

Date : 06/08/10

Count Number : TMC1017

Location : CSAH 52 (Radisson Road)

@ CSAH 12 (109th Ave.)

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

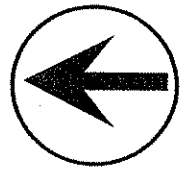
16047

#2

CSAH 52

7645	D
1812	E
5066	F
767	T

8402



North

CSAH 12

10584

#3

911	G
3569	H
1048	J
5528	

5056

949	K
5795	L
1835	M
8579	

7701

#4

16280

CSAH 52

7216

#1

13839

6623	C
1696	B
3340	A
1587	

CSAH 12

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

Anoka County Highway Department
Traffic Volume and Turning
Movement Study

Date : 06/10/10

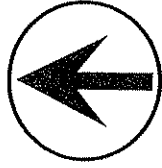
Count Number : TMC1017

Location : CSAH 52 (Radisson Road)

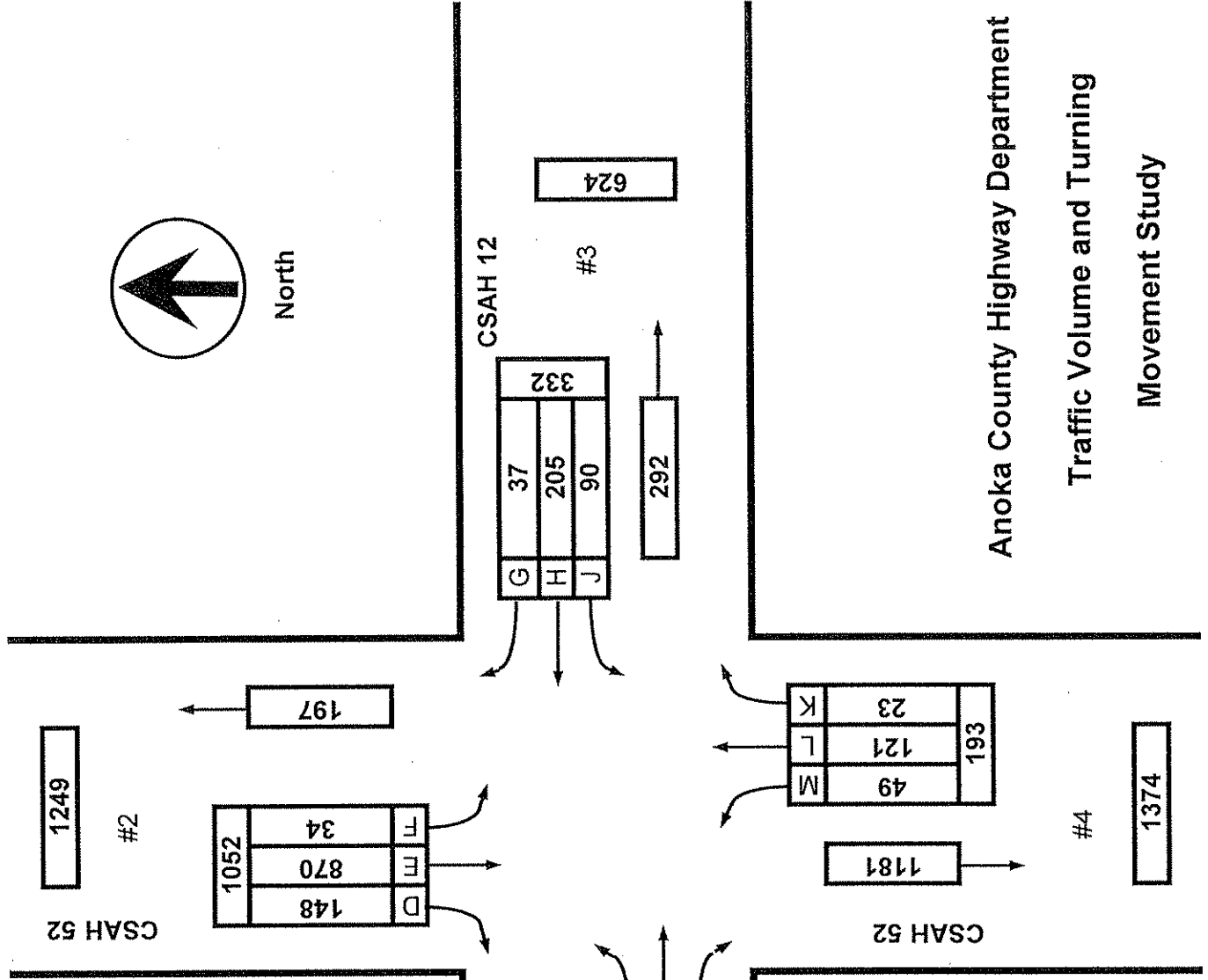
@ CSAH 12 (109th Ave.)

