

← DATE, TIME, LIGHT, WEATHER			<input checked="" type="checkbox"/> OVERTURN <input checked="" type="checkbox"/> FIRE OR EXPLOSION ← MOVING VEHICLE ← REAR END ←←← BACKING VEHICLE <input checked="" type="checkbox"/> COLLISION WITH FIXED OBJECT ←← SIDE SWIPE SAME DIRECTION ←→ SIDE SWIPE OPPOSITE DIRECTION		<input checked="" type="checkbox"/> PARKED VEHICLE <input checked="" type="checkbox"/> MOTORCYCLE <input checked="" type="checkbox"/> DEER <input checked="" type="checkbox"/> PEDESTRIAN <input checked="" type="checkbox"/> BICYCLE <input checked="" type="checkbox"/> FIXED OBJECT <input checked="" type="checkbox"/> RIGHT ANGLE		<input checked="" type="checkbox"/> VEHICLE OUT OF CONTROL <input checked="" type="checkbox"/> LEFT TURN INTO ONCOMING TRAFFIC		ADT: 22019 ACCIDENT RATE: 0.11 CR INDEX: 0.15 SEVERITY RATE: 0.14 FAR INDEX: 0.00	
LIGHT	WEATHER	SEVERITY CODE	ANOKA COUNTY HIGHWAY DEPT.		COLLISION DIAGRAM		CSAH 116 (BUNKER LAKE BLVD) @ QUINN ST JANUARY 2018 - JUNE 2023			
L = LIGHT DN = DAWN DU = DUSK D = DARK X = UNKNOWN	C = CLEAR CL = CLOUDY R = RAIN S = SNOW/SLEET X = OTHER/UNKNOWN	<input checked="" type="checkbox"/> PROPERTY DAMAGE <input checked="" type="checkbox"/> POSSIBLE INJURY <input checked="" type="checkbox"/> MINOR INJURY <input checked="" type="checkbox"/> SERIOUS INJURY <input checked="" type="checkbox"/> FATALITY								Sheet <u> 1 </u> of <u> 1 </u> Sheets

Intersection Safety Screening

Intersection: CSAH 116 @ Quinn St

Statewide Averages based on 2016-2020 crashes

Crashes by Crash Severity	
Fatal (K)	0
Serious Injury (A)	0
Minor Injury (B)	0
Possible Injury (C)	1
Property Damage (PDO)	4
Total Crashes	5

Intersection Characteristics	
Entering Volume	22,019
Environment	Urban
Lighting	Lit
Traffic Control	Signal

Annual crash cost = \$34,400

Statewide comparison = Signal, Low Volume (<=20K)

Total Crash Rate	
Observed	0.124
Statewide Average	0.508
Critical Rate	0.810
Critical Index	0.15

Fatal & Serious Injury Crash Rate	
Observed	0.000
Statewide Average	0.690
Critical Rate	3.610
Critical Index	0.00

The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference (i.e. observed crash rate ÷ critical crash rate).

The observed total crash rate for this period is 0.12 per MEV; this is 85% below the critical rate. Based on similar statewide intersections, an additional 28 crashes over the five years would indicate this intersection operates outside the normal range.

The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.

ACCIDENT AND SEVERITY RATES FOR AN INTERSECTION

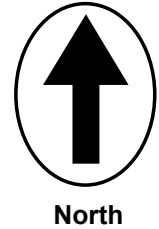
Intersection:	CSAH 116 @ Quinn St		
Study Start Date:	01/01/2018		
Study End Date:	06/30/2023		
Length of study in years:	5.50	Days = 2006.486	Weighted
Intersection ADT:	22019	Total Accidents = 5	
Number of Fatal Accidents:	0	Total Fatal Accidents = 0	0
Number of "A" P.I. Accidents:	0	Total "A" Injury Accidents = 0	0
Number of "B" P.I. Accidents:	0	Total "B" Injury Accidents = 0	0
Number of "C" P.I. Accidents:	1	Total "C" Injury Accidents = 1	2
Number of Property Damage Accidents:	4	Total Property Damage Accidents = 4	4
		Sum of weighted accidents =	6
Accident Rate (AR) =	0.11		
Severity Rate (SR) =	0.14		

