

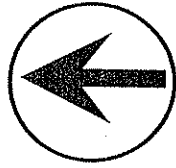
Date : 06/19/13

Count Number : TMC1317

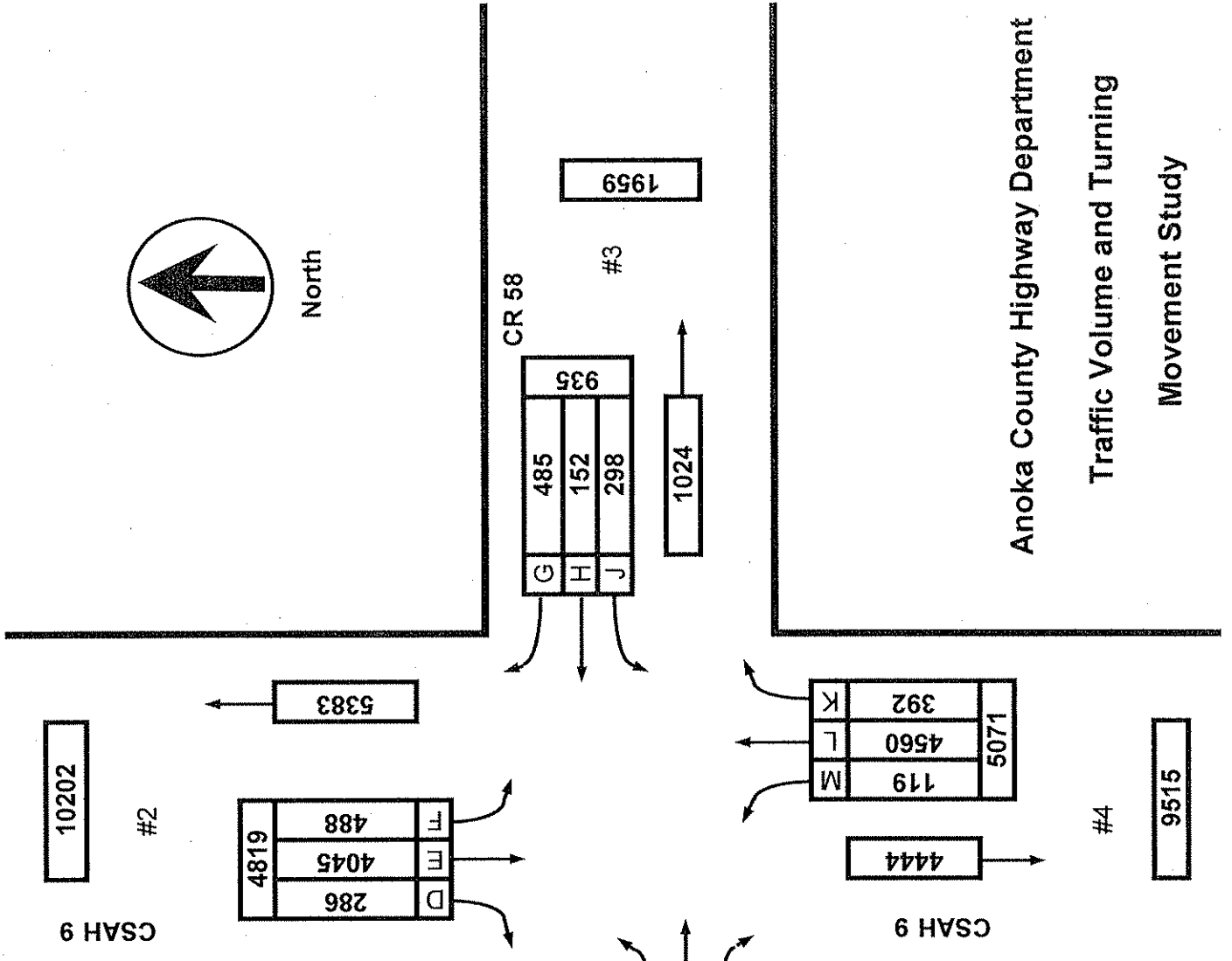
Location : CSAH 9 (Round Lake Blvd.)

