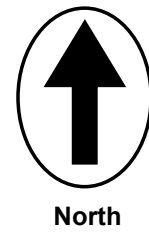
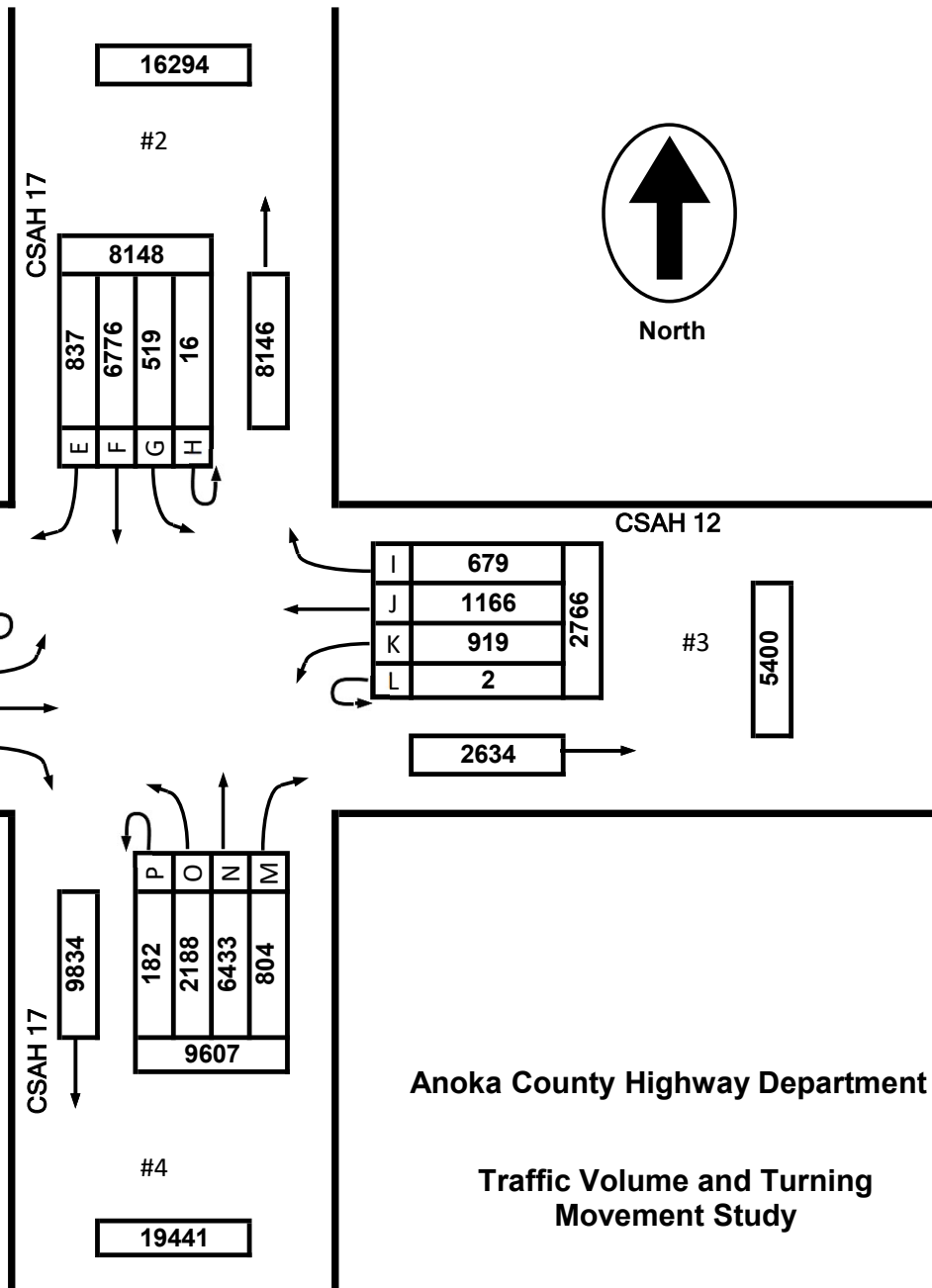


Date : 12/07/21

Count Number : TMC 2160

Location : CSAH 17 (Lexington Ave.
@ CSAH 12 (109th Ave.)

Collection Period : 24 Hours



CSAH 12

CSAH 12

CSAH 17

CSAH 17

EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	2	2	5
#2	0	1	2	3
#3	1	2	1	4
#4	0	1	2	3

Anoka County Highway Department

Traffic Volume and Turning Movement Study

Date : 12/07/21

Count Number : TMC 2160

Location : CSAH 17 (Lexington Ave.
@ CSAH 12 (109th Ave.)

Collection Period : 7:15 - 8:15 AM

AM PEAK

1292

#2



North

CSAH 17

1020			
91	884	43	2
E	F	G	H

272

CSAH 12

I	20	192
J	80	
K	92	
L	0	

#3

367

175

513

#1

CSAH 12

216		0	D
		33	C
		72	B
		111	A

CSAH 17

1107

P	O	N	M
20	126	217	60
423			

#4

1530

EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	2	2	5
#2	0	1	2	3
#3	1	2	1	4
#4	0	1	2	3

