

Date : 04/13/23

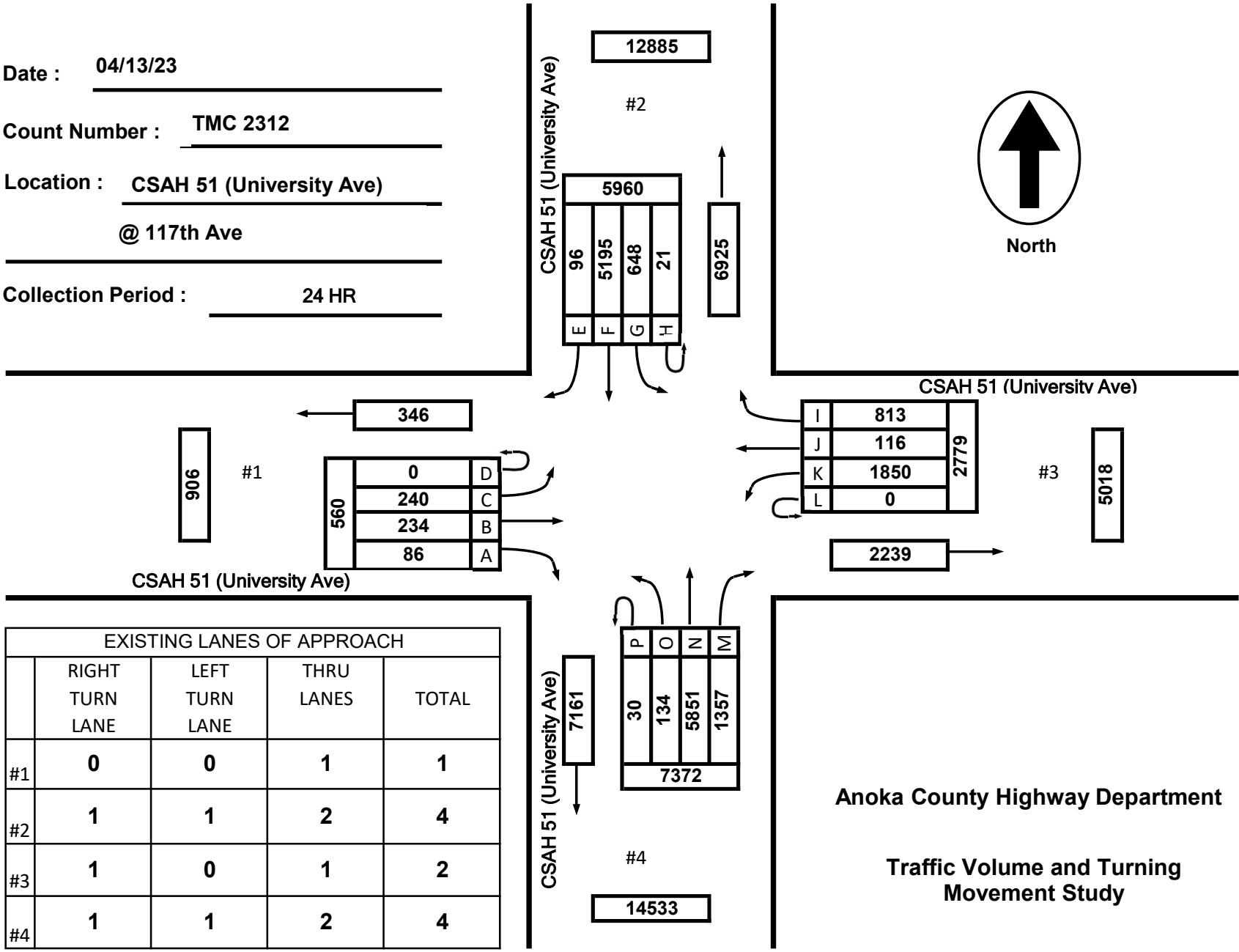
Count Number : TMC 2312

Location : CSAH 51 (University Ave)
@ 117th Ave

Collection Period : 24 HR



North



CSAH 51 (University Ave)

CSAH 51 (University Ave)

CSAH 51 (University Ave)

