

Date: 11/20/12

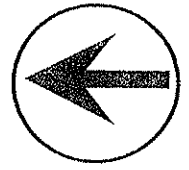
Count Number: TMC1229

Location: CSAH 52 (Radisson Rd.)

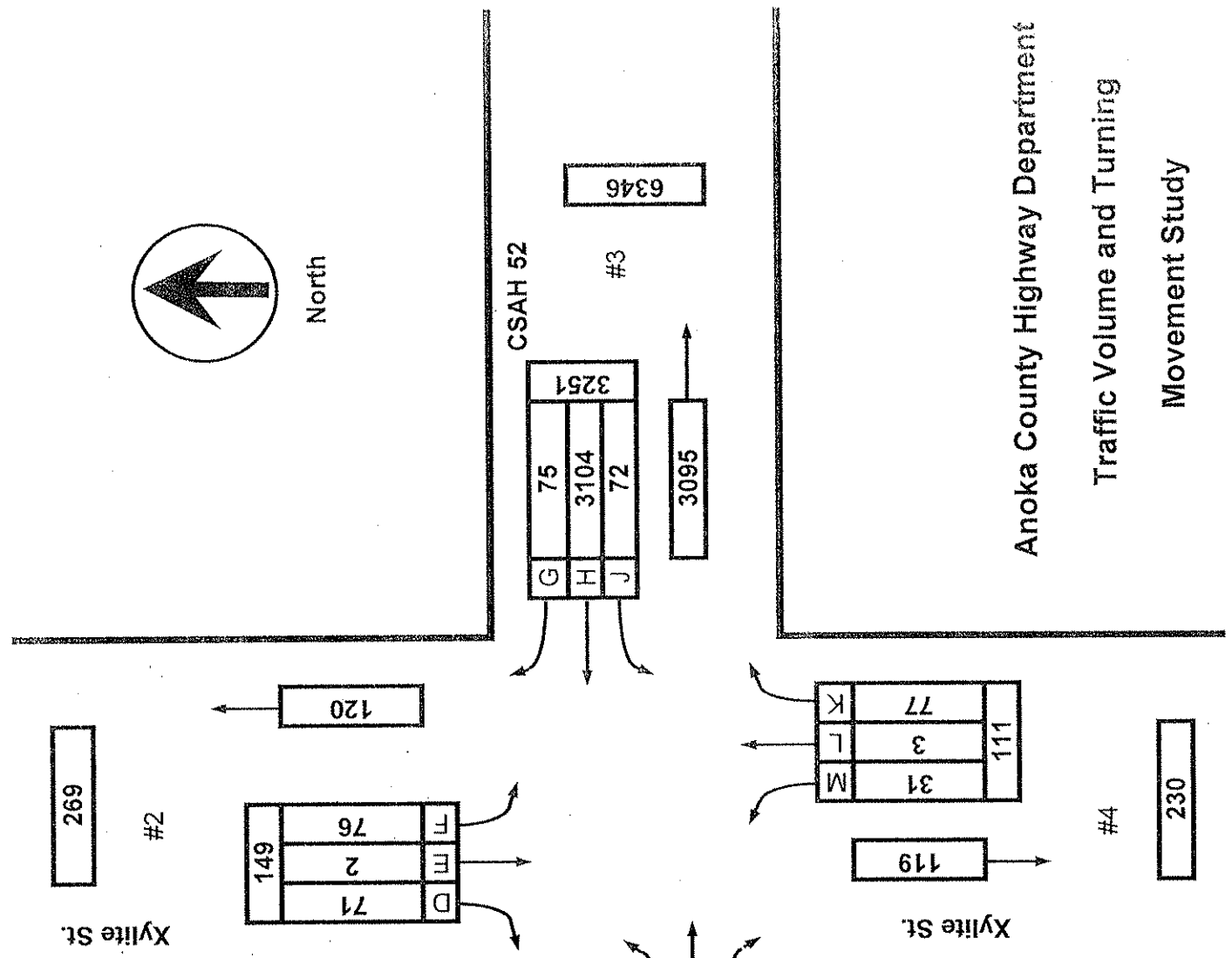
@ Xylite St.