@ CR 58 (181st Ave.)

Collection Period : 6 AM - 10 PM



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 06/19/13

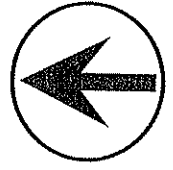
Count Number : TMC1317

Location : CSAH 9 (Round Lake Blvd.)

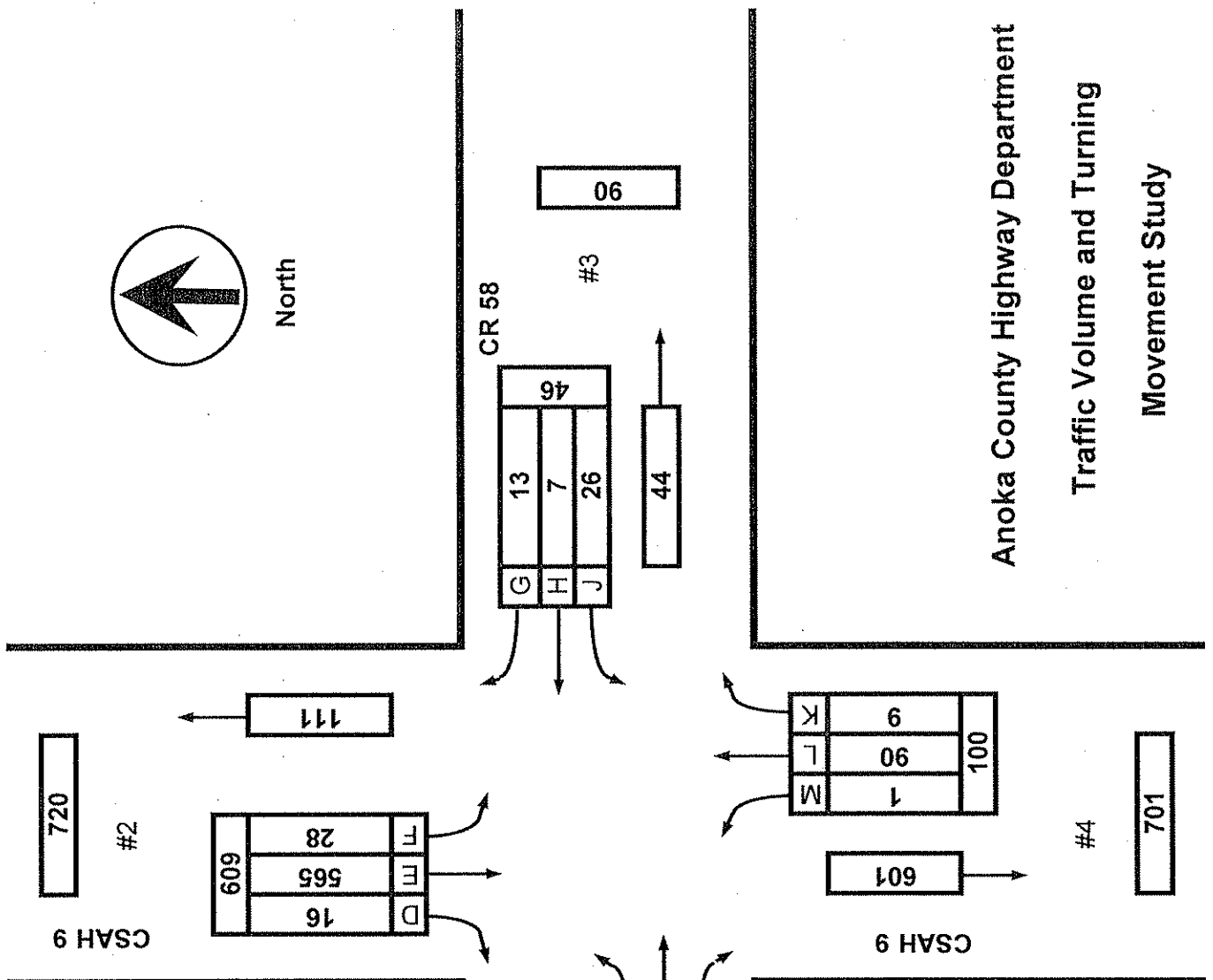
@ CR 58 (181st Ave.)

