

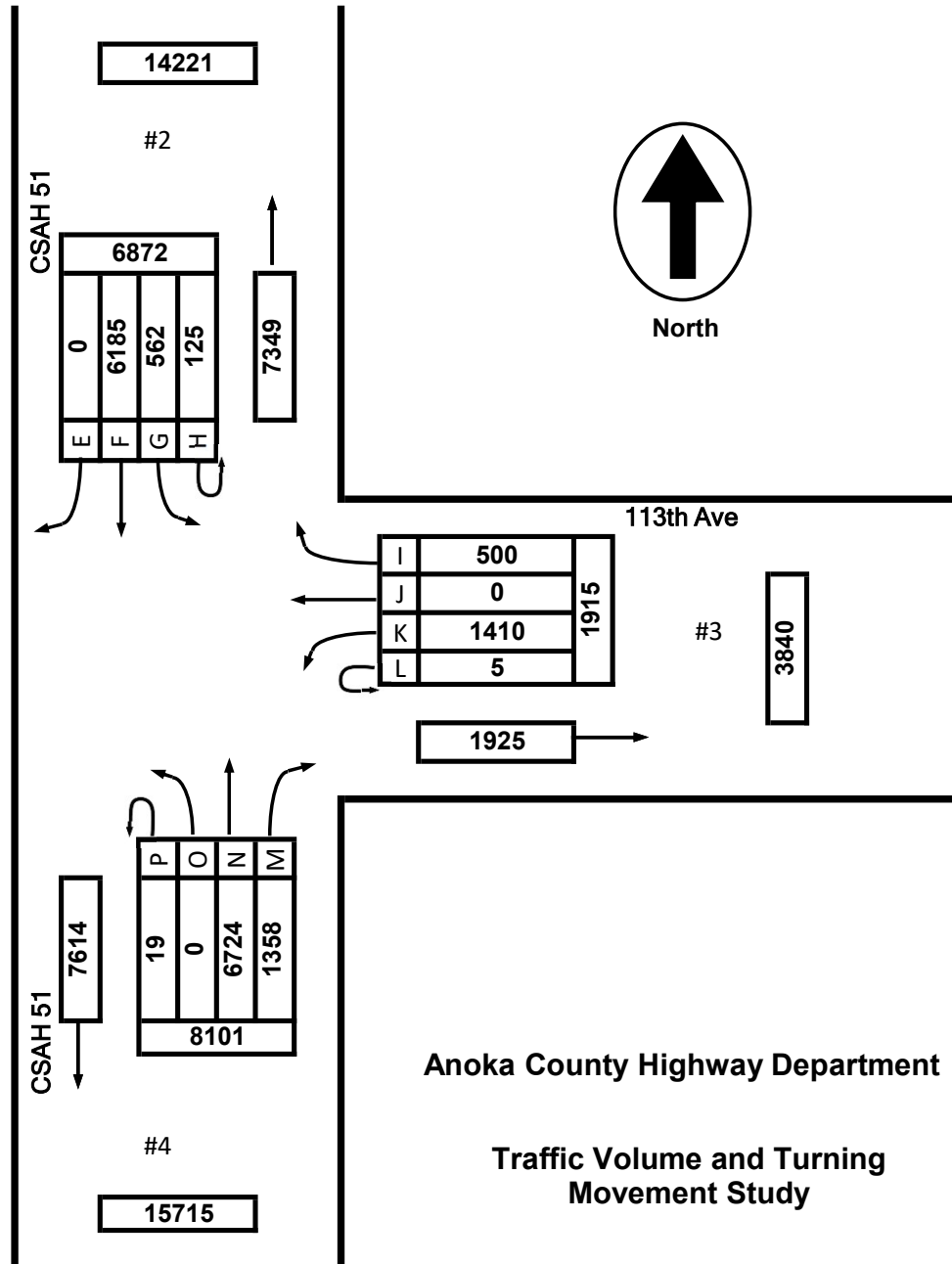
Date : 04/11/23

Count Number : TMC 2313

Location : CSAH 51
@ 113th Ave

Collection Period : 24 HR

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



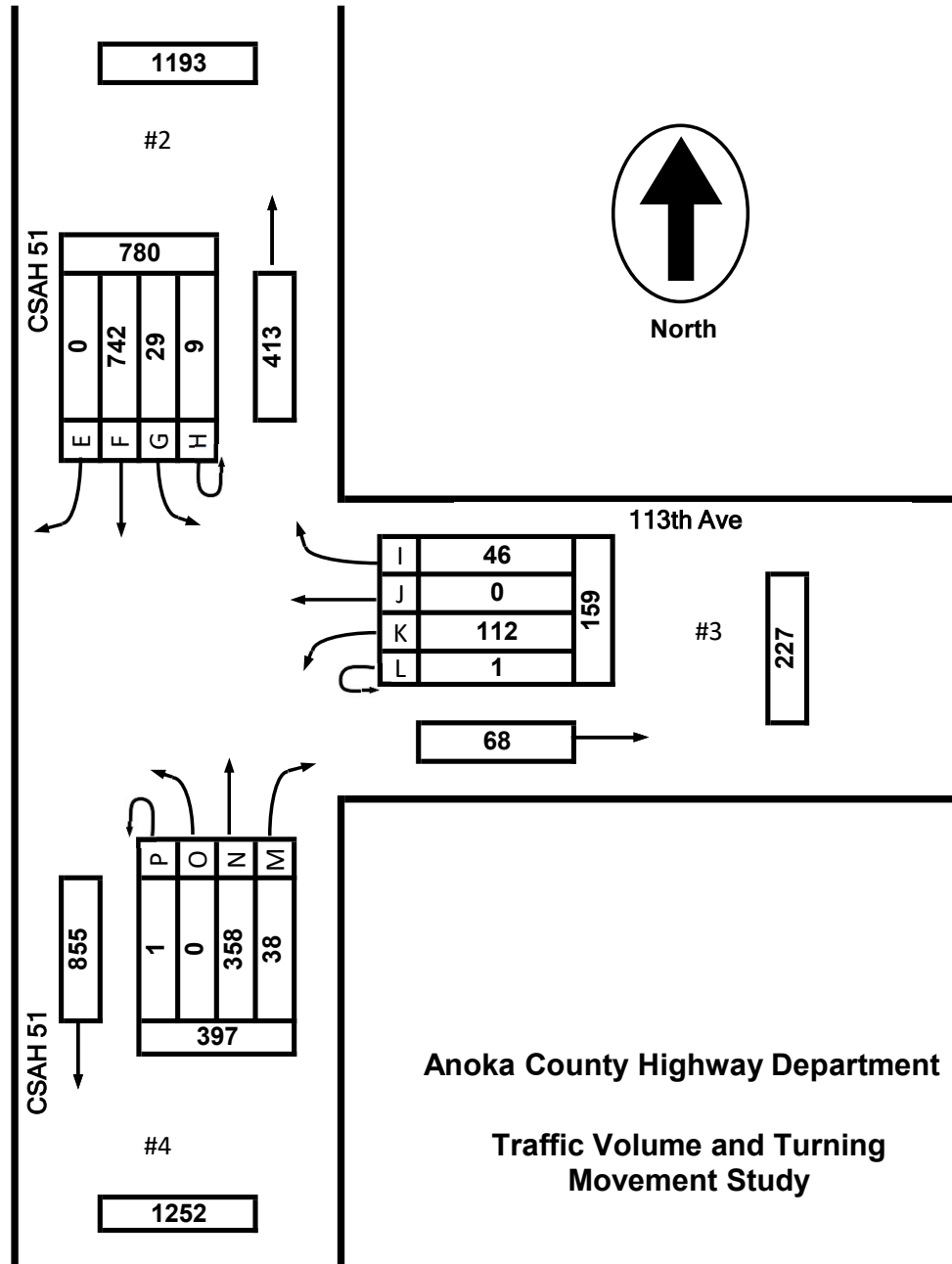
Date : 04/11/23

Count Number : TMC 2313

Location : CSAH 51
@ 113th Ave

Collection Period : 7 AM - 8 AM
AM PEAK

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



Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

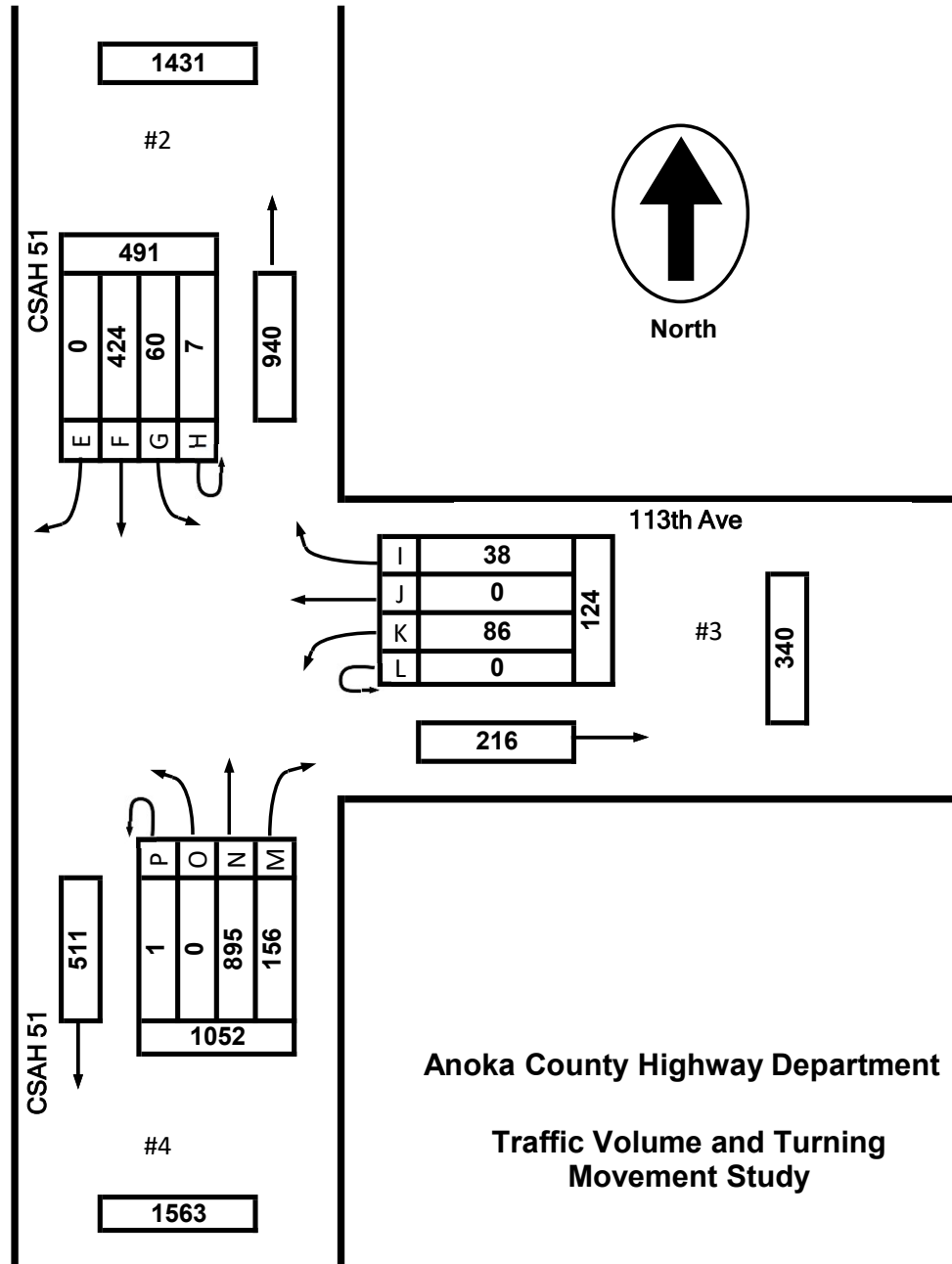
Date : 04/11/23

Count Number : TMC 2313

Location : CSAH 51
@ 113th Ave

Collection Period : 4 PM - 5 PM
PM PEAK

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



Anoka County Highway Department

Traffic Volume and Turning Movement Study

TMC 2313 - CSAH 51 @ 113th Ave

0 0

Tuesday, April 11, 2023

Time	Southbound 0						Westbound 0						Northbound 0						Eastbound 0						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	8	0	0	8	0	1	0	1	0	2	0	0	15	5	0	20	0	0	0	0	0	0	0	0	0	0	0	0	30
12:15 AM	0	1	5	0	0	6	0	1	0	0	0	1	0	0	13	5	0	18	0	0	0	0	0	0	0	0	0	0	0	0	25