Collection Period: PEAK HOURS

6:30 - 8:30 AM & 4 - 6:00 PM



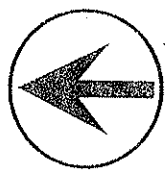
North



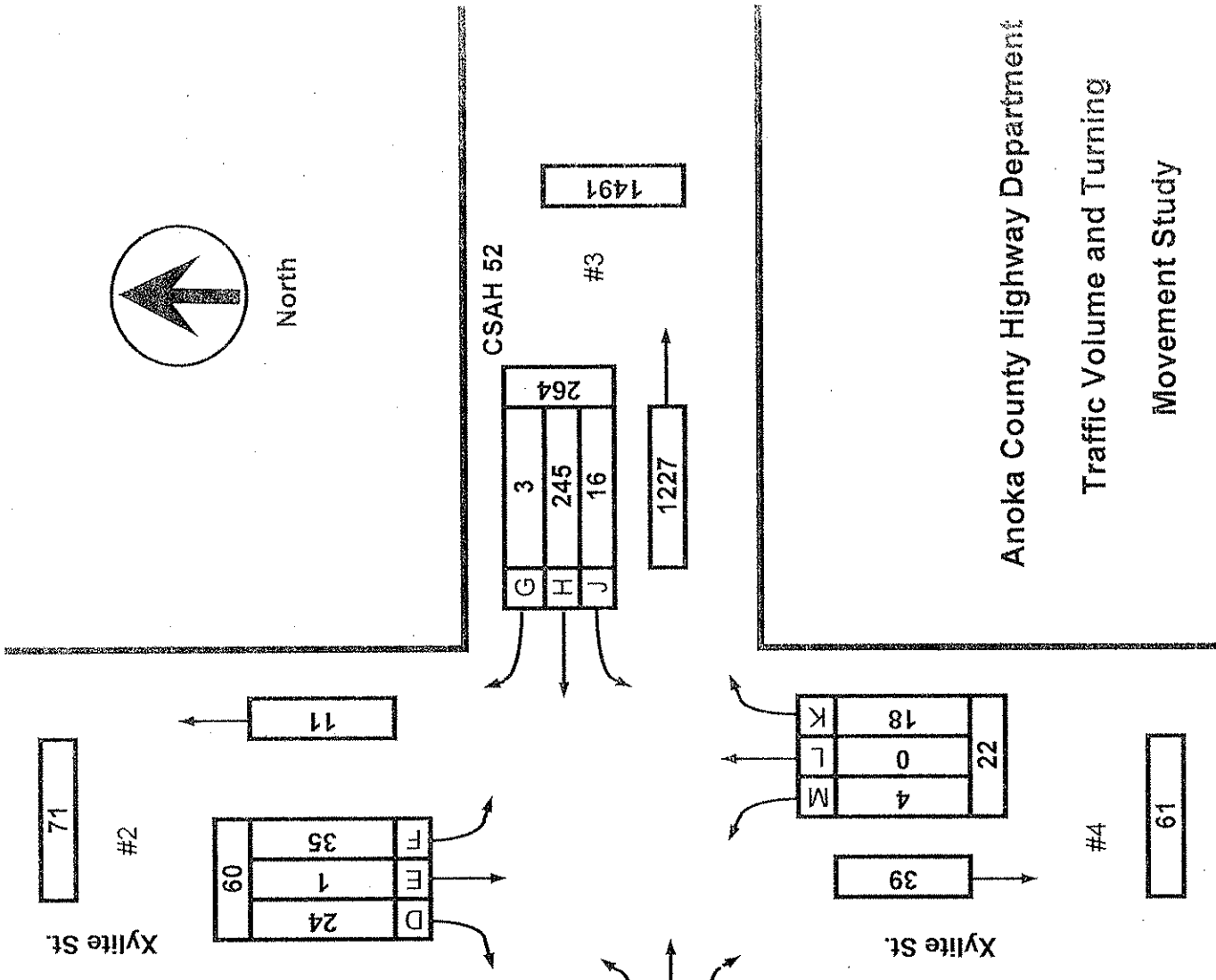
EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	1	2	4
#2	0	0	1	1
#3	1	1	2	4
#4	0	0	1	1