Anoka County Highway Department

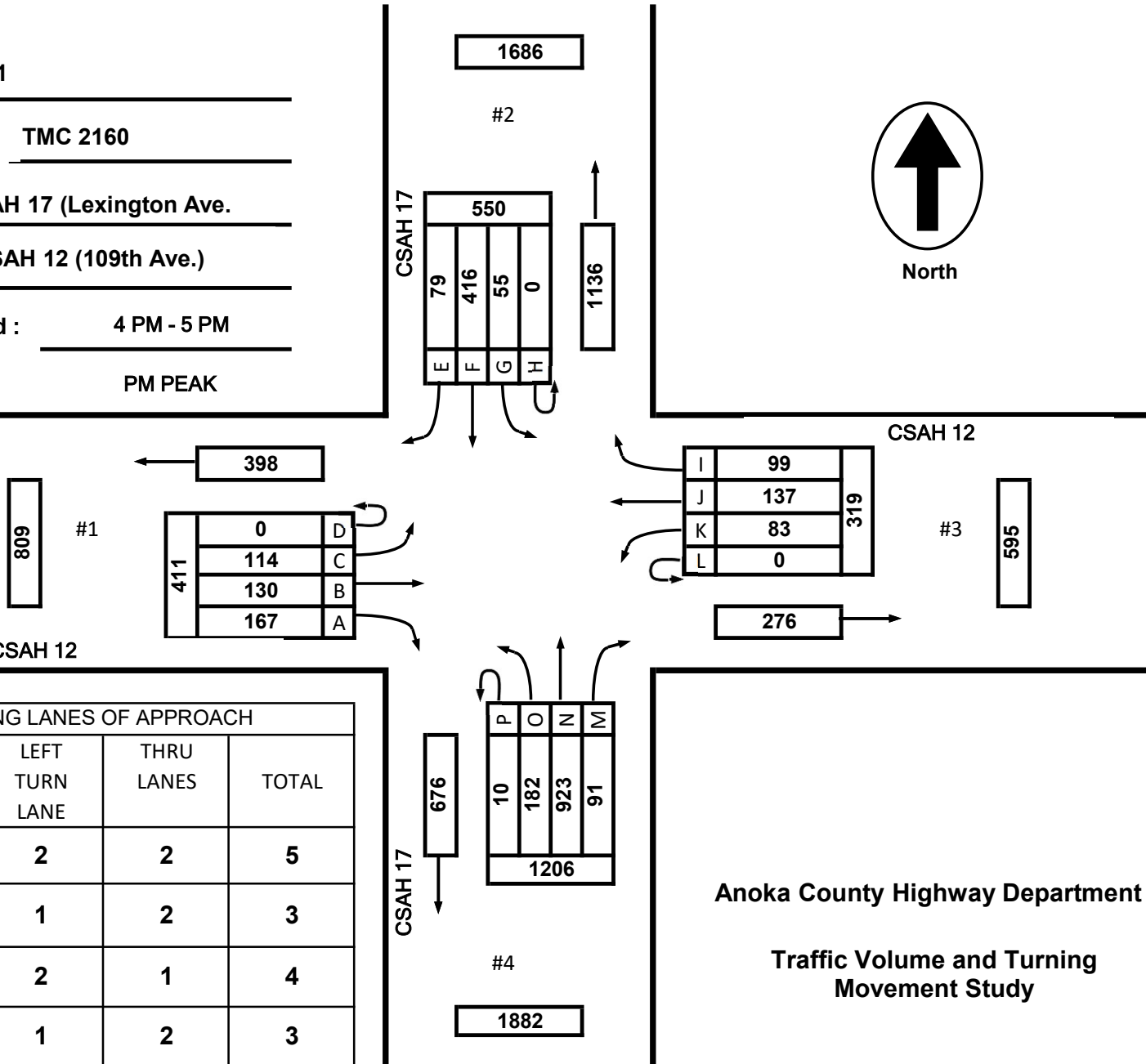
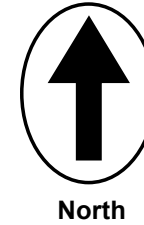
Traffic Volume and Turning Movement Study

Date : 12/07/21

Count Number : TMC 2160

Location : CSAH 17 (Lexington Ave.
@ CSAH 12 (109th Ave.)

Collection Period : 4 PM - 5 PM
 PM PEAK



EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	2	2	5
#2	0	1	2	3
#3	1	2	1	4
#4	0	1	2	3

