	6	71	13	90	.846	38	118	9	165	.980	502
16:30	26	51	39	116		4	114	26	144		14	89	9	112		50	159	11	220		592
16:45	29	63	28	120		3	84	30	117		14	64	10	88		50	128	6	184		509
17:00	23	41	46	110		4	111	34	149		6	77	6	89		43	132	7	182		530
Total Volume	100	217	148	465		16	407	115	538		40	301	38	379		181	537	33	751		2133
% App. Total	21.5	46.7	31.8			3	75.7	21.4			10.6	79.4	10			24.1	71.5	4.4			
PHF	.862	.861	.804			.800	.893	.846			.714	.846	.731			.905	.844	.750			.901

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

Study Name : TMC1024
Study Date : 07/19/10
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 14 (Main St.)
Number of Lanes: 2
Approach Speed: 30
Total Approach Volume: 7,554

Westbound: CSAH 14 (Main St.)
Number of Lanes: 2
Approach Speed: 35
Total Approach Volume: 6,393

Minor Street Approaches

Northbound: CSAH 7 (7th Ave.)
Number of Lanes: 2

Total Approach Volume: 4,031

Southbound: CSAH 7 (7th Ave.)
Number of Lanes: 2

Total Approach Volume: 5,832

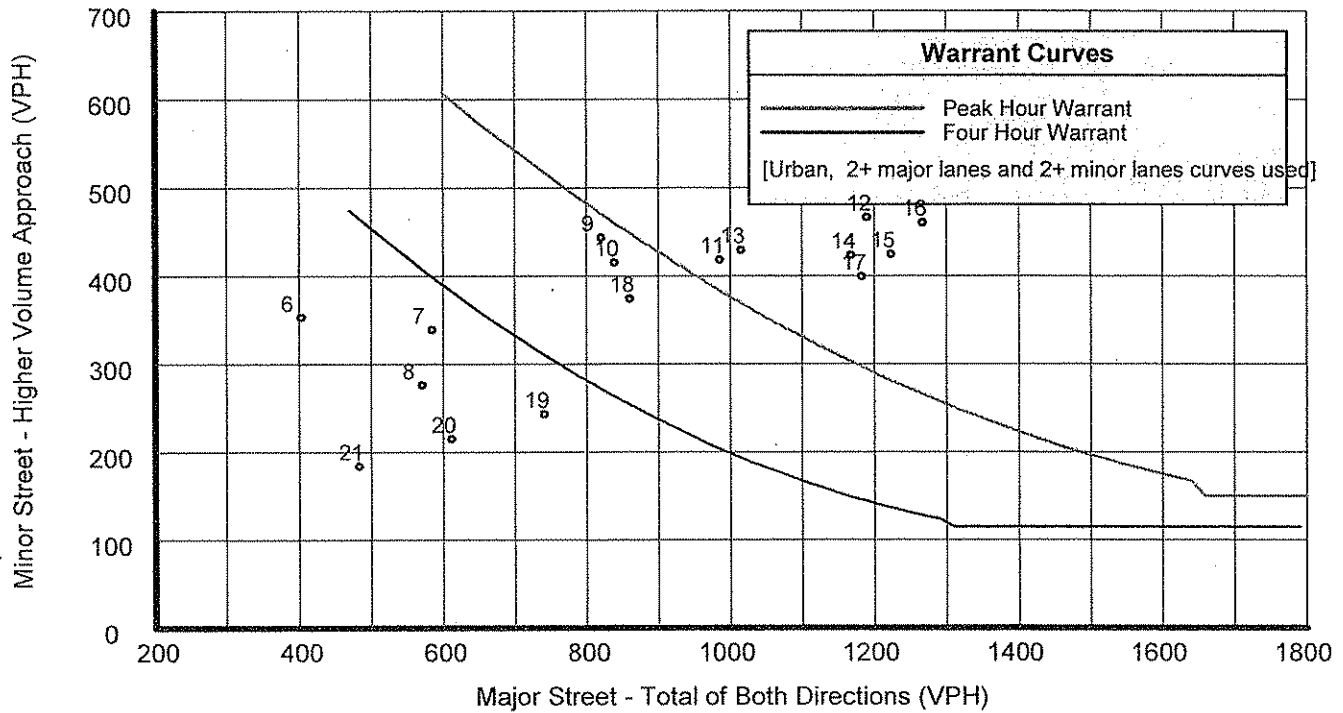
Warrant Summary (Urban values apply.)

