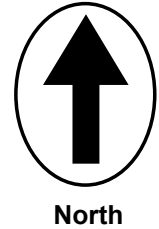


Date : 12/07/23

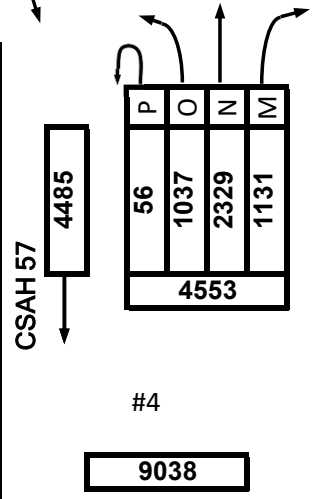
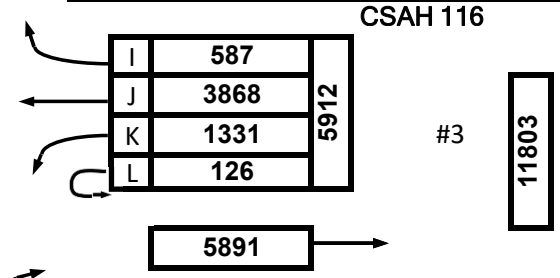
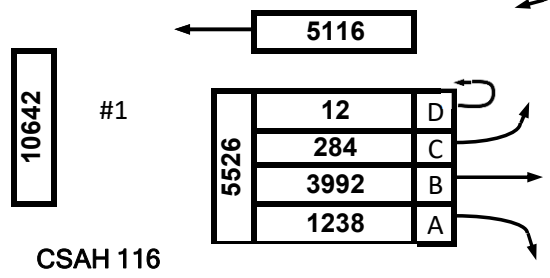
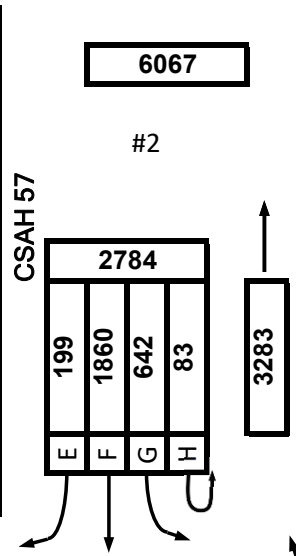
Count Number : TMC 23104

Location : CSAH 116  
@ CSAH 57

Collection Period : 24 HR



North



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

Anoka County Highway Department  
 Traffic Volume and Turning Movement Study

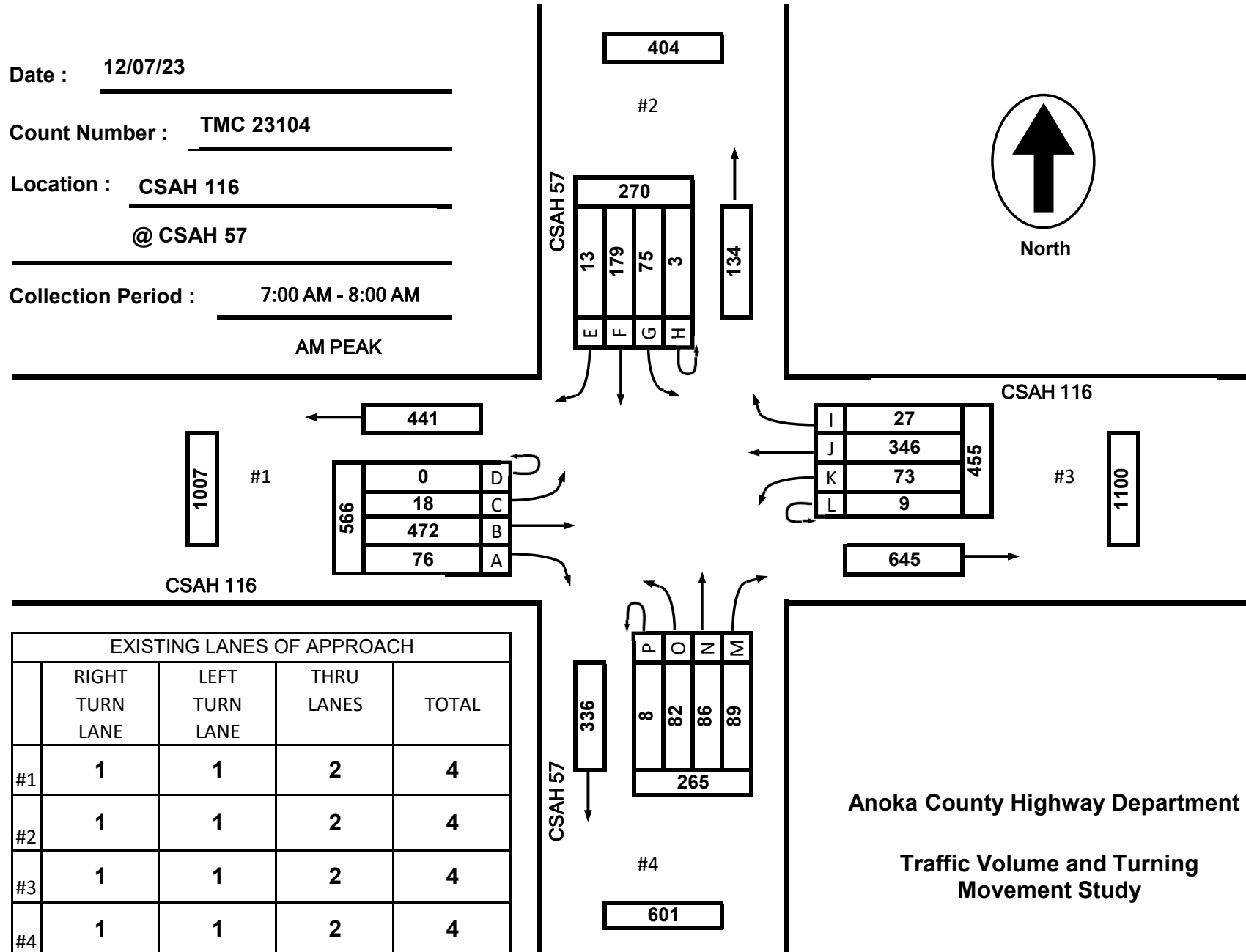
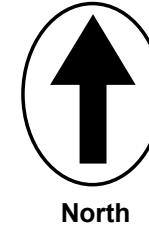
Date : 12/07/23