12:30 AM	0	0	2	0	0	2	0	1	0	0	0	1	0	0	10	1	0	11	0	0	0	0	0	0	0	0	0	0	0	0	14
12:45 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	6	3	0	9	0	0	0	0	0	0	0	0	0	0	0	0	13
Hourly Total	0	1	19	0	0	20	0	3	0	1	0	4	0	0	44	14	0	58	0	0	0	0	0	0	0	0	0	0	0	0	82
1:00 AM	0	0	3	0	0	3	0	1	0	1	0	2	0	0	10	1	0	11	0	0	0	0	0	0	0	0	0	0	0	0	16
1:15 AM	0	0	2	0	0	2	0	2	0	0	0	2	0	0	11	5	0	16	0	0	0	0	0	0	0	0	0	0	0	0	20
1:30 AM	0	1	5	0	0	6	0	3	0	0	0	3	0	0	7	1	0	8	0	0	0	0	0	0	0	0	0	0	0	0	17
1:45 AM	0	2	5	0	0	7	0	0	0	0	0	0	0	0	6	1	0	7	0	0	0	0	0	0	0	0	0	0	0	0	14
Hourly Total	0	3	15	0	0	18	0	6	0	1	0	7	0	0	34	8	0	42	0	0	0	0	0	0	0	0	0	0	0	0	67
2:00 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	5	2	0	7	0	0	0	0	0	0	0	0	0	0	0	0	11
2:15 AM	0	1	1	0	0	2	0	1	0	0	0	1	0	0	5	2	0	7	0	0	0	0	0	0	0	0	0	0	0	0	10
2:30 AM	0	0	3	0	0	3	0	2	0	0	0	2	0	0	13	1	0	14	0	0	0	0	0	0	0	0	0	0	0	0	19
2:45 AM	0	0	3	0	0	3	0	2	0	1	0	3	0	0	1	3	0	4	0	0	0	0	0	0	0	0	0	0	0	0	10
Hourly Total	0	1	11	0	0	12	0	5	0	1	0	6	0	0	24	8	0	32	0	0	0	0	0	0	0	0	0	0	0	0	50