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 11/20/12
 Count Number : TMC1229
 Location : CSAH 52 (Radisson Rd.)
 @ Xylite St.
 Collection Period : AM PEAK
 Hour : 6:45 AM - 7:45 AM



North



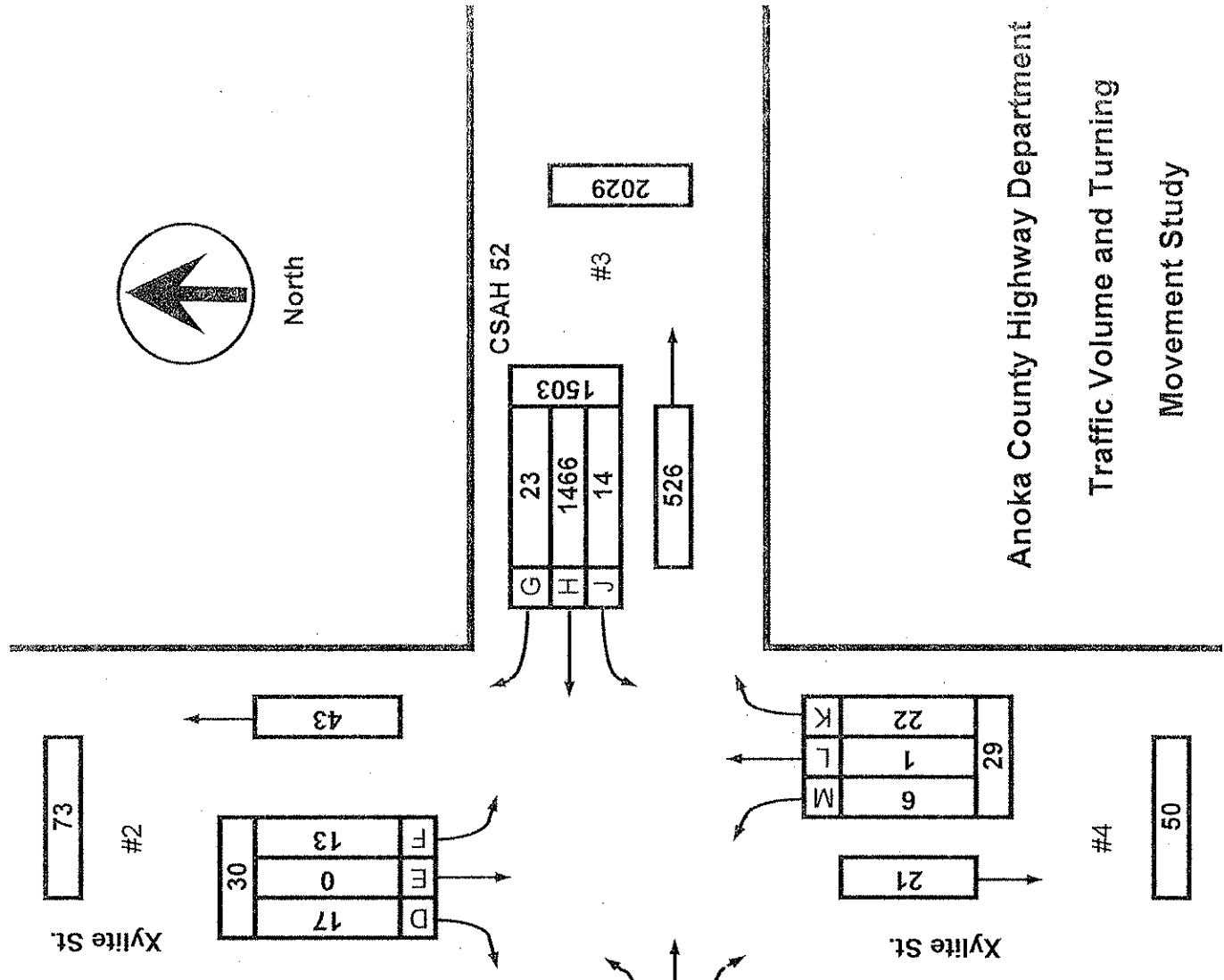
EXISTING LANES OF APPROACH				TOTAL
RIGHT TURN LANE	LEFT TURN LANE	THRU LANES		
#1	1	1	2	4
#2	0	0	1	1
#3	1	1	2	4
#4	0	0	1	1