Count Number : TMC 23104

Location : CSAH 116  
@ CSAH 57

Collection Period : 7:00 AM - 8:00 AM

AM PEAK



Anoka County Highway Department

Traffic Volume and Turning Movement Study

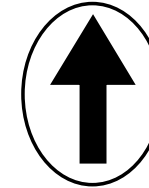
Date : 12/07/23

Count Number : TMC 23104

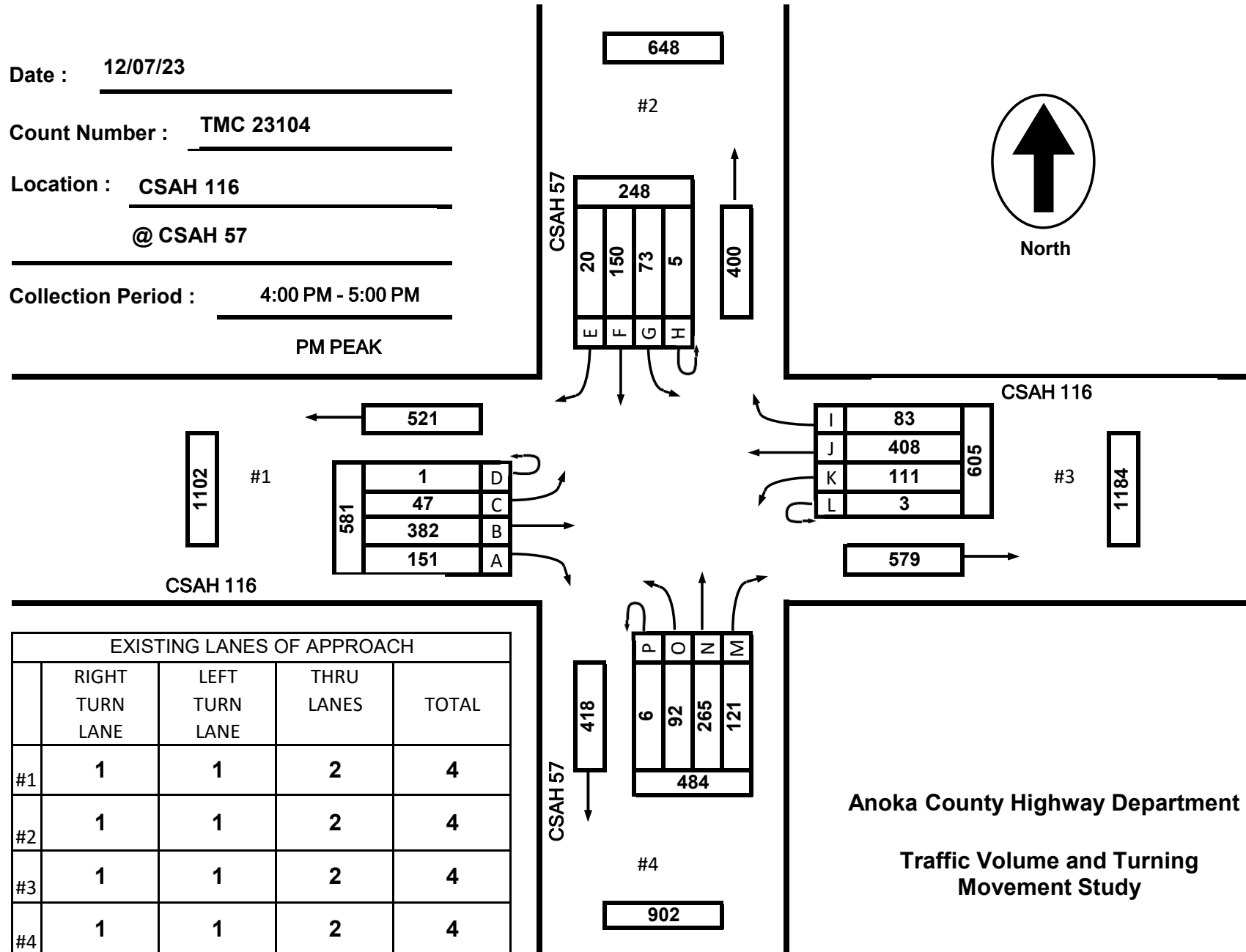
Location : CSAH 116  
@ CSAH 57

Collection Period : 4:00 PM - 5:00 PM

PM PEAK



North



EXISTING LANES OF APPROACH

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

Anoka County Highway Department

Traffic Volume and Turning Movement Study

**TMC 23104 - CSAH 116 @ CSAH 57**  
**Ramsey MN**  
**Thursday, December 7, 2023**

Time	Southbound CSAH 57						Westbound CSAH 116						Northbound CSAH 57						Eastbound CSAH 116						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	2	0	0	3	0	4	6	0	0	10	0	0	5	2	0	7	0	0	1	2	0	3	0	0	1	2	0	3	23
12:15 AM	0	0	2	0	0	2	0	1	3	0	0	4	0	1	9	3	0	13	0	0	1	2	0	3	0	0	1	2	0	3	22
12:30 AM	0	0	2	0	0	2	0	0	1	0	0	1	0	1	6	1	0	8	0	0	2	0	0	2	0	0	2	0	0	2	13
12:45 AM	0	0	2	0	0	2	0	2	1	1	0	4	0	2	4	3	0	9	0	0	0	1	0	1	0	0	0	1	0	1	16
Hourly Total	0	1	8	0	0	9	0	7	11	1	0	19	0	4	24	9	0	37	0	0	4	5	0	9	0	0	4	5	0	9	74
1:00 AM	0	0	3	0	0	3	1	1	4	1	0	7	0	0	6	3	0	9	0	0	2	1	0	3	0	0	2	1	0	3	22
1:15 AM	0	1	2	0	0	3	0	0	0	1	0	1	0	0	5	3	0	8	0	0	1	0	0	1	0	0	1	0	0	1	13
1:30 AM	0	0	1	0	0	1	0	1	2	0	0	3	0	1	1	1	0	3	0	0	2	1	0	3	0	0	2	1	0	3	10
1:45 AM	0	0	2	0	0	2	0	1	1	0	0	2	0	1	6	2	0	9	0	0	0	0	0	0	0	0	0	0	0	0	13
Hourly Total	0	1	8	0	0	9	1	3	7	2	0	13	0	2	18	9	0	29	0	0	5	2	0	7	0	0	5	2	0	7	58
2:00 AM	0	12	23	2	0	37	0	0	0	1	0	1	0	0	1	1	0	2	0	0	4	4	0	8	0	0	4	4	0	8	48
2:15 AM	0	1	4	1	0	6	0	1	1	0	0	2	0	0	5	0	0	5	0	0	4	8	0	12	0	0	4	8	0	12	25
2:30 AM	0	2	1	0	0	3	1	4	1	0	0	6	0	0	3	0	0	3	0	0	3	6	0	9	0	0	3	6	0	9	21
2:45 AM	0	0	1	0	0	1	0	1	2	0	0	3	0	1	2	0	0	3	0	0	0	4	0	4	0	0	0	4	0	4	11
Hourly Total	0	15	29	3	0	47	1	6	4	1	0	12	0	1	11	1	0	13	0	0	11	22	0	33	0	0	11	22	0	33	105
3:00 AM	0	0	3	0	0	3	1	3	2	0	0	6	0	1	1	2	0	4	0	0	2	3	0	5	0	0	2	3	0	5	18
3:15 AM	0	0	1	1	0	2	0	0	0	1	0	1	0	0	1	1	0	2	0	0	2	1	0	3	0	0	2	1	0	3	8