Anoka County Highway Department

Traffic Volume and Turning Movement Study

TMC 2160
Blaine MN
Tuesday, December 7, 2021

Time	Southbound CSAH 17						Westbound CSAH 12						Northbound CSAH 17						Eastbound CSAH 12						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	3	0	0	3	0	1	0	1	0	2	1	2	8	3	0	14	0	2	0	4	0	6	25
12:15 AM	0	0	3	2	0	5	0	2	0	0	2	0	3	15	0	0	18	0	0	0	3	0	3	28	
12:30 AM	0	0	4	1	0	5	0	0	0	1	0	0	0	2	9	0	0	11	0	0	0	0	0	0	16
12:45 AM	0	0	9	2	0	11	0	0	0	0	0	0	0	1	15	0	0	16	0	0	0	0	0	0	27
Hourly Total	0	0	19	5	0	24	0	3	0	1	0	4	1	8	47	3	0	59	0	2	0	7	0	9	96
1:00 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	6	0	0	6	0	0	0	2	0	2	10
1:15 AM	0	0	1	0	0	1	0	2	0	0	0	2	0	2	8	0	0	10	0	0	1	1	0	2	15
1:30 AM	0	0	2	0	0	2	0	1	2	0	0	3	0	2	7	0	0	9	0	0	2	1	0	3	17
1:45 AM	0	2	0	1	0	3	0	0	0	0	0	0	0	3	8	0	0	11	0	0	0	1	0	1	15
Hourly Total	0	2	5	1	0	8	0	3	2	0	0	5	0	7	29	0	0	36	0	0	3	5	0	8	57
2:00 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	7
2:15 AM	0	0	5	0	0	5	0	0	0	0	0	0	0	2	4	0	0	6	0	0	0	0	0	0	11
2:30 AM	0	0	2	0	0	2	0	3	0	0	0	3	1	2	2	1	0	6	0	0	0	1	0	1	12
2:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	1	2	4	1	0	8	0	0	1	2	0	3	12
Hourly Total	0	0	10	0	0	10	0	3	0	0	0	3	2	6	15	2	0	25	0	0	1	3	0	4	42
3:00 AM	0	0	6	0	0	6	0	2	0	0	0	2	0	1	3	0	0	4	0	0	0	0	0	0	12
3:15 AM	0	0	6	0	0	6	0	2	0	0	0	2	0	0	4	0	0	4	0	0	1	0	0	1	13
3:30 AM	0	0	10	2	0	12	0	1	1	0	0	2	0	1	5	0	0	6	0	0	1	1	0	2	22
3:45 AM	0	0	11	0	0	11	0	1	0	0	0	1	0	3	2	0	0	5	0	0	0	0	0	0	17
Hourly Total	0	0	33	2	0	35	0	6	1	0	0	7	0	5	14	0	0	19	0	0	2	1	0	3	64
4:00 AM	0	0	13	1	0	14	0	2	0	0	0	2	0	3	2	0	0	5	0	1	1	0	0	2	23
4:15 AM	0	0	30	0	0	30	0	1	0	0	0	1	3	2	1	0	0	6	0	0	2	1	0	3	40
4:30 AM	0	3	27	5	0	35	0	7	2	1	0	10	0	5	5	0	0	10	0	0	6	5	0	11	66
4:45 AM	0	1	37	3	0	41	0	3	1	0	0	4	0	3	7	1	0	11	0	0	4	8	0	12	68
Hourly Total	0	4	107	9	0	120	0	13	3	1	0	17	3	13	15	1	0	32	0	1	13	14	0	28	197
5:00 AM	0	4	52	3	0	59	0	2	7	0	0	9	0	6	4	0	0	10	0	0	2	7	0	9	87
5:15 AM	0	0	102	2	0	104	0	14	3	1	0	18	0	8	2	1	0	11	0	0	3	9	0	12	145
5:30 AM	0	2	115	5	0	122	0	14	0	0	0	14	0	12	4	0	0	16	0	2	1	11	0	14	166
5:45 AM	0	2	99	5	0	106	0	7	6	0	0	13	2	9	5	4	0	20	0	3	9	22	0	34	173
Hourly Total	0	8	368	15	0	391	0	37	16	1	0	54	2	35	15	5	0	57	0	5	15	49	0	69	571
6:00 AM	0	2	131	2	0	135	0	14	9	2	0	25	2	9	13	5	0	29	0	3	3	11	0	17	206
6:15 AM	0	4	180	6	0	190	0	15	6	3	0	24	3	7	35	5	0	50	0	2	5	22	0	29	293
6:30 AM	0	5	177	14	0	196	0	22	10	2	0	34	3	21	29	10	0	63	0	6	13	32	0	51	344
6:45 AM	0	2	193	19	0	214	0	18	13	2	0	33	1	33	36	10	0	80	0	4	9	47	0	60	387
Hourly Total	0	13	681	41	0	735	0	69	38	9	0	116	9	70	113	30	0	222	0	15	30	112	0	157	1230
7:00 AM	0	7	218	20	0	245	0	29	13	3	0	45	7	20	43	8	0	78	0	9	11	20	0	40	408
7:15 AM	0	6	239	22	0	267	0	30	14	5	0	49	2	27	43	12	0	84	0	7	7	30	0	44	444
7:30 AM	1	10	233	16	0	260	0	22	18	5	0	45	7	28	49	16	0	100	0	7	20	25	0	52	457
7:45 AM	0	15	236	32	0	283	0	20	17	3	0	40	4	37	67	18	0	126	0	10	27	29	0	66	515
Hourly Total	1	38	926	90	0	1055	0	101	62	16	0	179	20	112	202	54	0	388	0	33	65	104	0	202	1824