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

Anoka County Highway Department

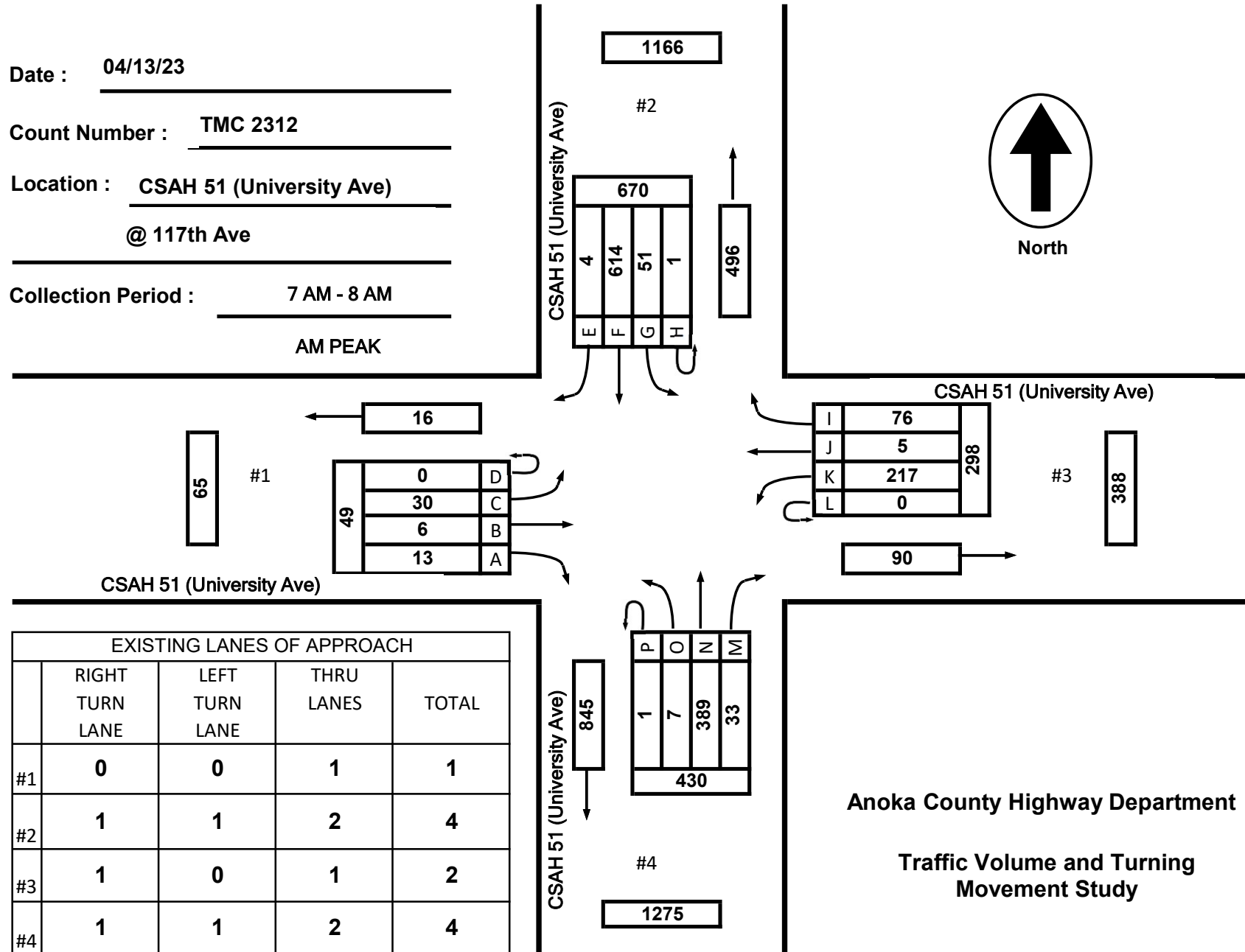
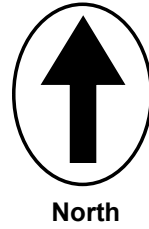
Traffic Volume and Turning Movement Study

Date : 04/13/23

Count Number : TMC 2312

Location : CSAH 51 (University Ave)
@ 117th Ave

Collection Period : 7 AM - 8 AM
AM PEAK



CSAH 51 (University Ave)

CSAH 51 (University Ave)

CSAH 51 (University Ave)

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

Anoka County Highway Department

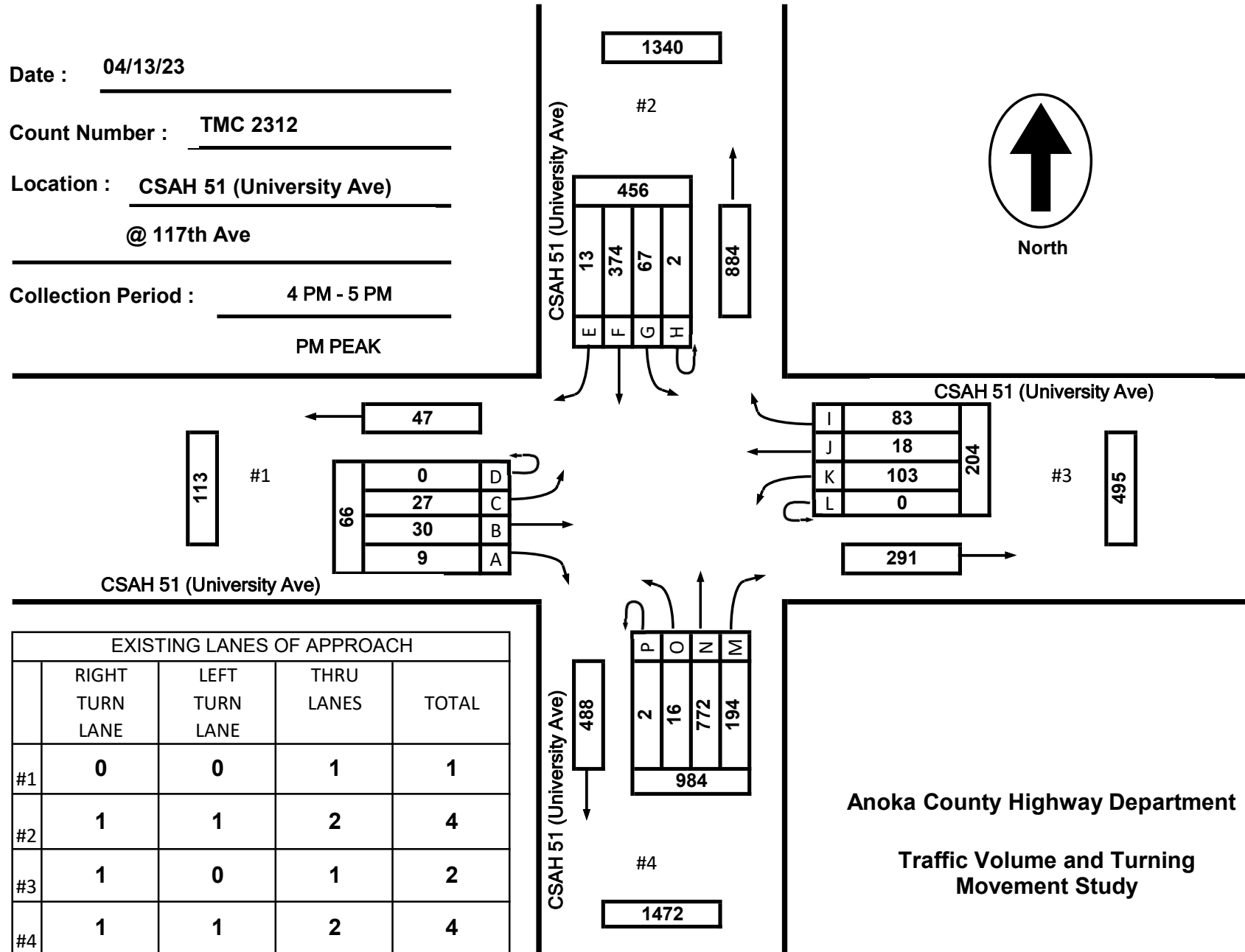
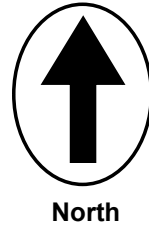
Traffic Volume and Turning Movement Study