3:00 AM	0	0	4	0	0	4	0	1	0	0	0	1	0	0	3	3	0	6	0	0	0	0	0	0	0	0	0	0	0	0	11
3:15 AM	0	0	6	0	0	6	0	1	0	0	0	1	0	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	15
3:30 AM	0	0	8	0	0	8	0	5	0	1	0	6	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	20
3:45 AM	0	1	6	0	0	7	0	5	0	1	0	6	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	15
Hourly Total	0	1	24	0	0	25	0	12	0	2	0	14	0	0	19	3	0	22	0	0	0	0	0	0	0	0	0	0	0	0	61
4:00 AM	0	0	10	0	0	10	0	6	0	0	0	6	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	22
4:15 AM	0	1	25	0	0	26	0	9	0	1	0	10	0	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0	42
4:30 AM	0	0	30	0	0	30	0	8	0	1	0	9	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	48
4:45 AM	0	1	31	0	0	32	0	7	0	2	0	9	0	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	45
Hourly Total	0	2	96	0	0	98	0	30	0	4	0	34	0	0	23	2	0	25	0	0	0	0	0	0	0	0	0	0	0	0	157
5:00 AM	0	0	39	0	0	39	0	14	0	1	0	15	0	0	9	4	0	13	0	0	0	0	0	0	0	0	0	0	0	0	67
5:15 AM	0	3	57	0	0	60	0	23	0	3	0	26	0	0	9	4	0	13	0	0	0	0	0	0	0	0	0	0	0	0	99