3:30 AM	0	0	1	0	0	1	0	0	1	0	0	1	0	0	3	0	0	3	0	0	3	3	0	6	0	0	3	3	0	6	11
3:45 AM	0	0	1	1	0	2	0	0	1	0	0	1	0	0	1	2	0	3	0	0	3	0	0	3	0	0	3	0	0	3	9
Hourly Total	0	0	6	2	0	8	1	3	4	1	0	9	0	1	6	5	0	12	0	0	10	7	0	17	0	0	10	7	0	17	46
4:00 AM	0	1	10	0	0	11	0	2	4	0	0	6	0	2	7	4	0	13	0	0	3	1	0	4	0	0	3	1	0	4	34
4:15 AM	0	0	8	1	0	9	1	2	3	2	0	8	0	4	7	1	0	12	0	0	3	5	0	8	0	0	3	5	0	8	37
4:30 AM	1	1	16	0	0	18	0	4	11	9	0	24	0	12	22	0	0	34	0	2	5	2	0	9	0	2	5	2	0	9	85
4:45 AM	0	2	13	2	0	17	0	7	17	7	0	31	0	19	23	5	0	47	0	1	7	4	0	12	0	1	7	4	0	12	107
Hourly Total	1	4	47	3	0	55	1	15	35	18	0	69	0	37	59	10	0	106	0	3	18	12	0	33	0	3	18	12	0	33	263
5:00 AM	0	3	10	3	0	16	0	8	13	1	0	22	0	7	5	2	0	14	0	0	14	5	0	19	0	0	14	5	0	19	71
5:15 AM	0	1	23	2	0	26	1	5	9	4	0	19	0	16	6	6	0	28	0	1	18	3	0	22	0	1	18	3	0	22	95
5:30 AM	0	4	32	7	0	43	2	11	33	3	0	49	0	22	11	8	0	41	0	1	27	6	0	34	0	1	27	6	0	34	167
5:45 AM	0	6	39	3	0	48	3	14	49	2	0	68	1	37	14	17	0	69	0	3	28	7	0	38	0	3	28	7	0	38	223
Hourly Total	0	14	104	15	0	133	6	38	104	10	0	158	1	82	36	33	0	152	0	5	87	21	0	113	0	5	87	21	0	113	556
6:00 AM	0	7	45	5	0	57	1	18	23	6	0	48	1	12	13	14	0	40	0	1	30	8	0	39	0	1	30	8	0	39	184
6:15 AM	3	14	34	3	0	54	4	20	25	4	0	53	0	13	26	14	0	53	0	2	59	11	0	72	0	2	59	11	0	72	232
6:30 AM	1	20	53	1	0	75	2	20	34	3	0	59	0	21	18	9	0	48	1	2	74	28	0	105	1	2	74	28	0	105	287
6:45 AM	2	14	49	6	0	71	1	19	62	3	0	85	0	31	18	26	0	75	0	4	114	11	0	129	0	4	114	11	0	129	360
Hourly Total	6	55	181	15	0	257	8	77	144	16	0	245	1	77	75	63	0	216	1	9	277	58	0	345	1	9	277	58	0	345	1063
7:00 AM	1	17	20	3	0	41	2	13	51	3	0	69	0	14	17	15	0	46	0	3	116	17	0	136	0	3	116	17	0	136	292
7:15 AM	1	26	46	3	0	76	3	26	69	7	0	105	4	17	18	25	0	64	0	6	136	21	1	163	0	6	136	21	1	163	408
7:30 AM	1	17	47	1	0	66	4	19	100	8	0	131	3	31	21	26	0	81	0	5	107	8	0	120	0	5	107	8	0	120	398
7:45 AM	0	15	66	6	0	87	0	15	126	9	0	150	1	20	30	23	0	74	0	4	113	30	0	147	0	4	113	30	0	147	458
Hourly Total	3	75	179	13	0	270	9	73	346	27	0	455	8	82	86	89	0	265	0	18	472	76	1	566	0	18	472	76	1	566	1556