Date : 04/13/23

Count Number : TMC 2312

Location : CSAH 51 (University Ave)
@ 117th 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	1	1
#2	1	1	2	4
#3	1	0	1	2
#4	1	1	2	4

Anoka County Highway Department
Traffic Volume and Turning Movement Study

TMC 2312 - CSAH 51 @ 117th Ave

0 0

Thursday, April 13, 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	1	4	0	0	5	0	0	0	2	0	2	0	0	9	5	0	14	0	0	0	0	0	0	21
12:15 AM	0	0	2	0	0	2	0	0	0	2	0	2	1	0	10	6	0	17	0	0	0	0	0	0	21
12:30 AM	0	0	8	0	0	8	0	1	0	2	0	3	0	0	12	2	0	14	0	0	0	0	0	0	25
12:45 AM	0	1	5	0	0	6	0	1	0	0	0	1	0	0	5	1	0	6	0	0	0	0	0	0	13
Hourly Total	0	2	19	0	0	21	0	2	0	6	0	8	1	0	36	14	0	51	0	0	0	0	0	0	80
1:00 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	7	3	0	10	0	0	0	0	0	0	14
1:15 AM	0	0	1	0	0	1	0	0	0	1	0	1	0	1	5	1	0	7	0	0	0	0	0	0	9
1:30 AM	0	0	2	0	0	2	0	0	0	1	0	1	0	0	10	1	0	11	0	0	0	0	0	0	14
1:45 AM	0	1	3	0	0	4	0	0	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	9
Hourly Total	0	1	10	0	0	11	0	0	0	2	0	2	0	1	26	6	0	33	0	0	0	0	0	0	46
2:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	3	0	5	0	0	0	0	0	0	6
2:15 AM	0	1	4	0	0	5	0	0	0	1	0	1	0	0	6	0	0	6	0	0	0	0	0	0	12
2:30 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	3	1	0	4	0	0	0	0	0	0	6
2:45 AM	0	0	2	0	0	2	0	2	0	0	0	2	1	0	4	0	0	5	0	0	0	0	0	0	9
Hourly Total	0	1	7	0	0	8	0	4	0	1	0	5	1	0	15	4	0	20	0	0	0	0	0	0	33
3:00 AM	0	0	2	0	0	2	0	1	0	0	0	1	0	0	3	2	0	5	0	0	0	0	0	0	8
3:15 AM	0	0	7	0	0	7	0	3	0	1	0	4	0	1	2	0	0	3	0	0	0	0	0	0	14
3:30 AM	0	0	6	0	0	6	0	2	1	0	0	3	0	0	4	2	0	6	0	0	0	0	0	0	15
3:45 AM	0	0	3	0	0	3	0	2	0	0	0	2	0	1	9	1	0	11	0	0	0	0	0	0	16
Hourly Total	0	0	18	0	0	18	0	8	1	1	0	10	0	2	18	5	0	25	0	0	0	0	0	0	53
4:00 AM	0	0	11	0	0	11	0	13	0	1	0	14	0	0	2	2	0	4	0	0	0	0	0	0	29
4:15 AM	0	1	16	0	0	17	0	7	0	0	0	7	0	0	4	0	0	4	0	0	0	0	0	0	28
4:30 AM	0	0	21	0	0	21	0	8	0	2	0	10	0	0	7	0	0	7	0	0	0	0	0	0	38
4:45 AM	0	0	18	0	0	18	0	11	0	4	0	15	0	0	2	4	0	6	0	0	0	1	0	1	40
Hourly Total	0	1	66	0	0	67	0	39	0	7	0	46	0	0	15	6	0	21	0	0	0	1	0	1	135
5:00 AM	0	1	24	0	0	25	0	10	1	1	0	12	0	0	5	2	0	7	0	0	0	0	0	0	44
5:15 AM	0	0	39	0	0	39	0	23	0	1	0	24	0	1	9	5	1	15	0	1	1	0	0	2	80
5:30 AM	0	0	34	0	0	34	0	25	1	4	0	30	0	0	15	1	0	16	0	0	0	0	0	0	80
5:45 AM	0	1	37	0	0	38	0	28	0	4	0	32	0	0	16	3	0	19	0	0	0	0	0	0	89
Hourly Total	0	2	134	0	0	136	0	86	2	10	0	98	0	1	45	11	1	57	0	1	1	0	0	2	293
6:00 AM	0	1	49	0	0	50	0	32	0	6	0	38	0	0	20	3	0	23	0	0	0	0	0	0	111
6:15 AM	0	2	80	0	0	82	0	33	0	7	0	40	0	0	22	5	0	27	0	0	0	1	0	1	150
6:30 AM	0	5	92	1	0	98	0	52	0	16	1	68	0	0	37	6	0	43	0	1	2	4	0	7	216
6:45 AM	0	3	86	1	0	90	0	51	0	13	0	64	0	0	57	4	0	61	0	2	3	1	0	6	221
Hourly Total	0	11	307	2	0	320	0	168	0	42	1	210	0	0	136	18	0	154	0	3	5	6	0	14	698
7:00 AM	0	4	110	1	0	115	0	53	2	22	1	77	0	0	96	5	0	101	0	5	0	1	0	6	299
7:15 AM	1	14	168	0	0	183	0	53	2	25	1	80	0	3	132	8	0	143	0	15	0	3	0	18	424
7:30 AM	0	17	194	2	0	213	0	58	0	20	0	78	0	0	98	7	0	105	0	5	4	4	0	13	409
7:45 AM	0	16	142	1	0	159	0	53	1	9	0	63	1	4	63	13	2	81	0	5	2	5	1	12	315
Hourly Total	1	51	614	4	0	670	0	217	5	76	2	298	1	7	389	33	2	430	0	30	6	13	1	49	1447