5:30 AM	0	0	67	0	0	67	0	21	0	2	0	23	0	0	18	3	0	21	0	0	0	0	0	0	0	0	0	0	0	0	111
5:45 AM	0	0	69	0	0	69	0	19	0	5	0	24	0	0	16	3	0	19	0	0	0	0	0	0	0	0	0	0	0	0	112
Hourly Total	0	3	232	0	0	235	0	77	0	11	0	88	0	0	52	14	0	66	0	0	0	0	0	0	0	0	0	0	0	0	389
6:00 AM	0	4	88	0	0	92	0	25	0	3	0	28	0	0	17	2	0	19	0	0	0	0	0	0	0	0	0	0	0	0	139
6:15 AM	0	2	121	0	0	123	0	22	0	3	0	25	0	0	23	5	0	28	0	0	0	0	0	0	0	0	0	0	0	0	176
6:30 AM	0	5	144	0	0	149	0	24	0	10	0	34	0	0	42	5	0	47	0	0	0	0	0	0	0	0	0	0	0	0	230
6:45 AM	0	1	131	0	2	132	0	31	0	8	1	39	0	0	63	3	0	66	0	0	0	0	0	0	0	0	0	0	0	0	237
Hourly Total	0	12	484	0	2	496	0	102	0	24	1	126	0	0	145	15	0	160	0	0	0	0	0	0	0	0	0	0	0	0	782
7:00 AM	1	8	139	0	3	148	0	18	0	14	0	32	1	0	100	8	0	109	0	0	0	0	0	0	0	0	0	0	0	0	289
7:15 AM	4	8	229	0	0	241	1	19	0	11	0	31	0	0	94	9	0	103	0	0	0	0	0	0	0	0	0	0	0	0	375
7:30 AM	2	5	213	0	3	220	0	40	0	9	0	49	0	0	67	13	0	80	0	0	0	0	0	0	0	0	0	0	0	0	349
7:45 AM	2	8	161	0	1	171	0	35	0	12	0	47	0	0	97	8	0	105	0	0	0	0	0	0	0	0	0	0	0	0	323
Hourly Total	9	29	742	0	7	780	1	112	0	46	0	159	1	0	358	38	0	397	0	0	0	0	0	0	0	0	0	0	0	0	1336

