

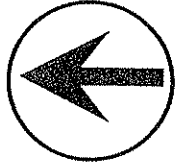
Date : 08/25/10

Count Number : TMC1036

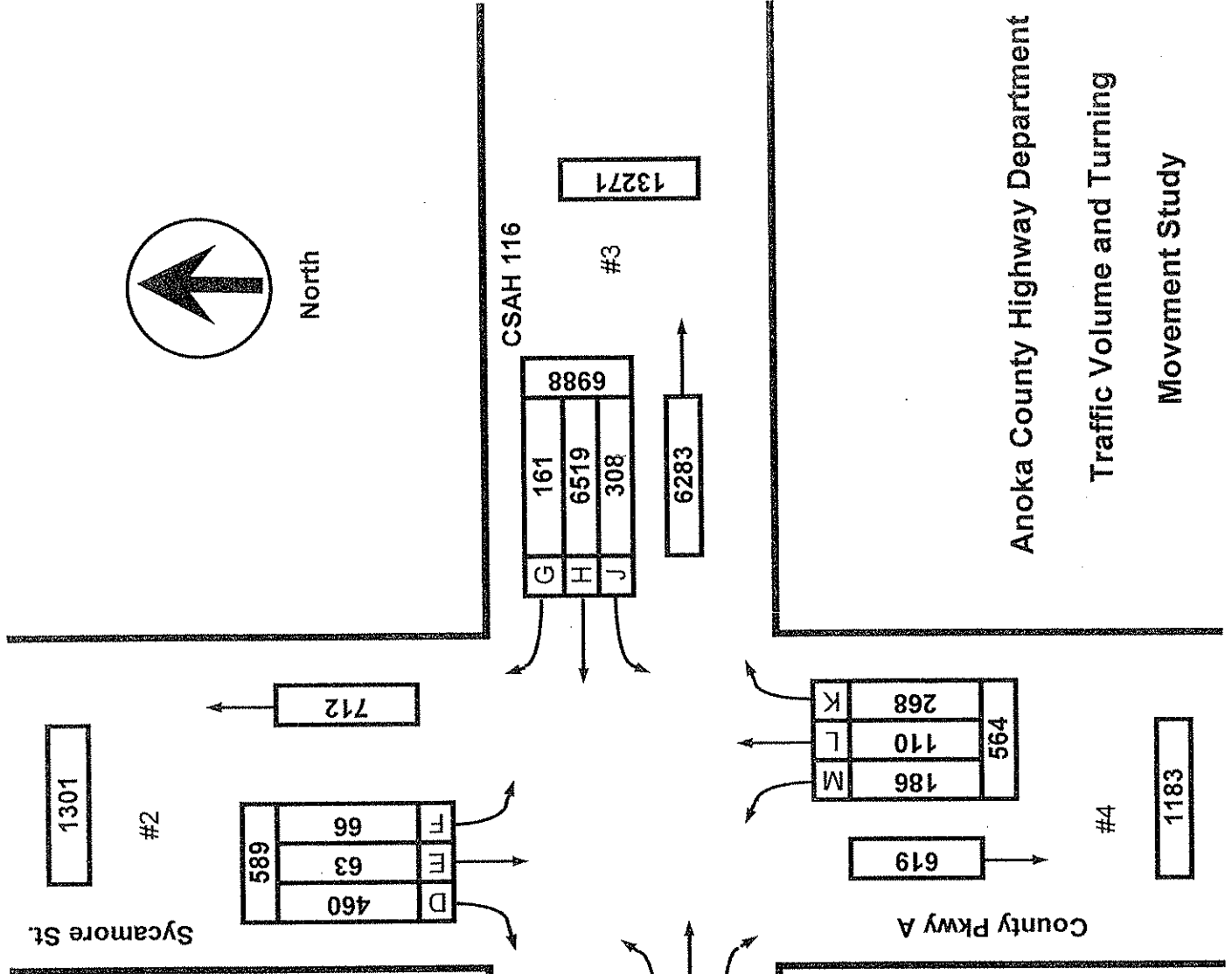
Location : CSAH 116 (Bunker Lake Blvd.)