Date : 10/11/23

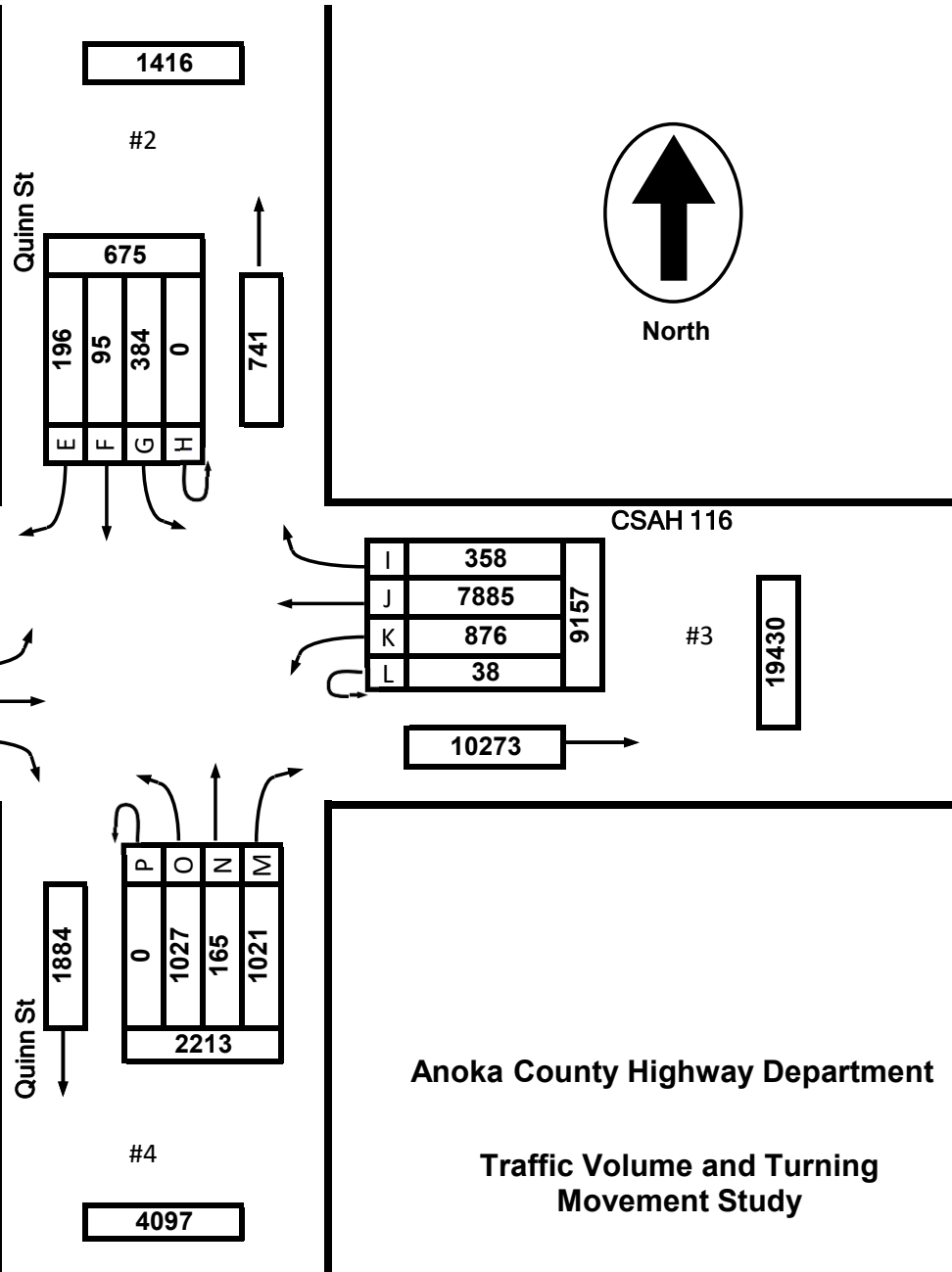
Count Number : TMC 2353

Location : CSAH 116
@ Quinn St

Collection Period : 24 HR



North



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

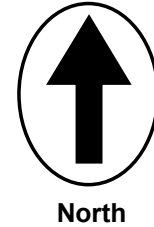
Anoka County Highway Department
 Traffic Volume and Turning Movement Study

Date : 10/11/23

Count Number : TMC 2353

Location : CSAH 116
@ Quinn St

Collection Period : 7:15 AM - 8:15 AM
AM PEAK



1282

#1

0	D
14	C
646	B
25	A

685

CSAH 116

597

Quinn St

21	6	24	0
E	F	G	H

51

#2

77

26

CSAH 116

9	587		
548			
29			
1			
I	J	K	L

#3

1279

692

Quinn St

60

0	28	3	21
P	O	N	M

52

#4

112

EXISTING LANES OF APPROACH

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

Anoka County Highway Department

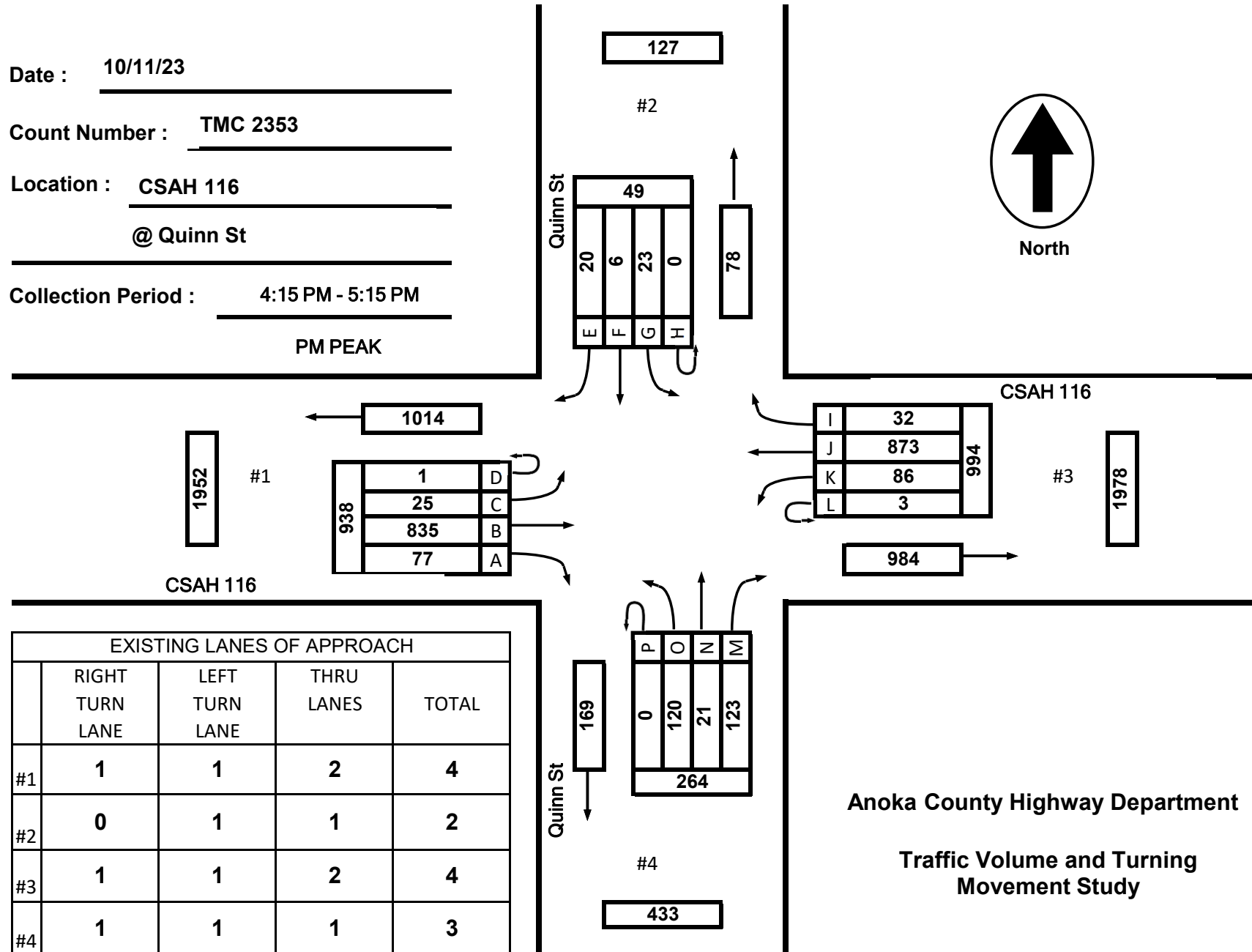
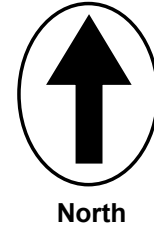
Traffic Volume and Turning Movement Study