TMC 2312 - CSAH 51 @ 117th Ave

0 0

Thursday, April 13, 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	0	5	128	2	0	135	0	38	4	6	0	48	0	1	62	13	5	76	0	18	14	0	0	32	291
8:15 AM	0	8	96	0	0	104	0	38	1	11	1	50	0	1	50	13	2	64	0	11	11	0	2	22	240
8:30 AM	0	8	83	1	0	92	0	31	0	8	0	39	0	0	38	10	0	48	0	3	9	0	0	12	191
8:45 AM	0	5	67	0	0	72	0	31	0	14	1	45	0	0	57	10	0	67	0	3	1	0	0	4	188
Hourly Total	0	26	374	3	0	403	0	138	5	39	2	182	0	2	207	46	7	255	0	35	35	0	2	70	910
9:00 AM	1	6	84	1	1	92	0	22	0	6	1	28	0	0	56	12	0	68	0	4	2	3	0	9	197
9:15 AM	0	4	80	1	1	85	0	27	1	8	0	36	1	2	54	16	0	73	0	6	6	1	3	13	207
9:30 AM	0	6	56	1	0	63	0	16	0	8	0	24	0	1	51	10	0	62	0	1	2	1	0	4	153
9:45 AM	1	8	70	0	0	79	0	17	2	12	0	31	0	1	44	20	0	65	0	2	1	0	0	3	178
Hourly Total	2	24	290	3	2	319	0	82	3	34	1	119	1	4	205	58	0	268	0	13	11	5	3	29	735
10:00 AM	1	5	63	0	0	69	0	14	2	9	0	25	0	0	54	13	0	67	0	3	1	1	0	5	166
10:15 AM	0	10	44	1	0	55	0	18	0	9	0	27	1	0	52	12	1	65	0	1	1	1	0	3	150
10:30 AM	0	3	54	1	0	58	0	21	3	7	1	31	0	0	27	11	1	38	0	1	0	1	0	2	129
10:45 AM	0	5	47	1	0	53	0	26	2	8	0	36	0	3	45	14	0	62	0	2	1	1	0	4	155
Hourly Total	1	23	208	3	0	235	0	79	7	33	1	119	1	3	178	50	2	232	0	7	3	4	0	14	600
11:00 AM	1	13	47	0	0	61	0	17	1	12	0	30	1	0	49	2	0	52	0	1	0	1	0	2	145
11:15 AM	0	5	66	0	1	71	0	28	0	10	2	38	2	2	49	14	0	67	0	2	0	1	2	3	179
11:30 AM	0	7	57	1	0	65	0	21	3	10	0	34	1	2	61	9	0	73	0	3	3	1	0	7	179
11:45 AM	1	17	66	3	0	87	0	22	2	5	0	29	1	1	46	18	0	66	0	0	1	0	0	1	183
Hourly Total	2	42	236	4	1	284	0	88	6	37	2	131	5	5	205	43	0	258	0	6	4	3	2	13	686
12:00 PM	0	6	56	2	0	64	0	18	1	9	1	28	0	2	66	17	0	85	0	3	5	1	0	9	186
12:15 PM	0	7	64	2	0	73	0	19	1	11	0	31	0	3	75	12	2	90	0	3	3	1	0	7	201
12:30 PM	0	8	54	1	0	63	0	17	2	12	1	31	0	0	80	15	0	95	0	1	5	1	1	7	196
12:45 PM	1	3	58	3	0	65	0	18	0	11	0	29	0	3	67	15	0	85	0	1	3	1	0	5	184
Hourly Total	1	24	232	8	0	265	0	72	4	43	2	119	0	8	288	59	2	355	0	8	16	4	1	28	767
1:00 PM	0	8	73	0	0	81	0	40	2	19	1	61	0	2	76	13	0	91	0	0	1	2	0	3	236
1:15 PM	2	8	60	1	0	71	0	20	3	8	0	31	0	3	56	12	1	71	0	0	3	1	0	4	177
1:30 PM	0	13	63	2	0	78	0	25	2	13	0	40	0	0	87	19	0	106	0	2	1	1	2	4	228
1:45 PM	0	11	69	0	0	80	0	25	3	11	0	39	0	2	68	22	0	92	0	1	2	0	0	3	214
Hourly Total	2	40	265	3	0	310	0	110	10	51	1	171	0	7	287	66	1	360	0	3	7	4	2	14	855
2:00 PM	0	9	69	1	0	79	0	26	1	11	1	38	0	1	80	27	0	108	0	2	4	0	0	6	231
2:15 PM	2	21	111	5	1	139	0	25	2	12	1	39	2	2	102	23	0	129	0	4	3	1	0	8	315
2:30 PM	1	22	141	3	0	167	0	29	2	12	1	43	3	1	112	28	0	144	0	1	3	2	0	6	360
2:45 PM	0	11	95	4	0	110	0	35	1	7	1	43	1	2	130	44	0	177	0	4	3	0	0	7	337
Hourly Total	3	63	416	13	1	495	0	115	6	42	4	163	6	6	424	122	0	558	0	11	13	3	0	27	1243
3:00 PM	1	12	89	1	1	103	0	27	0	16	0	43	1	1	101	21	3	124	0	19	13	0	3	32	302
3:15 PM	1	18	80	2	0	101	0	27	2	12	0	41	1	2	180	52	0	235	0	19	17	0	1	36	413
3:30 PM	1	15	119	2	0	137	0	35	1	19	0	55	1	3	188	37	0	229	0	2	4	2	0	8	429
3:45 PM	2	15	89	2	0	108	0	37	1	19	1	57	0	6	177	39	0	222	0	3	7	2	0	12	399
Hourly Total	5	60	377	7	1	449	0	126	4	66	1	196	3	12	646	149	3	810	0	43	41	4	4	88	1543