@ Sycamore St./County Pkwy A

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



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 08/26/10

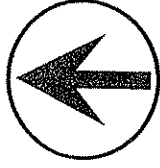
Count Number : TMC1036

Location : CSAH 116 (Bunker Lake Blvd.)

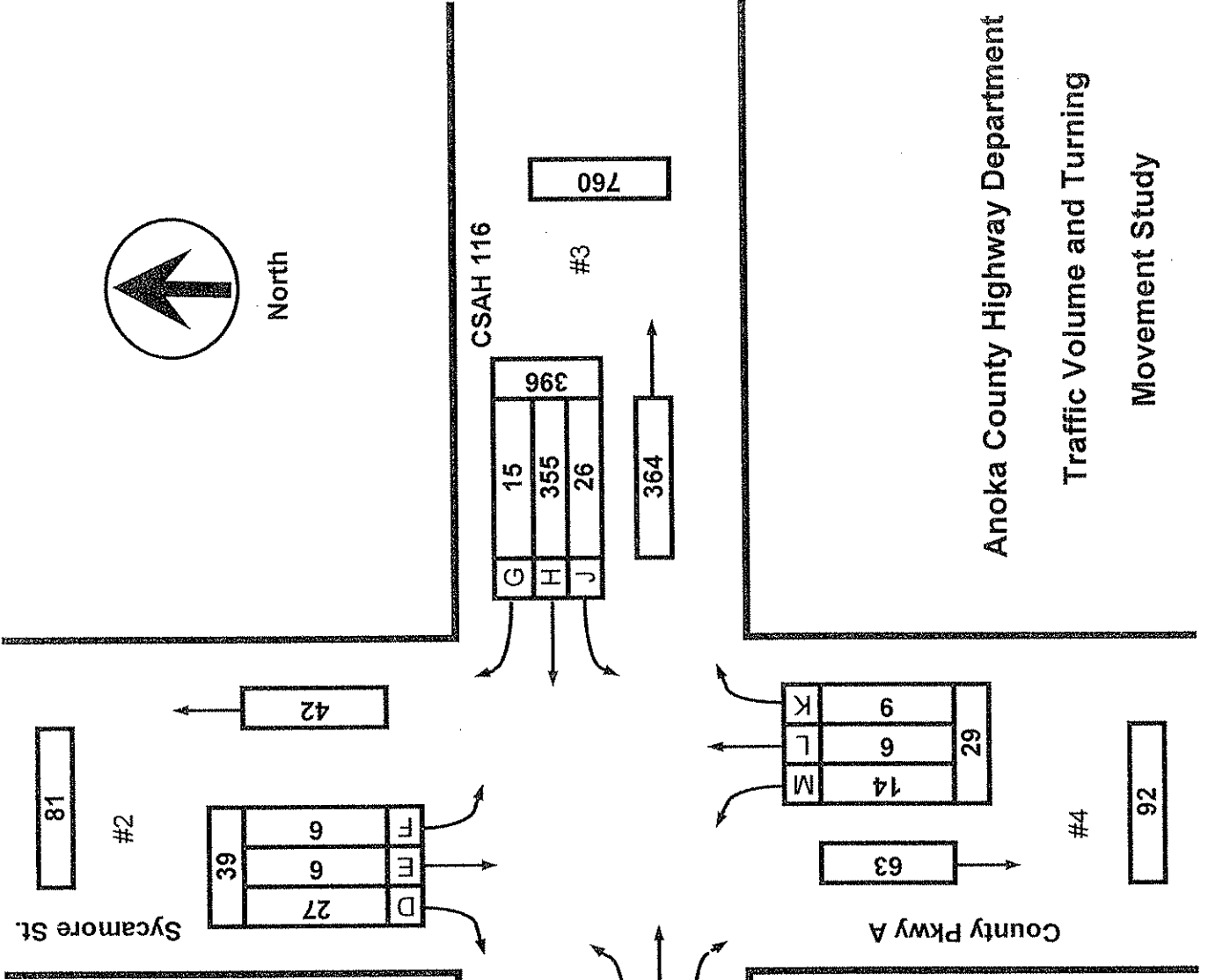
@ Sycamore St./County Pkwy A

Collection Period : AM PEAK

Hour : 11:00AM-12:00 PM



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 08/25/10

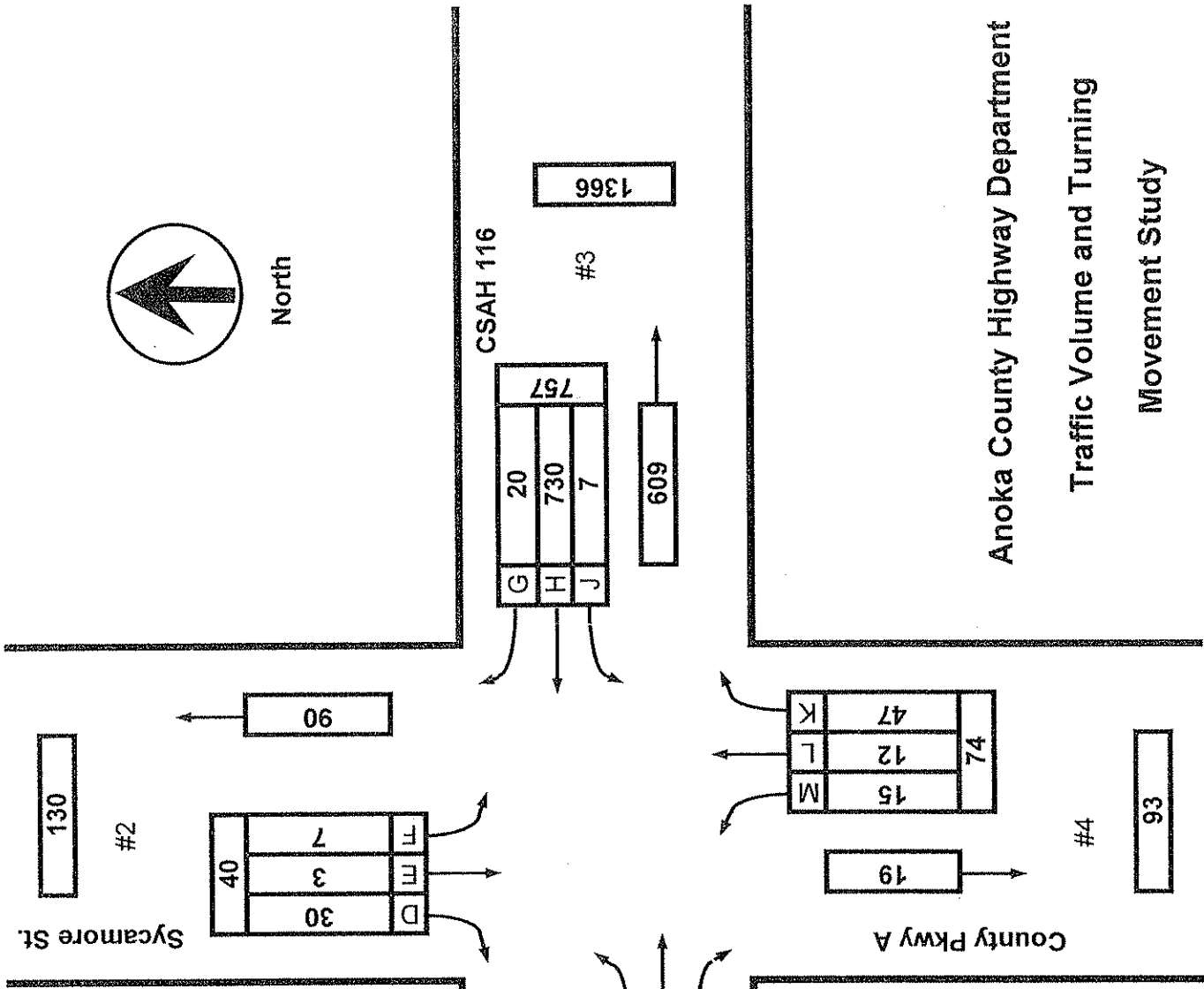
Count Number : TMC1036

Location : CSAH 116 (Bunker Lake Blvd.)