Collection Period : AM PEAK

Hour : 6:30 - 7:30 AM



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	1	1
#2	0	0	1	1
#3	0	0	1	1
#4	1	0	1	2

Date : 06/18/13

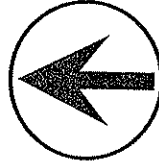
Count Number : TMC1317

Location : CSAH 9 (Round Lake Blvd.)

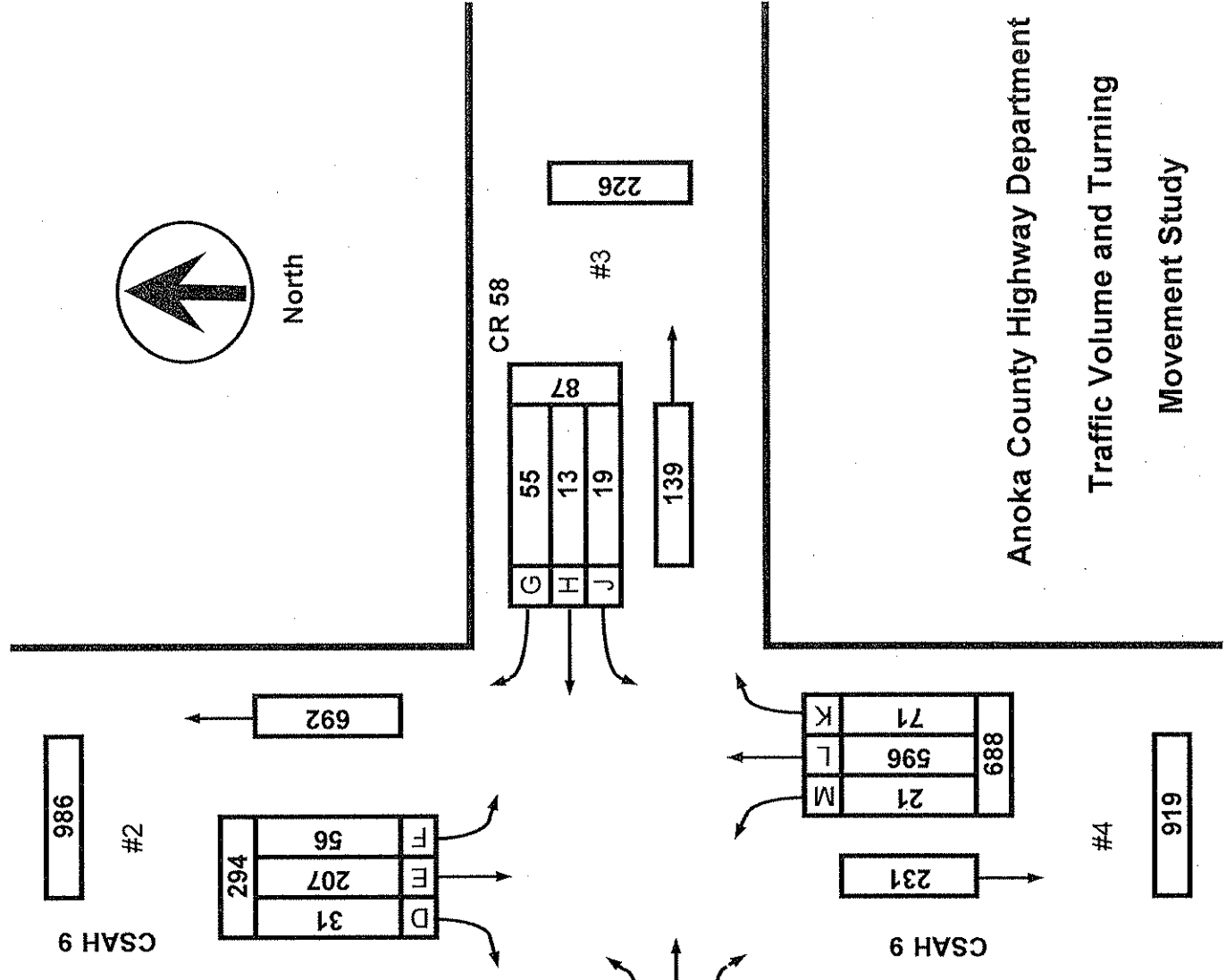
@ CR 58 (181st Ave.)