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 11/26/12
 Count Number : TMC1229
 Location : CSAH 52 (Radisson Rd.)
 @ Xylite St.
 Collection Period : PM PEAK
 Hour : 4:30 PM - 5:30 PM



North



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

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 : TMC1229
 Site Code : 12290202
 Start Date : 11/26/2012
 Page No : 1

Weather: Cool and Cloudy
 Counter: DB-400
 Counted by: Andrea and Sam

Groups Printed- Unshifted

Start Time	Xylite St. Southbound					CSAH 52 Westbound					Xylite St. Northbound					CSAH 52 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			
06:30	5	0	3	2	8	6	23	0	5	29	1	0	3	2	4	1	227	2	5	230	14	271	285
06:45	8	0	9	0	17	2	68	0	9	70	0	0	10	0	10	3	309	5	9	317	18	414	432
Total	13	0	12	2	25	8	91	0	14	99	1	0	13	2	14	4	536	7	14	547	32	685	717
07:00	14	0	4	1	18	3	51	2	3	56	0	0	2	0	2	4	287	7	2	298	6	374	380
07:15	9	0	4	0	13	4	59	1	10	64	1	0	3	2	4	1	295	3	4	299	16	380	396
07:30	4	1	7	2	12	7	67	0	6	74	3	0	3	2	6	0	283	7	5	290	15	382	397
07:45	3	1	4	0	8	8	68	3	5	79	1	0	3	3	4	2	247	3	9	252	17	343	360
Total	30	2	19	3	51	22	245	6	24	273	5	0	11	7	16	7	1112	20	20	1139	54	1479	1533
08:00	6	0	3	1	9	5	59	7	5	71	2	0	4	2	6	1	205	1	10	207	18	293	311
08:15	3	0	7	0	10	4	62	6	10	72	0	0	1	0	1	2	209	3	7	214	17	297	314
*** BREAK ***																							
Total	9	0	10	1	19	9	121	13	15	143	2	0	5	2	7	3	414	4	17	421	35	590	625
*** BREAK ***																							
16:00	4	0	3	0	7	10	278	4	16	292	4	1	7	2	12	3	98	2	5	103	23	414	437
16:15	3	0	7	0	10	2	328	12	4	342	5	1	10	4	16	3	93	1	8	97	16	465	481
16:30	4	0	6	1	10	1	302	5	4	308	3	1	5	0	9	8	149	5	8	162	13	489	502
16:45	3	0	1	0	4	3	389	3	5	395	2	0	7	2	9	3	106	1	1	110	8	518	526
Total	14	0	17	1	31	16	1297	24	29	1337	14	3	29	8	46	17	446	9	22	472	60	1886	1946
17:00	2	0	2	0	4	4	387	9	5	400	0	0	5	1	5	4	117	1	0	122	6	531	537
17:15	4	0	8	0	12	6	388	6	3	400	1	0	5	0	6	4	119	0	2	123	5	541	546
17:30	0	0	2	0	2	1	316	11	4	328	3	0	5	1	8	1	96	4	8	101	13	439	452
17:45	4	0	1	0	5	6	259	6	3	271	5	0	4	1	9	2	102	0	4	104	8	389	397
Total	10	0	13	0	23	17	1350	32	15	1399	9	0	19	3	28	11	434	5	14	450	32	1900	1932
Grand Total	76	2	71	7	149	72	3104	75	97	3251	31	3	77	22	111	42	2942	45	87	3029	213	6540	6753
Apprch %	51	1.3	47.7			2.2	95.5	2.3			27.9	2.7	69.4			1.4	97.1	1.5					
Total %	1.2	0	1.1		2.3	1.1	47.5	1.1		49.7	0.5	0	1.2		1.7	0.6	45	0.7		46.3	3.2	96.8	