**TMC 2160
Blaine MN
Tuesday, December 7, 2021**

Time	Southbound CSAH 17						Westbound CSAH 12						Northbound CSAH 17						Eastbound CSAH 12						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	1	12	176	21	0	210	0	20	31	7	0	58	7	34	58	14	0	113	0	9	18	27	0	54	435
8:15 AM	0	13	154	18	0	185	0	15	15	5	0	35	3	34	57	6	0	100	0	14	16	33	0	63	383
8:30 AM	0	9	167	11	0	187	0	10	11	7	0	28	4	24	58	10	0	96	0	11	25	30	0	66	377
8:45 AM	1	10	142	12	0	165	0	13	15	9	0	37	5	24	40	13	0	82	0	21	19	37	0	77	361
Hourly Total	2	44	639	62	0	747	0	58	72	28	0	158	19	116	213	43	0	391	0	55	78	127	0	260	1556
9:00 AM	1	10	133	15	0	159	0	10	13	7	0	30	6	34	59	12	0	111	0	10	14	30	0	54	354
9:15 AM	0	10	124	16	0	150	0	17	20	8	0	45	10	34	68	11	0	123	0	15	21	26	0	62	380
9:30 AM	0	4	115	13	0	132	0	7	13	10	0	30	3	30	49	5	0	87	0	11	14	25	0	50	299
9:45 AM	0	11	91	16	0	118	0	10	16	3	0	29	7	31	37	7	0	82	0	13	10	26	0	49	278
Hourly Total	1	35	463	60	0	559	0	44	62	28	0	134	26	129	213	35	0	403	0	49	59	107	0	215	1311
10:00 AM	1	5	73	10	0	89	0	14	21	6	0	41	4	30	52	9	0	95	0	4	15	23	0	42	267
10:15 AM	0	11	88	7	0	106	0	9	10	7	0	26	3	17	49	8	0	77	0	19	11	33	0	63	272
10:30 AM	0	7	60	8	0	75	0	8	15	10	0	33	3	28	56	7	0	94	0	12	13	37	0	62	264
10:45 AM	0	10	79	7	0	96	0	3	11	9	0	23	1	27	54	11	0	93	0	13	24	27	0	64	276
Hourly Total	1	33	300	32	0	366	0	34	57	32	0	123	11	102	211	35	0	359	0	48	63	120	0	231	1079
11:00 AM	0	7	88	17	0	112	0	19	12	7	0	38	2	32	50	12	0	96	0	5	22	23	0	50	296
11:15 AM	2	9	89	12	0	112	0	8	13	11	0	32	5	25	45	5	0	80	0	10	19	33	0	62	286
11:30 AM	0	7	74	10	0	91	0	13	31	5	0	49	3	44	58	14	0	119	0	10	19	29	0	58	317
11:45 AM	0	9	74	12	0	95	0	15	12	9	0	36	1	42	64	16	0	123	0	20	34	38	0	92	346
Hourly Total	2	32	325	51	0	410	0	55	68	32	0	155	11	143	217	47	0	418	0	45	94	123	0	262	1245
12:00 PM	0	8	75	13	0	96	0	11	19	12	0	42	1	36	75	16	0	128	0	16	25	39	0	80	346
12:15 PM	0	9	102	8	0	119	0	10	20	9	0	39	3	33	99	14	0	149	0	15	20	26	0	61	368
12:30 PM	0	5	55	11	0	71	0	20	19	14	0	53	3	42	79	14	0	138	0	13	18	38	0	69	331
12:45 PM	0	7	73	13	0	93	0	17	20	13	0	50	3	32	91	10	0	136	0	13	19	25	0	57	336
Hourly Total	0	29	305	45	0	379	0	58	78	48	0	184	10	143	344	54	0	551	0	57	82	128	0	267	1381
1:00 PM	1	7	72	6	0	86	0	12	17	7	0	36	5	29	72	8	0	114	0	11	21	30	0	62	298
1:15 PM	0	5	83	12	0	100	0	7	21	10	0	38	3	24	47	11	0	85	0	8	21	25	0	54	277
1:30 PM	2	12	68	8	0	90	0	20	19	5	0	44	3	41	102	12	0	158	0	12	20	39	0	71	363
1:45 PM	1	6	83	4	0	94	0	16	26	11	0	53	3	29	90	20	0	142	0	11	21	32	0	64	353
Hourly Total	4	30	306	30	0	370	0	55	83	33	0	171	14	123	311	51	0	499	0	42	83	126	0	251	1291
2:00 PM	0	6	72	6	0	84	0	14	17	11	0	42	6	55	87	11	0	159	0	13	21	34	0	68	353
2:15 PM	0	12	79	11	0	102	0	21	15	12	0	48	2	24	109	10	0	145	0	16	32	43	0	91	386
2:30 PM	0	17	89	17	0	123	0	22	12	15	0	49	1	35	102	11	0	149	0	21	20	30	0	71	392
2:45 PM	1	9	76	10	0	96	0	8	14	21	0	43	3	34	148	15	0	200	0	16	21	32	0	69	408
Hourly Total	1	44	316	44	0	405	0	65	58	59	0	182	12	148	446	47	0	653	0	66	94	139	0	299	1539
3:00 PM	1	10	71	9	0	91	0	20	19	22	0	61	5	64	191	21	0	281	0	22	25	48	0	95	528
3:15 PM	0	13	92	10	0	115	1	16	19	13	0	49	2	42	182	19	0	245	0	27	25	45	0	97	506
3:30 PM	0	9	93	15	0	117	0	20	30	18	0	68	4	63	196	15	0	278	0	29	36	29	0	94	557
3:45 PM	1	15	97	21	0	134	0	17	35	17	0	69	1	63	218	19	0	301	0	29	23	52	0	104	608
Hourly Total	2	47	353	55	0	457	1	73	103	70	0	247	12	232	787	74	0	1105	0	107	109	174	0	390	2199