TMC 2313 - CSAH 51 @ 113th Ave

0 0

Tuesday, April 11, 2023

Time	Southbound 0						Westbound 0						Northbound 0						Eastbound 0						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	7	4	138	0	3	149	1	26	0	5	0	32	0	0	51	14	0	65	0	0	0	0	0	0	246
8:15 AM	3	9	123	0	1	135	0	27	0	5	0	32	0	0	59	8	0	67	0	0	0	0	0	0	234
8:30 AM	0	2	111	0	0	113	1	24	0	6	1	31	0	0	51	8	0	59	0	0	0	0	0	0	203
8:45 AM	0	1	95	0	0	96	0	21	0	3	1	24	0	0	56	11	0	67	0	0	0	0	0	0	187
Hourly Total	10	16	467	0	4	493	2	98	0	19	2	119	0	0	217	41	0	258	0	0	0	0	0	0	870
9:00 AM	2	5	94	0	0	101	0	33	0	10	0	43	0	0	54	11	0	65	0	0	0	0	0	0	209
9:15 AM	0	9	92	0	0	101	0	30	0	6	0	36	0	0	80	22	0	102	0	0	0	0	0	0	239
9:30 AM	1	7	83	0	0	91	0	23	0	8	0	31	0	0	58	13	0	71	0	0	0	0	0	0	193
9:45 AM	0	4	55	0	0	59	0	20	0	5	0	25	0	0	43	18	0	61	0	0	0	0	0	0	145
Hourly Total	3	25	324	0	0	352	0	106	0	29	0	135	0	0	235	64	0	299	0	0	0	0	0	0	786
10:00 AM	1	8	62	0	0	71	0	14	0	5	2	19	1	0	49	6	0	56	0	0	0	0	0	0	146
10:15 AM	1	2	65	0	0	68	1	22	0	3	0	26	0	0	45	9	0	54	0	0	0	0	0	0	148
10:30 AM	0	1	68	0	1	69	0	15	0	6	0	21	2	0	48	7	0	57	0	0	0	0	0	0	147
10:45 AM	1	3	60	0	0	64	0	9	0	3	0	12	0	0	50	14	0	64	0	0	0	0	0	0	140
Hourly Total	3	14	255	0	1	272	1	60	0	17	2	78	3	0	192	36	0	231	0	0	0	0	0	0	581
11:00 AM	0	7	59	0	0	66	0	5	0	5	0	10	0	0	66	9	0	75	0	0	0	0	0	0	151
11:15 AM	1	4	63	0	0	68	0	17	0	2	0	19	2	0	57	10	0	69	0	0	0	0	0	0	156
11:30 AM	0	3	55	0	0	58	0	17	0	6	0	23	0	0	70	16	0	86	0	0	0	0	0	0	167
11:45 AM	2	5	70	0	0	77	0	11	0	10	0	21	0	0	61	10	0	71	0	0	0	0	0	0	169
Hourly Total	3	19	247	0	0	269	0	50	0	23	0	73	2	0	254	45	0	301	0	0	0	0	0	0	643
12:00 PM	2	6	62	0	0	70	0	13	0	6	0	19	0	0	71	6	0	77	0	0	0	0	0	0	166
12:15 PM	2	4	73	0	0	79	0	18	0	5	0	23	0	0	101	15	0	116	0	0	0	0	0	0	218
12:30 PM	0	6	77	0	0	83	0	17	0	1	0	18	0	0	65	19	0	84	0	0	0	0	0	0	185
12:45 PM	1	5	68	0	0	74	0	13	0	5	0	18	0	0	98	15	0	113	0	0	0	0	0	0	205
Hourly Total	5	21	280	0	0	306	0	61	0	17	0	78	0	0	335	55	0	390	0	0	0	0	0	0	774
1:00 PM	0	6	67	0	0	73	0	24	0	4	1	28	1	0	71	18	0	90	0	0	0	0	0	0	191
1:15 PM	2	1	88	0	0	91	0	21	0	3	1	24	0	0	96	19	0	115	0	0	0	0	0	0	230
1:30 PM	2	6	80	0	0	88	0	11	0	7	1	18	0	0	83	18	0	101	0	0	0	0	0	0	207
1:45 PM	2	4	88	0	0	94	0	10	0	5	0	15	0	0	91	19	0	110	0	0	0	0	0	0	219
Hourly Total	6	17	323	0	0	346	0	66	0	19	3	85	1	0	341	74	0	416	0	0	0	0	0	0	847
2:00 PM	0	6	83	0	0	89	0	13	0	8	0	21	0	0	101	10	1	111	0	0	0	0	0	0	221
2:15 PM	1	10	101	0	0	112	0	14	0	9	1	23	0	0	112	21	0	133	0	0	0	0	0	0	268
2:30 PM	0	17	144	0	0	161	0	21	0	3	1	24	0	0	128	29	0	157	0	0	0	0	0	0	342
2:45 PM	2	11	84	0	0	97	0	24	0	9	0	33	0	0	156	32	0	188	0	0	0	0	0	0	318
Hourly Total	3	44	412	0	0	459	0	72	0	29	2	101	0	0	497	92	1	589	0	0	0	0	0	0	1149
3:00 PM	3	11	98	0	13	112	0	15	0	12	0	27	1	0	133	26	0	160	0	0	0	0	0	0	299
3:15 PM	4	10	118	0	11	132	0	10	0	8	0	18	1	0	176	28	0	205	0	0	0	0	0	0	355
3:30 PM	1	20	114	0	1	135	0	41	0	10	4	51	1	0	196	37	0	234	0	0	0	0	0	0	420
3:45 PM	2	10	94	0	1	106	0	24	0	12	2	36	0	0	217	31	2	248	0	0	0	0	0	0	390
Hourly Total	10	51	424	0	26	485	0	90	0	42	6	132	3	0	722	122	2	847	0	0	0	0	0	0	1464