Start Time	Xylite St. Southbound				CSAH 52 Westbound				Xylite St. Northbound				CSAH 52 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 06:30 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45																	
06:45	8	0	9	17	2	68	0	70	0	0	10	10	3	309	5	317	414
07:00	14	0	4	18	3	51	2	56	0	0	2	2	4	287	7	298	374
07:15	9	0	4	13	4	59	1	64	1	0	3	4	1	295	3	299	380
07:30	4	1	7	12	7	67	0	74	3	0	3	6	0	283	7	290	382
Total Volume	35	1	24	60	16	245	3	264	4	0	18	22	8	1174	22	1204	1550
% App. Total	58.3	1.7	40		6.1	92.8	1.1		18.2	0	81.8		0.7	97.5	1.8		
PHF	.625	.250	.667	.833	.571	.901	.375	.892	.333	.000	.450	.550	.500	.950	.786	.950	.936

Start Time	Xylite St. Southbound				CSAH 52 Westbound				Xylite St. Northbound				CSAH 52 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 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	4	0	6	10	1	302	5	308	3	1	5	9	8	149	5	162	489
16:45	3	0	1	4	3	389	3	395	2	0	7	9	3	106	1	110	518
17:00	2	0	2	4	4	387	9	400	0	0	5	5	4	117	1	122	531
17:15	4	0	8	12	6	388	6	400	1	0	5	6	4	119	0	123	541
Total Volume	13	0	17	30	14	1466	23	1503	6	1	22	29	19	491	7	517	2079
% App. Total	43.3	0	56.7		0.9	97.5	1.5		20.7	3.4	75.9		3.7	95	1.4		
PHF	.813	.000	.531	.625	.583	.942	.639	.939	.500	.250	.786	.806	.594	.824	.350	.798	.961



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

Study Name : TMC1229
Study Date : 12/03/12
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 52
Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: **3,038**

Westbound: CSAH 52
Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: **3,260**

Minor Street Approaches

Northbound: Xylite St.
Number of Lanes: 1

Total Approach Volume: **120**

Southbound: Xylite St.
Number of Lanes: 1

Total Approach Volume: **158**

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 1 hours, 8 are needed
 - Warrant 1 A&B - Combination of Warrants** **Not Satisfied**
Required volumes reached for 0 hours, 8 are needed

- Warrant 2 - Four Hour Volumes** **Not Satisfied**
Number of hours (1) volumes exceed minimum < minimum required (4).

- Warrant 3 - Peak Hour** **Not 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** **Not Satisfied**
Volumes do not exceed minimums for any 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**