Collection Period : AM PEAK

Hour : 7:00-8:00 AM



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 06/08/10

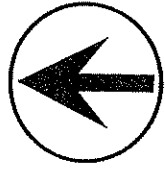
Count Number : TMC1017

Location : CSAH 52 (Radisson Road)

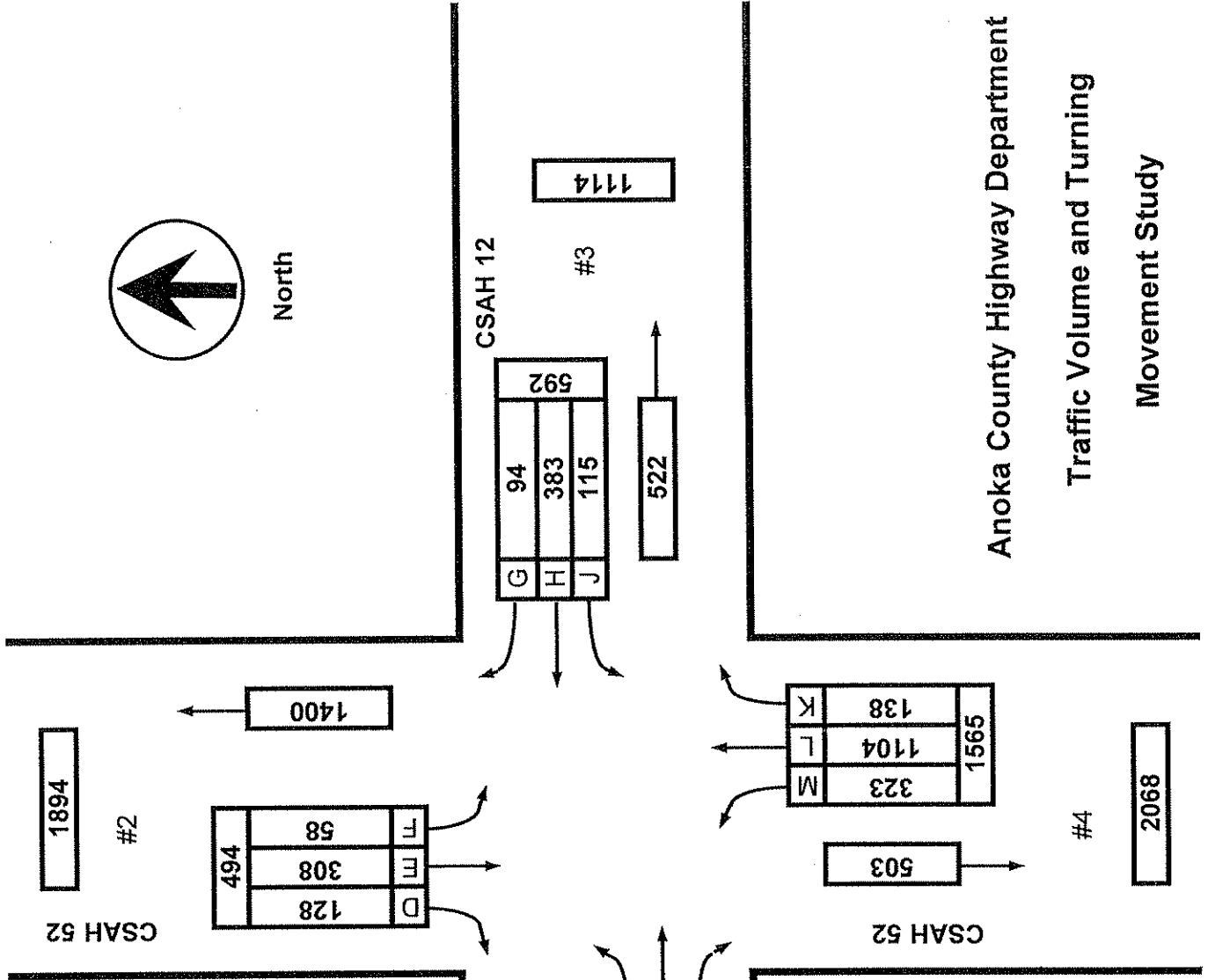
@ CSAH 12 (109th Ave.)

