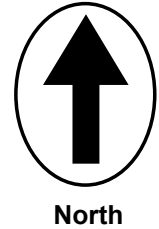


Date : 09/21/23

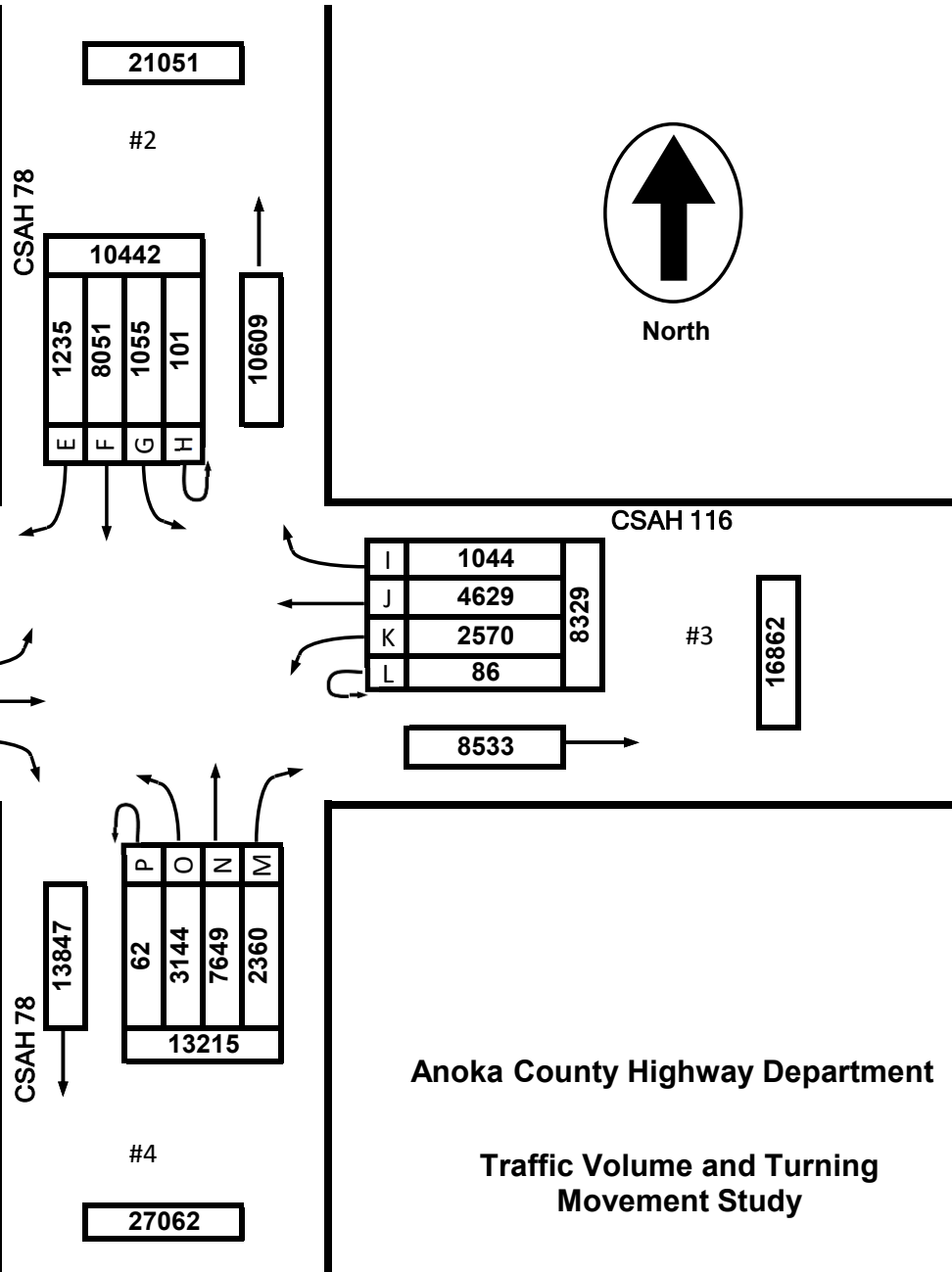
Count Number : TMC 2355

Location : CSAH 78
@ CSAH 116

Collection Period : 24 HR



North



#1

19057	9027	10030	19	D
			1815	C
			5032	B
			3164	A

#2

21051	10442	10609
1235	8051	1055
E	F	G
		H

#3

16862	8329	8533
1044	4629	2570
I	J	K
		L

#4

13847	13215	27062
62	3144	7649
P	O	N
		M

EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	2	2	5
#2	1	2	2	5
#3	1	2	2	5
#4	1	2	2	5