Date : 10/11/23

Count Number : TMC 2353

Location : CSAH 116
@ Quinn St

Collection Period : 4:15 PM - 5:15 PM
 PM PEAK



EXISTING LANES OF APPROACH

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

Anoka County Highway Department

Traffic Volume and Turning Movement Study

**TMC 2353 - CSAH 116 @ Quinn St
Andover MN
Wednesday, October 11, 2023**

Time	Southbound Quinn St						Westbound CSAH 116 (Bunker Lake Blvd)						Northbound Quinn St						Eastbound CSAH 116 (Bunker Lake Blvd)						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
12:00 AM	0	0	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	0	0	7	0	0	7	18
12:15 AM	0	0	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	0	0	0	6	0	0	6	12
12:30 AM	0	0	0	0	0	0	0	0	3	3	0	6	0	0	0	0	0	0	0	0	6	0	0	6	12
12:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	3
Hourly Total	0	0	0	0	0	0	0	0	20	4	0	24	0	0	0	0	0	0	0	0	21	0	0	21	45
1:00 AM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	3	0	0	3	5
1:15 AM	0	0	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	0	0	2	0	0	2	6
1:30 AM	0	0	0	0	0	0	0	0	5	2	0	7	0	0	0	0	0	0	0	0	2	0	0	2	9
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
Hourly Total	0	0	0	0	0	0	0	0	9	4	0	13	0	0	0	0	0	0	0	0	10	0	0	10	23
2:00 AM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	5	0	0	5	9
2:15 AM	0	0	0	0	0	0	0	0	2	1	0	3	0	0	1	0	0	1	0	1	3	0	0	4	8
2:30 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	4	0	0	4	7
2:45 AM	0	1	0	0	0	1	0	0	2	0	0	2	0	0	0	0	0	0	0	0	5	0	0	5	8
Hourly Total	0	1	0	0	0	1	0	0	11	1	0	12	0	0	1	0	0	1	0	1	17	0	0	18	32
3:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	4	0	0	4	6
3:30 AM	0	0	0	0	0	0	0	4	5	0	0	9	0	0	0	0	0	0	0	0	3	0	0	3	12
3:45 AM	0	2	0	1	0	3	0	2	2	2	0	6	0	0	0	0	0	0	0	0	3	0	0	3	12
Hourly Total	0	2	0	1	0	3	0	6	10	2	0	18	0	0	0	0	0	0	0	0	10	0	0	10	31
4:00 AM	0	1	0	0	0	1	0	0	2	0	0	2	0	0	0	0	0	0	0	0	8	0	0	8	11
4:15 AM	0	2	0	2	0	4	0	0	5	1	0	6	0	0	0	0	0	0	0	2	11	0	0	13	23
4:30 AM	0	6	0	0	0	6	0	8	10	1	0	19	0	0	0	0	0	0	0	0	16	0	0	16	41
4:45 AM	0	1	0	1	0	2	0	4	17	0	0	21	0	0	0	3	0	3	0	0	17	0	0	17	43
Hourly Total	0	10	0	3	0	13	0	12	34	2	0	48	0	0	0	3	0	3	0	2	52	0	0	54	118
5:00 AM	0	3	1	3	0	7	0	0	11	0	0	11	0	0	0	0	0	0	0	0	19	0	0	19	37
5:15 AM	0	3	0	2	0	5	0	0	19	0	0	19	0	1	0	1	0	2	0	0	28	0	0	28	54
5:30 AM	0	8	1	2	0	11	0	4	26	0	0	30	0	2	0	0	0	2	0	0	42	1	0	43	86
5:45 AM	0	7	0	3	0	10	0	9	24	2	0	35	0	1	0	8	0	9	0	0	51	2	0	53	107
Hourly Total	0	21	2	10	0	33	0	13	80	2	0	95	0	4	0	9	0	13	0	0	140	3	0	143	284
6:00 AM	0	5	2	5	0	12	0	0	30	0	0	30	0	1	0	3	0	4	0	2	54	0	0	56	102
6:15 AM	0	4	1	6	0	11	0	2	50	0	0	52	0	0	0	2	0	2	0	1	86	0	0	87	152
6:30 AM	0	2	2	5	0	9	0	2	76	0	0	78	0	0	0	3	0	3	0	0	103	2	0	105	195
6:45 AM	0	11	5	1	0	17	0	6	91	3	0	100	0	5	0	3	0	8	0	2	130	4	0	136	261
Hourly Total	0	22	10	17	0	49	0	10	247	3	0	260	0	6	0	11	0	17	0	5	373	6	0	384	710
7:00 AM	0	6	0	3	0	9	0	3	112	5	0	120	0	5	1	4	0	10	0	2	126	2	0	130	269
7:15 AM	0	7	1	7	0	15	1	8	196	2	0	207	0	8	0	1	0	9	0	2	130	2	0	134	365
7:30 AM	0	7	2	3	0	12	0	8	128	2	0	138	0	5	1	5	0	11	0	6	200	12	0	218	379
7:45 AM	0	6	2	10	0	18	0	5	128	3	0	136	0	9	0	5	0	14	0	3	172	6	0	181	349
Hourly Total	0	26	5	23	0	54	1	24	564	12	0	601	0	27	2	15	0	44	0	13	628	22	0	663	1362