TMC 2312 - CSAH 51 @ 117th Ave

0 0

Thursday, April 13, 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	
4:00 PM	0	15	83	6	0	104	0	25	4	16	0	45	1	3	185	54	0	243	0	13	7	2	0	22	414
4:15 PM	0	12	97	6	0	115	0	20	2	28	0	50	1	2	197	48	0	248	0	2	7	3	1	12	425
4:30 PM	1	23	103	1	0	128	0	24	6	17	0	47	0	7	191	46	0	244	0	4	12	3	0	19	438
4:45 PM	1	17	91	0	0	109	0	34	6	22	0	62	0	4	199	46	0	249	0	8	4	1	0	13	433
Hourly Total	2	67	374	13	0	456	0	103	18	83	0	204	2	16	772	194	0	984	0	27	30	9	1	66	1710
5:00 PM	0	7	86	0	0	93	0	23	5	17	1	45	0	0	187	56	0	243	0	4	4	0	6	8	389
5:15 PM	0	13	85	2	1	100	0	38	5	17	1	60	0	2	156	41	2	199	0	4	3	1	1	8	367
5:30 PM	0	15	87	2	0	104	0	31	5	25	1	61	1	2	151	37	0	191	0	2	6	2	1	10	366
5:45 PM	0	9	93	0	0	102	0	24	3	15	0	42	0	5	148	24	1	177	0	6	5	1	1	12	333
Hourly Total	0	44	351	4	1	399	0	116	18	74	3	208	1	9	642	158	3	810	0	16	18	4	9	38	1455
6:00 PM	1	15	86	2	0	104	0	26	2	17	0	45	0	7	107	25	0	139	0	2	3	1	2	6	294
6:15 PM	0	9	79	0	0	88	0	25	4	13	2	42	2	2	104	31	1	139	0	6	0	1	0	7	276
6:30 PM	0	13	63	1	0	77	0	30	1	12	1	43	0	6	86	22	1	114	0	0	2	2	1	4	238
6:45 PM	0	14	33	3	0	50	0	25	4	10	0	39	0	2	85	24	0	111	0	2	6	3	0	11	211
Hourly Total	1	51	261	6	0	319	0	106	11	52	3	169	2	17	382	102	2	503	0	10	11	7	3	28	1019
7:00 PM	0	10	56	0	0	66	0	25	4	17	1	46	2	2	69	19	0	92	0	0	4	3	1	7	211
7:15 PM	0	6	56	4	0	66	0	14	1	8	0	23	1	2	80	18	0	101	0	3	4	0	0	7	197
7:30 PM	0	5	48	0	0	53	0	13	3	13	0	29	0	3	79	17	2	99	0	3	7	1	0	11	192
7:45 PM	1	12	40	1	0	54	0	14	1	7	0	22	0	0	73	16	0	89	0	0	3	2	0	5	170
Hourly Total	1	33	200	5	0	239	0	66	9	45	1	120	3	7	301	70	2	381	0	6	18	6	1	30	770
8:00 PM	0	7	51	1	0	59	0	22	1	11	0	34	1	6	56	16	0	79	0	4	2	0	0	6	178
8:15 PM	0	9	44	4	0	57	0	17	1	4	0	22	0	5	78	17	0	100	0	2	2	2	0	6	185
8:30 PM	0	12	51	0	0	63	0	18	3	7	0	28	0	0	57	18	0	75	0	2	1	3	0	6	172
8:45 PM	0	10	44	3	0	57	0	11	0	6	0	17	1	4	48	11	0	64	0	2	1	0	0	3	141
Hourly Total	0	38	190	8	0	236	0	68	5	28	0	101	2	15	239	62	0	318	0	10	6	5	0	21	676
9:00 PM	0	11	39	2	0	52	0	7	0	7	0	14	0	2	49	9	0	60	0	2	3	3	1	8	134
9:15 PM	0	9	39	0	0	48	0	5	0	7	0	12	0	2	50	11	0	63	0	0	3	0	0	3	126
9:30 PM	0	9	30	1	0	40	0	6	1	7	0	14	0	1	46	10	0	57	0	0	0	1	3	1	112
9:45 PM	0	5	28	2	0	35	0	7	0	7	0	14	0	1	36	12	0	49	0	1	1	2	0	4	102
Hourly Total	0	34	136	5	0	175	0	25	1	28	0	54	0	6	181	42	0	229	0	3	7	6	4	16	474
10:00 PM	0	0	15	0	0	15	0	10	0	2	0	12	0	0	48	9	0	57	0	2	0	0	0	2	86
10:15 PM	0	1	21	4	0	26	0	3	0	2	0	5	0	0	33	5	0	38	0	1	1	0	0	2	71
10:30 PM	0	3	19	0	0	22	0	3	1	2	0	6	0	2	21	7	0	30	0	1	1	0	0	2	60
10:45 PM	0	3	12	0	0	15	0	4	0	4	0	8	0	0	20	5	0	25	0	1	0	0	0	1	49
Hourly Total	0	7	67	4	0	78	0	20	1	10	0	31	0	2	122	26	0	150	0	5	2	0	0	7	266
11:00 PM	0	0	11	0	0	11	0	3	0	0	0	3	0	1	25	4	0	30	0	0	0	0	0	0	44
11:15 PM	0	3	19	1	0	23	0	7	0	1	0	8	0	1	24	5	0	30	0	1	0	0	0	1	62
11:30 PM	0	0	6	0	0	6	0	0	0	2	0	2	0	1	20	4	0	25	0	2	0	2	0	4	37
11:45 PM	0	0	7	0	0	7	0	2	0	0	0	2	1	1	23	0	0	25	0	0	0	0	0	0	34
Hourly Total	0	3	43	1	0	47	0	12	0	3	0	15	1	4	92	13	0	110	0	3	0	2	0	5	177
DAILY TOTAL	21	648	5195	96	6	5960	0	1850	116	813	24	2779	30	134	5851	1357	25	7372	0	240	234	86	33	560	16671
Cars	21	633	5082	90	1	5826	0	1839	112	802	14	2753	30	133	5742	1344	4	7249	0	224	228	85	16	537	16365
Heavy Vehicles	0	15	113	6	5	134	0	11	4	11	10	26	0	1	109	13	21	123	0	16	6	1	17	23	306
Heavy Vehicle %	0.00%	2.31%	2.18%	6.25%	83.33%	2.25%	0.00%	0.59%	3.45%	1.35%	41.67%	0.94%	0.00%	0.75%	1.86%	0.96%	84.00%	1.67%	0.00%	6.67%	2.56%	1.16%	51.52%	4.11%	1.84%