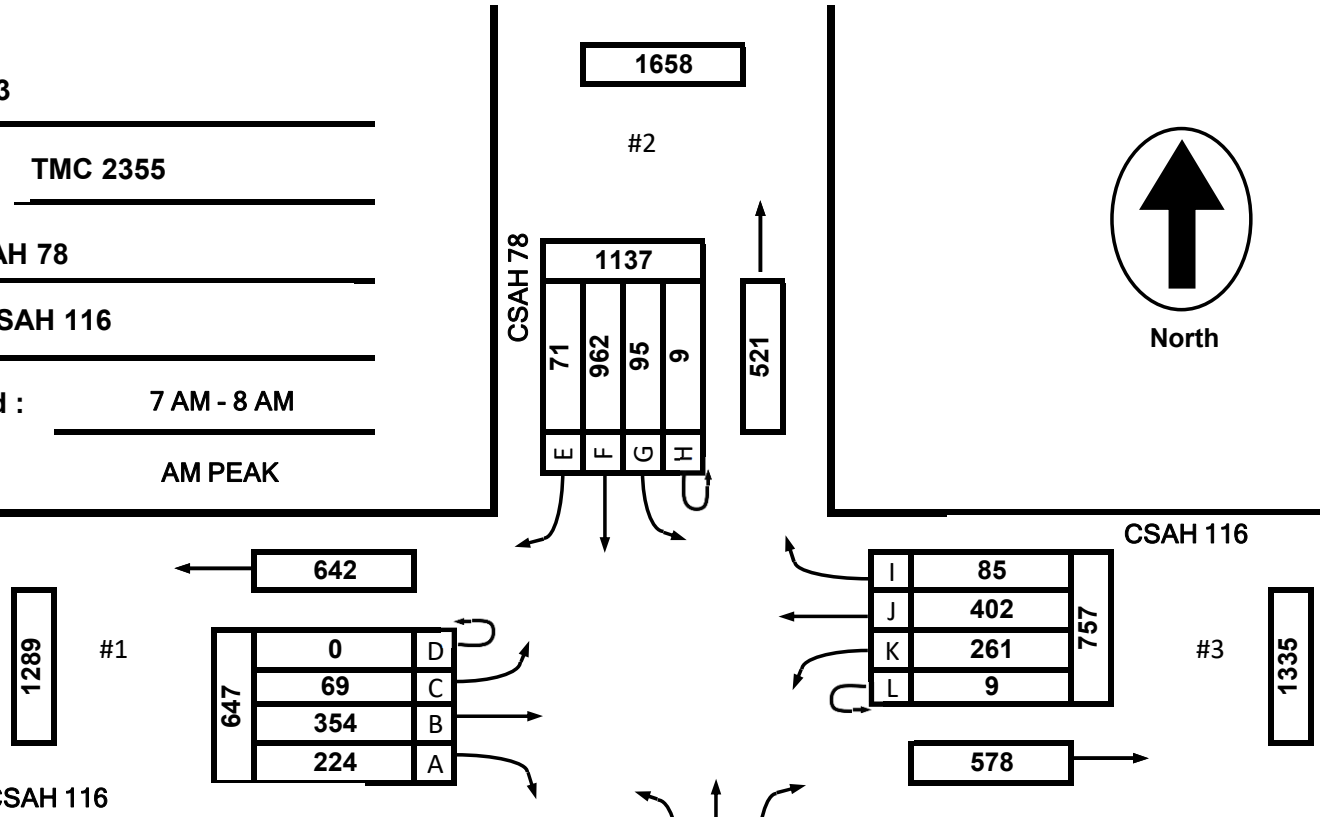
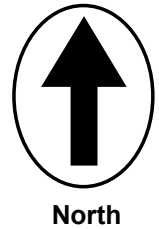
Anoka County Highway Department
 Traffic Volume and Turning Movement Study

Date : 09/21/23

Count Number : TMC 2355

Location : CSAH 78
@ CSAH 116

Collection Period : 7 AM - 8 AM
AM PEAK



CSAH 116

CSAH 116

CSAH 78

EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	2	2	5
#2	1	2	2	5
#3	1	2	2	5
#4	1	2	2	5

Anoka County Highway Department

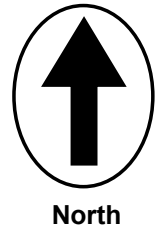
Traffic Volume and Turning Movement Study

Date : 09/21/23

Count Number : TMC 2355

Location : CSAH 78
@ CSAH 116

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



2034

#2

CSAH 78

810			
87	599	121	3
E	F	G	H

1224

CSAH 116

I	134	832
J	466	
K	221	
L	11	

#3

1738

906

1939

#1

940

999	1	D
	167	C
	536	B
	295	A

CSAH 116

CSAH 78

1122

P	O	N	M
7	386	920	238
1551			

#4

2673

EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	2	2	5
#2	1	2	2	5
#3	1	2	2	5
#4	1	2	2	5