Warrant 1 - Eight Hour Vehicular Volumes	Satisfied
Warrant 1A - Minimum Vehicular Volume	Satisfied
Required volumes reached for 12 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic	Not Satisfied
Required volumes reached for 7 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants	Satisfied
Required volumes reached for 11 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Satisfied
Number of hours (10) volumes exceed minimum >= minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Delay	Satisfied
Number of hours (61) 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 : TMC1024
Study Date : 07/19/10
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	200-No	---	900-No	100-No	---	720-No	160-No	---
01:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
02:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
03:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
04:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
05:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
06:00	403	353	SB	600-No	200-Yes	Minor	900-No	100-Yes	Minor	720-No	160-Yes	Minor
07:00	585	339	SB	600-No	200-Yes	Minor	900-No	100-Yes	Minor	720-No	160-Yes	Minor
08:00	571	276	SB	600-No	200-Yes	Minor	900-No	100-Yes	Minor	720-No	160-Yes	Minor
09:00	821	443	SB	600-Yes	200-Yes	Both	900-No	100-Yes	Minor	720-Yes	160-Yes	Both
10:00	839	415	SB	600-Yes	200-Yes	Both	900-No	100-Yes	Minor	720-Yes	160-Yes	Both
11:00	986	418	SB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
12:00	1,190	466	SB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
13:00	1,015	429	SB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
14:00	1,168	423	SB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
15:00	1,223	424	SB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
16:00	1,267	460	SB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
17:00	1,183	399	SB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
18:00	860	374	SB	600-Yes	200-Yes	Both	900-No	100-Yes	Minor	720-Yes	160-Yes	Both
19:00	741	243	SB	600-Yes	200-Yes	Both	900-No	100-Yes	Minor	720-Yes	160-Yes	Both
20:00	612	215	SB	600-Yes	200-Yes	Both	900-No	100-Yes	Minor	720-No	160-Yes	Minor
21:00	483	184	NB	600-No	200-No	---	900-No	100-Yes	Minor	720-No	160-Yes	Minor
22:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---
23:00	0	0	NB	600-No	200-No	---	900-No	100-No	---	720-No	160-No	---

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

Study Name : TMC1024
Study Date : 07/19/10
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Eastbound: CSAH 14 (Main St.)
Total Approach Volume: 7,554
Approach Speed: 30

Westbound: CSAH 14 (Main St.)
Total Approach Volume: 6,393
Approach Speed: 35

Minor Street Approaches

Northbound: CSAH 7 (7th Ave.)
Total Approach Volume: 4,031

Southbound: CSAH 7 (7th Ave.)
Total Approach Volume: 5,832

Warrant Summary

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

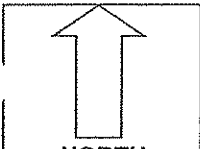
Criteria B - Crash Experience Not Evaluated

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?
06:00 - 07:00	403	505	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
07:00 - 08:00	585	524	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
08:00 - 09:00	571	461	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
09:00 - 10:00	821	669	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
10:00 - 11:00	839	645	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
11:00 - 12:00	986	659	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
12:00 - 13:00	1,190	813	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
13:00 - 14:00	1,015	797	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
14:00 - 15:00	1,168	724	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
15:00 - 16:00	1,223	787	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
16:00 - 17:00	1,267	837	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
17:00 - 18:00	1,183	748	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
18:00 - 19:00	860	571	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
19:00 - 20:00	741	409	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
20:00 - 21:00	612	375	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
21:00 - 22:00	483	339	300-Yes	200-Yes	Both	240-Yes	160-Yes	Both
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:

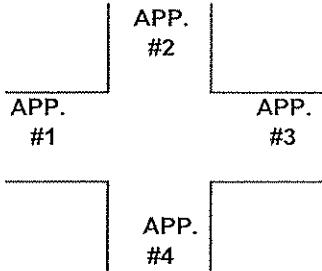
CSAH 14 (Main St.)