**TMC 2353 - CSAH 116 @ Quinn St
Andover MN
Wednesday, October 11, 2023**

Time	Southbound Quinn St						Westbound CSAH 116 (Bunker Lake Blvd)						Northbound Quinn St						Eastbound CSAH 116 (Bunker Lake Blvd)						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
8:00 AM	0	4	1	1	0	6	0	8	96	2	0	106	0	6	2	10	1	18	0	3	144	5	0	152	282
8:15 AM	0	5	3	0	0	8	0	6	100	1	0	107	0	10	2	6	2	18	0	2	121	11	0	134	267
8:30 AM	0	12	1	2	0	15	0	8	98	4	0	110	0	8	0	5	0	13	0	1	118	6	0	125	263
8:45 AM	0	7	2	5	0	14	0	9	86	4	0	99	0	11	1	7	0	19	0	1	124	12	0	137	269
Hourly Total	0	28	7	8	0	43	0	31	380	11	0	422	0	35	5	28	3	68	0	7	507	34	0	548	1081
9:00 AM	0	10	0	3	0	13	0	12	82	2	0	96	0	11	2	6	1	19	0	1	96	17	0	114	242
9:15 AM	0	3	2	3	0	8	0	17	96	5	0	118	0	8	1	11	1	20	1	1	109	10	0	121	267
9:30 AM	0	3	3	5	0	11	1	14	79	8	0	102	0	17	3	2	0	22	0	1	118	9	0	128	263
9:45 AM	0	2	1	2	0	5	0	15	99	1	0	115	0	12	2	6	0	20	0	2	114	14	0	130	270
Hourly Total	0	18	6	13	0	37	1	58	356	16	0	431	0	48	8	25	2	81	1	5	437	50	0	493	1042
10:00 AM	0	6	2	4	0	12	1	11	87	3	0	102	0	16	1	17	0	34	0	0	111	8	0	119	267
10:15 AM	0	3	1	2	0	6	0	19	85	4	0	108	0	12	0	15	0	27	0	2	131	16	0	149	290
10:30 AM	0	4	2	2	0	8	3	15	93	2	0	113	0	12	1	15	0	28	0	1	124	10	0	135	284
10:45 AM	0	1	0	1	0	2	0	22	97	8	0	127	0	9	0	17	0	26	0	1	108	20	0	129	284
Hourly Total	0	14	5	9	0	28	4	67	362	17	0	450	0	49	2	64	0	115	0	4	474	54	0	532	1125
11:00 AM	0	6	1	0	0	7	1	21	90	1	0	113	0	15	1	18	0	34	0	2	120	16	1	138	292
11:15 AM	0	3	1	1	0	5	1	21	110	4	0	136	0	19	0	17	0	36	0	0	126	22	0	148	325
11:30 AM	0	2	1	0	0	3	0	12	105	5	0	122	0	19	2	17	0	38	2	5	125	14	0	146	309
11:45 AM	0	5	2	7	0	14	0	12	111	3	0	126	0	18	4	13	0	35	0	2	131	21	0	154	329
Hourly Total	0	16	5	8	0	29	2	66	416	13	0	497	0	71	7	65	0	143	2	9	502	73	1	586	1255
12:00 PM	0	4	1	2	0	7	0	21	126	4	0	151	0	22	1	29	0	52	1	2	118	13	0	134	344
12:15 PM	0	6	0	0	0	6	1	23	114	2	0	140	0	16	5	23	0	44	0	4	141	16	0	161	351
12:30 PM	0	7	2	2	0	11	0	19	110	5	0	134	0	10	1	20	0	31	1	4	120	26	0	151	327
12:45 PM	0	6	1	3	0	10	0	13	125	6	0	144	0	24	4	19	0	47	0	0	142	24	0	166	367
Hourly Total	0	23	4	7	0	34	1	76	475	17	0	569	0	72	11	91	0	174	2	10	521	79	0	612	1389
1:00 PM	0	4	0	3	0	7	1	19	109	4	0	133	0	21	1	23	0	45	0	2	149	21	0	172	357
1:15 PM	0	8	3	1	0	12	1	12	126	3	0	142	0	29	2	19	0	50	0	5	154	10	0	169	373
1:30 PM	0	5	1	1	0	7	0	16	143	2	0	161	0	17	1	23	0	41	0	2	130	16	0	148	357
1:45 PM	0	5	1	3	0	9	0	21	136	7	0	164	0	17	1	22	0	40	1	3	154	18	0	176	389
Hourly Total	0	22	5	8	0	35	2	68	514	16	0	600	0	84	5	87	0	176	1	12	587	65	0	665	1476
2:00 PM	0	10	0	3	0	13	0	17	134	2	0	153	0	21	4	24	0	49	0	6	135	22	0	163	378
2:15 PM	0	2	3	2	0	7	0	16	131	7	0	154	0	15	2	22	2	39	0	5	211	27	0	243	443
2:30 PM	0	11	4	4	0	19	2	18	143	7	0	170	0	27	3	32	0	62	0	2	191	25	0	218	469
2:45 PM	0	6	1	1	0	8	1	21	183	9	0	214	0	27	4	30	0	61	0	5	174	25	0	204	487
Hourly Total	0	29	8	10	0	47	3	72	591	25	0	691	0	90	13	108	2	211	0	18	711	99	0	828	1777
3:00 PM	0	7	1	1	0	9	2	21	184	7	0	214	0	25	6	30	0	61	0	2	173	26	0	201	485
3:15 PM	0	8	1	3	0	12	0	11	187	7	0	205	0	25	3	25	0	53	0	4	163	24	0	191	461
3:30 PM	0	8	0	2	0	10	2	19	204	9	0	234	0	38	5	24	0	67	0	5	204	29	0	238	549
3:45 PM	0	7	1	5	0	13	1	24	177	14	0	216	0	25	4	19	0	48	1	5	191	14	0	211	488
Hourly Total	0	30	3	11	0	44	5	75	752	37	0	869	0	113	18	98	0	229	1	16	731	93	0	841	1983