Collection Period : PM PEAK

Hour : 4:45-5:45 PM



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study



Anoka County Highway Department

Traffic Engineering Section Traffic Volume and Turning Movement Study

Weather: Rainy and Mild
Counter: DB-400
Counted by: Andy/Brett

File Name : TMC1017
Site Code : 10170202
Start Date : 6/8/2010
Page No : 2

Groups Printed- Unshifted

Start Time	CSAH 52 Southbound					CSAH 12 Westbound					CSAH 52 Northbound					CSAH 12 Eastbound					Excl. Total	Incl. 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	13	80	39	1	132	16	64	15	1	95	57	224	20	0	301	60	47	29	1	136	3	664	667
18:15	20	65	27	0	112	18	80	19	3	117	55	147	7	2	209	52	89	11	2	152	7	590	597
18:30	9	78	31	1	118	20	64	15	1	99	36	120	13	0	169	49	47	16	2	112	4	498	502
18:45	24	87	32	2	143	27	74	12	1	113	24	104	20	0	148	34	51	21	0	106	3	510	513
Total	66	310	129	4	505	81	282	61	6	424	172	595	60	2	827	195	234	77	5	506	17	2262	2279
19:00	18	71	21	1	110	11	74	15	1	100	22	96	16	2	134	64	44	6	1	114	5	458	463
19:15	14	52	23	0	89	14	41	9	0	64	32	92	23	1	147	33	54	11	0	98	1	398	399
19:30	7	43	33	0	83	6	55	17	2	78	21	70	10	1	101	36	46	9	0	91	3	353	356
19:45	16	47	13	0	76	10	40	10	0	60	38	94	12	3	144	41	36	13	0	90	3	370	373
Total	55	213	90	1	358	41	210	51	3	302	113	352	61	7	526	174	180	39	1	393	12	1579	1591
20:00	5	48	18	0	71	7	40	9	2	56	18	90	6	2	114	28	38	12	0	78	4	319	323
20:15	3	49	10	1	62	9	52	11	1	72	27	61	9	2	97	31	52	17	1	100	5	331	336
20:30	11	28	20	0	59	10	55	7	1	72	15	75	7	0	97	30	38	21	0	89	1	317	318
20:45	11	42	14	0	67	7	54	8	1	69	12	68	12	0	92	8	44	9	0	61	1	289	290
Total	30	167	62	1	259	33	201	35	5	269	72	294	34	4	400	97	172	59	1	328	11	1256	1267
21:00	12	47	12	0	71	10	45	6	0	61	21	63	10	0	94	13	49	6	0	68	0	294	294
21:15	10	31	14	2	55	7	40	9	0	56	8	65	9	0	82	7	51	16	0	74	2	267	269
21:30	7	34	19	0	60	4	44	9	0	57	9	58	12	0	79	2	48	15	0	65	0	261	261
21:45	11	28	12	1	51	11	47	8	0	66	13	62	14	0	89	6	44	21	0	71	1	277	278
Total	40	140	57	3	237	32	176	32	0	240	51	248	45	0	344	28	192	58	0	278	3	1099	1102
Grand Total	767	5066	1812	148	7645	1048	3569	911	115	5528	1835	5795	949	216	8579	1696	3340	1587	137	6623	616	28375	28991
Apprch %	10	66.3	23.7			19	64.6	16.5			21.4	67.5	11.1			25.6	50.4	24					
Total %	2.7	17.9	6.4		26.9	3.7	12.6	3.2		19.5	6.5	20.4	3.3		30.2	6	11.8	5.6		23.3	2.1	97.9	