DATE:

07/20/2010

@ CSAH 7 (7th Ave.)

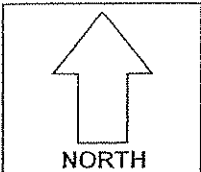
APP. #1 = CSAH 14
APP. #2 = CSAH 7
APP. #3 = CSAH 14
APP. #4 = CSAH 7



- 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		2
6:15-6:30						5		3
6:30-6:45						4		5
6:45-7:00						10		19
HOURLY TOTAL						HOURLY TOTAL		54
7:00-7:15						5		9
7:15-7:30						15		5
7:30-7:45						9		6
7:45-8:00						8		7
HOURLY TOTAL						HOURLY TOTAL		64
8:00-8:15						11		6
8:15-8:30						4		4
8:30-8:45						7		
8:45-9:00			1		1	5		1
HOURLY TOTAL					1	HOURLY TOTAL		38
9:00-9:15						6		22
9:15-9:30						11		15
9:30-9:45						12		2
9:45-10:00						5		1
HOURLY TOTAL						HOURLY TOTAL		74
10:00-10:15						7		2
10:15-10:30						10		2
10:30-10:45						14		5
10:45-11:00						18		36
HOURLY TOTAL						HOURLY TOTAL		94
11:00-11:15						17		5
11:15-11:30						5		4
11:30-11:45						14		7
11:45-12:00						9		9
HOURLY TOTAL						HOURLY TOTAL		70
12:00-12:15						16		5
12:15-12:30						10	1	6
12:30-12:45						10		13
12:45-1:00						11		7
HOURLY TOTAL						HOURLY TOTAL		79
1:00-1:15						9		2
1:15-1:30						8		3
1:30-1:45						10		3
1:45-2:00						9		4
HOURLY TOTAL						HOURLY TOTAL		48
TOTAL					1	TOTAL		521

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32



COUNT LOCATION:

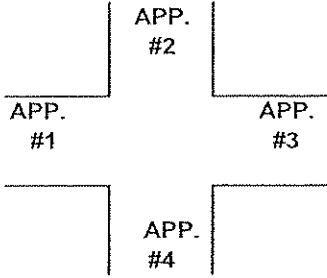
CSAH 14 (Main St.)

DATE:

07/19/2010

@ CSAH 7 (7th Ave.)

APP. #1 = CSAH 14
APP. #2 = CSAH 7
APP. #3 = CSAH 14
APP. #4 = CSAH 7



- 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	2	1			3	9		6
2:15-2:30						15		3
2:30-2:45						3		
2:45-3:00						5		3
HOURLY TOTAL					3	HOURLY TOTAL		44
3:00-3:15						8		1
3:15-3:30						6		6
3:30-3:45						5		
3:45-4:00						13	2	
HOURLY TOTAL						HOURLY TOTAL		41
4:00-4:15			2		2	10		4
4:15-4:30						7		1
4:30-4:45			3		3	9		1
4:45-5:00						2		
HOURLY TOTAL					5	HOURLY TOTAL		34
5:00-5:15						10		
5:15-5:30						3		6
5:30-5:45						4		
5:45-6:00						4		1
HOURLY TOTAL						HOURLY TOTAL		28
6:00-6:15						2		3
6:15-6:30						4		
6:30-6:45								
6:45-7:00						3		1
HOURLY TOTAL						HOURLY TOTAL		13
7:00-7:15						2		
7:15-7:30						1	1	
7:30-7:45						3		
7:45-8:00						2		
HOURLY TOTAL						HOURLY TOTAL		9
8:00-8:15						3		1
8:15-8:30						1		
8:30-8:45						2		
8:45-9:00								
HOURLY TOTAL						HOURLY TOTAL		7
9:00-9:15								
9:15-9:30						1		
9:30-9:45						1		
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		2
				TOTAL	9		TOTAL	699

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32