@ Sycamore St./County Pkwy A

Collection Period : PM PEAK

Hour : 4:45-5:45 PM



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

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

File Name : TMC1036
 Site Code : 10360202
 Start Date : 08/25/2010
 Page No : 2

Groups Printed- Unshifted

Start Time	Sycamore St. Southbound					CSAH 116 Westbound					County Pkwy A Northbound					CSAH 116 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			
18:00	1	0	14	0	15	4	155	5	3	164	1	6	8	0	15	10	136	2	0	148	3	342	345
18:15	1	0	13	0	14	2	167	6	0	175	4	3	9	0	16	6	133	1	0	140	0	345	345
18:30	0	1	14	0	15	5	122	6	0	133	2	1	5	0	8	3	102	1	0	106	0	262	262
18:45	0	2	11	0	13	3	117	1	0	121	4	3	5	0	12	6	87	2	0	95	0	241	241
Total	2	3	52	0	57	14	561	18	3	593	11	13	27	0	51	25	458	6	0	489	3	1190	1193
19:00	1	1	7	0	9	4	85	5	2	94	3	7	2	0	12	13	67	2	0	82	2	197	199
19:15	0	1	5	0	6	4	77	2	1	83	5	2	0	0	7	3	68	1	1	72	2	168	170
19:30	1	0	6	0	7	0	76	0	0	76	5	0	9	0	14	5	94	2	0	101	0	198	198
19:45	0	0	9	0	9	3	77	1	1	81	7	1	1	1	9	8	73	2	1	83	3	182	185
Total	2	2	27	0	31	11	315	8	4	334	20	10	12	1	42	29	302	7	2	338	7	745	752
20:00	2	1	3	0	6	2	106	7	0	115	6	0	2	0	8	11	103	6	1	120	1	249	250
20:15	1	0	8	0	9	4	89	1	1	94	0	0	0	0	0	8	80	1	0	89	1	192	193
20:30	0	1	5	0	6	1	85	1	0	87	2	10	2	0	14	14	77	5	1	96	1	203	204
20:45	1	1	11	0	13	3	85	2	0	90	2	5	3	0	10	14	84	1	0	99	0	212	212
Total	4	3	27	0	34	10	365	11	1	386	10	15	7	0	32	47	344	13	2	404	3	856	859
21:00	2	1	4	0	7	3	81	0	0	84	7	0	6	0	13	13	90	0	0	103	0	207	207
21:15	1	2	4	0	7	1	85	4	0	90	2	0	5	0	7	4	89	4	0	97	0	201	201
21:30	1	0	4	0	5	1	81	6	0	88	1	12	3	0	16	4	71	3	0	78	0	187	187
21:45	3	1	2	0	6	2	76	3	0	81	1	3	1	0	5	8	61	1	0	70	0	162	162
Total	7	4	14	0	25	7	323	13	0	343	11	15	15	0	41	29	311	8	0	348	0	757	757
Grand Total	66	63	460	5	589	308	6519	161	146	6988	186	110	268	18	564	441	5949	248	145	6638	314	14779	15093
North %	11.2	10.7	78.1			4.4	93.3	2.3			33	19.5	47.5			6.6	89.6	3.7					
Total %	0.4	0.4	3.1		4	2.1	44.1	1.1		47.3	1.3	0.7	1.8		3.8	3	40.3	1.7		44.9	2.1	97.9	

Start Time	Sycamore St. Southbound				CSAH 116 Westbound				County Pkwy A Northbound				CSAH 116 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	3	1	5	9	9	80	5	94	4	1	1	6	6	78	5	89	198
11:15	2	1	8	11	7	82	2	91	2	0	2	4	5	92	11	108	214
11:30	1	1	6	8	6	100	1	107	4	2	4	10	0	88	11	99	224
11:45	0	3	8	11	4	93	7	104	4	3	2	9	10	91	4	105	229
Total Volume	6	6	27	39	26	355	15	396	14	6	9	29	21	349	31	401	865
% App. Total	15.4	15.4	69.2		6.6	89.6	3.8		48.3	20.7	31		5.2	87	7.7		
PHF	.500	.500	.844	.886	.722	.888	.536	.925	.875	.500	.563	.725	.525	.948	.705	.928	.944