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

TMC 2355 - CSAH 78 @ CSAH 116
Andover MN
Thursday, September 21, 2023

Time	Southbound CSAH 78						Westbound CSAH 116						Northbound CSAH 78						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	0	9	1	0	10	0	3	3	1	0	4	0	3	14	2	0	19	0	2	4	3	0	9	
12:15 AM	0	0	4	2	0	6	0	2	0	1	0	3	0	3	9	2	0	14	0	0	4	3	0	7	
12:30 AM	0	0	5	0	0	5	0	1	0	1	0	2	0	1	5	1	0	7	0	4	3	0	7		
12:45 AM	0	1	4	0	0	5	0	1	0	0	0	1	0	1	8	2	0	11	0	0	1	3	0	4	
Hourly Total	0	1	22	3	0	26	0	7	3	3	0	13	0	8	36	7	0	51	0	6	12	9	0	27	
1:00 AM	0	0	7	1	0	8	0	2	0	0	0	2	0	2	7	0	0	9	0	0	2	1	0	3	
1:15 AM	0	0	3	1	0	4	0	0	0	0	0	0	0	1	5	2	0	8	0	0	1	5	0	6	
1:30 AM	0	0	4	0	0	4	0	0	4	0	0	4	0	1	6	0	0	7	0	5	0	3	0	8	
1:45 AM	0	0	1	0	0	1	0	2	1	0	0	3	0	1	6	2	0	9	0	1	2	3	0	6	
Hourly Total	0	0	15	2	0	17	0	4	5	0	0	9	0	5	24	4	0	33	0	6	5	12	0	23	
2:00 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	1	3	2	0	6	0	0	2	1	0	3	
2:15 AM	0	0	7	0	0	7	0	3	1	0	0	4	0	1	3	1	0	5	0	0	3	3	0	6	
2:30 AM	0	0	3	3	0	6	0	1	1	0	0	2	0	0	4	0	0	4	0	1	0	3	0	4	
2:45 AM	0	0	5	0	0	5	0	0	1	0	0	1	0	0	8	1	0	9	0	1	2	2	0	5	
Hourly Total	0	0	17	3	0	20	0	4	3	0	0	7	0	2	18	4	0	24	0	2	7	9	0	18	
3:00 AM	0	0	10	0	0	10	0	0	0	0	0	0	0	1	1	0	0	2	0	0	1	1	0	2	
3:15 AM	0	0	9	2	0	11	0	2	1	0	0	3	0	3	4	0	0	7	0	1	1	2	0	4	
3:30 AM	0	2	10	3	0	15	0	4	5	0	0	9	0	3	1	0	0	4	0	0	2	2	0	4	
3:45 AM	0	0	11	0	0	11	0	1	4	0	0	5	0	0	3	2	0	5	0	0	1	3	0	4	
Hourly Total	0	2	40	5	0	47	0	7	10	0	0	17	0	7	9	2	0	18	0	1	5	8	0	14	
4:00 AM	0	2	15	0	0	17	0	7	3	1	0	11	0	2	3	1	0	6	0	0	3	6	0	9	
4:15 AM	0	0	34	1	0	35	0	3	5	0	0	8	0	3	3	0	0	6	0	0	6	6	0	12	
4:30 AM	0	2	50	4	0	56	0	7	9	3	0	19	0	3	8	4	0	15	0	1	10	4	0	15	
4:45 AM	0	2	42	4	0	48	0	14	7	2	0	23	0	6	14	3	0	23	0	2	11	4	0	17	
Hourly Total	0	6	141	9	0	156	0	31	24	6	0	61	0	14	28	8	0	50	0	3	30	20	0	53	
5:00 AM	1	2	72	4	0	79	0	19	14	0	0	33	0	5	7	3	0	15	0	1	5	6	0	12	
5:15 AM	3	3	79	7	0	92	0	26	7	0	0	33	0	5	16	2	0	23	0	3	10	13	0	26	
5:30 AM	1	8	118	9	0	136	0	24	22	2	0	48	0	9	22	9	0	40	0	4	23	11	0	38	
5:45 AM	0	4	100	6	0	110	0	31	28	3	0	62	0	8	21	7	0	36	0	5	36	21	0	62	
Hourly Total	5	17	369	26	0	417	0	100	71	5	0	176	0	27	66	21	0	114	0	13	74	51	0	138	
6:00 AM	1	5	147	14	0	167	0	38	23	1	0	62	0	13	19	12	1	44	0	8	31	29	0	68	
6:15 AM	1	15	164	7	0	187	1	45	34	4	0	84	0	17	30	11	1	58	0	6	53	36	1	95	
6:30 AM	3	16	238	11	0	268	0	59	43	6	0	108	0	23	51	16	0	90	0	12	56	51	0	119	
6:45 AM	2	13	219	16	0	250	1	52	39	11	0	103	0	17	90	32	0	139	0	15	74	63	0	152	
Hourly Total	7	49	768	48	0	872	2	194	139	22	0	357	0	70	190	71	2	331	0	41	214	179	1	434	
7:00 AM	1	21	235	18	0	275	5	65	77	20	0	167	0	34	84	21	0	139	0	21	68	52	0	141	
7:15 AM	2	22	270	24	0	318	2	69	135	22	0	228	0	51	73	27	0	151	0	18	75	56	0	149	
7:30 AM	2	32	227	12	0	273	0	58	95	14	0	167	1	42	98	34	0	175	0	12	139	57	0	208	
7:45 AM	4	20	230	17	0	271	2	69	95	29	0	195	1	42	103	38	0	184	0	18	72	59	0	149	
Hourly Total	9	95	962	71	0	1137	9	261	402	85	0	757	2	169	358	120	0	649	0	69	354	224	0	647	