**TMC 23104 - CSAH 116 @ CSAH 57**  
**Ramsey MN**  
**Thursday, December 7, 2023**

Time	Southbound CSAH 57						Westbound CSAH 116						Northbound CSAH 57						Eastbound CSAH 116						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	7	26	5	0	38	3	17	62	10	0	92	1	15	20	9	0	45	0	4	86	19	0	109	284
8:15 AM	1	10	27	1	0	39	3	24	42	5	0	74	0	16	15	8	0	39	0	2	54	22	0	78	230
8:30 AM	3	10	20	1	0	34	2	16	45	6	0	69	1	9	17	23	0	50	0	4	57	20	0	81	234
8:45 AM	0	9	34	2	0	45	3	16	34	6	0	59	0	16	13	11	0	40	0	4	55	19	1	78	222
Hourly Total	4	36	107	9	0	156	11	73	183	27	0	294	2	56	65	51	0	174	0	14	252	80	1	346	970
9:00 AM	1	10	28	2	0	41	3	15	25	5	0	48	0	11	30	19	0	60	0	1	67	12	0	80	229
9:15 AM	1	14	36	6	0	57	3	14	49	6	0	72	1	8	22	10	0	41	0	0	45	11	0	56	226
9:30 AM	0	5	30	6	0	41	2	18	38	4	0	62	0	6	19	14	0	39	0	4	36	8	0	48	190
9:45 AM	1	5	18	7	0	31	2	15	55	3	0	75	0	15	15	16	0	46	1	4	47	12	0	64	216
Hourly Total	3	34	112	21	0	170	10	62	167	18	0	257	1	40	86	59	0	186	1	9	195	43	0	248	861
10:00 AM	0	7	19	3	0	29	2	9	31	6	0	48	0	10	17	11	0	38	0	3	47	12	0	62	177
10:15 AM	2	4	19	3	0	28	1	24	35	6	0	66	0	9	12	14	0	35	0	2	52	10	0	64	193
10:30 AM	2	5	22	3	0	32	2	15	39	5	0	61	0	9	24	16	0	49	0	4	40	15	0	59	201
10:45 AM	2	7	21	2	0	32	2	18	34	9	0	63	3	10	26	16	0	55	0	2	49	18	0	69	219
Hourly Total	6	23	81	11	0	121	7	66	139	26	0	238	3	38	79	57	0	177	0	11	188	55	0	254	790
11:00 AM	6	13	31	2	0	52	2	18	48	4	0	72	0	4	29	11	0	44	0	5	39	23	0	67	235
11:15 AM	3	6	24	6	0	39	1	20	33	9	0	63	0	16	28	16	0	60	0	2	55	18	0	75	237
11:30 AM	5	8	22	6	0	41	0	25	48	13	0	86	0	16	32	16	0	64	0	4	62	25	0	91	282
11:45 AM	0	10	25	2	0	37	3	13	44	8	0	68	0	13	24	14	0	51	0	7	69	24	0	100	256
Hourly Total	14	37	102	16	0	169	6	76	173	34	0	289	0	49	113	57	0	219	0	18	225	90	0	333	1010
12:00 PM	0	7	17	4	0	28	3	17	60	12	0	92	2	23	31	15	0	71	0	7	55	23	0	85	276
12:15 PM	0	6	23	2	0	31	6	23	55	9	0	93	0	12	27	15	0	54	0	3	44	24	0	71	249
12:30 PM	2	9	23	0	0	34	1	16	70	12	0	99	0	11	28	15	0	54	0	3	46	14	0	63	250
12:45 PM	1	9	25	3	0	38	2	20	46	8	0	76	3	19	22	18	0	62	0	8	64	11	0	83	259
Hourly Total	3	31	88	9	0	131	12	76	231	41	0	360	5	65	108	63	0	241	0	21	209	72	0	302	1034
1:00 PM	0	5	19	4	0	28	1	21	56	7	0	85	0	16	28	16	0	60	0	5	61	31	0	97	270
1:15 PM	1	7	18	5	0	31	4	22	50	7	0	83	1	26	36	18	0	81	0	6	55	18	0	79	274
1:30 PM	0	13	25	2	0	40	2	18	46	8	0	74	2	24	30	19	0	75	0	8	59	15	0	82	271
1:45 PM	3	9	15	2	2	29	1	13	72	3	0	89	2	16	42	20	0	80	1	4	60	11	1	76	274
Hourly Total	4	34	77	13	2	128	8	74	224	25	0	331	5	82	136	73	0	296	1	23	235	75	1	334	1089
2:00 PM	3	17	28	0	1	48	2	35	46	11	0	94	2	16	35	17	0	70	0	6	63	38	1	107	319
2:15 PM	1	11	20	6	0	38	1	25	87	8	0	121	2	12	32	15	0	61	0	6	76	15	0	97	317
2:30 PM	1	11	23	3	0	38	0	30	109	16	0	155	1	18	34	20	0	73	0	4	76	33	0	113	379
2:45 PM	3	7	21	2	0	33	4	26	87	8	0	125	1	28	45	26	0	100	4	3	55	33	0	95	353
Hourly Total	8	46	92	11	1	157	7	116	329	43	0	495	6	74	146	78	0	304	4	19	270	119	1	412	1368
3:00 PM	1	12	34	2	0	49	0	26	84	17	0	127	0	18	60	19	0	97	1	10	73	34	0	118	391
3:15 PM	2	12	17	2	0	33	0	25	81	14	0	120	1	21	59	17	0	98	0	10	95	24	0	129	380
3:30 PM	3	27	58	7	0	95	3	27	107	17	0	154	1	30	67	17	0	115	0	16	128	41	0	185	549
3:45 PM	3	15	30	4	0	52	1	33	108	14	0	156	0	16	38	17	0	71	0	9	68	16	1	93	372
Hourly Total	9	66	139	15	0	229	4	111	380	62	0	557	2	85	224	70	0	381	1	45	364	115	1	525	1692