Start Time	Sycamore St. Southbound				CSAH 116 Westbound				County Pkwy A Northbound				CSAH 116 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	0	2	9	11	3	195	2	200	0	5	7	12	11	148	2	161	384
17:00	3	0	7	10	1	167	9	177	7	1	12	20	19	143	1	163	370
17:15	4	1	8	13	3	186	2	191	6	2	15	23	15	132	4	151	378
17:30	0	0	6	6	0	182	7	189	2	4	13	19	13	132	2	147	361
Total Volume	7	3	30	40	7	730	20	757	15	12	47	74	58	555	9	622	1493
% App. Total	17.5	7.5	75		0.9	96.4	2.6		20.3	16.2	63.5		9.3	89.2	1.4		
PHF	.438	.375	.833	.769	.583	.936	.556	.946	.536	.600	.783	.804	.763	.938	.563	.954	.972

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

Study Name : TMC1036
Study Date : 08/31/10
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 116
Number of Lanes: 2
Approach Speed: 55
Total Approach Volume: 6,638

Westbound: CSAH 116
Number of Lanes: 2
Approach Speed: 55
Total Approach Volume: 6,988

Minor Street Approaches

Northbound: County Pkwy A
Number of Lanes: 1
Total Approach Volume: 564

Southbound: Sycamore St.
Number of Lanes: 1
Total Approach Volume: 589

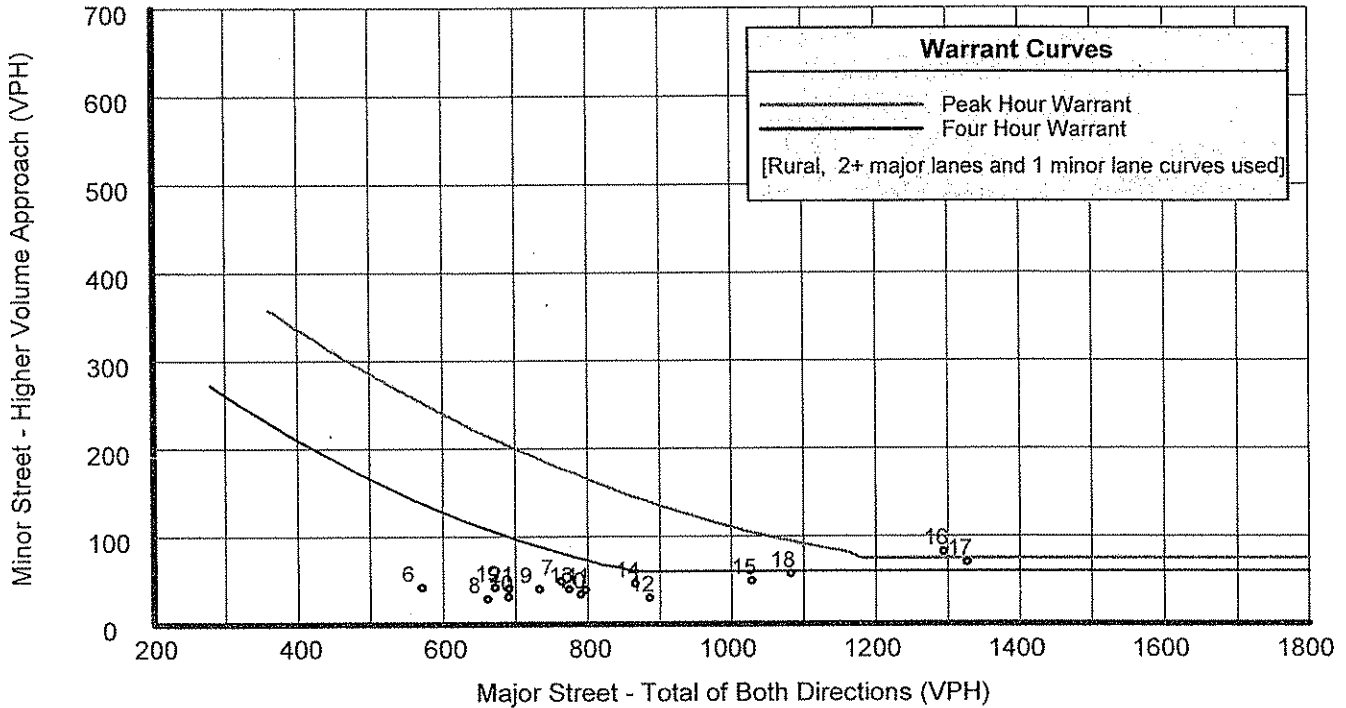
Warrant Summary (Rural values apply.)