**TMC 2355 - CSAH 78 @ CSAH 116
Andover MN
Thursday, September 21, 2023**

Time	Southbound CSAH 78						Westbound CSAH 116						Northbound CSAH 78						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	2	15	196	11	0	224	2	52	64	28	0	146	1	24	87	28	0	140	0	21	77	59	0	157	667
8:15 AM	1	16	169	16	0	202	3	55	51	11	0	120	0	20	61	27	0	108	0	17	60	44	0	121	551
8:30 AM	2	18	167	14	0	201	1	34	58	21	0	114	0	31	87	15	0	133	0	14	55	48	0	117	565
8:45 AM	1	6	114	18	0	139	1	46	65	14	0	126	2	30	73	18	0	123	0	27	59	32	0	118	506
Hourly Total	6	55	646	59	0	766	7	187	238	74	0	506	3	105	308	88	0	504	0	79	251	183	0	513	2289
9:00 AM	2	13	144	13	0	172	2	51	58	17	0	128	0	34	82	23	0	139	0	26	59	30	0	115	554
9:15 AM	5	23	160	39	0	227	1	39	49	10	0	99	2	36	66	16	0	120	0	28	60	28	0	116	562
9:30 AM	0	16	129	25	0	170	0	47	70	14	0	131	3	28	68	25	0	124	0	27	63	42	0	132	557
9:45 AM	0	9	93	19	0	121	0	32	56	11	1	99	2	21	79	23	0	125	2	21	61	48	0	132	477
Hourly Total	7	61	526	96	0	690	3	169	233	52	1	457	7	119	295	87	0	508	2	102	243	148	0	495	2150
10:00 AM	2	18	102	15	0	137	0	26	48	6	2	80	1	37	62	13	1	113	1	14	46	37	0	98	428
10:15 AM	0	9	132	19	0	160	1	36	57	7	0	101	0	32	71	23	0	126	0	22	55	36	0	113	500
10:30 AM	2	11	91	17	0	121	2	31	65	12	1	110	0	38	76	24	0	138	1	19	60	37	0	117	486
10:45 AM	1	11	98	24	0	134	2	33	70	15	1	120	2	28	74	10	0	114	0	33	55	40	0	128	496
Hourly Total	5	49	423	75	0	552	5	126	240	40	4	411	3	135	283	70	1	491	2	88	216	150	0	456	1910
11:00 AM	2	15	81	22	0	120	0	31	51	17	0	99	1	38	78	26	0	143	0	29	56	38	0	123	485
11:15 AM	1	19	103	32	0	155	3	33	66	11	2	113	4	46	65	19	0	134	1	30	66	42	0	139	541
11:30 AM	1	13	82	21	0	117	2	38	63	11	1	114	1	39	66	22	1	128	0	27	66	38	0	131	490
11:45 AM	1	9	90	24	0	124	0	40	70	9	1	119	1	62	63	27	0	153	0	28	82	35	0	145	541
Hourly Total	5	56	356	99	0	516	5	142	250	48	4	445	7	185	272	94	1	558	1	114	270	153	0	538	2057
12:00 PM	0	5	85	23	0	113	0	40	62	12	1	114	1	47	85	32	0	165	0	23	82	54	0	159	551
12:15 PM	3	14	86	28	1	131	2	38	48	6	0	94	0	38	95	28	0	161	0	21	71	37	0	129	515
12:30 PM	1	15	99	15	0	130	1	28	55	7	0	91	2	47	97	36	0	182	0	31	98	35	0	164	567
12:45 PM	1	7	76	28	1	112	1	30	63	9	0	103	1	41	67	33	0	142	1	21	85	45	0	152	509
Hourly Total	5	41	346	94	2	486	4	136	228	34	1	402	4	173	344	129	0	650	1	96	336	171	0	604	2142
1:00 PM	2	11	77	13	0	103	0	40	62	10	0	112	2	37	85	40	0	164	0	34	78	39	0	151	530
1:15 PM	1	6	100	19	0	126	2	23	63	6	0	94	3	37	83	31	0	154	3	28	67	49	0	147	521
1:30 PM	1	16	90	32	0	139	1	27	71	13	0	112	0	50	100	28	0	178	0	35	79	52	0	166	595
1:45 PM	0	10	71	25	0	106	0	44	65	11	0	120	2	41	109	42	0	194	0	36	78	75	0	189	609
Hourly Total	4	43	338	89	0	474	3	134	261	40	0	438	7	165	377	141	0	690	3	133	302	215	0	653	2255
2:00 PM	1	8	105	21	0	135	2	46	77	21	0	146	2	65	99	43	0	209	1	45	83	72	0	201	691
2:15 PM	0	10	90	24	0	124	1	32	66	13	0	112	4	61	107	39	0	211	1	27	111	79	0	218	665
2:30 PM	3	29	120	21	0	173	0	32	89	13	0	134	2	63	167	47	0	279	0	42	82	46	0	170	756
2:45 PM	2	18	106	20	0	146	0	26	94	15	0	135	1	75	211	55	0	342	0	37	99	53	0	189	812
Hourly Total	6	65	421	86	0	578	3	136	326	62	0	527	9	264	584	184	0	1041	2	151	375	250	0	778	2924
3:00 PM	1	23	105	13	0	142	1	49	119	27	1	196	3	67	148	55	0	273	1	32	104	64	0	201	812
3:15 PM	0	29	112	25	0	166	5	40	106	24	0	175	1	71	196	67	0	335	0	48	91	53	0	192	868
3:30 PM	0	23	108	19	0	150	3	58	140	24	0	225	0	95	237	51	0	383	0	52	108	53	0	213	971
3:45 PM	3	24	109	23	0	159	3	46	110	25	3	184	1	86	252	66	0	405	0	68	125	69	0	262	1010
Hourly Total	4	99	434	80	0	617	12	193	475	100	4	780	5	319	833	239	0	1396	1	200	428	239	0	868	3661