**TMC 2160
Blaine MN
Tuesday, December 7, 2021**

Time	Southbound CSAH 17						Westbound CSAH 12						Northbound CSAH 17						Eastbound CSAH 12						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	12	114	21	0	147	0	22	40	21	0	83	4	46	223	30	0	303	0	24	34	39	0	97	630
4:15 PM	0	15	107	20	0	142	0	24	32	23	0	79	4	42	226	27	1	299	0	27	31	42	0	100	620
4:30 PM	0	16	95	23	0	134	0	22	34	28	0	84	1	46	228	20	0	295	0	33	34	42	0	109	622
4:45 PM	0	12	100	15	0	127	0	15	31	27	0	73	1	48	246	14	0	309	0	30	31	44	0	105	614
Hourly Total	0	55	416	79	0	550	0	83	137	99	0	319	10	182	923	91	1	1206	0	114	130	167	0	411	2486
5:00 PM	0	14	99	18	0	131	1	20	33	17	0	71	0	42	189	24	0	255	0	30	34	38	0	102	559
5:15 PM	0	12	114	19	0	145	0	17	37	22	0	76	2	55	213	13	0	283	0	38	25	34	0	97	601
5:30 PM	1	8	98	22	0	129	0	11	31	21	0	63	1	54	185	15	0	255	0	24	24	33	0	81	528
5:45 PM	0	12	103	15	0	130	0	12	23	10	0	45	1	34	158	21	0	214	0	32	26	23	0	81	470
Hourly Total	1	46	414	74	0	535	1	60	124	70	0	255	4	185	745	73	0	1007	0	124	109	128	0	361	2158
6:00 PM	0	6	78	12	0	96	0	9	16	18	0	43	0	44	171	9	0	224	0	28	17	35	0	80	443
6:15 PM	1	7	92	10	0	110	0	10	11	12	0	33	2	43	122	10	0	177	0	22	22	32	0	76	396
6:30 PM	0	5	80	11	0	96	0	12	15	16	0	43	1	27	104	14	0	146	0	19	32	28	0	79	364
6:45 PM	0	6	74	13	0	93	0	7	16	13	0	36	3	25	101	13	0	142	0	20	18	27	0	65	336
Hourly Total	1	24	324	46	0	395	0	38	58	59	0	155	6	139	498	46	0	689	0	89	89	122	0	300	1539
7:00 PM	0	9	57	12	0	78	0	7	19	12	0	38	1	24	100	6	0	131	0	18	13	21	0	52	299
7:15 PM	0	3	48	11	0	62	0	2	13	15	0	30	1	26	85	13	0	125	0	16	17	14	0	47	264
7:30 PM	0	2	44	17	0	63	0	7	14	5	0	26	2	21	84	16	0	123	0	16	14	17	0	47	259
7:45 PM	0	4	31	11	0	46	0	1	19	9	0	29	0	20	89	8	0	117	0	6	18	20	0	44	236
Hourly Total	0	18	180	51	0	249	0	17	65	41	0	123	4	91	358	43	0	496	0	56	62	72	0	190	1058
8:00 PM	0	2	34	7	0	43	0	6	8	5	0	19	1	49	74	5	0	129	0	12	18	17	0	47	238
8:15 PM	0	3	29	4	0	36	0	5	8	8	0	21	0	16	72	3	0	91	0	8	11	11	0	30	178
8:30 PM	0	2	26	8	0	36	0	5	13	7	0	25	0	21	65	5	0	91	0	8	11	13	0	32	184
8:45 PM	0	3	23	9	0	35	0	1	10	11	0	22	1	11	76	7	0	95	0	10	12	17	0	39	191
Hourly Total	0	10	112	28	0	150	0	17	39	31	0	87	2	97	287	20	0	406	0	38	52	58	0	148	791
9:00 PM	0	3	32	2	0	37	0	5	13	4	0	22	0	14	67	3	0	84	0	23	12	11	0	46	189
9:15 PM	0	1	17	3	0	21	0	1	4	4	0	9	0	8	60	2	0	70	0	13	9	2	0	24	124
9:30 PM	0	1	17	5	0	23	0	5	2	2	0	9	0	11	54	6	0	71	0	8	14	8	0	30	133
9:45 PM	0	1	23	2	0	26	0	3	3	1	0	7	1	6	40	4	0	51	0	9	8	8	0	25	109
Hourly Total	0	6	89	12	0	107	0	14	22	11	0	47	1	39	221	15	0	276	0	53	43	29	0	125	555
10:00 PM	0	0	13	2	0	15	0	1	5	0	0	6	1	11	26	6	0	44	0	7	10	7	0	24	89
10:15 PM	0	1	21	2	0	24	0	5	1	4	0	10	0	10	38	5	0	53	0	3	5	6	0	14	101
10:30 PM	0	0	14	0	0	14	0	2	2	2	0	6	0	3	31	4	0	38	0	3	9	11	0	23	81
10:45 PM	0	0	13	0	0	13	0	1	0	1	0	2	0	9	28	4	0	41	0	3	2	10	0	15	71
Hourly Total	0	1	61	4	0	66	0	9	8	7	0	24	1	33	123	19	0	176	0	16	26	34	0	76	342
11:00 PM	0	0	6	1	0	7	0	0	3	1	0	4	1	6	18	6	0	31	0	0	2	1	0	3	45
11:15 PM	0	0	9	0	0	9	0	0	2	1	0	3	0	2	27	3	0	32	0	3	1	3	0	7	51
11:30 PM	0	0	6	0	0	6	0	2	1	1	0	4	1	17	27	5	0	50	0	0	2	3	0	5	65
11:45 PM	0	0	3	0	0	3	0	2	4	0	0	6	0	5	14	2	0	21	0	0	2	1	0	3	33
Hourly Total	0	0	24	1	0	25	0	4	10	3	0	17	2	30	86	16	0	134	0	3	7	8	0	18	194
DAILY TOTAL	16	519	6776	837	0	8148	2	919	1166	679	0	2766	182	2188	6433	804	1	9607	0	1018	1309	1957	0	4284	24805
Cars	16	516	6658	810	0	8000	2	889	1149	678	0	2718	179	2152	6336	773	0	9440	0	996	1269	1915	0	4180	24338
Heavy Vehicles	0	3	118	27	0	148	0	30	17	1	0	48	3	36	97	31	1	167	0	22	40	42	0	104	467
Heavy Vehicle %	0.00%	0.58%	1.74%	3.23%	0.00%	1.82%	0.00%	3.26%	1.46%	0.15%	0.00%	1.74%	1.65%	1.65%	1.51%	3.86%	100.00%	1.74%	0.00%	2.16%	3.06%	2.15%	0.00%	2.43%	1.88%