Collection Period : PM PEAK

Hour : 5:00 PM - 6:00 PM



North



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

File Name : TMC 1317
 Site Code : 13170202
 Start Date : 06/18/2013
 Page No : 2

Weather: Warm & Cloudy
 Counter: DB-400
 Study Conducted By: Kate & Katelyn

Groups Printed- Unshifted

Start Time	CSAH 9 Southbound					CR 58 Westbound					CSAH 9 Northbound					CR 58 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			
05:45 PM	22	56	9	0	87	4	2	15	0	21	4	138	12	1	154	8	1	0	0	9	1	271	272
Total	56	207	31	2	294	19	13	55	1	87	21	596	71	11	688	41	12	5	1	58	15	1127	1142
06:00 PM	9	64	7	1	80	3	5	8	0	16	1	105	8	2	114	6	2	1	0	9	3	219	222
06:15 PM	16	47	5	0	68	3	2	12	0	17	5	108	16	1	129	12	6	0	0	18	1	232	233
06:30 PM	10	41	9	1	60	2	3	12	0	17	5	115	18	1	138	15	2	4	0	21	2	236	238
06:45 PM	10	48	7	0	65	9	9	5	0	23	7	92	10	1	109	9	6	1	0	16	1	213	214
Total	45	200	28	2	273	17	19	37	0	73	18	420	52	5	490	42	16	6	0	64	7	900	907
07:00 PM	9	41	7	2	57	6	1	9	1	16	8	78	6	3	92	6	4	1	0	11	6	176	182
07:15 PM	6	37	6	2	49	14	0	11	0	25	3	87	6	3	96	8	5	0	0	13	5	183	188
07:30 PM	6	59	4	1	69	1	2	9	0	12	5	88	11	1	104	6	0	3	0	9	2	194	196
07:45 PM	13	26	12	0	51	3	3	8	0	14	2	60	8	0	70	2	4	1	0	7	0	142	142
Total	34	163	29	5	226	24	6	37	1	67	18	313	31	7	362	22	13	5	0	40	13	695	708
08:00 PM	8	27	6	0	41	6	5	10	0	21	2	60	5	0	67	7	1	2	0	10	0	139	139
08:15 PM	4	24	2	0	30	2	4	7	0	13	0	71	4	0	75	6	2	2	0	10	0	128	128
08:30 PM	4	34	4	0	42	15	4	12	0	31	0	74	7	1	81	10	2	2	0	14	1	168	169
08:45 PM	12	44	8	0	64	2	1	3	0	6	0	57	5	1	62	5	7	5	0	17	1	149	150
Total	28	129	20	0	177	25	14	32	0	71	2	262	21	2	285	28	12	11	0	51	2	584	586
09:00 PM	11	35	4	0	50	8	4	7	0	19	1	51	4	0	56	3	2	3	0	8	0	133	133
09:15 PM	11	35	6	0	52	10	5	8	0	23	3	60	3	0	66	6	1	0	0	7	0	148	148
09:30 PM	5	21	3	0	29	1	3	6	0	10	0	44	6	1	50	5	1	2	0	8	1	97	98
09:45 PM	6	17	2	0	25	2	0	6	0	8	0	36	4	0	40	6	0	0	0	6	0	79	79
Total	33	108	15	0	156	21	12	27	0	60	4	191	17	1	212	20	4	5	0	29	1	457	458
Grand Total	488	4045	286	105	4819	298	152	485	29	935	119	4560	392	123	5071	338	144	101	16	583	273	11408	11681
Apprch %	10.1	83.9	5.9			31.9	16.3	51.9			2.3	89.9	7.7			58	24.7	17.3					
Total %	4.3	35.5	2.5		42.2	2.6	1.3	4.3		8.2	1	40	3.4		44.5	3	1.3	0.9		5.1	2.3	97.7	