**TMC 2355 - CSAH 78 @ CSAH 116
Andover MN
Thursday, September 21, 2023**

Time	Southbound CSAH 78						Westbound CSAH 116						Northbound CSAH 78						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	30	131	20	0	182	3	48	132	26	0	209	2	93	241	60	0	396	1	61	108	63	0	233	1020
4:15 PM	0	35	175	32	0	242	2	43	116	37	0	198	1	99	222	67	0	389	1	45	135	72	0	253	1082
4:30 PM	0	33	150	15	0	198	2	63	124	23	0	212	3	92	219	57	0	371	0	43	133	71	0	247	1028
4:45 PM	3	29	131	26	0	189	4	60	119	36	3	219	1	97	233	51	0	382	0	33	141	81	0	255	1045
Hourly Total	4	127	587	93	0	811	11	214	491	122	3	838	7	381	915	235	0	1538	2	182	517	287	0	988	4175
5:00 PM	0	24	143	14	0	181	3	55	107	38	0	203	2	98	246	63	0	409	0	46	127	71	0	244	1037
5:15 PM	1	30	149	26	0	206	5	37	115	33	0	190	2	136	223	63	0	424	0	32	123	71	2	226	1046
5:30 PM	0	19	132	25	0	176	0	49	103	34	0	186	1	89	223	60	0	373	0	42	111	58	0	211	946
5:45 PM	0	23	130	15	1	168	2	32	99	13	2	146	0	90	193	66	0	349	0	25	112	56	0	193	856
Hourly Total	1	96	554	80	1	731	10	173	424	118	2	725	5	413	885	252	0	1555	0	145	473	256	2	874	3885
6:00 PM	1	11	96	28	0	136	0	46	79	24	0	149	1	60	172	68	0	301	0	43	81	46	1	170	756
6:15 PM	3	21	103	23	2	150	0	33	77	19	1	129	0	49	138	50	1	237	2	31	90	56	1	179	695
6:30 PM	2	13	88	21	1	124	0	29	77	14	2	120	0	58	126	55	0	239	1	30	63	48	2	142	625
6:45 PM	3	15	94	17	1	129	2	28	52	19	0	101	1	51	127	38	0	217	0	37	77	46	0	160	607
Hourly Total	9	60	381	89	4	539	2	136	285	76	3	499	2	218	563	211	1	994	3	141	311	196	4	651	2683
7:00 PM	1	10	93	22	0	126	0	23	59	19	0	101	0	47	112	43	0	202	0	34	59	41	0	134	563
7:15 PM	2	12	64	17	0	95	0	28	65	14	0	107	0	37	123	47	0	207	1	30	54	39	0	124	533
7:30 PM	1	17	78	15	0	111	0	31	48	12	0	91	1	38	99	38	0	176	1	17	68	33	0	119	497
7:45 PM	0	11	73	6	0	90	1	22	51	13	0	87	0	33	88	31	0	152	0	20	57	35	0	112	441
Hourly Total	4	50	308	60	0	422	1	104	223	58	0	386	1	155	422	159	0	737	2	101	238	148	0	489	2034
8:00 PM	2	17	74	8	0	101	1	25	54	12	0	92	0	30	99	29	0	158	0	19	52	42	0	113	464
8:15 PM	5	12	39	7	0	63	1	22	40	16	0	79	0	30	104	31	0	165	0	15	47	35	0	97	404
8:30 PM	2	23	45	17	0	87	4	10	32	14	0	60	0	25	97	27	0	149	0	26	44	31	0	101	397
8:45 PM	4	6	30	4	0	44	0	12	28	9	0	49	0	19	56	25	0	100	0	19	37	27	0	83	276
Hourly Total	13	58	188	36	0	295	6	69	154	51	0	280	0	104	356	112	0	572	0	79	180	135	0	394	1541
9:00 PM	0	5	37	3	0	45	1	6	32	6	0	45	0	19	58	22	0	99	0	9	31	15	0	55	244
9:15 PM	1	5	28	2	0	36	0	6	34	15	0	55	0	11	72	8	0	91	0	11	35	16	0	62	244
9:30 PM	0	3	28	1	0	32	1	4	11	5	0	21	0	14	57	12	0	83	0	10	24	16	0	50	186
9:45 PM	2	2	15	2	0	21	0	5	14	4	0	23	0	9	49	17	0	75	0	5	19	9	0	33	152
Hourly Total	3	15	108	8	0	134	2	21	91	30	0	144	0	53	236	59	0	348	0	35	109	56	0	200	826
10:00 PM	2	1	18	3	0	24	1	2	11	3	0	17	0	7	43	10	0	60	0	7	20	17	0	44	145
10:15 PM	0	1	18	10	0	29	0	7	11	7	0	25	0	14	46	12	0	72	0	7	23	7	0	37	163
10:30 PM	0	4	15	1	0	20	0	5	9	2	0	16	0	12	36	12	0	60	0	3	11	6	0	20	116
10:45 PM	0	0	9	3	0	12	0	1	13	3	0	17	0	5	39	9	0	53	0	0	7	12	0	19	101
Hourly Total	2	6	60	17	0	85	1	15	44	15	0	75	0	38	164	43	0	245	0	17	61	42	0	120	525
11:00 PM	1	2	13	0	0	16	0	1	2	0	0	3	0	6	26	6	0	38	0	2	9	7	0	18	75
11:15 PM	1	2	16	1	0	20	0	3	4	1	0	8	0	4	26	7	0	37	0	5	5	8	0	18	83
11:30 PM	0	0	9	4	0	13	0	2	2	2	0	6	0	2	22	5	0	29	0	3	4	4	0	11	59
11:45 PM	0	0	3	2	0	5	0	1	1	0	0	2	0	3	9	2	0	14	0	1	3	4	0	8	29
Hourly Total	2	4	41	7	0	54	0	7	9	3	0	19	0	15	83	20	0	118	0	11	21	23	0	55	246
DAILY TOTAL	101	1055	8051	1235	7	10442	86	2570	4629	1044	22	8329	62	3144	7649	2360	5	13215	19	1815	5032	3164	7	10030	42016
Cars	101	1042	7892	1226	2	10261	85	2504	4549	1019	7	8157	62	3083	7534	2324	0	13003	19	1781	4906	3007	1	9713	41134
Heavy Vehicles	0	13	159	9	5	181	1	66	80	25	15	172	0	61	115	36	5	212	0	34	126	157	6	317	882
Heavy Vehicle %	0.00%	1.23%	1.97%	0.73%	71.43%	1.73%	1.16%	2.57%	1.73%	2.39%	68.18%	2.07%	0.00%	1.94%	1.50%	1.53%	100.00%	1.60%	0.00%	1.87%	2.50%	4.96%	85.71%	3.16%	2.10%