TMC 2312 - CSAH 51 @ 117th Ave

0 0

Thursday, April 13, 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	0	4	110	1	0	115	0	53	2	22	1	77	0	0	96	5	0	101	0	5	0	1	0	6	299
7:15 AM	1	14	168	0	0	183	0	53	2	25	1	80	0	3	132	8	0	143	0	15	0	3	0	18	424
7:30 AM	0	17	194	2	0	213	0	58	0	20	0	78	0	0	98	7	0	105	0	5	4	4	0	13	409
7:45 AM	0	16	142	1	0	159	0	53	1	9	0	63	1	4	63	13	2	81	0	5	2	5	1	12	315
Peak Hour Total	1	51	614	4	0	670	0	217	5	76	2	298	1	7	389	33	2	430	0	30	6	13	1	49	1447
PHF	0.250	0.750	0.791	0.500	0.000	0.786	0.000	0.935	0.625	0.760	0.500	0.931	0.250	0.438	0.737	0.635	0.250	0.752	0.000	0.500	0.375	0.650	0.250	0.681	0.853

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	0	15	83	6	0	104	0	25	4	16	0	45	1	3	185	54	0	243	0	13	7	2	0	22	414
4:15 PM	0	12	97	6	0	115	0	20	2	28	0	50	1	2	197	48	0	248	0	2	7	3	1	12	425
4:30 PM	1	23	103	1	0	128	0	24	6	17	0	47	0	7	191	46	0	244	0	4	12	3	0	19	438
4:45 PM	1	17	91	0	0	109	0	34	6	22	0	62	0	4	199	46	0	249	0	8	4	1	0	13	433
Peak Hour Total	2	67	374	13	0	456	0	103	18	83	0	204	2	16	772	194	0	984	0	27	30	9	1	66	1710
PHF	0.500	0.728	0.908	0.542	0.000	0.891	0.000	0.757	0.750	0.741	0.000	0.823	0.500	0.571	0.970	0.898	0.000	0.988	0.000	0.519	0.625	0.750	0.250	0.750	0.976

Total Vehicles On Leg				12885	
Vehicles Entering Intersection		5960	Vehicles Exiting Intersection		6925
Southbound					
Cars	90	5082	633	21	1
Heavy	6	113	15	0	5
Total	96	5195	648	21	6