Start Time	CSAH 52 Southbound				CSAH 12 Westbound				CSAH 52 Northbound				CSAH 12 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 07:00																	
07:00	8	234	31	273	27	40	12	79	11	29	5	45	5	53	50	108	505
07:15	8	204	26	238	19	33	4	56	7	37	4	48	11	54	64	129	471
07:30	10	222	48	280	16	61	11	88	12	28	6	46	12	51	50	113	527
07:45	8	210	43	261	28	71	10	109	19	27	8	54	11	77	57	145	569
Total Volume	34	870	148	1052	90	205	37	332	49	121	23	193	39	235	221	495	2072
% App. Total	3.2	82.7	14.1		27.1	61.7	11.1		25.4	62.7	11.9		7.9	47.5	44.6		
PHF	.850	.929	.771	.939	.804	.722	.771	.761	.645	.818	.719	.894	.813	.763	.863	.853	.910

Start Time	CSAH 52 Southbound				CSAH 12 Westbound				CSAH 52 Northbound				CSAH 12 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 12:00 to 21:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	10	58	25	93	25	92	26	143	87	299	32	418	57	92	21	170	824
17:00	19	92	23	134	32	92	24	148	76	280	49	405	35	68	17	120	807
17:15	9	67	36	112	25	97	28	150	79	274	33	386	49	84	18	151	799
17:30	20	91	44	155	33	102	16	151	81	251	24	356	61	82	24	167	829
Total Volume	58	308	128	494	115	383	94	592	323	1104	138	1565	202	326	80	608	3259
% App. Total	11.7	62.3	25.9		19.4	64.7	15.9		20.6	70.5	8.8		33.2	53.6	13.2		
PHF	.725	.837	.727	.797	.871	.939	.839	.980	.928	.923	.704	.936	.828	.886	.833	.894	.983

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

Study Name : **TMC1017**
Study Date : **06/15/10**
Page No. : **1**

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 52
Number of Lanes: 2
Approach Speed: 50
Total Approach Volume: **8,579**

Southbound: CSAH 52
Number of Lanes: 2
Approach Speed: 50
Total Approach Volume: **7,645**