**TMC 2353 - CSAH 116 @ Quinn St
Andover MN
Wednesday, October 11, 2023**

Time	Southbound Quinn St						Westbound CSAH 116 (Bunker Lake Blvd)						Northbound Quinn St						Eastbound CSAH 116 (Bunker Lake Blvd)						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
4:00 PM	0	5	5	2	0	12	2	19	193	8	0	222	0	28	11	18	0	57	0	8	207	25	0	240	531
4:15 PM	0	4	2	7	0	13	2	29	219	6	0	256	0	25	5	23	0	53	1	9	206	22	0	238	560
4:30 PM	0	4	2	4	0	10	0	22	213	11	0	246	0	36	8	37	0	81	0	4	207	21	0	232	569
4:45 PM	0	2	0	6	0	8	0	19	225	11	0	255	0	31	3	29	0	63	0	9	198	10	0	217	543
Hourly Total	0	15	9	19	0	43	4	89	850	36	0	979	0	120	27	107	0	254	1	30	818	78	0	927	2203
5:00 PM	0	13	2	3	0	18	1	16	216	4	0	237	0	28	5	34	2	67	0	3	224	24	0	251	573
5:15 PM	0	10	1	1	0	12	2	18	221	11	0	252	0	15	4	25	0	44	0	1	201	24	0	226	534
5:30 PM	0	6	4	10	0	20	1	22	174	7	0	204	0	30	13	29	1	72	0	7	183	16	0	206	502
5:45 PM	0	13	3	0	0	16	0	18	169	6	0	193	0	24	7	37	0	68	1	9	169	21	1	200	477
Hourly Total	0	42	10	14	0	66	4	74	780	28	0	886	0	97	29	125	3	251	1	20	777	85	1	883	2086
6:00 PM	0	4	1	5	0	10	3	12	133	7	1	155	0	22	3	27	0	52	0	9	161	20	0	190	407
6:15 PM	0	11	1	1	0	13	1	15	134	5	3	155	0	27	3	15	2	45	0	5	155	27	0	187	400
6:30 PM	0	7	1	3	0	11	3	14	151	11	0	179	0	25	3	20	1	48	0	7	132	18	0	157	395
6:45 PM	0	9	0	6	0	15	1	12	85	7	0	105	0	18	3	24	0	45	1	8	164	14	0	187	352
Hourly Total	0	31	3	15	0	49	8	53	503	30	4	594	0	92	12	86	3	190	1	29	612	79	0	721	1554
7:00 PM	0	10	2	3	0	15	1	19	118	12	0	150	0	11	1	19	0	31	0	2	116	12	0	130	326
7:15 PM	0	3	1	3	0	7	1	20	84	6	0	111	0	13	4	15	0	32	2	5	98	7	0	112	262
7:30 PM	0	5	2	5	0	12	0	12	86	4	0	102	0	13	4	13	0	30	0	4	75	10	0	89	233
7:45 PM	0	2	3	1	0	6	0	8	68	4	0	80	0	14	3	10	0	27	0	5	84	11	0	100	213
Hourly Total	0	20	8	12	0	40	2	59	356	26	0	443	0	51	12	57	0	120	2	16	373	40	0	431	1034
8:00 PM	0	2	1	1	0	4	0	3	66	5	0	74	0	6	3	4	0	13	0	7	68	13	0	88	179
8:15 PM	0	2	1	1	0	4	0	2	60	9	0	71	0	17	0	7	0	24	1	3	93	12	0	109	208
8:30 PM	0	1	2	1	0	4	0	4	60	11	0	75	0	5	6	4	1	15	0	1	53	10	0	64	158
8:45 PM	0	0	0	1	0	1	0	3	67	6	0	76	0	9	1	8	0	18	0	1	60	5	0	66	161
Hourly Total	0	5	4	4	0	13	0	12	253	31	0	296	0	37	10	23	1	70	1	12	274	40	0	327	706
9:00 PM	0	0	1	0	0	1	0	4	50	7	0	61	0	8	2	6	0	16	0	1	52	9	0	62	140
9:15 PM	0	0	0	1	0	1	0	1	39	1	0	41	0	11	0	3	0	14	0	1	33	1	0	35	91
9:30 PM	0	2	0	1	0	3	0	1	60	4	0	65	0	3	0	3	0	6	0	1	34	1	0	36	110
9:45 PM	0	3	0	0	0	3	0	0	32	0	0	32	0	0	0	3	0	3	0	1	29	1	0	31	69
Hourly Total	0	5	1	2	0	8	0	6	181	12	0	199	0	22	2	15	0	39	0	4	148	12	0	164	410
10:00 PM	0	0	0	1	0	1	0	1	30	1	0	32	0	5	0	2	0	7	0	2	25	0	0	27	67
10:15 PM	0	1	0	0	0	1	0	1	31	2	0	34	0	2	1	1	0	4	0	2	27	0	0	29	68
10:30 PM	0	1	0	0	0	1	0	1	17	4	0	22	0	0	0	0	0	0	0	0	18	0	0	18	41
10:45 PM	0	0	0	0	0	0	1	1	20	2	0	24	0	1	0	0	0	1	0	0	7	1	0	8	33
Hourly Total	0	2	0	1	0	3	1	4	98	9	0	112	0	8	1	3	0	12	0	4	77	1	0	82	209
11:00 PM	0	1	0	0	0	1	0	1	19	2	0	22	0	0	0	1	0	1	0	1	8	0	0	9	33
11:15 PM	0	0	0	0	0	0	0	0	8	1	0	9	0	0	0	0	0	0	0	0	8	0	0	8	17
11:30 PM	0	1	0	1	0	2	0	0	11	0	0	11	0	0	0	0	0	0	0	0	9	0	0	9	22
11:45 PM	0	0	0	0	0	0	0	0	5	1	0	6	0	1	0	0	0	1	0	0	5	0	0	5	12
Hourly Total	0	2	0	1	0	3	0	1	43	4	0	48	0	1	0	1	0	2	0	1	30	0	0	31	84
DAILY TOTAL	0	384	95	196	0	675	38	876	7885	358	4	9157	0	1027	165	1021	14	2213	13	218	8830	913	2	9974	22019
Cars	0	380	95	192	0	667	38	870	7695	350	0	8953	0	1019	165	1015	10	2199	13	213	8622	906	2	9754	21573
Heavy Vehicles	0	4	0	4	0	8	0	6	190	8	4	204	0	8	0	6	4	14	0	5	208	7	0	220	446
Heavy Vehicle %	0.00%	1.04%	0.00%	2.04%	0.00%	1.19%	0.00%	0.68%	2.41%	2.23%	100.00%	2.23%	0.00%	0.78%	0.00%	0.59%	28.57%	0.63%	0.00%	2.29%	2.36%	0.77%	0.00%	2.21%	2.03%