**TMC 2355 - CSAH 78 @ CSAH 116
Andover MN
Thursday, September 21, 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	21	235	18	0	275	5	65	77	20	0	229	0	34	84	21	0	139	0	21	68	52	0	141	722
7:15 AM	2	22	270	24	0	318	2	69	135	22	0	228	0	51	73	27	0	151	0	18	75	56	0	149	846
7:30 AM	2	32	227	12	0	273	0	58	95	14	0	167	1	42	98	34	0	175	0	12	139	57	0	208	823
7:45 AM	4	20	230	17	0	271	2	69	95	29	0	195	1	42	103	38	0	184	0	18	72	59	0	149	799
Peak Hour Total	9	95	962	71	0	1137	9	261	402	85	0	757	2	169	358	120	0	649	0	69	354	224	0	647	3190
PHF	0.563	0.742	0.891	0.740	0.000	0.894	0.450	0.946	0.744	0.733	0.000	0.830	0.500	0.828	0.869	0.789	0.000	0.882	0.000	0.821	0.637	0.949	0.000	0.778	0.943

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	
4:15 PM	0	35	175	32	0	242	2	43	116	37	0	198	1	99	222	67	0	389	1	45	135	72	0	253	1082
4:30 PM	0	33	150	15	0	198	2	63	124	23	0	212	3	92	219	57	0	371	0	43	133	71	0	247	1028
4:45 PM	3	29	131	26	0	189	4	60	119	36	3	219	1	97	233	51	0	382	0	33	141	81	0	255	1045
5:00 PM	0	24	143	14	0	181	3	55	107	38	0	203	2	98	246	63	0	409	0	46	127	71	0	244	1037
Peak Hour Total	3	121	599	87	0	810	11	221	466	134	3	832	7	386	920	238	0	1551	1	167	536	295	0	999	4192
PHF	0.250	0.864	0.856	0.680	0.000	0.837	0.688	0.877	0.940	0.882	0.250	0.950	0.583	0.975	0.935	0.888	0.000	0.948	0.250	0.908	0.950	0.910	0.000	0.979	0.969

Total Vehicles On Leg		21051			
Vehicles Entering Intersection		10442		Vehicles Exiting Intersection	
				10609	
Southbound					
Cars	1226	7892	1042	101	2
Heavy	9	159	13	0	5
Total	1235	8051	1055	101	7



Total Vehicles on Leg 19057	Vehicles Entering Intersection 10030	Eastbound	Cars	Heavy	Total
			1	6	7
	19		0	19	
	1781		34	1815	
	4906		126	5032	
Vehicles Exiting Intersection 9027			3007	157	3164



Daily Volumes

Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 8329	Total Vehicles on Leg 16862
1019	25	1044			
4549	80	4629			
2504	66	2570			
85	1	86			
7	15	22	Vehicles Exiting Intersection 8533		



Cars	0	62	3083	7534	2324
Heavy	5	0	61	115	36
Total	5	62	3144	7649	2360
Northbound					
Vehicles Entering Intersection			Vehicles Exiting Intersection		
13215			13847		
Total Vehicles On Leg			27062		



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
09/21/2023	0:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	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	1	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	1	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	0	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	1	0	0	0	0	0	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	0	0	0	0
	3:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	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	1	0	0	0	0	0	0	0	0	0	0
	3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
	3:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00	0	0	0	0	0	0	0	0	0	1	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	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
	4:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
	5:15	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0
	5:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	3	0
	6:00	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2	4	1	0	0
	6:15	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	5	5	0	1
	6:30	0	0	1	0	0	0	0	0	2	0	0	0	0	0	1	2	0	0	0	0	2	3	18	0
	6:45	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	7	13	0
	7:00	0	0	3	0	0	0	0	1	2	2	0	0	0	2	4	1	0	0	0	0	2	0	4	0
	7:15	0	0	4	1	0	0	0	3	2	0	0	0	0	2	5	2	0	0	0	0	0	3	1	0
	7:30	0	1	4	0	0	0	0	0	0	0	0	0	0	0	4	5	0	0	0	0	1	6	1	0
	7:45	0	1	2	1	0	0	0	7	5	0	0	0	0	0	2	1	0	0	0	0	0	0	5	0
	8:00	0	0	7	0	0	0	0	1	1	1	0	0	0	2	6	0	0	0	0	0	1	5	2	0
	8:15	0	2	6	0	0	0	0	0	1	0	0	0	0	2	2	0	0	0	0	0	2	3	2	0
	8:30	0	0	3	1	0	0	0	3	1	0	0	0	0	2	3	1	0	0	0	0	2	2	2	0
	8:45	0	0	0	0	0	0	0	3	1	3	0	0	0	3	3	1	0	0	0	0	0	4	1	0
	9:00	0	0	0	0	0	0	0	2	0	3	0	0	0	1	3	1	0	0	0	0	0	2	0	0
	9:15	0	0	20	1	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	1	0	0
	9:30	0	0	10	0	0	0	0	6	1	1	0	0	0	2	1	3	0	0	0	0	1	1	0	0
	9:45	0	0	1	0	0	0	0	0	3	0	1	0	0	1	2	0	0	0	0	0	0	0	3	0
	10:00	0	0	0	0	0	0	0	1	3	0	2	0	0	0	1	1	1	0	0	0	0	2	2	0
	10:15	0	0	1	0	0	0	1	0	1	0	0	0	0	1	3	0	0	0	0	0	0	1	1	0
	10:30	0	0	4	0	0	0	0	2	1	1	0	1	0	2	1	1	0	0	0	0	0	5	1	0
	10:45	0	0	3	0	0	0	0	0	0	0	1	0	0	2	1	0	0	0	0	0	1	0	4	0
	11:00	0	0	3	0	0	0	0	2	0	1	0	0	0	1	2	4	0	0	0	0	1	3	3	0
	11:15	0	0	3	0	0	0	0	2	2	1	0	0	0	2	1	1	0	0	0	0	0	2	4	0
	11:30	0	0	2	0	0	0	0	1	1	0	0	0	0	1	1	1	0	1	0	0	1	3	2	0
	11:45	0	0	1	0	0	0	0	4	5	2	0	1	0	2	1	0	0	0	0	0	0	4	1	0