Minor Street Approaches

Eastbound: CSAH 12
Number of Lanes: 2
Total Approach Volume: **6,623**

Westbound: CSAH 12
Number of Lanes: 2
Total Approach Volume: **5,528**

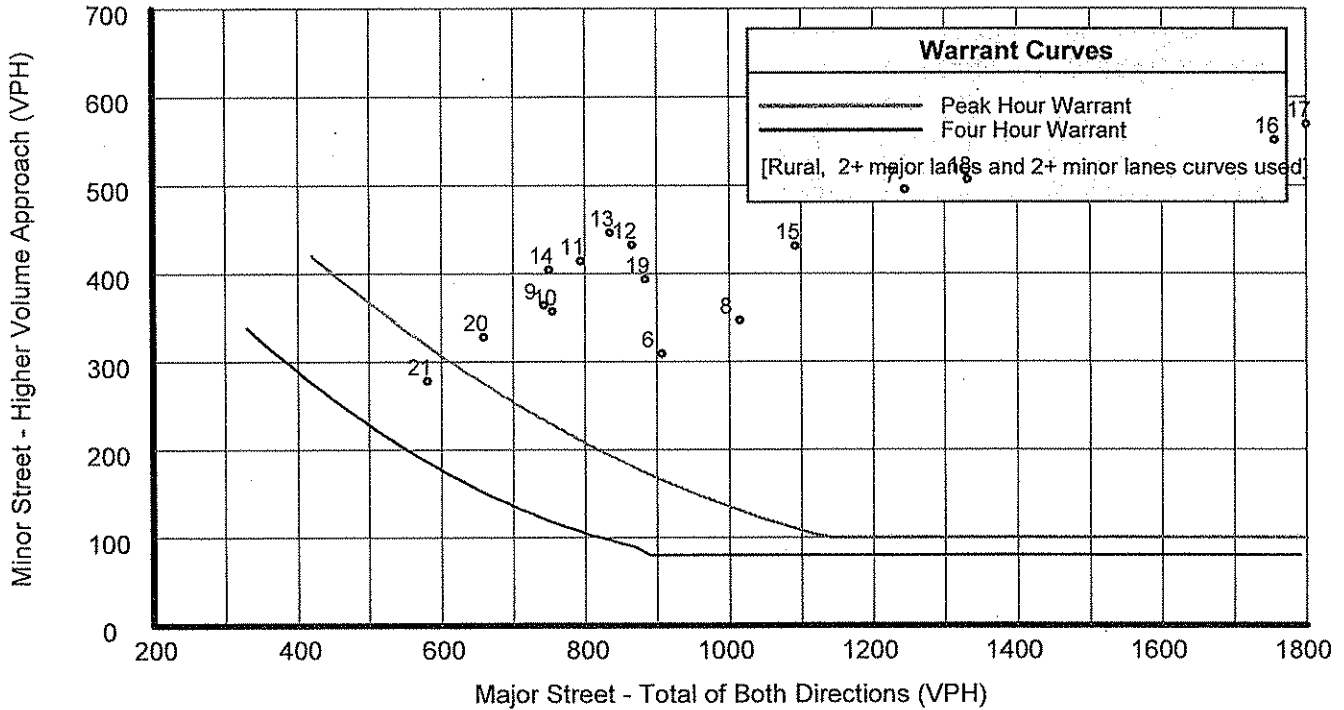
Warrant Summary (Rural values apply.)

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 (63) 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 : TMC1017
Study Date : 06/15/10
Page No. : 2

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor		War-1A			War-1B			War-1A&B		
		Vol	Dir	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
01:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
02:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
03:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
04:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
05:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
06:00	907	309	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
07:00	1,245	495	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
08:00	1,015	347	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
09:00	743	364	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
10:00	755	357	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
11:00	794	414	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
12:00	866	432	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
13:00	835	446	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
14:00	750	404	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
15:00	1,092	431	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
16:00	1,756	551	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
17:00	2,010	569	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
18:00	1,332	506	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
19:00	884	393	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
20:00	659	328	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
21:00	581	278	EB	420-Yes	140-Yes	Both	630-No	70-Yes	Minor	504-Yes	112-Yes	Both
22:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
23:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---

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

Study Name : TMC1017
Study Date : 06/15/10
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Northbound: CSAH 52
Total Approach Volume: 8,579
Approach Speed: 50

Southbound: CSAH 52
Total Approach Volume: 7,645
Approach Speed: 50

Minor Street Approaches

Eastbound: CSAH 12
Total Approach Volume: 6,623

Westbound: CSAH 12
Total Approach Volume: 5,528

Warrant Summary

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

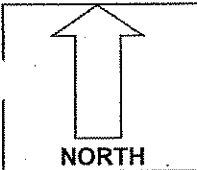
Criteria B - Crash Experience Not Evaluated

Criteria C - Minimum Volumes and Delays Satisfied
Delay data not evaluated
Required volumes reached for 17 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 3 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?
05:30 - 06:30	354	204	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
06:30 - 07:30	1,157	727	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
07:30 - 08:30	1,175	787	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
08:30 - 09:30	853	661	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
09:30 - 10:30	733	644	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
10:30 - 11:30	793	655	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
11:30 - 12:30	835	826	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
12:30 - 13:30	832	810	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
13:30 - 14:30	755	716	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
14:30 - 15:30	904	737	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
15:30 - 16:30	1,401	871	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
16:30 - 17:30	2,003	1,205	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
17:30 - 18:30	1,727	1,068	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
18:30 - 19:30	1,058	806	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
19:30 - 20:30	748	625	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
20:30 - 21:30	617	550	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
21:30 - 22:30	279	259	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
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



COUNT LOCATION:

CSAH 52 (Radisson Road)

DATE:

6/10/2010

@ CSAH 12 (109th Ave.)