Start Time	CSAH 9 Southbound				CR 58 Westbound				CSAH 9 Northbound				CR 58 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
06:30 AM	7	156	3	166	4	6	2	12	0	21	1	22	2	2	3	7	207
06:45 AM	8	142	4	154	7	0	5	12	0	22	2	24	2	1	4	7	197
07:00 AM	5	127	5	137	8	0	2	10	0	17	1	18	2	2	1	5	170
07:15 AM	8	140	4	152	7	1	4	12	1	30	5	36	2	2	2	6	206
Total Volume	28	565	16	609	26	7	13	46	1	90	9	100	8	7	10	25	780
% App. Total	4.6	92.8	2.6		56.5	15.2	28.3		1	90	9		32	28	40		
PHF	.875	.905	.800	.917	.813	.292	.650	.958	.250	.750	.450	.694	1.00	.875	.625	.893	.942

Start Time	CSAH 9 Southbound				CR 58 Westbound				CSAH 9 Northbound				CR 58 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
05:00 PM	9	42	9	60	6	5	17	28	4	152	22	178	9	4	2	15	281
05:15 PM	12	53	6	71	2	3	14	19	5	147	18	170	14	4	2	20	280
05:30 PM	13	56	7	76	7	3	9	19	8	159	19	186	10	3	1	14	295
05:45 PM	22	56	9	87	4	2	15	21	4	138	12	154	8	1	0	9	271
Total Volume	56	207	31	294	19	13	55	87	21	596	71	688	41	12	5	58	1127
% App. Total	19	70.4	10.5		21.8	14.9	63.2		3.1	86.6	10.3		70.7	20.7	8.6		
PHF	.636	.924	.861	.845	.679	.650	.809	.777	.656	.937	.807	.925	.732	.750	.625	.725	.955



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

Study Name : TMC 1317 Signal
Study Date : 06/25/13
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 9
Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: 5,071

Southbound: CSAH 9
Number of Lanes: 1
85% Speed > 40 MPH.
Total Approach Volume: 4,819

Minor Street Approaches

Eastbound: CR 58
Number of Lanes: 1

Total Approach Volume: 583

Westbound: CR 58
Number of Lanes: 1

Total Approach Volume: 935

Warrant Summary (Rural values apply.)