- 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 3 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 (2) 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

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

Study Name : TMC1036
Study Date : 08/31/10
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	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
01:00	0	0	NB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
02:00	0	0	NB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
03:00	0	0	NB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
04:00	0	0	NB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
05:00	0	0	NB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
06:00	571	42	SB	420-Yes	105-No	Major	630-No	53-No	---	504-Yes	84-No	Major
07:00	763	49	SB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
08:00	662	29	SB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
09:00	733	40	SB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
10:00	690	31	SB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
11:00	797	39	SB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
12:00	886	30	SB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
13:00	774	40	SB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
14:00	866	46	NB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
15:00	1,028	49	NB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
16:00	1,294	82	NB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
17:00	1,327	70	NB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
18:00	1,082	57	SB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
19:00	672	42	NB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
20:00	790	34	SB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
21:00	691	41	NB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
22:00	0	0	NB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
23:00	0	0	NB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---

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

Study Name : TMC1036
Study Date : 08/31/10
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Eastbound: CSAH 116
Total Approach Volume: 6,638
Approach Speed: 55

Westbound: CSAH 116
Total Approach Volume: 6,988
Approach Speed: 55

Minor Street Approaches

Northbound: County Pkwy A
Total Approach Volume: 564

Southbound: Sycamore St.
Total Approach Volume: 589

Warrant Summary

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

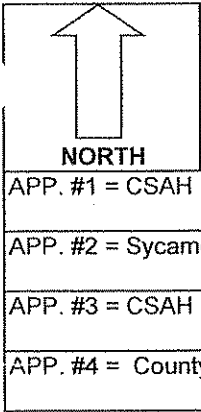
Criteria B - Crash Experience Not Evaluated

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		Crit C			Crit D		
	Total	Minor Total	Major	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00 - 01:00	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
02:00 - 03:00	0	0	210-No	140-No	No	240-No	160-No	No
03:00 - 04:00	0	0	210-No	140-No	No	240-No	160-No	No
04:00 - 05:00	0	0	210-No	140-No	No	240-No	160-No	No
05:00 - 06:00	0	0	210-No	140-No	No	240-No	160-No	No
06:00 - 07:00	571	49	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	763	62	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	662	48	210-Yes	140-No	Major	240-Yes	160-No	Major
09:00 - 10:00	733	55	210-Yes	140-No	Major	240-Yes	160-No	Major
10:00 - 11:00	690	52	210-Yes	140-No	Major	240-Yes	160-No	Major
11:00 - 12:00	797	68	210-Yes	140-No	Major	240-Yes	160-No	Major
12:00 - 13:00	886	42	210-Yes	140-No	Major	240-Yes	160-No	Major
13:00 - 14:00	774	75	210-Yes	140-No	Major	240-Yes	160-No	Major
14:00 - 15:00	866	78	210-Yes	140-No	Major	240-Yes	160-No	Major
15:00 - 16:00	1,028	78	210-Yes	140-No	Major	240-Yes	160-No	Major
16:00 - 17:00	1,294	124	210-Yes	140-No	Major	240-Yes	160-No	Major
17:00 - 18:00	1,327	109	210-Yes	140-No	Major	240-Yes	160-No	Major
18:00 - 19:00	1,082	108	210-Yes	140-No	Major	240-Yes	160-No	Major
19:00 - 20:00	672	73	210-Yes	140-No	Major	240-Yes	160-No	Major
20:00 - 21:00	790	66	210-Yes	140-No	Major	240-Yes	160-No	Major
21:00 - 22:00	691	66	210-Yes	140-No	Major	240-Yes	160-No	Major
22:00 - 23:00	0	0	210-No	140-No	No	240-No	160-No	No
23:00 - 00:00	0	0	210-No	140-No	No	240-No	160-No	No