TMC 2313 - CSAH 51 @ 113th Ave

0 0

Tuesday, April 11, 2023

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						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							
7:00 AM	1	8	139	0	3	148	0	18	0	14	0	32	1	0	100	8	0	109	0	0	0	0	0	0	0	0	0	0	0	0	289
7:15 AM	4	8	229	0	0	241	1	19	0	11	0	31	0	0	94	9	0	103	0	0	0	0	0	0	0	0	0	0	0	0	375
7:30 AM	2	5	213	0	3	220	0	40	0	9	0	49	0	0	67	13	0	80	0	0	0	0	0	0	0	0	0	0	0	0	349
7:45 AM	2	8	161	0	1	171	0	35	0	12	0	47	0	0	97	8	0	105	0	0	0	0	0	0	0	0	0	0	0	0	323
Peak Hour Total	9	29	742	0	7	780	1	112	0	46	0	159	1	0	358	38	0	397	0	0	0	0	0	0	0	0	0	0	0	0	1336
PHF	0.563	0.906	0.810	0.000	0.583	0.809	0.250	0.700	0.000	0.821	0.000	0.811	0.250	0.000	0.895	0.731	0.000	0.911	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.891

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						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	3	21	135	0	0	159	0	17	0	12	0	29	0	0	208	39	0	247	0	0	0	0	0	0	0	0	0	0	0	0	435
4:15 PM	2	14	98	0	1	114	0	25	0	11	0	36	1	0	231	34	0	266	0	0	0	0	0	0	0	0	0	0	0	0	416
4:30 PM	0	11	108	0	1	119	0	23	0	7	0	30	0	0	229	37	0	266	0	0	0	0	0	0	0	0	0	0	0	0	415
4:45 PM	2	14	83	0	0	99	0	21	0	8	0	29	0	0	227	46	0	273	0	0	0	0	0	0	0	0	0	0	0	0	401
Peak Hour Total	7	60	424	0	2	491	0	86	0	38	0	124	1	0	895	156	0	1052	0	0	0	0	0	0	0	0	0	0	0	0	1667
PHF	0.583	0.714	0.785	0.000	0.500	0.772	0.000	0.860	0.000	0.792	0.000	0.861	0.250	0.000	0.969	0.848	0.000	0.963	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.958

Total Vehicles On Leg				14221	
Vehicles Entering Intersection		6872	Vehicles Exiting Intersection		7349
Southbound					
Cars	0	6084	545	125	47
Heavy	0	101	17	0	36
Total	0	6185	562	125	83



Total Vehicles on Leg 0	Vehicles Entering Intersection	Eastbound	Cars	Heavy	Total	
	0		0	0		
	0		0	0		
	0		0	0		
	Vehicles Exiting Intersection		0	0	0	

Daily Volumes

Cars	Heavy	Total	Westbound	Vehicles Entering Intersection	Total Vehicles on Leg 3840
489	11	500		1915	
0	0	0			
1368	42	1410		Vehicles Exiting Intersection	
5	0	5		1925	
11	20	31			



Cars	5	19	0	6605	1326
Heavy	2	0	0	119	32
Total	7	19	0	6724	1358
Northbound					
Vehicles Entering Intersection			Vehicles Exiting Intersection		
8101			7614		
Total Vehicles On Leg			15715		

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2313

Study Date : 05/02/2023

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 51

Number of Lanes : 2+

Total Approach Volume: 8,101

Southbound: CSAH 51

Number of Lanes :2+

Total Approach Volume: 6,872

Minor Street Approaches

Westbound: 113th Ave

Number of Lanes :1

Total Approach Volume: 1,915

Warrant Summary (Rural Values Apply)

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

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

Required volumes reached for 9 hours, 8 are needed

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

Required volumes reached for 13 hours, 8 are needed

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

Required 1A volumes reached for 14 hours, 8 are needed

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

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

Number of hours (11) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (33) 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 2313

