

Date : 11/04/21

Count Number : TMC 2154

Location : CSAH 116 (Bunker Lake Blvd.)  
@ CSAH 18 (Crosstown Blvd.)

Collection Period : 24 Hours

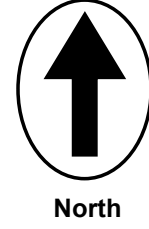
7461

#2

CSAH 18

3783			
E	F	G	H
229	2612	942	0

3678



CSAH 116

8239

#1

16700

8461		D
77	C	
430	B	
7033	A	
921		

CSAH 116

I	797	8428
J	6449	
K	1168	
L	14	

#3

17504

9076

P	O	N	M
0	1484	2451	1087
5022			

#4

4701

9723

CSAH 18

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

Anoka County Highway Department

Traffic Volume and Turning Movement Study

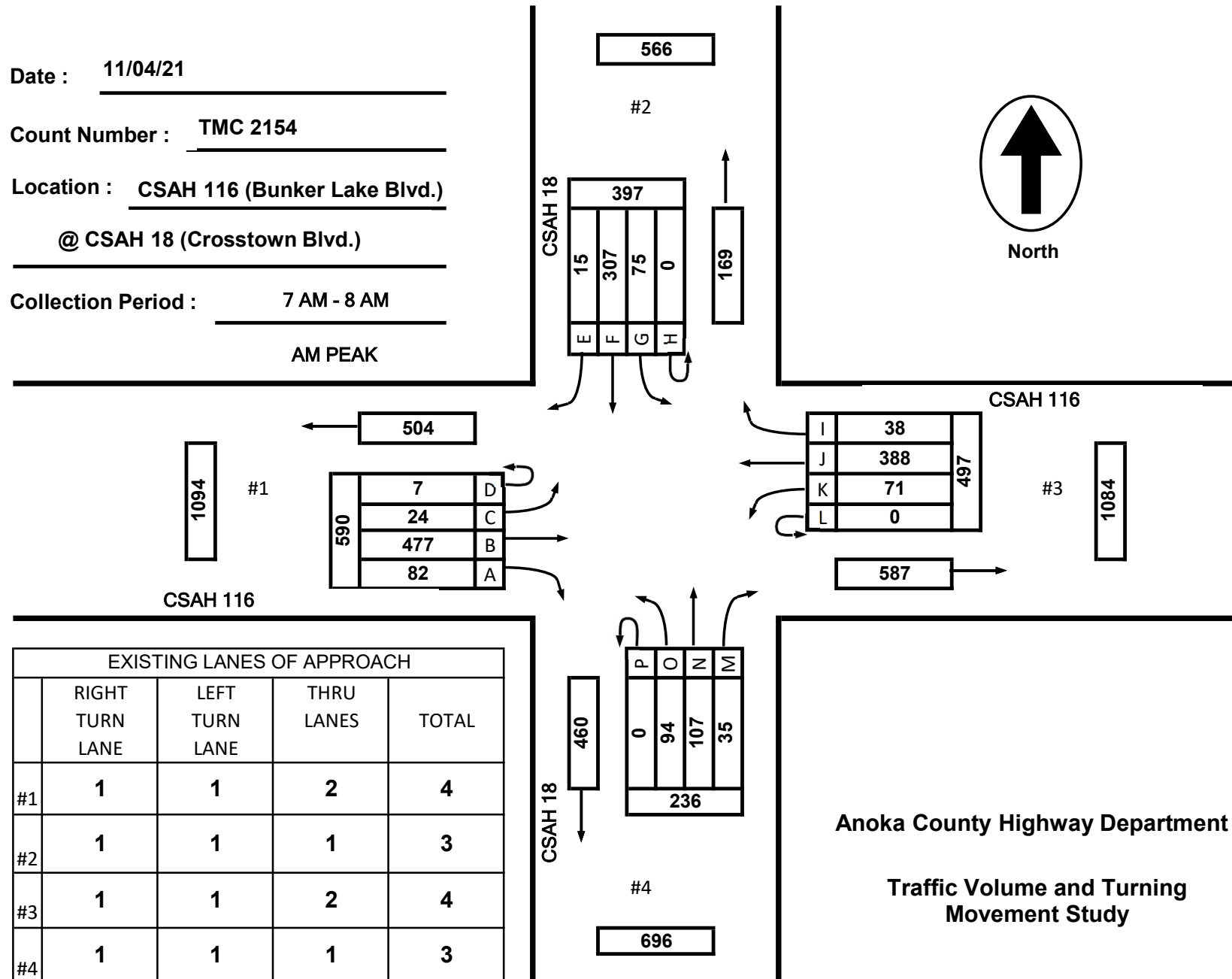
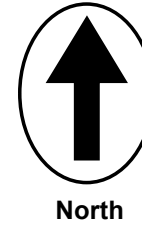
Date : 11/04/21

Count Number : TMC 2154

Location : CSAH 116 (Bunker Lake Blvd.)  
@ CSAH 18 (Crosstown Blvd.)