**TMC 23104 - CSAH 116 @ CSAH 57  
Ramsey MN  
Thursday, December 7, 2023**

Time	Southbound CSAH 57						Westbound CSAH 116						Northbound CSAH 57						Eastbound CSAH 116						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	1	18	32	6	0	57	2	31	111	21	0	165	2	31	76	28	0	137	0	18	87	41	0	146	505
4:15 PM	1	24	51	5	0	81	0	26	96	30	0	152	1	31	60	33	0	125	0	11	76	23	0	110	468
4:30 PM	3	21	30	6	0	60	0	33	99	20	0	152	1	14	64	25	0	104	1	10	131	54	0	196	512
4:45 PM	0	10	37	3	0	50	1	21	102	12	0	136	2	16	65	35	0	118	0	8	88	33	0	129	433
Hourly Total	5	73	150	20	0	248	3	111	408	83	0	605	6	92	265	121	0	484	1	47	382	151	0	581	1918
5:00 PM	0	10	33	5	0	48	2	22	86	14	0	124	3	15	61	32	0	111	0	5	87	25	0	117	400
5:15 PM	0	8	35	3	0	46	2	28	99	16	0	145	1	10	52	31	0	94	0	6	72	19	0	97	382
5:30 PM	0	13	37	2	0	52	1	20	86	13	0	120	1	12	47	33	0	93	0	3	57	21	0	81	346
5:45 PM	0	7	27	1	0	35	6	25	76	12	0	119	2	10	52	15	0	79	0	2	60	16	0	78	311
Hourly Total	0	38	132	11	0	181	11	95	347	55	0	508	7	47	212	111	0	377	0	16	276	81	0	373	1439
6:00 PM	1	1	22	0	0	24	3	12	50	11	0	76	2	15	51	9	0	77	0	2	43	9	0	54	231
6:15 PM	1	5	31	2	0	39	1	30	65	7	0	103	1	10	53	27	0	91	0	2	47	13	0	62	295
6:30 PM	1	4	12	0	0	17	3	20	43	6	0	72	1	10	37	14	0	62	0	3	61	8	0	72	223
6:45 PM	1	5	10	0	0	16	2	16	51	4	0	73	0	10	41	12	0	63	0	1	26	7	0	34	186
Hourly Total	4	15	75	2	0	96	9	78	209	28	0	324	4	45	182	62	0	293	0	8	177	37	0	222	935
7:00 PM	2	8	18	1	0	29	0	12	34	3	0	49	2	7	33	13	0	55	0	3	28	7	0	38	171
7:15 PM	0	3	18	0	0	21	1	16	34	7	0	58	0	11	36	9	0	56	0	2	29	9	0	40	175
7:30 PM	2	3	9	3	0	17	1	12	26	5	0	44	1	3	29	9	0	42	0	2	33	6	0	41	144
7:45 PM	1	0	7	0	0	8	1	17	43	7	0	68	1	6	35	10	0	52	0	1	26	3	0	30	158
Hourly Total	5	14	52	4	0	75	3	57	137	22	0	219	4	27	133	41	0	205	0	8	116	25	0	149	648
8:00 PM	0	5	8	0	0	13	1	14	24	2	0	41	0	4	24	12	0	40	0	0	15	3	0	18	112
8:15 PM	2	4	13	1	0	20	1	5	31	3	0	40	0	5	24	9	0	38	0	0	21	7	0	28	126
8:30 PM	0	2	12	0	0	14	1	5	32	7	0	45	0	4	36	11	0	51	0	1	23	2	0	26	136
8:45 PM	0	2	6	0	0	8	0	8	24	6	0	38	0	3	24	1	0	28	0	0	25	30	0	55	129
Hourly Total	2	13	39	1	0	55	3	32	111	18	0	164	0	16	108	33	0	157	0	1	84	42	0	127	503
9:00 PM	0	0	8	1	0	9	0	8	30	5	0	43	0	1	17	6	0	24	0	2	16	5	0	23	99
9:15 PM	2	4	5	1	0	12	1	15	31	7	0	54	0	6	29	6	0	41	0	2	12	1	0	15	122
9:30 PM	0	1	8	0	0	9	0	7	10	1	0	18	1	6	13	4	0	24	0	1	26	0	0	27	78
9:45 PM	0	2	5	1	0	8	4	7	26	5	0	42	0	3	18	4	0	25	0	1	5	3	0	9	84
Hourly Total	2	7	26	3	0	38	5	37	97	18	0	157	1	16	77	20	0	114	0	6	59	9	0	74	383
10:00 PM	3	2	2	0	0	7	0	7	15	0	0	22	0	7	16	2	0	25	0	0	12	3	0	15	69
10:15 PM	0	2	3	1	0	6	0	3	10	3	0	16	0	3	16	4	0	23	1	1	7	2	0	11	56
10:30 PM	0	3	4	0	0	7	0	8	13	3	0	24	0	2	9	1	0	12	1	0	19	1	0	21	64
10:45 PM	0	2	6	0	0	8	0	9	6	0	0	15	0	4	8	3	0	15	0	0	13	4	0	17	55
Hourly Total	3	9	15	1	0	28	0	27	44	6	0	77	0	16	49	10	0	75	2	1	51	10	0	64	244
11:00 PM	0	0	5	0	0	5	0	5	5	5	0	15	0	2	8	0	0	10	1	1	9	25	0	36	66
11:15 PM	0	0	1	0	0	1	0	6	7	0	0	13	0	0	12	3	0	15	0	1	7	4	0	12	41
11:30 PM	1	1	3	1	0	6	0	5	11	0	0	16	0	0	5	2	0	7	0	0	6	1	0	7	36
11:45 PM	0	0	2	0	0	2	0	2	11	0	0	13	0	1	6	1	0	8	0	0	3	1	0	4	27
Hourly Total	1	1	11	1	0	14	0	18	34	5	0	57	0	3	31	6	0	40	1	2	25	31	0	59	170
<b>DAILY TOTAL</b>	<b>83</b>	<b>642</b>	<b>1860</b>	<b>199</b>	<b>3</b>	<b>2784</b>	<b>126</b>	<b>1331</b>	<b>3868</b>	<b>587</b>	<b>0</b>	<b>5912</b>	<b>56</b>	<b>1037</b>	<b>2329</b>	<b>1131</b>	<b>0</b>	<b>4553</b>	<b>12</b>	<b>284</b>	<b>3992</b>	<b>1238</b>	<b>5</b>	<b>5526</b>	<b>18775</b>
<b>Cars</b>	83	624	1795	177	2	2679	126	1288	3735	567	0	5716	56	961	2271	1067	0	4355	12	263	3860	1139	5	5274	18024
<b>Heavy Vehicles</b>	0	18	65	22	1	105	0	43	133	20	0	196	0	76	58	64	0	198	0	21	132	99	0	252	751
<b>Heavy Vehicle %</b>	0.00%	2.80%	3.49%	11.06%	33.33%	3.77%	0.00%	3.23%	3.44%	3.41%	0.00%	3.32%	0.00%	7.33%	2.49%	5.66%	0.00%	4.35%	0.00%	7.39%	3.31%	8.00%	0.00%	4.56%	4.00%