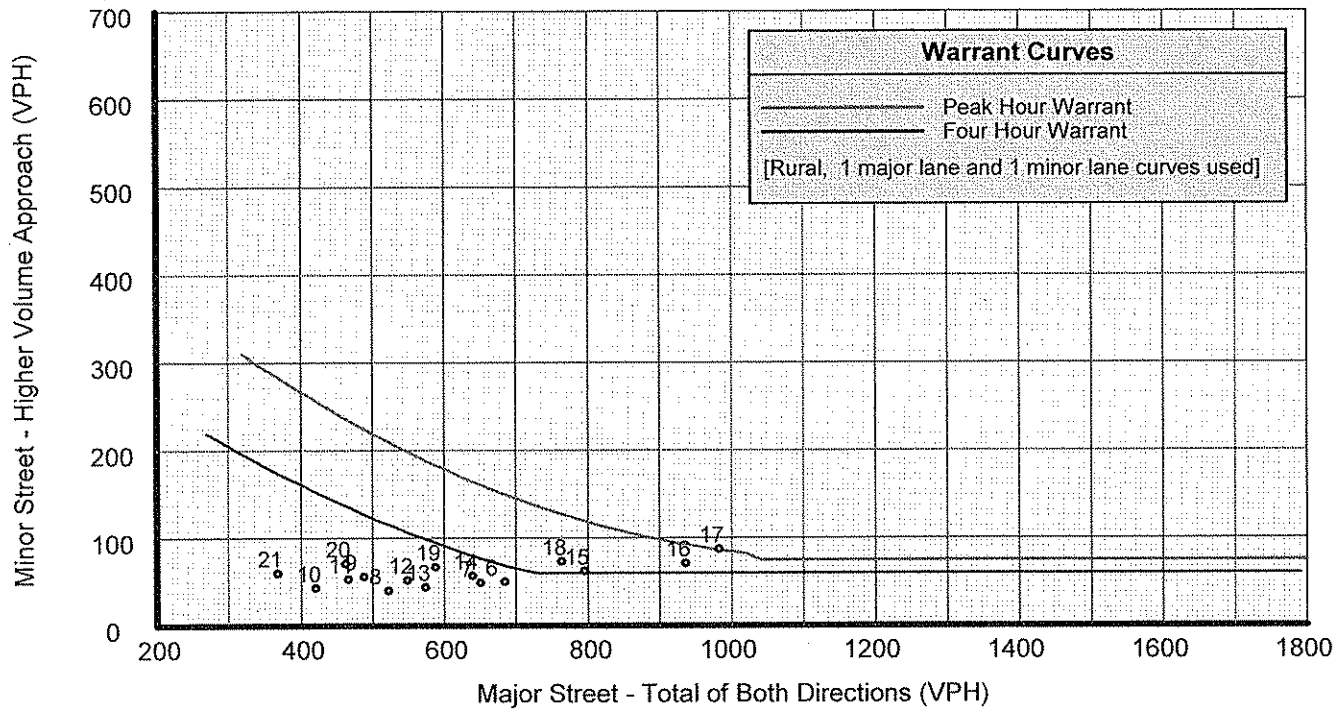
Warrant 1 - Eight Hour Vehicular Volumes	Not Satisfied
Warrant 1A - Minimum Vehicular Volume	Not Satisfied
Required volumes reached for 0 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic	Not Satisfied
Required volumes reached for 6 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants	Not Satisfied
Required volumes reached for 1 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Satisfied
Number of hours (4) volumes exceed minimum >= minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Delay	Not Satisfied
Approach volumes on minor street don't exceed minimums for any hour. 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

Study Name : TMC 1317 Signal
Study Date : 06/25/13
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	105-No	---	525-No	53-No	---	420-No	84-No	---
01:00	0	0	EB	350-No	105-No	---	525-No	53-No	---	420-No	84-No	---
02:00	0	0	EB	350-No	105-No	---	525-No	53-No	---	420-No	84-No	---
03:00	0	0	EB	350-No	105-No	---	525-No	53-No	---	420-No	84-No	---
04:00	0	0	EB	350-No	105-No	---	525-No	53-No	---	420-No	84-No	---
05:00	0	0	EB	350-No	105-No	---	525-No	53-No	---	420-No	84-No	---
06:00	685	50	WB	350-Yes	105-No	Major	525-Yes	53-No	Major	420-Yes	84-No	Major
07:00	651	49	WB	350-Yes	105-No	Major	525-Yes	53-No	Major	420-Yes	84-No	Major
08:00	522	40	WB	350-Yes	105-No	Major	525-No	53-No	---	420-Yes	84-No	Major
09:00	488	56	WB	350-Yes	105-No	Major	525-No	53-Yes	Minor	420-Yes	84-No	Major
10:00	421	43	WB	350-Yes	105-No	Major	525-No	53-No	---	420-Yes	84-No	Major
11:00	466	53	WB	350-Yes	105-No	Major	525-No	53-Yes	Minor	420-Yes	84-No	Major
12:00	549	52	WB	350-Yes	105-No	Major	525-Yes	53-No	Major	420-Yes	84-No	Major
13:00	574	44	WB	350-Yes	105-No	Major	525-Yes	53-No	Major	420-Yes	84-No	Major
14:00	640	57	WB	350-Yes	105-No	Major	525-Yes	53-Yes	Both	420-Yes	84-No	Major
15:00	795	62	WB	350-Yes	105-No	Major	525-Yes	53-Yes	Both	420-Yes	84-No	Major
16:00	936	71	WB	350-Yes	105-No	Major	525-Yes	53-Yes	Both	420-Yes	84-No	Major
17:00	982	87	WB	350-Yes	105-No	Major	525-Yes	53-Yes	Both	420-Yes	84-Yes	Both
18:00	763	73	WB	350-Yes	105-No	Major	525-Yes	53-Yes	Both	420-Yes	84-No	Major
19:00	588	67	WB	350-Yes	105-No	Major	525-Yes	53-Yes	Both	420-Yes	84-No	Major
20:00	462	71	WB	350-Yes	105-No	Major	525-No	53-Yes	Minor	420-Yes	84-No	Major
21:00	368	60	WB	350-Yes	105-No	Major	525-No	53-Yes	Minor	420-No	84-No	---
22:00	0	0	EB	350-No	105-No	---	525-No	53-No	---	420-No	84-No	---
23:00	0	0	EB	350-No	105-No	---	525-No	53-No	---	420-No	84-No	---