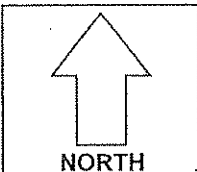
APP. #1 = CSAH 52
APP. #2 = CSAH 12
APP. #3 = CSAH 52
APP. #4 = CSAH 12

APP. #2	APP. #3
APP. #1	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						3		
6:15-6:30						5		1
6:30-6:45						12		
6:45-7:00						8		2
HOURLY TOTAL						HOURLY TOTAL		31
7:00-7:15						7		
7:15-7:30						6		
7:30-7:45						11		
7:45-8:00						10		
HOURLY TOTAL						HOURLY TOTAL		34
8:00-8:15						17		
8:15-8:30						12		
8:30-8:45						12		
8:45-9:00						18		1
HOURLY TOTAL						HOURLY TOTAL		60
9:00-9:15						18		1
9:15-9:30						15		1
9:30-9:45						14		3
9:45-10:00						13		
HOURLY TOTAL						HOURLY TOTAL		65
10:00-10:15						7		
10:15-10:30						12		
10:30-10:45						16		
10:45-11:00						14	1	1
HOURLY TOTAL						HOURLY TOTAL		51
11:00-11:15						10	1	1
11:15-11:30						8		
11:30-11:45						11		1
11:45-12:00						15		
HOURLY TOTAL						HOURLY TOTAL		47
12:00-12:15						14		
12:15-12:30						13		
12:30-12:45						11		1
12:45-1:00						10		
HOURLY TOTAL						HOURLY TOTAL		49
1:00-1:15						10		
1:15-1:30						14		
1:30-1:45						15		2
1:45-2:00						15		
HOURLY TOTAL						HOURLY TOTAL		56
					TOTAL		TOTAL	393

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COUNT LOCATION:

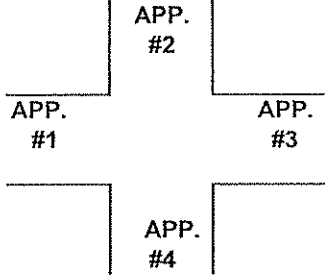
CSAH 52 (Radisson Road)

DATE:

6/8/2010

@ CSAH 12 (109th Ave.)

NORTH
APP. #1 = CSAH 52
APP. #2 = CSAH 12
APP. #3 = CSAH 52
APP. #4 = CSAH 12



- 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						15		
2:15-2:30						16		
2:30-2:45						14		
2:45-3:00						6		1
HOURLY TOTAL						HOURLY TOTAL		52
3:00-3:15						5		
3:15-3:30						18		5
3:30-3:45						10		3
3:45-4:00						8		5
HOURLY TOTAL						HOURLY TOTAL		54
4:00-4:15						9		3
4:15-4:30						8		9
4:30-4:45						12		2
4:45-5:00						6		
HOURLY TOTAL						HOURLY TOTAL		49
5:00-5:15						6		
5:15-5:30						5		
5:30-5:45						4		
5:45-6:00						1		
HOURLY TOTAL						HOURLY TOTAL		16
6:00-6:15						3		
6:15-6:30						6		
6:30-6:45						4		
6:45-7:00						3		
HOURLY TOTAL						HOURLY TOTAL		16
7:00-7:15						4		1
7:15-7:30						1		
7:30-7:45						2		1
7:45-8:00						4		
HOURLY TOTAL						HOURLY TOTAL		13
8:00-8:15						2		1
8:15-8:30						3		2
8:30-8:45						1		
8:45-9:00						1		
HOURLY TOTAL						HOURLY TOTAL		10
9:00-9:15								
9:15-9:30						2		
9:30-9:45								
9:45-10:00						3		
HOURLY TOTAL						HOURLY TOTAL		5
					TOTAL		TOTAL	608

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