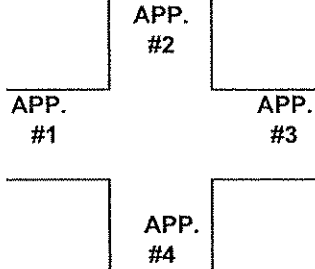
COUNT LOCATION:

CSAH 116 (Bunker Lake Blvd.)

DATE:

08/26/2010

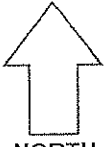
@ Sycamore St./County Pkwy A



- 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						1		
6:15-6:30						6		
6:30-6:45						1		
6:45-7:00						4		
HOURLY TOTAL						HOURLY TOTAL		12
7:00-7:15						9		
7:15-7:30						2		
7:30-7:45						5		
7:45-8:00						7		
HOURLY TOTAL						HOURLY TOTAL		23
8:00-8:15						5		
8:15-8:30						4		
8:30-8:45						5		
8:45-9:00						9		2
HOURLY TOTAL						HOURLY TOTAL		25
9:00-9:15						8		2
9:15-9:30						7		
9:30-9:45						3		
9:45-10:00						8		1
HOURLY TOTAL						HOURLY TOTAL		29
10:00-10:15						5		
10:15-10:30						5		
10:30-10:45						6		
10:45-11:00						5		
HOURLY TOTAL						HOURLY TOTAL		21
11:00-11:15						9		
11:15-11:30						8		
11:30-11:45						6		
11:45-12:00						7		
HOURLY TOTAL						HOURLY TOTAL		30
12:00-12:15						9		1
12:15-12:30						9		
12:30-12:45						2		1
12:45-1:00						8		
HOURLY TOTAL						HOURLY TOTAL		30
1:00-1:15						3	1	1
1:15-1:30						6		
1:30-1:45						8		
1:45-2:00						8		
HOURLY TOTAL						HOURLY TOTAL		27
TOTAL						TOTAL		197

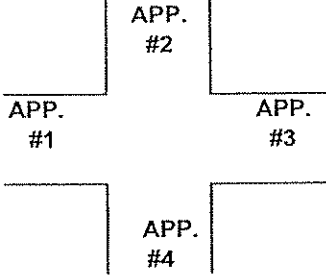
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32



NORTH

COUNT LOCATION: CSAH 116 (Bunker Lake Blvd.) DATE: 08/25/2010
@ Sycamore St./County Pkwy A

APP. #1 = CSAH 116
APP. #2 = Sycamore St.
APP. #3 = CSAH 116
APP. #4 = County Pkwy A



- 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						6		
2:15-2:30						7		
2:30-2:45						6		
2:45-3:00						11		
HOURLY TOTAL						HOURLY TOTAL		30
3:00-3:15						8		
3:15-3:30						7	1	2
3:30-3:45						10		3
3:45-4:00						2		4
HOURLY TOTAL						HOURLY TOTAL		37
4:00-4:15						3		
4:15-4:30						7		
4:30-4:45						4		
4:45-5:00						4		
HOURLY TOTAL						HOURLY TOTAL		18
5:00-5:15						6		
5:15-5:30						3		
5:30-5:45						2	1	
5:45-6:00						6		
HOURLY TOTAL						HOURLY TOTAL		18
6:00-6:15						3		
6:15-6:30								
6:30-6:45								
6:45-7:00								
HOURLY TOTAL						HOURLY TOTAL		3
7:00-7:15						2		
7:15-7:30						2		
7:30-7:45								
7:45-8:00						2	1	
HOURLY TOTAL						HOURLY TOTAL		7
8:00-8:15						1		
8:15-8:30						1		
8:30-8:45							1	
8:45-9:00								
HOURLY TOTAL						HOURLY TOTAL		3
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		
					TOTAL		TOTAL	313

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