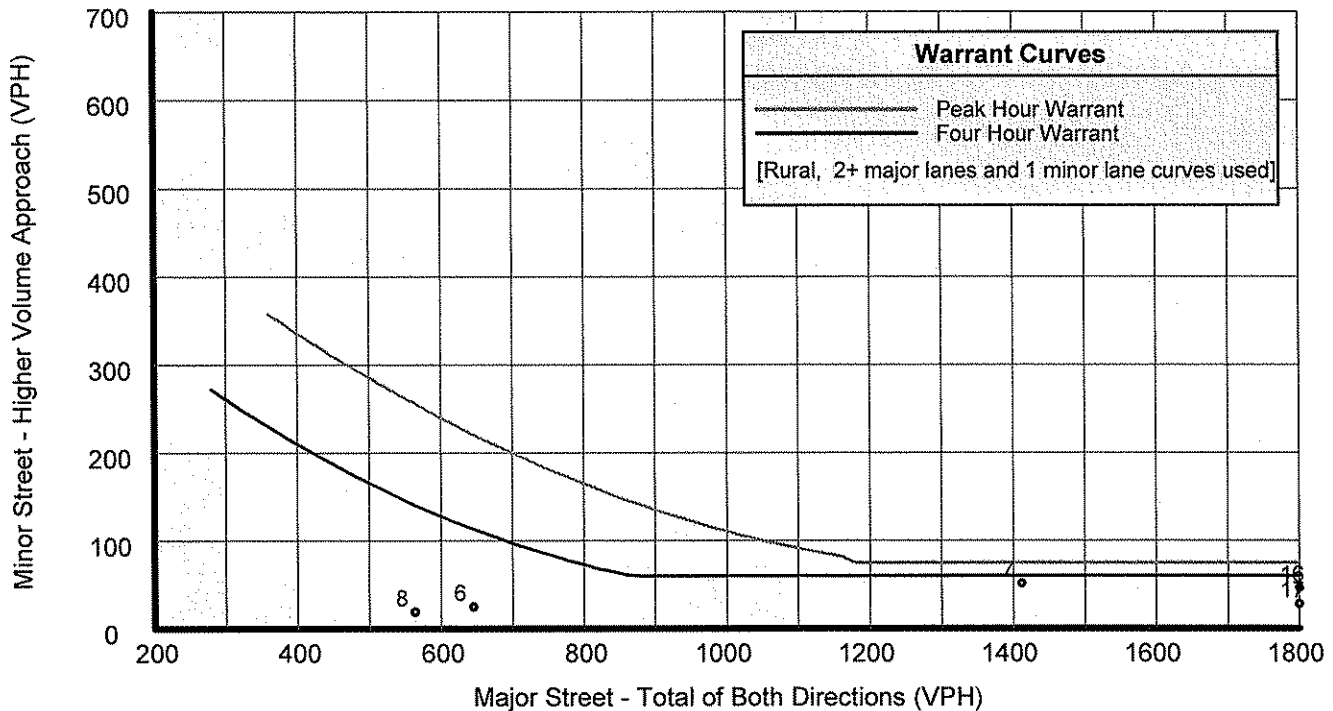
- Warrant 9 - Intersection Near a Grade Crossing** **Not Evaluated**