**TMC 2353 - CSAH 116 @ Quinn St
Andover MN
Wednesday, October 11, 2023**

AM Peak Hour																													
Southbound							Westbound							Northbound							Eastbound							VEHICLE TOTAL	
Time	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total					
7:15 AM	0	7	1	7	0	15	1	8	196	2	0	207	0	8	0	1	0	9	0	2	130	2	0	134	0	2	0	134	365
7:30 AM	0	7	2	3	0	12	0	8	128	2	0	138	0	5	1	5	0	11	0	6	200	12	0	218	0	6	0	218	379
7:45 AM	0	6	2	10	0	18	0	5	128	3	0	136	0	9	0	5	0	14	0	3	172	6	0	181	0	3	0	181	349
8:00 AM	0	4	1	1	0	6	0	8	96	2	0	106	0	6	2	10	1	18	0	3	144	5	0	152	0	3	0	152	282
Peak Hour Total	0	24	6	21	0	51	1	29	548	9	0	587	0	28	3	21	1	52	0	14	646	25	0	685	0	14	0	685	1375
PHF	0.000	0.857	0.750	0.525	0.000	0.708	0.250	0.906	0.699	0.750	0.000	0.709	0.000	0.778	0.375	0.525	0.250	0.722	0.000	0.583	0.808	0.521	0.000	0.786	0.000	0.583	0.000	0.786	0.907

PM Peak Hour																													
Southbound							Westbound							Northbound							Eastbound							VEHICLE TOTAL	
Time	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total					
4:15 PM	0	4	2	7	0	13	2	29	219	6	0	256	0	25	5	23	0	53	1	9	206	22	0	238	0	9	0	238	560
4:30 PM	0	4	2	4	0	10	0	22	213	11	0	246	0	36	8	37	0	81	0	4	207	21	0	232	0	4	0	232	569
4:45 PM	0	2	0	6	0	8	0	19	225	11	0	255	0	31	3	29	0	63	0	9	198	10	0	217	0	9	0	217	543
5:00 PM	0	13	2	3	0	18	1	16	216	4	0	237	0	28	5	34	2	67	0	3	224	24	0	251	0	3	0	251	573
Peak Hour Total	0	23	6	20	0	49	3	86	873	32	0	994	0	120	21	123	2	264	1	25	835	77	0	938	0	25	0	938	2245
PHF	0.000	0.442	0.750	0.714	0.000	0.681	0.375	0.741	0.970	0.727	0.000	0.971	0.000	0.833	0.656	0.831	0.250	0.815	0.250	0.694	0.932	0.802	0.000	0.934	0.000	0.694	0.000	0.934	0.979

Total Vehicles On Leg		1416	
Vehicles Entering Intersection		Vehicles Exiting Intersection	
675		741	
Southbound			
Cars	192	95	380
Heavy	4	0	4
Total	196	95	384



Total Vehicles on Leg 19095	Eastbound	Vehicles Entering Intersection 9974	Cars	Heavy	Total
		Vehicles Exiting Intersection 9121	2	0	2
			13	0	13
			213	5	218
			8622	208	8830
906	7	913			



Daily Volumes

Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 9157	Total Vehicles on Leg 19430
350	8	358			
7695	190	7885			
870	6	876			
38	0	38			
0	4	4		Vehicles Exiting Intersection 10273	



Cars	10	0	1019	165	1015
Heavy	4	0	8	0	6
Total	14	0	1027	165	1021
Northbound					
Vehicles Entering Intersection			Vehicles Exiting Intersection		
2213			1884		
Total Vehicles On Leg			4097		



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2353

Study Date : 10/16/2023

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 116

Number of Lanes : 2+

Total Approach Volume: 9,974

Westbound: CSAH 116

Number of Lanes :2+

Total Approach Volume: 9,157

Minor Street Approaches

Northbound: Quinn St

Number of Lanes :1

Total Approach Volume: 2,213

Southbound: Quinn St

Number of Lanes :1

Total Approach Volume: 675

Warrant Summary (Rural Values Apply)

Warrant 1 - Eight Hour Vehicular Volumes.....Satisfied

Warrant 1A - Minimum Vehicular Volume.....Satisfied

Required volumes reached for 10 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic.....Satisfied

Required volumes reached for 14 hours, 8 are needed

Warrant 1C - Combination of Warrants.....Satisfied

Required 1A volumes reached for 11 hours, 8 are needed

Required 1B volumes reached for 15 hours, 8 are needed

Warrant 2 - Four Hour Volumes.....Satisfied

Number of hours (13) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

Warrant 3A - Peak Hour Delay.....Satisfied

Number of one hour periods (40) volumes exceed minimum >= required (1). Delay data not evaluated.