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2355

Study Date : 09/28/2023

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 78

Number of Lanes : 2+

Total Approach Volume: 13,215

Southbound: CSAH 78

Number of Lanes :2+

Total Approach Volume: 10,442

Minor Street Approaches

Eastbound: CSAH 116

Number of Lanes :2+

Total Approach Volume: 10,030

Westbound: CSAH 116

Number of Lanes :2+

Total Approach Volume: 8,329

Warrant Summary (Rural Values Apply)

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

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

Required volumes reached for 17 hours, 8 are needed

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

Required volumes reached for 16 hours, 8 are needed

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

Required 1A volumes reached for 18 hours, 8 are needed

Required 1B volumes reached for 16 hours, 8 are needed

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

Number of hours (16) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (65) 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 2355

Study Date : 09/28/2023

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

17 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 NB	+	Major SB	=		Minor EB	Minor WB	
16:00 - 17:00	1538	+	811	=	2349	988	838	Yes
17:00 - 18:00	1555	+	731	=	2286	874	725	Yes
15:00 - 16:00	1396	+	617	=	2013	868	780	Yes
07:00 - 08:00	649	+	1137	=	1786	647	757	Yes
14:00 - 15:00	1041	+	578	=	1619	778	527	Yes
18:00 - 19:00	994	+	539	=	1533	651	499	Yes
08:00 - 09:00	504	+	766	=	1270	513	506	Yes
06:00 - 07:00	331	+	872	=	1203	434	357	Yes
09:00 - 10:00	508	+	690	=	1198	495	457	Yes
13:00 - 14:00	690	+	474	=	1164	653	438	Yes
19:00 - 20:00	737	+	422	=	1159	489	386	Yes
12:00 - 13:00	650	+	486	=	1136	604	402	Yes
11:00 - 12:00	558	+	516	=	1074	538	445	Yes
10:00 - 11:00	491	+	552	=	1043	456	411	Yes
20:00 - 21:00	572	+	295	=	867	394	280	Yes
05:00 - 06:00	114	+	417	=	531	138	176	Yes
21:00 - 22:00	348	+	134	=	482	200	144	Yes
04:45 - 05:45	101	+	355	=	456	93	137	No
04:30 - 05:30	76	+	275	=	351	70	108	No
22:00 - 23:00	245	+	85	=	330	120	75	No
22:15 - 23:15	223	+	77	=	300	94	61	No
04:15 - 05:15	59	+	218	=	277	56	83	No
22:30 - 23:30	188	+	68	=	256	75	44	No
22:45 - 23:45	157	+	61	=	218	66	34	No
04:00 - 05:00	50		156		206	53	61	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2355

Study Date : 09/28/2023

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

16 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 NB	+	Major SB	=		Minor EB	Minor WB	
16:15 - 17:15	1551	+	810	=	2361	999	832	Yes
15:15 - 16:15	1519	+	657	=	2176	900	793	Yes
17:15 - 18:15	1447	+	686	=	2133	800	671	Yes
07:15 - 08:15	650	+	1086	=	1736	663	736	Yes
14:15 - 15:15	1105	+	585	=	1690	778	577	Yes
18:15 - 19:15	895	+	529	=	1424	615	451	Yes
06:15 - 07:15	426	+	980	=	1406	507	462	Yes
13:15 - 14:15	735	+	506	=	1241	703	472	Yes
08:15 - 09:15	503	+	714	=	1217	471	488	Yes
09:15 - 10:15	482	+	655	=	1137	478	409	Yes
12:15 - 13:15	649	+	476	=	1125	596	400	Yes
19:15 - 20:15	693	+	397	=	1090	468	377	Yes
11:15 - 12:15	580	+	509	=	1089	574	460	Yes
10:15 - 11:15	521	+	535	=	1056	481	430	Yes
20:15 - 21:15	513	+	239	=	752	336	233	Yes
05:15 - 06:15	143	+	505	=	648	194	205	Yes
05:00 - 06:00	114	+	417	=	531	138	176	No
04:45 - 05:45	101	+	355	=	456	93	137	No
21:15 - 22:15	309	+	113	=	422	189	116	No
21:30 - 22:30	290	+	106	=	396	164	86	No
21:45 - 22:45	267	+	94	=	361	134	81	No
04:30 - 05:30	76	+	275	=	351	70	108	No
22:00 - 23:00	245	+	85	=	330	120	75	No
22:15 - 23:15	223	+	77	=	300	94	61	No
04:15 - 05:15	59		218		277	56	83	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2355

Study Date : 09/28/2023

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

18 hours meet 1A minimums.
16 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 78

Minor Road CSAH 116

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
15:45 - 16:45	1561	+	781	=	2342	995	803	Yes
16:45 - 17:45	1588	+	752	=	2340	936	798	Yes
14:45 - 15:45	1333	+	604	=	1937	795	731	Yes
06:45 - 07:45	604	+	1116	=	1720	650	665	Yes
17:45 - 18:45	1126	+	578	=	1704	684	544	Yes
07:45 - 08:45	565	+	898	=	1463	544	575	Yes
13:45 - 14:45	893	+	538	=	1431	778	512	Yes
18:45 - 19:45	802	+	461	=	1263	537	400	Yes
08:45 - 09:45	506	+	708	=	1214	481	484	Yes
11:45 - 12:45	661	+	498	=	1159	597	418	Yes
12:45 - 13:45	638	+	480	=	1118	616	421	Yes
10:45 - 11:45	519	+	526	=	1045	521	446	Yes