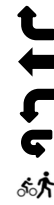


Total Vehicles on Leg 906	Vehicles Entering Intersection 560	Eastbound	Cars	Heavy	Total
			16	17	33
	0		0	0	
	224		16	240	
	228		6	234	
Vehicles Exiting Intersection 346			85	1	86



Daily Volumes

Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 2779	Total Vehicles on Leg 5018
802	11	813			
112	4	116			
1839	11	1850			
0	0	0			
14	10	24	Vehicles Exiting Intersection 2239		



Cars	4	30	133	5742	1344
Heavy	21	0	1	109	13
Total	25	30	134	5851	1357
Northbound					
Vehicles Entering Intersection			Vehicles Exiting Intersection		
7372			7161		
Total Vehicles On Leg			14533		



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2312

Study Date : 05/02/2023

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 51

Number of Lanes : 2+

Total Approach Volume: 7,372

Southbound: CSAH 51

Number of Lanes :2+

Total Approach Volume: 5,960

Minor Street Approaches

Eastbound: 117th Ave

Number of Lanes :1

Total Approach Volume: 560

Westbound: 117th Ave

Number of Lanes :1

Total Approach Volume: 2,779

Warrant Summary (Rural Values Apply)

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

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

Required volumes reached for 14 hours, 8 are needed

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

Required volumes reached for 9 hours, 8 are needed

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

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

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

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

Number of hours (10) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (35) 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 2312

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

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 = **420**
 Veh/Hr Minor = **105**

Time	Major Road				Total	Minor Road		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:00 - 17:00	984	+	456	=	1440	66	204	Yes
15:00 - 16:00	810	+	449	=	1259	88	196	Yes
17:00 - 18:00	810	+	399	=	1209	38	208	Yes
07:00 - 08:00	430	+	670	=	1100	49	298	Yes
14:00 - 15:00	558	+	495	=	1053	27	163	Yes
18:00 - 19:00	503	+	319	=	822	28	169	Yes
13:00 - 14:00	360	+	310	=	670	14	171	Yes
08:00 - 09:00	255	+	403	=	658	70	182	Yes
19:00 - 20:00	381	+	239	=	620	30	120	Yes
12:00 - 13:00	355	+	265	=	620	28	119	Yes
09:00 - 10:00	268	+	319	=	587	29	119	Yes
11:00 - 12:00	258	+	284	=	542	13	131	Yes
06:00 - 07:00	154	+	320	=	474	14	210	Yes
10:00 - 11:00	232	+	235	=	467	14	119	Yes
20:00 - 21:00	318	+	236	=	554	21	101	No
20:15 - 21:15	299	+	229	=	528	23	81	No
20:30 - 21:30	262	+	220	=	482	20	71	No
20:45 - 21:45	244	+	197	=	441	15	57	No
21:00 - 22:00	229	+	175	=	404	16	54	No
05:45 - 06:45	112	+	268	=	380	8	178	No
21:15 - 22:15	226	+	138	=	364	10	52	No
21:30 - 22:30	201	+	116	=	317	9	45	No
05:30 - 06:30	85	+	204	=	289	1	140	No
21:45 - 22:45	174	+	98	=	272	10	37	No
05:15 - 06:15	73		161		234	2	124	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2312

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

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 = **630**
 Veh/Hr Minor = **53**

Time	Major Road				Total	Minor Road		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:15 - 17:15	984	+	445	=	1429	52	204	Yes
15:15 - 16:15	929	+	450	=	1379	78	198	Yes
17:15 - 18:15	706	+	410	=	1116	36	208	Yes
14:15 - 15:15	574	+	519	=	1093	53	168	Yes
07:30 - 08:30	326	+	611	=	937	79	239	Yes
06:30 - 07:30	348	+	486	=	834	37	289	Yes
18:15 - 19:15	456	+	281	=	737	29	170	Yes
13:15 - 14:15	377	+	308	=	685	17	148	Yes
12:15 - 13:15	361	+	282	=	643	22	152	Yes
11:45 - 12:45	336	+	287	=	623	24	119	No
12:00 - 13:00	355	+	265	=	620	28	119	No
06:15 - 07:15	232	+	385	=	617	20	249	No
11:30 - 12:30	314	+	289	=	603	24	122	No
19:15 - 20:15	368	+	232	=	600	29	108	No
08:30 - 09:30	256	+	341	=	597	38	148	No
19:30 - 20:30	367	+	223	=	590	28	107	No
09:00 - 10:00	268	+	319	=	587	29	119	No
08:45 - 09:45	270	+	312	=	582	30	133	No
11:15 - 12:15	291	+	287	=	578	20	129	No
19:45 - 20:45	343	+	233	=	576	23	106	No
09:15 - 10:15	267	+	296	=	563	25	116	No
20:00 - 21:00	318	+	236	=	554	21	101	No
11:00 - 12:00	258	+	284	=	542	13	131	No
20:15 - 21:15	299	+	229	=	528	23	81	No
09:30 - 10:30	259		266		525	15	107	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2312

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

15 hours meet 1A minimums.
14 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 117th Ave

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
15:45 - 16:45	957	+	455	=	1412	65	199	Yes
16:45 - 17:45	882	+	406	=	1288	39	228	Yes
14:45 - 15:45	765	+	451	=	1216	83	182	Yes
06:45 - 07:45	410	+	601	=	1011	43	299	Yes
17:45 - 18:45	569	+	371	=	940	29	172	Yes
13:45 - 14:45	473	+	465	=	938	23	159	Yes
07:45 - 08:45	269	+	490	=	759	78	200	Yes
12:45 - 13:45	353	+	295	=	648	16	161	Yes
18:45 - 19:45	403	+	235	=	638	36	137	Yes
11:45 - 12:45	336	+	287	=	623	24	119	Yes
08:45 - 09:45	270	+	312	=	582	30	133	Yes
19:45 - 20:45	343		233		576	23	106	Yes