Study Date : 05/02/2023

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

9 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 EB	Minor Road		Met?
	Major NB	+	Major SB	=			Minor WB		
								CSAH 51	113th Ave
16:15 - 17:15	1069	+	449	=	1518	0	131		Yes
15:15 - 16:15	934	+	532	=	1466	0	134		Yes
17:15 - 18:15	833	+	450	=	1283	0	131		Yes
14:15 - 15:15	638	+	482	=	1120	0	107		Yes
06:45 - 07:45	358	+	741	=	1099	0	151		Yes
18:15 - 19:15	522	+	371	=	893	0	108		Yes
07:45 - 08:45	296	+	568	=	864	0	142		Yes
08:45 - 09:45	305	+	389	=	694	0	134		Yes
05:45 - 06:45	113	+	433	=	546	0	111		Yes
14:00 - 15:00	589	+	459	=	1048	0	101		No
13:45 - 14:45	511	+	456	=	967	0	83		No
13:30 - 14:30	455	+	383	=	838	0	77		No
13:15 - 14:15	437	+	362	=	799	0	78		No
13:00 - 14:00	416	+	346	=	762	0	85		No
12:45 - 13:45	419	+	326	=	745	0	88		No
12:30 - 13:30	402	+	321	=	723	0	88		No
12:15 - 13:15	403	+	309	=	712	0	87		No
12:00 - 13:00	390	+	306	=	696	0	78		No
19:15 - 20:15	398	+	279	=	677	0	93		No
19:30 - 20:30	406	+	260	=	666	0	91		No
11:45 - 12:45	348	+	309	=	657	0	81		No
19:45 - 20:45	399	+	257	=	656	0	95		No
20:15 - 21:15	393	+	246	=	639	0	81		No
11:30 - 12:30	350	+	284	=	634	0	86		No
20:00 - 21:00	377		247		624	0	96		No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2313

Study Date : 05/02/2023

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

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**

Volume Requirements

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

Time	Major Road				Total	Minor EB	Minor Road		Met?
	Major NB	+	Major SB	=			Minor WB		
	CSAH 51						113th Ave		
15:30 - 16:30	995	+	514	=	1509	0	152	Yes	
16:30 - 17:30	1037	+	459	=	1496	0	126	Yes	
14:30 - 15:30	710	+	502	=	1212	0	102	Yes	
17:30 - 18:30	749	+	429	=	1178	0	134	Yes	
07:00 - 08:00	397	+	780	=	1177	0	159	Yes	
13:30 - 14:30	455	+	383	=	838	0	77	Yes	
18:30 - 19:30	463	+	343	=	806	0	95	Yes	
08:00 - 09:00	258	+	493	=	751	0	119	Yes	
12:30 - 13:30	402	+	321	=	723	0	88	Yes	
19:30 - 20:30	406	+	260	=	666	0	91	Yes	
06:00 - 07:00	160	+	496	=	656	0	126	Yes	
09:00 - 10:00	299	+	352	=	651	0	135	Yes	
11:30 - 12:30	350	+	284	=	634	0	86	Yes	
20:30 - 21:30	360	+	231	=	591	0	74	No	
11:15 - 12:15	303	+	273	=	576	0	82	No	
11:00 - 12:00	301	+	269	=	570	0	73	No	
10:45 - 11:45	294	+	256	=	550	0	64	No	
05:45 - 06:45	113	+	433	=	546	0	111	No	
10:30 - 11:30	265	+	267	=	532	0	62	No	
10:15 - 11:15	250	+	267	=	517	0	69	No	
20:45 - 21:45	318	+	198	=	516	0	66	No	
10:00 - 11:00	231	+	272	=	503	0	78	No	
21:00 - 22:00	279	+	174	=	453	0	60	No	
05:30 - 06:30	87	+	351	=	438	0	100	No	
21:15 - 22:15	251		139		390	0	54	No	

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2313

Study Date : 05/02/2023

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

14 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 51

Minor Road 113th Ave

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
16:00 - 17:00	1052	+	491	=	1543	0	124	Yes
17:00 - 18:00	931	+	468	=	1399	0	132	Yes
15:00 - 16:00	847	+	485	=	1332	0	132	Yes
07:15 - 08:15	353	+	781	=	1134	0	159	Yes
14:00 - 15:00	589	+	459	=	1048	0	101	Yes
18:00 - 19:00	593	+	386	=	979	0	118	Yes
06:15 - 07:15	250	+	552	=	802	0	130	Yes
12:30 - 13:30	402	+	321	=	723	0	88	Yes
19:00 - 20:00	408	+	297	=	705	0	89	Yes
08:15 - 09:15	258	+	445	=	703	0	130	Yes
11:30 - 12:30	350	+	284	=	634	0	86	Yes
20:00 - 21:00	377	+	247	=	624	0	96	Yes

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
16:15 - 17:15	1069	+	449	=	1518	0	131	Yes
15:15 - 16:15	934	+	532	=	1466	0	134	Yes
17:15 - 18:15	833	+	450	=	1283	0	131	Yes
14:15 - 15:15	638	+	482	=	1120	0	107	Yes
06:45 - 07:45	358	+	741	=	1099	0	151	Yes
18:15 - 19:15	522	+	371	=	893	0	108	Yes
07:45 - 08:45	296	+	568	=	864	0	142	Yes
13:15 - 14:15	437	+	362	=	799	0	78	Yes
12:15 - 13:15	403	+	309	=	712	0	87	Yes
08:45 - 09:45	305	+	389	=	694	0	134	Yes
19:15 - 20:15	398	+	279	=	677	0	93	Yes
20:15 - 21:15	393	+	246	=	639	0	81	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2313

Study Date : 05/02/2023

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.