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
16:00 - 17:00	1538	+	811	=	2349	988	838	Yes
17:00 - 18:00	1555	+	731	=	2286	874	725	Yes
15:00 - 16:00	1396	+	617	=	2013	868	780	Yes
07:00 - 08:00	649	+	1137	=	1786	647	757	Yes
14:00 - 15:00	1041	+	578	=	1619	778	527	Yes
18:00 - 19:00	994	+	539	=	1533	651	499	Yes
08:00 - 09:00	504	+	766	=	1270	513	506	Yes
06:00 - 07:00	331	+	872	=	1203	434	357	Yes
09:00 - 10:00	508	+	690	=	1198	495	457	Yes
13:00 - 14:00	690	+	474	=	1164	653	438	Yes
19:00 - 20:00	737	+	422	=	1159	489	386	Yes
12:00 - 13:00	650	+	486	=	1136	604	402	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2355

Study Date : 09/28/2023

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.

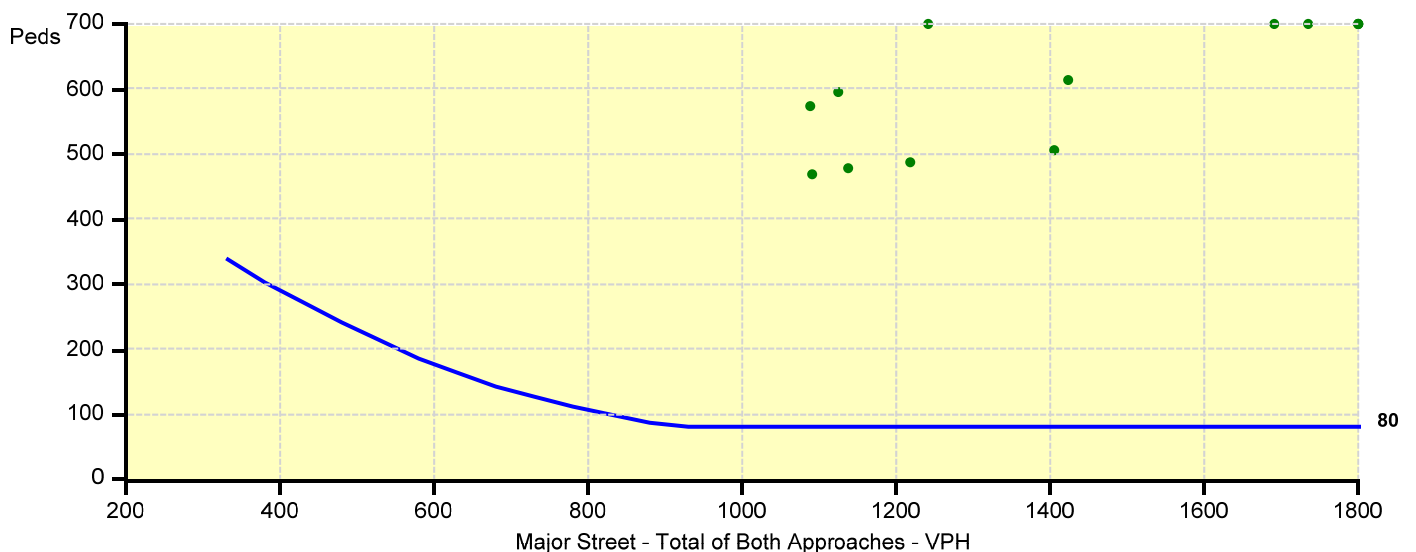
Summary

16 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 78				Total	Minor Road CSAH 116		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:15 - 17:15	1551	+	810	=	2361	999	832	Yes
15:15 - 16:15	1519	+	657	=	2176	900	793	Yes
17:15 - 18:15	1447	+	686	=	2133	800	671	Yes
07:15 - 08:15	650	+	1086	=	1736	663	736	Yes
14:15 - 15:15	1105	+	585	=	1690	778	577	Yes
18:15 - 19:15	895	+	529	=	1424	615	451	Yes
06:15 - 07:15	426	+	980	=	1406	507	462	Yes
13:15 - 14:15	735	+	506	=	1241	703	472	Yes
08:15 - 09:15	503	+	714	=	1217	471	488	Yes
09:15 - 10:15	482	+	655	=	1137	478	409	Yes
12:15 - 13:15	649	+	476	=	1125	596	400	Yes
19:15 - 20:15	693	+	397	=	1090	468	377	Yes



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2355

Study Date : 09/28/2023

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

61 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 78				Total	Minor Road CSAH 116		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:15 - 17:15	1551	+	810	=	2361	999	832	Yes
16:30 - 17:30	1586	+	774	=	2360	972	824	Yes
16:00 - 17:00	1538	+	811	=	2349	988	838	Yes
15:45 - 16:45	1561	+	781	=	2342	995	803	Yes
16:45 - 17:45	1588	+	752	=	2340	936	798	Yes
15:30 - 16:30	1573	+	733	=	2306	961	816	Yes
17:00 - 18:00	1555	+	731	=	2286	874	725	Yes
15:15 - 16:15	1519	+	657	=	2176	900	793	Yes
17:15 - 18:15	1447	+	686	=	2133	800	671	Yes
15:00 - 16:00	1396	+	617	=	2013	868	780	Yes
14:45 - 15:45	1333	+	604	=	1937	795	731	Yes
17:30 - 18:30	1260		630		1890	753	610	Yes