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
15:45 - 16:45	957	+	455	=	1412	65	199	Yes
16:45 - 17:45	882	+	406	=	1288	39	228	Yes
14:45 - 15:45	765	+	451	=	1216	83	182	Yes
07:15 - 08:15	405	+	690	=	1095	75	269	Yes
17:45 - 18:45	569	+	371	=	940	29	172	Yes
13:45 - 14:45	473	+	465	=	938	23	159	Yes
12:45 - 13:45	353	+	295	=	648	16	161	Yes
18:45 - 19:45	403	+	235	=	638	36	137	Yes
11:45 - 12:45	336	+	287	=	623	24	119	Yes
06:15 - 07:15	232	+	385	=	617	20	249	Yes
08:15 - 09:15	247	+	360	=	607	47	162	Yes
19:45 - 20:45	343		233		576	23	106	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2312

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.

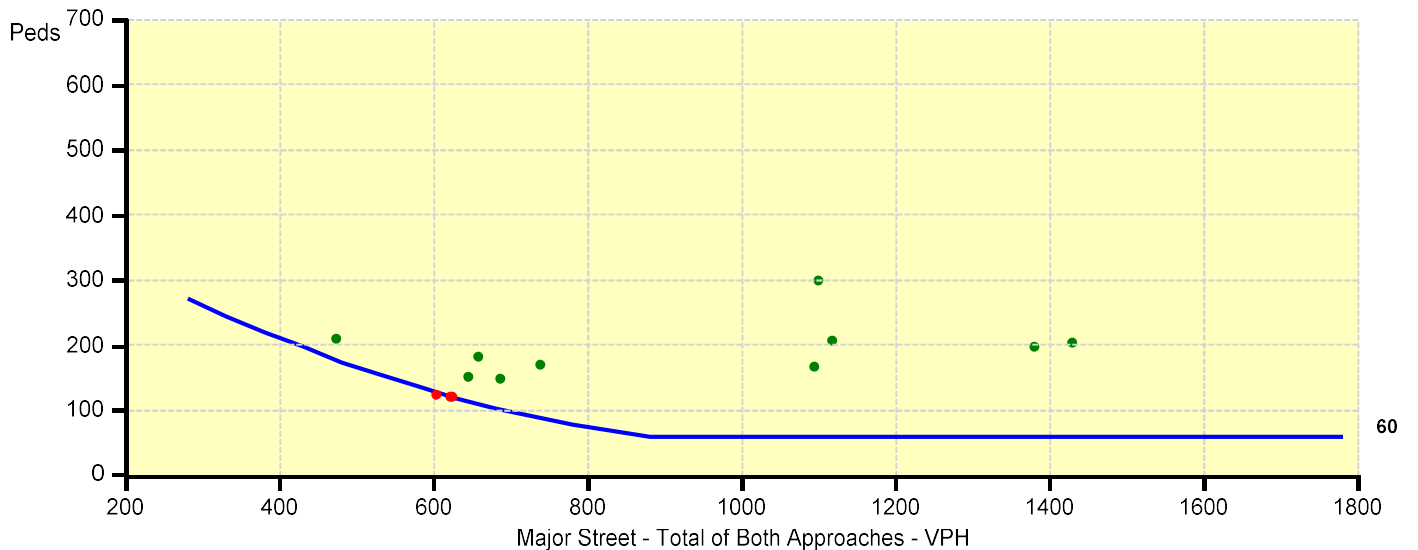
Summary

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**

Time	Major Road CSAH 51				Total	Minor Road 117th Ave		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:15 - 17:15	984	+	445	=	1429	52	204	Yes
15:15 - 16:15	929	+	450	=	1379	78	198	Yes
17:15 - 18:15	706	+	410	=	1116	36	208	Yes
07:00 - 08:00	430	+	670	=	1100	49	298	Yes
14:15 - 15:15	574	+	519	=	1093	53	168	Yes
18:15 - 19:15	456	+	281	=	737	29	170	Yes
13:15 - 14:15	377	+	308	=	685	17	148	Yes
08:00 - 09:00	255	+	403	=	658	70	182	Yes
12:15 - 13:15	361	+	282	=	643	22	152	Yes
06:00 - 07:00	154	+	320	=	474	14	210	Yes
11:45 - 12:45	336	+	287	=	623	24	119	No
12:00 - 13:00	355	+	265	=	620	28	119	No



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2312

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

25 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 117th Ave		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:00 - 17:00	984	+	456	=	1440	66	204	Yes
16:15 - 17:15	984	+	445	=	1429	52	204	Yes
15:45 - 16:45	957	+	455	=	1412	65	199	Yes
15:30 - 16:30	942	+	464	=	1406	54	207	Yes
15:15 - 16:15	929	+	450	=	1379	78	198	Yes
16:30 - 17:30	935	+	430	=	1365	48	214	Yes
16:45 - 17:45	882	+	406	=	1288	39	228	Yes
15:00 - 16:00	810	+	449	=	1259	88	196	Yes
14:45 - 15:45	765	+	451	=	1216	83	182	Yes
17:00 - 18:00	810	+	399	=	1209	38	208	Yes
14:30 - 15:30	680	+	481	=	1161	81	170	Yes
17:15 - 18:15	706	+	410	=	1116	36	208	Yes