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

Study Name : TMC1229
Study Date : 12/03/12
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 105	Hour Begin	Major Total	Minor Vol Dir	Maj 630	Min 53	Hour Begin	Major Total	Minor Vol Dir	Maj 504	Min 84
16:30	2,020	30 SB	Yes	No	06:30	1,363	56 SB	Yes	Yes	16:30	2,020	30 SB	Yes	No
16:45	1,979	28 NB	Yes	No	16:30	2,020	30 SB	Yes	No	16:45	1,979	28 NB	Yes	No
16:15	1,936	39 NB	Yes	No	16:45	1,979	28 NB	Yes	No	16:15	1,936	39 NB	Yes	No
17:00	1,849	28 NB	Yes	No	16:15	1,936	39 NB	Yes	No	17:00	1,849	28 NB	Yes	No
16:00	1,809	46 NB	Yes	No	17:00	1,849	28 NB	Yes	No	16:00	1,809	46 NB	Yes	No
06:45	1,468	60 SB	Yes	No	17:15	1,327	23 NB	Yes	No	06:45	1,468	60 SB	Yes	No
07:00	1,412	51 SB	Yes	No	15:45	1,304	37 NB	Yes	No	07:00	1,412	51 SB	Yes	No
06:30	1,363	56 SB	Yes	No	07:30	1,259	39 SB	Yes	No	06:30	1,363	56 SB	Yes	No
07:15	1,336	42 SB	Yes	No	06:15	1,000	43 SB	Yes	No	07:15	1,336	42 SB	Yes	No
17:15	1,327	23 NB	Yes	No	07:45	895	27 SB	Yes	No	17:15	1,327	23 NB	Yes	No
15:45	1,304	37 NB	Yes	No	15:30	840	31 NB	Yes	No	15:45	1,304	37 NB	Yes	No
07:30	1,259	39 SB	Yes	No	17:30	804	17 NB	Yes	No	07:30	1,259	39 SB	Yes	No
06:15	1,000	43 SB	Yes	No	06:00	646	25 SB	Yes	No	06:15	1,000	43 SB	Yes	No
07:45	895	27 SB	Yes	No	08:00	564	19 SB	No	No	07:45	895	27 SB	Yes	No
15:30	840	31 NB	Yes	No	15:15	401	15 NB	No	No	15:30	840	31 NB	Yes	No
17:30	804	17 NB	Yes	No	17:45	375	9 NB	No	No	17:30	804	17 NB	Yes	No
06:00	646	25 SB	Yes	No	08:15	286	10 SB	No	No	06:00	646	25 SB	Yes	No
08:00	564	19 SB	Yes	No	05:45	259	8 SB	No	No	08:00	564	19 SB	Yes	No
15:15	401	15 NB	No	No	18:45	6	3 SB	No	No	15:15	401	15 NB	No	No
17:45	375	9 NB	No	No	18:30	6	3 SB	No	No	17:45	375	9 NB	No	No
08:15	286	10 SB	No	No	18:15	6	3 SB	No	No	08:15	286	10 SB	No	No
05:45	259	8 SB	No	No	18:00	6	3 SB	No	No	05:45	259	8 SB	No	No
18:45	6	3 SB	No	No	15:00	6	3 SB	No	No	18:45	6	3 SB	No	No
18:30	6	3 SB	No	No						18:30	6	3 SB	No	No



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

Study Name : TMC1229
Study Date : 12/03/12
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Eastbound: CSAH 52
Total Approach Volume: 3,029
85% Speed > 40 MPH.

Westbound: CSAH 52
Total Approach Volume: 3,251
85% Speed > 40 MPH.

Minor Street Approaches

Northbound: Xylite St.
Total Approach Volume: 111

Southbound: Xylite St.
Total Approach Volume: 149

Warrant Summary

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

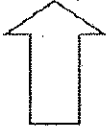
Criteria B - Crash Experience Not Evaluated

Criteria C - Minimum Volumes and Delays Not Satisfied
Delay data not evaluated
Required volumes reached for 0 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	259	12	210-Yes	140-No	Major	240-Yes	160-No	Major
06:00 - 07:00	646	39	210-Yes	140-No	Major	240-Yes	160-No	Major
06:15 - 07:15	1,000	59	210-Yes	140-No	Major	240-Yes	160-No	Major
06:30 - 07:30	1,363	76	210-Yes	140-No	Major	240-Yes	160-No	Major
06:45 - 07:45	1,468	82	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	1,412	67	210-Yes	140-No	Major	240-Yes	160-No	Major
07:15 - 08:15	1,336	62	210-Yes	140-No	Major	240-Yes	160-No	Major
07:30 - 08:30	1,259	56	210-Yes	140-No	Major	240-Yes	160-No	Major
07:45 - 08:45	895	38	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	564	26	210-Yes	140-No	Major	240-Yes	160-No	Major
08:15 - 09:15	286	11	210-Yes	140-No	Major	240-Yes	160-No	Major
15:15 - 16:15	395	19	210-Yes	140-No	Major	240-Yes	160-No	Major
15:30 - 16:30	834	45	210-Yes	140-No	Major	240-Yes	160-No	Major
15:45 - 16:45	1,304	64	210-Yes	140-No	Major	240-Yes	160-No	Major
16:00 - 17:00	1,809	77	210-Yes	140-No	Major	240-Yes	160-No	Major
16:15 - 17:15	1,936	67	210-Yes	140-No	Major	240-Yes	160-No	Major
16:30 - 17:30	2,020	59	210-Yes	140-No	Major	240-Yes	160-No	Major
16:45 - 17:45	1,979	50	210-Yes	140-No	Major	240-Yes	160-No	Major
17:00 - 18:00	1,849	51	210-Yes	140-No	Major	240-Yes	160-No	Major
17:15 - 18:15	1,327	42	210-Yes	140-No	Major	240-Yes	160-No	Major
17:30 - 18:30	804	24	210-Yes	140-No	Major	240-Yes	160-No	Major
17:45 - 18:45	375	14	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