**TMC 2160
Blaine MN
Tuesday, December 7, 2021
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	
7:15 AM	0	6	239	22	0	267	0	30	14	5	0	49	2	27	43	12	0	84	0	7	7	30	0	44	444
7:30 AM	1	10	233	16	0	260	0	22	18	5	0	45	7	28	49	16	0	100	0	7	20	25	0	52	457
7:45 AM	0	15	236	32	0	283	0	20	17	3	0	40	4	37	67	18	0	126	0	10	27	29	0	66	515
8:00 AM	1	12	176	21	0	210	0	20	31	7	0	58	7	34	58	14	0	113	0	9	18	27	0	54	435
Peak Hour Total PHF	2	43	884	91	0	1020	0	92	80	20	0	192	20	126	217	60	0	423	0	33	72	111	0	216	1851
	0.500	0.717	0.925	0.711	0.000	0.901	0.000	0.767	0.645	0.714	0.000	0.828	0.714	0.851	0.810	0.833	0.000	0.839	0.000	0.825	0.667	0.925	0.000	0.818	0.899

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	12	114	21	0	147	0	22	40	21	0	83	4	46	223	30	0	303	0	24	34	39	0	97	630
4:15 PM	0	15	107	20	0	142	0	24	32	23	0	79	4	42	226	27	1	299	0	27	31	42	0	100	620
4:30 PM	0	16	95	23	0	134	0	22	34	28	0	84	1	46	228	20	0	295	0	33	34	42	0	109	622
4:45 PM	0	12	100	15	0	127	0	15	31	27	0	73	1	48	246	14	0	309	0	30	31	44	0	105	614
Peak Hour Total PHF	0	55	416	79	0	550	0	83	137	99	0	319	10	182	923	91	1	1206	0	114	130	167	0	411	2486
	0.000	0.859	0.912	0.859	0.000	0.935	0.000	0.865	0.856	0.884	0.000	0.949	0.625	0.948	0.938	0.758	0.250	0.976	0.000	0.864	0.956	0.949	0.000	0.943	0.987

Total Vehicles On Leg		16294					
Vehicles Entering Intersection		8148		Vehicles Exiting Intersection		8146	
Southbound							
Cars	810	6658	516	16	0		
Heavy	27	118	3	0	0		
Total	837	6776	519	16	0		



Total Vehicles on Leg 8475	Vehicles Entering Intersection 4284	Eastbound	Cars	Heavy	Total	
			0	0	0	
	0		0	0		
	996		22	1018		
	1269		40	1309		
Vehicles Exiting Intersection 4191		1915	42	1957		

Daily Volumes

Total Vehicles on Leg 5400	Westbound	Cars	Heavy	Total	
		678	1	679	
		1149	17	1166	
		889	30	919	
		2	0	2	
Vehicles Entering Intersection 2766		Vehicles Exiting Intersection 2634			

Cars	0	179	2152	6336	773
Heavy	1	3	36	97	31
Total	1	182	2188	6433	804
Northbound					
Vehicles Entering Intersection			9607		
Vehicles Exiting Intersection			9834		
Total Vehicles On Leg			19441		

Heavy Vehicles

Date	Time	Southbound					Westbound					Northbound					Eastbound				
		U Turns	Left Turns	Straight Through	Right Turns	Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	Bicycles in Crosswalk
12/7/2021	0:00	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
	0:30	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
	1:00	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
	1:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	1:45	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	1	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
	2:30	0	0	0	0	0	0	0	0	0	0	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
	3:00	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	0	0	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
	3:45	0	0	0	0	0	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	0	0	2	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
	4:30	0	0	0	0	0	0	0	0	0	0	0	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	1	0
	5:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
	5:15	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
	5:30	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
	5:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	6:15	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	6:30	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0
	6:45	0	0	2	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	1	0
	7:00	0	0	3	1	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0
	7:15	0	0	2	3	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0
	7:30	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	2	3	2	0
	7:45	0	0	2	2	0	0	0	0	0	0	1	3	5	1	0	0	1	1	1	0
	8:00	0	0	1	1	0	0	1	0	0	0	0	1	5	1	0	0	1	0	2	0
	8:15	0	0	0	1	0	0	0	0	0	0	0	0	5	0	0	0	2	0	0	0
	8:30	0	0	5	0	0	0	0	0	0	0	0	1	4	0	0	0	0	2	0	0
	8:45	0	0	5	1	0	0	2	0	0	0	0	1	1	2	0	0	0	4	2	0
	9:00	0	0	2	0	0	0	0	2	0	0	0	0	4	1	0	0	0	0	3	0
	9:15	0	0	3	1	0	0	0	0	0	0	0	0	3	1	0	0	0	2	1	0
	9:30	0	0	1	0	0	0	1	2	0	0	0	1	3	0	0	0	0	0	0	0
	9:45	0	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	3	0
	10:00	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	10:15	0	0	2	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0
	10:30	0	1	1	0	0	0	2	0	0	0	0	2	1	0	0	0	0	0	2	0
	10:45	0	0	3	0	0	0	0	0	0	0	0	1	2	2	0	0	0	1	0	0
	11:00	0	0	6	2	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0
	11:15	0	0	1	1	0	0	2	0	0	0	0	0	1	0	0	0	0	1	1	0
	11:30	0	0	0	2	0	0	1	1	0	0	0	4	1	2	0	0	0	0	0	0
	11:45	0	1	3	0	0	0	0	0	0	0	0	0	1	2	0	0	1	1	0	0