**TMC 23104 - CSAH 116 @ CSAH 57**  
**Ramsey MN**  
**Thursday, December 7, 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	17	20	3	0	41	2	13	51	3	0	69	0	14	17	15	0	46	0	3	116	17	0	136	292
7:15 AM	1	26	46	3	0	76	3	26	69	7	0	105	4	17	18	25	0	64	0	6	136	21	1	163	408
7:30 AM	1	17	47	1	0	66	4	19	100	8	0	131	3	31	21	26	0	81	0	5	107	8	0	120	398
7:45 AM	0	15	66	6	0	87	0	15	126	9	0	150	1	20	30	23	0	74	0	4	113	30	0	147	458
Peak Hour Total	3	75	179	13	0	270	9	73	346	27	0	455	8	82	86	89	0	265	0	18	472	76	1	566	1556
PHF	0.750	0.721	0.678	0.542	0.000	0.776	0.563	0.702	0.687	0.750	0.000	0.758	0.500	0.661	0.717	0.856	0.000	0.818	0.000	0.750	0.868	0.633	0.250	0.868	0.849

**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	1	18	32	6	0	57	2	31	111	21	0	165	2	31	76	28	0	137	0	18	87	41	0	146	505
4:15 PM	1	24	51	5	0	81	0	26	96	30	0	152	1	31	60	33	0	125	0	11	76	23	0	110	468
4:30 PM	3	21	30	6	0	60	0	33	99	20	0	152	1	14	64	25	0	104	1	10	131	54	0	196	512
4:45 PM	0	10	37	3	0	50	1	21	102	12	0	136	2	16	65	35	0	118	0	8	88	33	0	129	433
Peak Hour Total	5	73	150	20	0	248	3	111	408	83	0	605	6	92	265	121	0	484	1	47	382	151	0	581	1918
PHF	0.417	0.760	0.735	0.833	0.000	0.765	0.375	0.841	0.919	0.692	0.000	0.917	0.750	0.742	0.872	0.864	0.000	0.883	0.250	0.653	0.729	0.699	0.000	0.741	0.937

Total Vehicles On Leg						6067					
Vehicles Entering Intersection			2784			Vehicles Exiting Intersection			3283		
<b>Southbound</b>											
Cars	177	1795	624	83	2						
Heavy	22	65	18	0	1						
<b>Total</b>	<b>199</b>	<b>1860</b>	<b>642</b>	<b>83</b>	<b>3</b>						



Total Vehicles on Leg 10642	Vehicles Entering Intersection 5526	Eastbound	Cars	Heavy	Total	
			5	0	5	
			12	0	12	
	Vehicles Exiting Intersection 5116		263	21	284	
	3860		132	3992		
1139	99	1238				



Daily Volumes

Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 5912	Total Vehicles on Leg 11803
567	20	587			
3735	133	3868			
1288	43	1331			
126	0	126			
0	0	0	Vehicles Exiting Intersection 5891		



Cars	0	56	961	2271	1067
Heavy	0	0	76	58	64
<b>Total</b>	<b>0</b>	<b>56</b>	<b>1037</b>	<b>2329</b>	<b>1131</b>
<b>Northbound</b>					
Vehicles Entering Intersection			4553		
Vehicles Exiting Intersection			4485		
Total Vehicles On Leg			9038		



# Heavy Vehicles

Date	Time	Southbound						Westbound						Northbound						Eastbound					
		U Turns	Left Turns	Straight Through	Right Turns	EB Bicycles in Crosswalk	WB Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	NB Bicycles in Crosswalk	SB Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	EB Bicycles in Crosswalk	WB Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	NB Bicycles in Crosswalk	SB Bicycles in Crosswalk
12/7/2023	0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	2:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	2:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
	5:15	0	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	2	0	0	0
	5:30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
	5:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:00	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	3	0	0	0
	6:15	0	0	2	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	2	0	0	0	0
	6:30	0	0	1	0	0	0	0	1	3	0	0	0	0	3	1	0	0	0	1	0	2	0	0	0
	6:45	0	0	1	0	0	0	0	0	0	0	0	0	0	2	1	2	0	0	0	4	0	0	0	0
	7:00	0	0	4	0	0	0	0	0	3	0	0	0	0	1	0	1	0	0	0	7	2	0	0	0
	7:15	0	0	1	0	0	0	0	2	2	0	0	0	0	1	0	1	0	0	0	1	3	3	0	0
	7:30	0	2	4	1	0	0	0	3	5	1	0	0	0	1	1	1	0	0	0	1	4	2	0	0
	7:45	0	2	2	0	0	0	0	0	5	0	0	0	0	3	1	2	0	0	0	0	3	2	0	0
	8:00	0	0	1	2	0	0	0	0	3	1	0	0	0	1	1	0	0	0	0	4	2	0	0	0
	8:15	0	0	0	0	0	0	0	0	3	1	0	0	0	3	0	0	0	0	0	3	3	0	0	0
	8:30	0	1	2	0	0	0	0	2	4	1	0	0	0	3	3	1	0	0	0	1	2	5	0	0
	8:45	0	0	3	0	0	0	0	0	2	1	0	0	0	2	1	0	0	0	0	1	1	2	0	0
	9:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1	4	1	0	0	0	0	4	3	0	0
	9:15	0	2	2	1	0	0	0	2	3	1	0	0	0	2	2	1	0	0	0	0	2	2	0	0
	9:30	0	1	0	1	0	0	0	4	1	0	0	0	0	1	1	1	0	0	0	0	1	3	0	0
	9:45	0	0	1	2	0	0	0	0	4	0	0	0	0	2	3	2	0	0	0	0	1	3	0	0
	10:00	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1	5	0	0
	10:15	0	0	1	0	0	0	0	0	3	0	0	0	0	0	1	1	0	0	0	1	3	0	0	0
	10:30	0	0	1	1	0	0	0	0	1	0	0	0	0	2	1	0	0	0	0	0	2	2	0	0
	10:45	0	0	4	0	0	0	0	1	2	0	0	0	0	0	3	2	0	0	0	0	1	2	0	0
	11:00	0	1	1	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1	2	0	0
	11:15	0	0	1	1	0	0	0	3	2	0	0	0	0	2	2	0	0	0	0	0	3	3	0	0
	11:30	0	0	1	0	0	0	0	1	4	1	0	0	0	3	1	0	0	0	0	0	1	3	0	0
	11:45	0	0	2	1	0	0	0	0	3	1	0	0	0	1	1	1	0	0	0	1	7	2	0	0





# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 23104

Study Date : 12/22/2023

## Signal Warrants - Summary

### Major Street Approaches

**Eastbound: CSAH 116**

Number of Lanes : 2+

Total Approach Volume: 5,526

**Westbound: CSAH 116**

Number of Lanes :2+

Total Approach Volume: 5,912

### Minor Street Approaches

**Northbound: CSAH 57**

Number of Lanes :2+

Total Approach Volume: 4,553

**Southbound: CSAH 57**

Number of Lanes :2+

Total Approach Volume: 2,784

### Warrant Summary (Rural Values Apply)

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

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

Required volumes reached for 13 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 14 hours, 8 are needed

Required 1B volumes reached for 12 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 (49) 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 23104

Study Date : 12/22/2023

## 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

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 = **2 or more**

#### Volume Requirements

Rural Factor of 70 % applied  
 Veh/Hr Major = **420**  
 Veh/Hr Minor = **140**

Time	Major Road				Total	Minor Road		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
	<b>CSAH 116</b>					<b>CSAH 57</b>		
15:45 - 16:45	545	+	625	=	1170	437	250	Yes
14:45 - 15:45	527	+	526	=	1053	410	210	Yes
16:45 - 17:45	424	+	525	=	949	416	196	Yes
06:45 - 07:45	548	+	390	=	938	266	254	Yes
13:45 - 14:45	393	+	459	=	852	284	153	Yes
07:45 - 08:45	415	+	385	=	800	208	198	Yes
11:45 - 12:45	319	+	352	=	671	230	130	Yes
12:45 - 13:45	341	+	318	=	659	278	137	Yes
17:45 - 18:45	266	+	370	=	636	309	115	Yes
10:45 - 11:45	302	+	284	=	586	223	164	Yes
08:45 - 09:45	262	+	241	=	503	180	184	Yes
09:45 - 10:45	249	+	250	=	499	168	120	Yes
05:45 - 06:45	254	+	228	=	482	210	234	Yes
05:30 - 06:30	183	+	218	=	401	203	202	No
18:45 - 19:45	153	+	224	=	377	216	83	No
19:00 - 20:00	149	+	219	=	368	205	75	No
19:15 - 20:15	129	+	211	=	340	190	59	No
05:15 - 06:15	133	+	184	=	317	178	174	No
19:30 - 20:30	117	+	193	=	310	172	58	No
20:30 - 21:30	119	+	180	=	299	144	43	No
20:15 - 21:15	132	+	166	=	298	141	51	No
19:45 - 20:45	102	+	194	=	296	181	55	No
20:00 - 21:00	127	+	164	=	291	157	55	No
20:45 - 21:45	120	+	153	=	273	117	38	No
05:00 - 06:00	113		158		271	152	133	No

# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 23104

Study Date : 12/22/2023

## 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 = **2 or more**

#### Volume Requirements

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

Time	Major Road				Total	Minor Road		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
	<b>CSAH 116</b>					<b>CSAH 57</b>		
15:15 - 16:15	553	+	595	=	1148	421	237	Yes
16:15 - 17:15	552	+	564	=	1116	458	239	Yes
07:15 - 08:15	539	+	478	=	1017	264	267	Yes
14:15 - 15:15	423	+	528	=	951	331	158	Yes
17:15 - 18:15	310	+	460	=	770	343	157	Yes
06:15 - 07:15	442	+	266	=	708	222	241	Yes
13:15 - 14:15	344	+	340	=	684	306	148	Yes
12:15 - 13:15	314	+	353	=	667	230	131	Yes
11:15 - 12:15	351	+	309	=	660	246	145	Yes
11:00 - 12:00	333	+	289	=	622	219	169	No
06:00 - 07:00	345	+	245	=	590	216	257	No
10:45 - 11:45	302	+	284	=	586	223	164	No
08:15 - 09:15	317	+	250	=	567	189	159	No
08:30 - 09:30	295	+	248	=	543	191	177	No
10:30 - 11:30	270	+	259	=	529	208	155	No
10:15 - 11:15	259	+	262	=	521	183	144	No
09:00 - 10:00	248	+	257	=	505	186	170	No
08:45 - 09:45	262	+	241	=	503	180	184	No
18:15 - 19:15	206	+	297	=	503	271	101	No
09:45 - 10:45	249	+	250	=	499	168	120	No
10:00 - 11:00	254	+	238	=	492	177	121	No
09:30 - 10:30	238	+	251	=	489	158	129	No
09:15 - 10:15	230	+	257	=	487	164	158	No
05:45 - 06:45	254	+	228	=	482	210	234	No
18:30 - 19:30	184		252		436	236	83	No

# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 23104

Study Date : 12/22/2023

## 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.  
12 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 = **2 or more**