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

Study Name : TMC 1317 MW
Study Date : 06/25/13
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Northbound: CSAH 9
Total Approach Volume: 5,071
85% Speed > 40 MPH.

Southbound: CSAH 9
Total Approach Volume: 4,819
85% Speed > 40 MPH.

Minor Street Approaches

Eastbound: CR 58
Total Approach Volume: 583

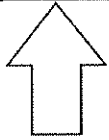
Westbound: CR 58
Total Approach Volume: 935

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** Not Satisfied
Delay data not evaluated
Required volumes reached for 2 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?
16:15 - 17:15	940	140	210-Yes	140-Yes	Both	240-Yes	160-No	Major
18:30 - 19:30	666	142	210-Yes	140-Yes	Both	240-Yes	160-No	Major
05:30 - 06:30	319	32	210-Yes	140-No	Major	240-Yes	160-No	Major
05:45 - 06:45	507	51	210-Yes	140-No	Major	240-Yes	160-No	Major
06:00 - 07:00	685	70	210-Yes	140-No	Major	240-Yes	160-No	Major
06:15 - 07:15	681	68	210-Yes	140-No	Major	240-Yes	160-No	Major
06:30 - 07:30	709	71	210-Yes	140-No	Major	240-Yes	160-No	Major
06:45 - 07:45	684	77	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	651	80	210-Yes	140-No	Major	240-Yes	160-No	Major
07:15 - 08:15	617	81	210-Yes	140-No	Major	240-Yes	160-No	Major
07:30 - 08:30	563	79	210-Yes	140-No	Major	240-Yes	160-No	Major
07:45 - 08:45	540	69	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	522	70	210-Yes	140-No	Major	240-Yes	160-No	Major
08:15 - 09:15	515	77	210-Yes	140-No	Major	240-Yes	160-No	Major
08:30 - 09:30	505	82	210-Yes	140-No	Major	240-Yes	160-No	Major
08:45 - 09:45	484	87	210-Yes	140-No	Major	240-Yes	160-No	Major
09:00 - 10:00	488	83	210-Yes	140-No	Major	240-Yes	160-No	Major
09:15 - 10:15	471	79	210-Yes	140-No	Major	240-Yes	160-No	Major
09:30 - 10:30	452	75	210-Yes	140-No	Major	240-Yes	160-No	Major
09:45 - 10:45	433	67	210-Yes	140-No	Major	240-Yes	160-No	Major
10:00 - 11:00	421	63	210-Yes	140-No	Major	240-Yes	160-No	Major
10:15 - 11:15	440	66	210-Yes	140-No	Major	240-Yes	160-No	Major
10:30 - 11:30	439	70	210-Yes	140-No	Major	240-Yes	160-No	Major
10:45 - 11:45	456	76	210-Yes	140-No	Major	240-Yes	160-No	Major



NORTH

COUNT LOCATION:

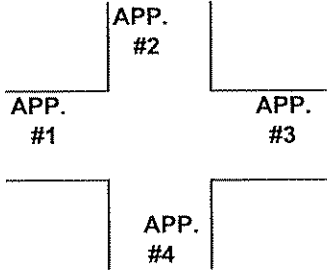
CSAH 9 (Round Lake Blvd.)