Heavy Vehicles

Date	Time	Southbound					Westbound					Northbound					Eastbound				
		U Turns	Left Turns	Straight Through	Right Turns	Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	Bicycles in Crosswalk
12/07/2021	12:00	0	0	0	0	0	0	1	1	1	0	0	1	3	1	0	0	0	1	0	0
	12:15	0	0	5	0	0	0	0	0	0	0	0	1	3	2	0	0	0	0	0	0
	12:30	0	0	2	1	0	0	1	2	0	0	0	1	1	0	0	0	1	2	0	0
	12:45	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0
	13:00	0	0	3	0	0	0	2	1	0	0	0	3	4	0	0	0	1	0	0	0
	13:15	0	0	3	1	0	0	0	0	0	0	0	1	2	0	0	0	1	2	2	0
	13:30	0	0	1	0	0	0	0	0	0	0	0	2	4	1	0	0	0	2	2	0
	13:45	0	0	3	0	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	0
	14:00	0	0	4	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	0
	14:15	0	1	3	0	0	0	1	0	0	0	0	0	2	2	0	0	0	0	1	0
	14:30	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0
	14:45	0	0	3	0	0	0	0	0	0	0	1	0	6	1	0	0	1	0	1	0
	15:00	0	0	5	0	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0	0
	15:15	0	0	4	0	0	0	2	0	0	0	0	0	1	1	0	0	0	1	2	0
	15:30	0	0	4	1	0	0	1	0	0	0	0	0	0	2	0	0	0	1	1	0
	15:45	0	0	2	0	0	0	3	0	0	0	0	0	2	0	0	0	2	1	0	0
	16:00	0	0	1	1	0	0	0	2	0	0	1	0	1	1	0	0	0	2	0	0
	16:15	0	0	2	1	0	0	0	3	0	0	0	0	2	0	1	0	0	3	0	0
	16:30	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0
	16:45	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	17:00	0	0	4	0	0	0	0	1	0	0	0	0	3	0	0	0	0	1	2	0
	17:15	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	1	0
	17:30	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
	17:45	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	18:15	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
	18:30	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	19:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	19:15	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	19:30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	19:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	20:00	0	0	1	0	0	0	0	0	0	0	0	5	1	0	0	0	2	0	0	0
	20:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20:30	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	22:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	22:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	22:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	22:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	23:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	23:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	23:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	23:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2160

Study Date : 12/20/2021

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 17

Number of Lanes : 2+

Total Approach Volume: 9,607

Southbound: CSAH 17

Number of Lanes :2+

Total Approach Volume: 8,148

Minor Street Approaches

Eastbound: CSAH 12

Number of Lanes :2+

Total Approach Volume: 4,284

Westbound: CSAH 12

Number of Lanes :2+

Total Approach Volume: 2,766

Warrant Summary (Rural Values Apply)

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

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

Required volumes reached for 15 hours, 8 are needed

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

Required volumes reached for 15 hours, 8 are needed

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

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

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

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

Number of hours (14) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (56) 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 2160

Study Date : 12/20/2021

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

15 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	1206	+	550	=	1756	411	319	Yes
15:00 - 16:00	1105	+	457	=	1562	390	247	Yes
17:00 - 18:00	1007	+	535	=	1542	361	255	Yes
07:00 - 08:00	388	+	1055	=	1443	202	179	Yes
08:00 - 09:00	391	+	747	=	1138	260	158	Yes
18:00 - 19:00	689	+	395	=	1084	300	155	Yes
14:00 - 15:00	653	+	405	=	1058	299	182	Yes
09:00 - 10:00	403	+	559	=	962	215	134	Yes
06:00 - 07:00	222	+	735	=	957	157	116	Yes
12:00 - 13:00	551	+	379	=	930	267	184	Yes
13:00 - 14:00	499	+	370	=	869	251	171	Yes
11:00 - 12:00	418	+	410	=	828	262	155	Yes
19:00 - 20:00	496	+	249	=	745	190	123	Yes
10:00 - 11:00	359	+	366	=	725	231	123	Yes
20:00 - 21:00	406	+	150	=	556	148	87	Yes
05:45 - 06:45	162	+	627	=	789	131	96	No
05:30 - 06:30	115	+	553	=	668	94	76	No
05:15 - 06:15	76	+	467	=	543	77	70	No
05:00 - 06:00	57	+	391	=	448	69	54	No
21:00 - 22:00	276	+	107	=	383	125	47	No
04:45 - 05:45	48	+	326	=	374	47	45	No
21:15 - 22:15	236	+	85	=	321	103	31	No
21:30 - 22:30	219	+	88	=	307	93	32	No
04:30 - 05:30	42	+	239	=	281	44	41	No
21:45 - 22:45	186		79		265	86	29	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2160

Study Date : 12/20/2021

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

15 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 CSAH 17				Total	Minor Road CSAH 12		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
15:30 - 16:30	1181	+	540	=	1721	395	299	Yes
16:30 - 17:30	1142	+	537	=	1679	413	304	Yes
07:30 - 08:30	439	+	938	=	1377	235	178	Yes
17:30 - 18:30	870	+	465	=	1335	318	184	Yes
14:30 - 15:30	875	+	425	=	1300	332	202	Yes
06:30 - 07:30	305	+	922	=	1227	195	161	Yes
08:30 - 09:30	412	+	661	=	1073	259	140	Yes
13:30 - 14:30	604	+	370	=	974	294	187	Yes
11:30 - 12:30	519	+	401	=	920	291	166	Yes
18:30 - 19:30	544	+	329	=	873	243	147	Yes
12:30 - 13:30	473	+	350	=	823	242	177	Yes
09:30 - 10:30	341	+	445	=	786	204	126	Yes
10:30 - 11:30	363	+	395	=	758	238	126	Yes
05:30 - 06:30	115	+	553	=	668	94	76	Yes
19:30 - 20:30	460	+	188	=	648	168	95	Yes
05:15 - 06:15	76	+	467	=	543	77	70	No
20:30 - 21:30	340	+	129	=	469	141	78	No
05:00 - 06:00	57	+	391	=	448	69	54	No
20:45 - 21:45	320	+	116	=	436	139	62	No
21:00 - 22:00	276	+	107	=	383	125	47	No
04:45 - 05:45	48	+	326	=	374	47	45	No
21:15 - 22:15	236	+	85	=	321	103	31	No
21:30 - 22:30	219	+	88	=	307	93	32	No
04:30 - 05:30	42	+	239	=	281	44	41	No
21:45 - 22:45	186		79		265	86	29	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2160