#### Volume Requirements

Rural Factor of 70% applied  
Warrant 1A 1B  
Veh/Hr Major = **336 504**  
  
Veh/Hr Minor = **112 56**

#### Major Road CSAH 116

#### Minor Road CSAH 57

Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met1A?
15:30 - 16:30	534	+	627	=	1161	448	285	Yes
16:30 - 17:30	539	+	557	=	1096	427	204	Yes
14:30 - 15:30	455	+	527	=	982	368	153	Yes
07:30 - 08:30	454	+	447	=	901	239	230	Yes
06:30 - 07:30	533	+	318	=	851	233	263	Yes
13:30 - 14:30	362	+	378	=	740	286	155	Yes
17:30 - 18:30	275	+	418	=	693	340	150	Yes
11:30 - 12:30	347	+	339	=	686	240	137	Yes
12:30 - 13:30	322	+	343	=	665	257	131	Yes
08:30 - 09:30	295	+	248	=	543	191	177	Yes
10:30 - 11:30	270	+	259	=	529	208	155	Yes
09:30 - 10:30	238		251		489	158	129	Yes

Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met1B?
15:15 - 16:15	553	+	595	=	1148	421	237	Yes
16:15 - 17:15	552	+	564	=	1116	458	239	Yes
07:00 - 08:00	566	+	455	=	1021	265	270	Yes
14:15 - 15:15	423	+	528	=	951	331	158	Yes
17:15 - 18:15	310	+	460	=	770	343	157	Yes
13:15 - 14:15	344	+	340	=	684	306	148	Yes
12:15 - 13:15	314	+	353	=	667	230	131	Yes
11:15 - 12:15	351	+	309	=	660	246	145	Yes
08:00 - 09:00	346	+	294	=	640	174	156	Yes
06:00 - 07:00	345	+	245	=	590	216	257	Yes
10:15 - 11:15	259	+	262	=	521	183	144	Yes
09:00 - 10:00	248		257		505	186	170	Yes

# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 23104

Study Date : 12/22/2023

## 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.

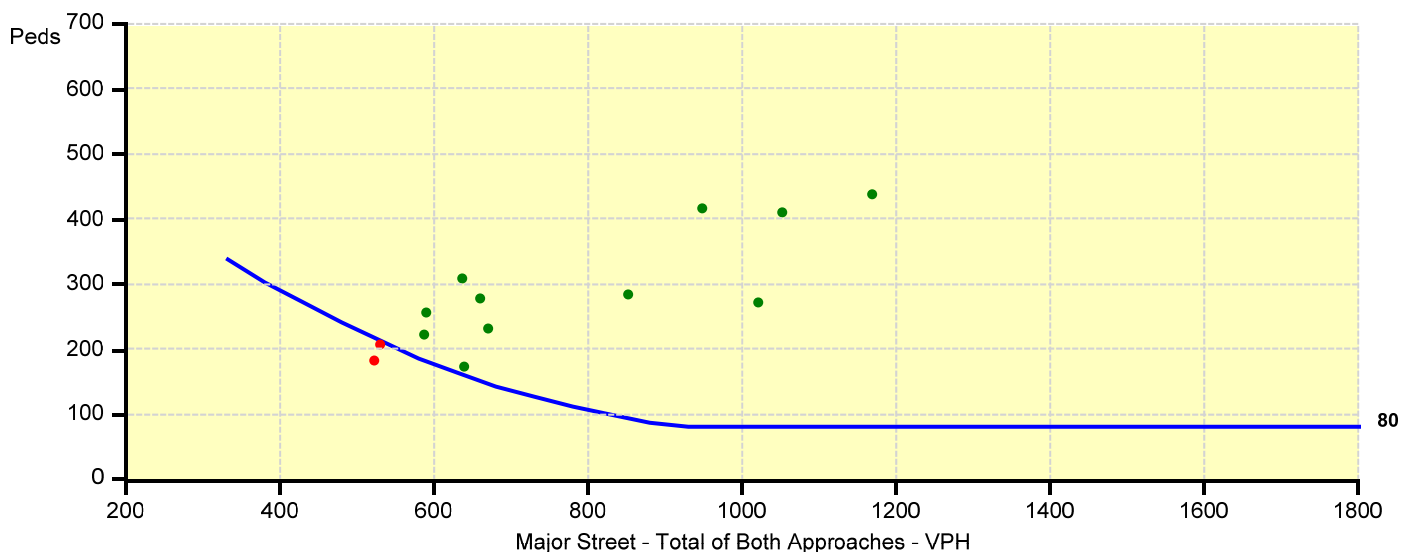
#### Summary

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 = **2 or more**

Time	Major Road CSAH 116				Total	Minor Road CSAH 57		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
15:45 - 16:45	545	+	625	=	1170	437	250	Yes
14:45 - 15:45	527	+	526	=	1053	410	210	Yes
07:00 - 08:00	566	+	455	=	1021	265	270	Yes
16:45 - 17:45	424	+	525	=	949	416	196	Yes
13:45 - 14:45	393	+	459	=	852	284	153	Yes
11:45 - 12:45	319	+	352	=	671	230	130	Yes
12:45 - 13:45	341	+	318	=	659	278	137	Yes
08:00 - 09:00	346	+	294	=	640	174	156	Yes
17:45 - 18:45	266	+	370	=	636	309	115	Yes
06:00 - 07:00	345	+	245	=	590	216	257	Yes
10:45 - 11:45	302	+	284	=	586	223	164	Yes
10:30 - 11:30	270	+	259	=	529	208	155	No



# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 23104

Study Date : 12/22/2023

## 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

27 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 = **2 or more**

Time	Major Road CSAH 116				Total	Minor Road CSAH 57		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:00 - 17:00	581	+	605	=	1186	484	248	Yes
15:45 - 16:45	545	+	625	=	1170	437	250	Yes
15:30 - 16:30	534	+	627	=	1161	448	285	Yes
15:15 - 16:15	553	+	595	=	1148	421	237	Yes
16:15 - 17:15	552	+	564	=	1116	458	239	Yes
16:30 - 17:30	539	+	557	=	1096	427	204	Yes
15:00 - 16:00	525	+	557	=	1082	381	229	Yes
14:45 - 15:45	527	+	526	=	1053	410	210	Yes
07:00 - 08:00	566	+	455	=	1021	265	270	Yes
07:15 - 08:15	539	+	478	=	1017	264	267	Yes
14:30 - 15:30	455	+	527	=	982	368	153	Yes
14:15 - 15:15	423	+	528	=	951	331	158	Yes