DATE:

06/19/2013

@ CR 58 (181st Ave.)

APP. #1 = CR 58
APP. #2 = CSAH 9
APP. #3 = CR 58
APP. #4 = CSAH 9

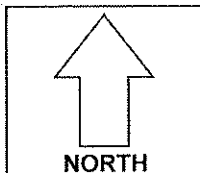


HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT

- 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						5		
6:15-6:30						4		
6:30-6:45						5		
6:45-7:00						8		1
HOURLY TOTAL						HOURLY TOTAL		23
7:00-7:15						4	1	
7:15-7:30						4		1
7:30-7:45						8		
7:45-8:00						8		
HOURLY TOTAL						HOURLY TOTAL		26
8:00-8:15						7		
8:15-8:30						6		1
8:30-8:45			1		1	6		
8:45-9:00						6		2
HOURLY TOTAL					1	HOURLY TOTAL		28
9:00-9:15						2		
9:15-9:30						3		
9:30-9:45						6		2
9:45-10:00						4		1
HOURLY TOTAL						HOURLY TOTAL		18
10:00-10:15						4		
10:15-10:30		1			1	3		
10:30-10:45						3	1	
10:45-11:00						7		
HOURLY TOTAL					1	HOURLY TOTAL		18
11:00-11:15						5		1
11:15-11:30						2		
11:30-11:45						4		1
11:45-12:00				1	1	2		
HOURLY TOTAL					1	HOURLY TOTAL		15
12:00-12:15						3		
12:15-12:30						5		
12:30-12:45						1		3
12:45-1:00						5		1
HOURLY TOTAL						HOURLY TOTAL		18
1:00-1:15						5		
1:15-1:30						6		
1:30-1:45						5		
1:45-2:00						4		1
HOURLY TOTAL						HOURLY TOTAL		21
TOTAL					3	TOTAL		167

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COUNT LOCATION:

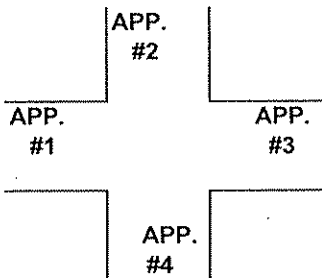
CSAH 9 (Round Lake Blvd.)

DATE:

06/18/2013

@ CR 58 (181st Ave.)

APP. #1 = CR 58
APP. #2 = CSAH 9
APP. #3 = CR 58
APP. #4 = CSAH 9



- 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						5		
2:15-2:30	2		2		4	7		
2:30-2:45						5		1
2:45-3:00						1		
HOURLY TOTAL					4	HOURLY TOTAL		19
3:00-3:15						5		
3:15-3:30						2		1
3:30-3:45						7		
3:45-4:00						7		
HOURLY TOTAL						HOURLY TOTAL		22
4:00-4:15						7		
4:15-4:30			1		1	4		1
4:30-4:45		2			2	4		
4:45-5:00						5		
HOURLY TOTAL					3	HOURLY TOTAL		21
5:00-5:15						4		
5:15-5:30				1	1	6		
5:30-5:45						4		
5:45-6:00								
HOURLY TOTAL					1	HOURLY TOTAL		14
6:00-6:15						3		
6:15-6:30						1		
6:30-6:45						2		
6:45-7:00						1		
HOURLY TOTAL						HOURLY TOTAL		7
7:00-7:15						6		
7:15-7:30						5		
7:30-7:45						2		
7:45-8:00								
HOURLY TOTAL						HOURLY TOTAL		13
8:00-8:15				1	1			
8:15-8:30								
8:30-8:45		2			2	1		
8:45-9:00						1		
HOURLY TOTAL					3	HOURLY TOTAL		2
9:00-9:15								
9:15-9:30			1		1			
9:30-9:45						1		
9:45-10:00								
HOURLY TOTAL					1	HOURLY TOTAL		1
					TOTAL	15	TOTAL	266

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