Study Date : 12/20/2021

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

16 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 17

Minor Road CSAH 12

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
15:45 - 16:45	1198	+	557	=	1755	410	315	Yes
16:45 - 17:45	1102	+	532	=	1634	385	283	Yes
14:45 - 15:45	1004	+	419	=	1423	355	221	Yes
06:45 - 07:45	342	+	986	=	1328	196	172	Yes
07:45 - 08:45	435	+	865	=	1300	249	161	Yes
17:45 - 18:45	761	+	432	=	1193	316	164	Yes
08:45 - 09:45	403	+	606	=	1009	243	142	Yes
13:45 - 14:45	595	+	403	=	998	294	192	Yes
11:45 - 12:45	538	+	381	=	919	302	170	Yes
12:45 - 13:45	493	+	369	=	862	244	168	Yes
18:45 - 19:45	521	+	296	=	817	211	130	Yes
10:45 - 11:45	388	+	411	=	799	234	142	Yes

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
16:15 - 17:15	1158	+	534	=	1692	416	307	Yes
15:15 - 16:15	1127	+	513	=	1640	392	269	Yes
17:15 - 18:15	976	+	500	=	1476	339	227	Yes
07:15 - 08:15	423	+	1020	=	1443	216	192	Yes
14:15 - 15:15	775	+	412	=	1187	326	201	Yes
06:15 - 07:15	271	+	845	=	1116	180	136	Yes
08:15 - 09:15	389	+	696	=	1085	260	130	Yes
18:15 - 19:15	596	+	377	=	973	272	150	Yes
13:15 - 14:15	544	+	368	=	912	257	177	Yes
12:15 - 13:15	537	+	369	=	906	249	178	Yes
09:15 - 10:15	387	+	489	=	876	203	145	Yes
11:15 - 12:15	450	+	394	=	844	292	159	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2160

Study Date : 12/20/2021

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.

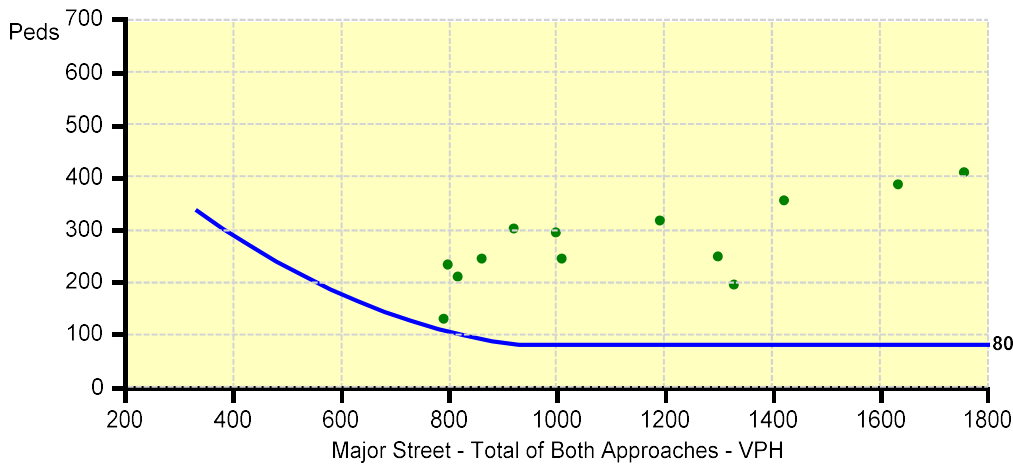
Summary

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 = **2 or more**

Time	Major Road CSAH 17				Total	Minor Road CSAH 12		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
15:45 - 16:45	1198	+	557	=	1755	410	315	Yes
16:45 - 17:45	1102	+	532	=	1634	385	283	Yes
14:45 - 15:45	1004	+	419	=	1423	355	221	Yes
06:45 - 07:45	342	+	986	=	1328	196	172	Yes
07:45 - 08:45	435	+	865	=	1300	249	161	Yes
17:45 - 18:45	761	+	432	=	1193	316	164	Yes
08:45 - 09:45	403	+	606	=	1009	243	142	Yes
13:45 - 14:45	595	+	403	=	998	294	192	Yes
11:45 - 12:45	538	+	381	=	919	302	170	Yes
12:45 - 13:45	493	+	369	=	862	244	168	Yes
18:45 - 19:45	521	+	296	=	817	211	130	Yes
							142	Yes



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2160

Study Date : 12/20/2021

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

49 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 17				Total	Minor Road CSAH 12		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:00 - 17:00	1206	+	550	=	1756	411	319	Yes
15:45 - 16:45	1198	+	557	=	1755	410	315	Yes
15:30 - 16:30	1181	+	540	=	1721	395	299	Yes
16:15 - 17:15	1158	+	534	=	1692	416	307	Yes
16:30 - 17:30	1142	+	537	=	1679	413	304	Yes
15:15 - 16:15	1127	+	513	=	1640	392	269	Yes
16:45 - 17:45	1102	+	532	=	1634	385	283	Yes
15:00 - 16:00	1105	+	457	=	1562	390	247	Yes
17:00 - 18:00	1007	+	535	=	1542	361	255	Yes
17:15 - 18:15	976	+	500	=	1476	339	227	Yes
07:15 - 08:15	423	+	1020	=	1443	216	192	Yes
							179	Yes