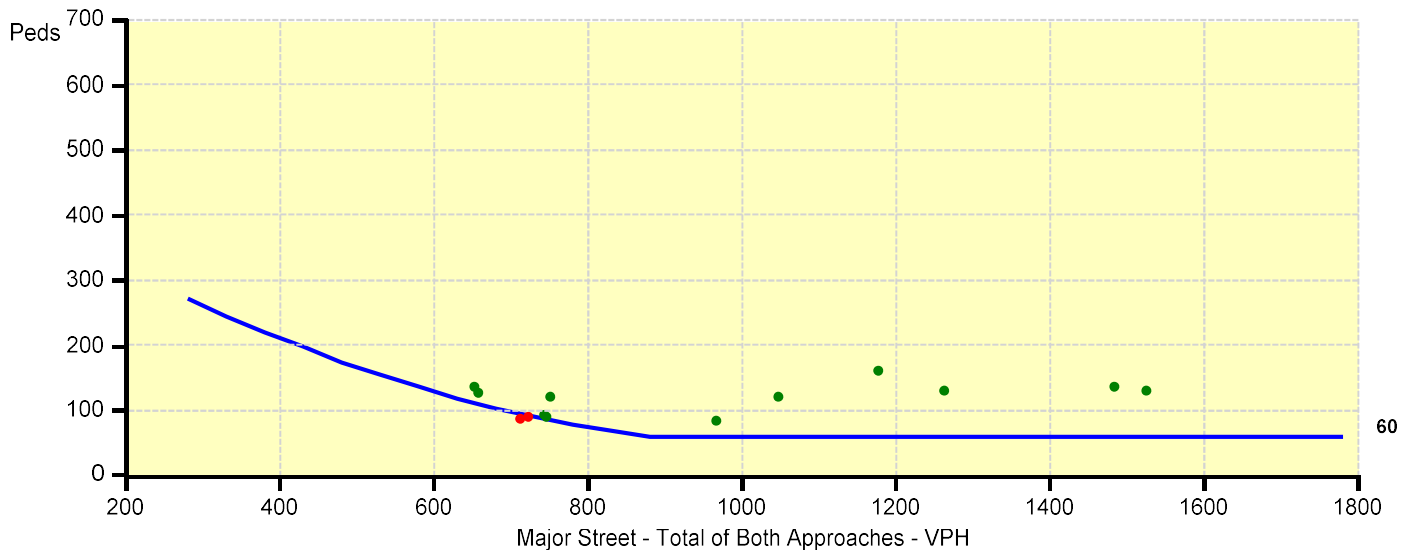
Summary

11 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 51				Total	Minor Road 113th Ave		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
15:45 - 16:45	1027	+	498	=	1525	0	131	Yes
16:45 - 17:45	1011	+	472	=	1483	0	135	Yes
14:45 - 15:45	787	+	476	=	1263	0	129	Yes
07:00 - 08:00	397	+	780	=	1177	0	159	Yes
17:45 - 18:45	660	+	387	=	1047	0	120	Yes
13:45 - 14:45	511	+	456	=	967	0	83	Yes
08:00 - 09:00	258	+	493	=	751	0	119	Yes
12:45 - 13:45	419	+	326	=	745	0	88	Yes
18:45 - 19:45	417	+	327	=	744	0	92	Yes
06:00 - 07:00	160	+	496	=	656	0	126	Yes
09:00 - 10:00	299	+	352	=	651	0	135	Yes
12:30 - 13:30	402		321		723	0	88	No



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2313

Study Date : 05/02/2023

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

22 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 51				Total	Minor Road 113th Ave		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:00 - 17:00	1052	+	491	=	1543	0	124	Yes
15:45 - 16:45	1027	+	498	=	1525	0	131	Yes
16:15 - 17:15	1069	+	449	=	1518	0	131	Yes
15:30 - 16:30	995	+	514	=	1509	0	152	Yes
16:30 - 17:30	1037	+	459	=	1496	0	126	Yes
16:45 - 17:45	1011	+	472	=	1483	0	135	Yes
15:15 - 16:15	934	+	532	=	1466	0	134	Yes
17:00 - 18:00	931	+	468	=	1399	0	132	Yes
15:00 - 16:00	847	+	485	=	1332	0	132	Yes
17:15 - 18:15	833	+	450	=	1283	0	131	Yes
14:45 - 15:45	787	+	476	=	1263	0	129	Yes
14:30 - 15:30	710		502		1212	0	102	Yes