Warrant 3B - Peak Hour Volumes.....Satisfied

Volumes exceed minimums for at least one hour period.

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 2353

Study Date : 10/16/2023

Warrant 1A - Minimum Volumes

Description

Intended for sites where the volume of intersecting traffic is the principal reason for consideration of a signal installation.

Summary

10 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
 Number of Major Lanes = **2 or more**
 Number of Minor Lanes = **1**

Volume Requirements

Rural Factor of 70 % applied
 Veh/Hr Major = **420**
 Veh/Hr Minor = **105**

Time	Major Road				Total	Minor Road		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
15:45 - 16:45	921	+	940	=	1861	239	48	Yes
16:45 - 17:45	900	+	948	=	1848	246	58	Yes
14:45 - 15:45	834	+	867	=	1701	242	39	Yes
13:45 - 14:45	800	+	641	=	1441	190	48	Yes
17:45 - 18:45	734	+	682	=	1416	213	50	Yes
12:45 - 13:45	655	+	580	=	1235	183	36	Yes
11:45 - 12:45	600	+	551	=	1151	162	38	Yes
10:45 - 11:45	561	+	498	=	1059	134	17	Yes
18:45 - 19:45	518	+	468	=	986	138	49	Yes
09:45 - 10:45	533	+	438	=	971	109	31	Yes
07:15 - 08:15	685	+	587	=	1272	52	51	No
07:00 - 08:00	663	+	601	=	1264	44	54	No
06:45 - 07:45	618	+	565	=	1183	38	53	No
07:30 - 08:30	685	+	487	=	1172	61	44	No
07:45 - 08:45	592	+	459	=	1051	63	47	No
06:30 - 07:30	505	+	505	=	1010	30	50	No
08:00 - 09:00	548	+	422	=	970	68	43	No
09:30 - 10:30	526	+	427	=	953	103	34	No
09:15 - 10:15	498	+	437	=	935	96	36	No
09:00 - 10:00	493	+	431	=	924	81	37	No
08:15 - 09:15	510	+	412	=	922	69	50	No
08:30 - 09:30	497	+	423	=	920	71	50	No
08:45 - 09:45	500	+	415	=	915	80	46	No
06:15 - 07:15	458	+	350	=	808	23	46	No
19:45 - 20:45	361		300		661	79	18	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2353

Study Date : 10/16/2023

Warrant 1B - Interruption of Continuous Traffic

Description

Intended for sites where the volume of the major street is so heavy that traffic on the minor street suffers excessive delay or hazard.

Summary

14 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
 Number of Major Lanes = **2 or more**
 Number of Minor Lanes = **1**

Volume Requirements

Rural Factor of 70 % applied
 Veh/Hr Major = **630**
 Veh/Hr Minor = **53**

Time	Major Road				Total	Minor Road		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
	CSAH 116					Quinn St		
15:45 - 16:45	921	+	940	=	1861	239	48	Yes
16:45 - 17:45	900	+	948	=	1848	246	58	Yes
14:45 - 15:45	834	+	867	=	1701	242	39	Yes
13:45 - 14:45	800	+	641	=	1441	190	48	Yes
17:45 - 18:45	734	+	682	=	1416	213	50	Yes
12:45 - 13:45	655	+	580	=	1235	183	36	Yes
06:45 - 07:45	618	+	565	=	1183	38	53	Yes
11:45 - 12:45	600	+	551	=	1151	162	38	Yes
10:45 - 11:45	561	+	498	=	1059	134	17	Yes
07:45 - 08:45	592	+	459	=	1051	63	47	Yes
18:45 - 19:45	518	+	468	=	986	138	49	Yes
09:45 - 10:45	533	+	438	=	971	109	31	Yes
08:45 - 09:45	500	+	415	=	915	80	46	Yes
19:45 - 20:45	361	+	300	=	661	79	18	Yes
06:30 - 07:30	505	+	505	=	1010	30	50	No
06:15 - 07:15	458	+	350	=	808	23	46	No
06:00 - 07:00	384	+	260	=	644	17	49	No
05:45 - 06:45	301	+	195	=	496	18	42	No
20:45 - 21:45	199	+	243	=	442	54	6	No
05:30 - 06:30	239	+	147	=	386	17	44	No
21:00 - 22:00	164	+	199	=	363	39	8	No
21:15 - 22:15	129	+	170	=	299	30	8	No
05:15 - 06:15	180	+	114	=	294	17	38	No
21:30 - 22:30	123	+	163	=	286	20	8	No
05:00 - 06:00	143		95		238	13	33	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2353

Study Date : 10/16/2023

Warrant 1C Combination of Warrants

Description

Intended for sites where the traffic volumes don't meet individual warrants but where Warrants 1A and 1B are both met to 80% of their stated values.

Summary

11 hours meet 1A minimums.
15 hours meet 1B minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
Number of Major Lanes = **2 or more**
Number of Minor Lanes = **1**

Volume Requirements

Rural Factor of 70% applied
Warrant 1A 1B
Veh/Hr Major = **336 504**

Veh/Hr Minor = **84 42**

Major Road CSAH 116

Minor Road Quinn St

Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met1A?
16:15 - 17:15	938	+	994	=	1932	264	49	Yes
15:15 - 16:15	880	+	877	=	1757	225	47	Yes
17:15 - 18:15	822	+	804	=	1626	236	58	Yes
14:15 - 15:15	866	+	752	=	1618	223	43	Yes
13:15 - 14:15	656	+	620	=	1276	180	41	Yes
18:15 - 19:15	661	+	589	=	1250	169	54	Yes
12:15 - 13:15	650	+	551	=	1201	167	34	Yes
11:15 - 12:15	582	+	535	=	1117	161	29	Yes
10:15 - 11:15	551	+	461	=	1012	115	23	Yes
09:15 - 10:15	498	+	437	=	935	96	36	Yes
19:15 - 20:15	389	+	367	=	756	102	29	Yes
07:15 - 08:15	685		587		1272	52	51	No

Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met1B?
16:00 - 17:00	927	+	979	=	1906	254	43	Yes
17:00 - 18:00	883	+	886	=	1769	251	66	Yes
15:00 - 16:00	841	+	869	=	1710	229	44	Yes
14:00 - 15:00	828	+	691	=	1519	211	47	Yes
18:00 - 19:00	721	+	594	=	1315	190	49	Yes
13:00 - 14:00	665	+	600	=	1265	176	35	Yes
07:00 - 08:00	663	+	601	=	1264	44	54	Yes
12:00 - 13:00	612	+	569	=	1181	174	34	Yes
11:00 - 12:00	586	+	497	=	1083	143	29	Yes
10:00 - 11:00	532	+	450	=	982	115	28	Yes
08:00 - 09:00	548	+	422	=	970	68	43	Yes
09:00 - 10:00	493		431		924	81	37	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2353

Study Date : 10/16/2023

Warrant 2 - Four Hour Volumes

Description

Intended for sites where the volume of intersecting traffic during any four hours of the day is the principal reason for consideration of a signal installation.

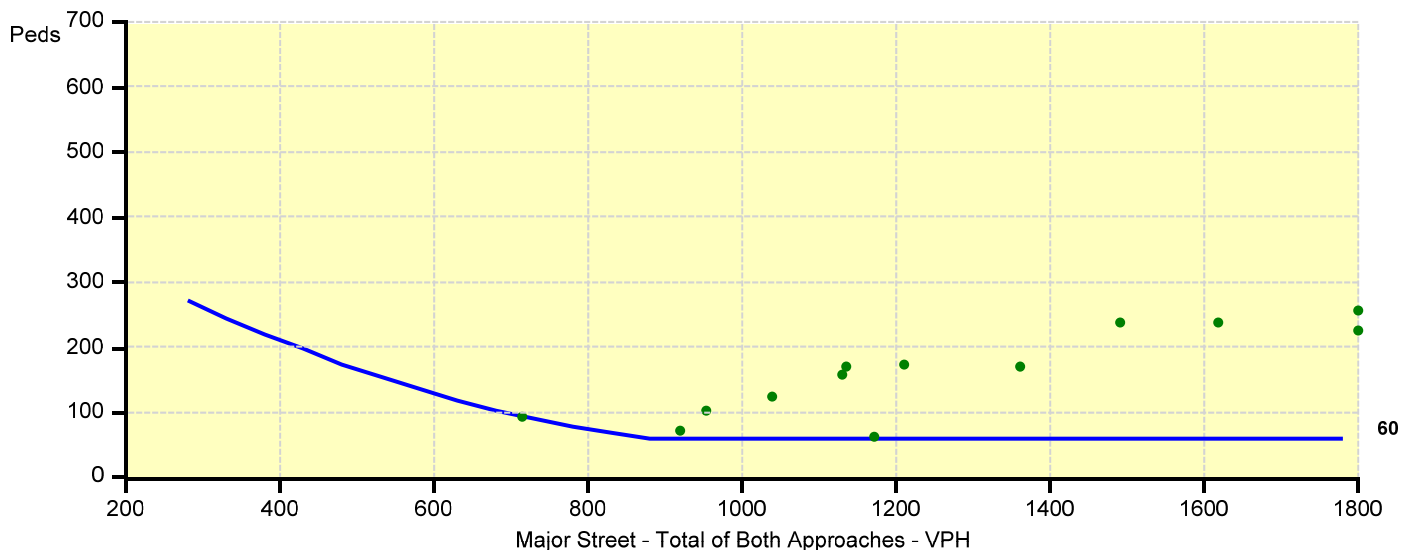
Summary

13 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
 Number of Major Lanes = **2 or more**
 Number of Minor Lanes = **1**

Time	Major Road CSAH 116				Total	Minor Road Quinn St		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:30 - 17:30	926	+	990	=	1916	255	48	Yes
15:30 - 16:30	927	+	928	=	1855	225	48	Yes
14:30 - 15:30	814	+	803	=	1617	237	48	Yes
17:30 - 18:30	783	+	707	=	1490	237	59	Yes
13:30 - 14:30	730	+	632	=	1362	169	36	Yes
12:30 - 13:30	658	+	553	=	1211	173	40	Yes
07:30 - 08:30	685	+	487	=	1172	61	44	Yes
11:30 - 12:30	595	+	539	=	1134	169	30	Yes
18:30 - 19:30	586	+	545	=	1131	156	48	Yes
10:30 - 11:30	550	+	489	=	1039	124	22	Yes
09:30 - 10:30	526	+	427	=	953	103	34	Yes
08:30 - 09:30	497	+	423	=	920	71	50	Yes



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2353

Study Date : 10/16/2023

Warrant 3B - Peak Hour Volumes

Description

Intended for sites where the volume of intersecting traffic during one hour of the day is the principal reason for consideration of a signal installation.

Summary

36 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
 Number of Major Lanes = **2 or more**
 Number of Minor Lanes = **1**

Time	Major Road CSAH 116				Total	Minor Road Quinn St		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:15 - 17:15	938	+	994	=	1932	264	49	Yes
16:30 - 17:30	926	+	990	=	1916	255	48	Yes
16:00 - 17:00	927	+	979	=	1906	254	43	Yes
15:45 - 16:45	921	+	940	=	1861	239	48	Yes
15:30 - 16:30	927	+	928	=	1855	225	48	Yes
16:45 - 17:45	900	+	948	=	1848	246	58	Yes
17:00 - 18:00	883	+	886	=	1769	251	66	Yes
15:15 - 16:15	880	+	877	=	1757	225	47	Yes
15:00 - 16:00	841	+	869	=	1710	229	44	Yes
14:45 - 15:45	834	+	867	=	1701	242	39	Yes
17:15 - 18:15	822	+	804	=	1626	236	58	Yes
14:15 - 15:15	866	+	752	=	1618	223	43	Yes