NORTH

COUNT LOCATION: CSAH 52 (Radisson Rd.) DATE: 11/20/2012
@ Xylite St.

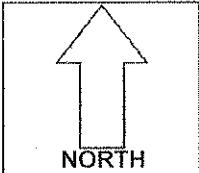
APP. #1 = CSAH 52
APP. #2 = Xylite St.
APP. #3 = CSAH 52
APP. #4 = Xylite St.

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								
6:15-6:30								
6:30-6:45						13		1
6:45-7:00						17		1
HOURLY TOTAL						HOURLY TOTAL		32
7:00-7:15						6		
7:15-7:30						15		1
7:30-7:45						13		2
7:45-8:00						16		1
HOURLY TOTAL						HOURLY TOTAL		54
8:00-8:15						16		2
8:15-8:30						17		
8:30-8:45								
8:45-9:00								
HOURLY TOTAL						HOURLY TOTAL		35
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		
10:00-10:15								
10:15-10:30								
10:30-10:45								
10:45-11:00								
HOURLY TOTAL						HOURLY TOTAL		
11:00-11:15								
11:15-11:30								
11:30-11:45								
11:45-12:00								
HOURLY TOTAL						HOURLY TOTAL		
12:00-12:15								
12:15-12:30								
12:30-12:45								
12:45-1:00								
HOURLY TOTAL						HOURLY TOTAL		
1:00-1:15								
1:15-1:30								
1:30-1:45								
1:45-2:00								
HOURLY TOTAL						HOURLY TOTAL		
					TOTAL		TOTAL	121

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COUNT LOCATION:

CSAH 52 (Radisson Rd.)

DATE:

11/26/2012

@ Xylite St.

APP. #1 = CSAH 52
APP. #2 = Xylite St.
APP. #3 = CSAH 52
APP. #4 = Xylite St.

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
2:00-2:15PM								
2:15-2:30								
2:30-2:45								
2:45-3:00								
HOURLY TOTAL						HOURLY TOTAL		
3:00-3:15								
3:15-3:30								
3:30-3:45								
3:45-4:00								
HOURLY TOTAL						HOURLY TOTAL		
4:00-4:15						19		4
4:15-4:30						15		1
4:30-4:45						10		3
4:45-5:00						6		2
HOURLY TOTAL						HOURLY TOTAL		60
5:00-5:15						5		1
5:15-5:30						4		1
5:30-5:45						11		2
5:45-6:00						7		1
HOURLY TOTAL						HOURLY TOTAL		32
6:00-6:15								
6:15-6:30								
6:30-6:45								
6:45-7:00								
HOURLY TOTAL						HOURLY TOTAL		
7:00-7:15								
7:15-7:30								
7:30-7:45								
7:45-8:00								
HOURLY TOTAL						HOURLY TOTAL		
8:00-8:15								
8:15-8:30								
8:30-8:45								
8:45-9:00								
HOURLY TOTAL						HOURLY TOTAL		
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		
					TOTAL		TOTAL	213

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