Collection Period : 7 AM - 8 AM

AM PEAK



CSAH 116

CSAH 116

CSAH 18

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

Anoka County Highway Department

Traffic Volume and Turning Movement Study

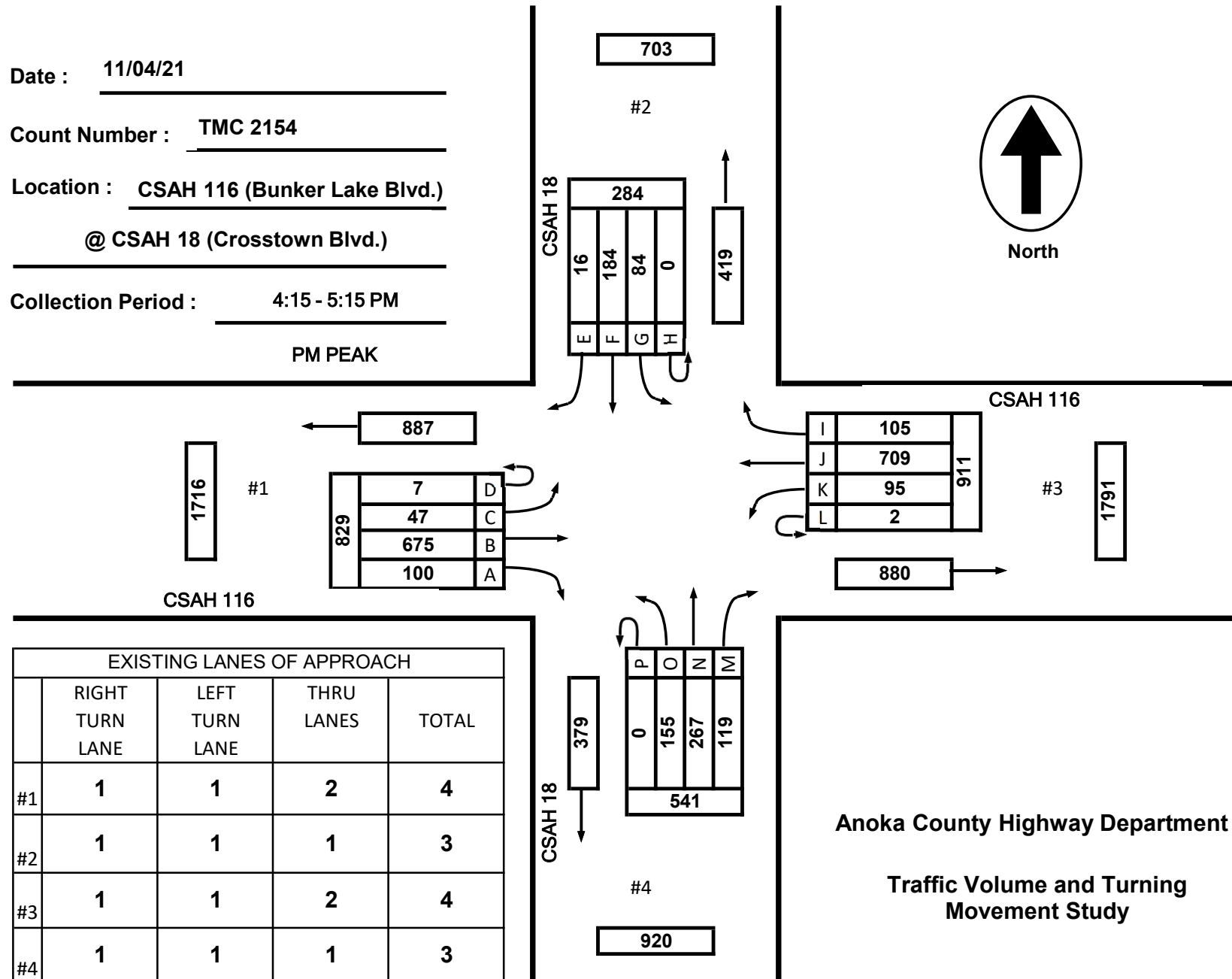
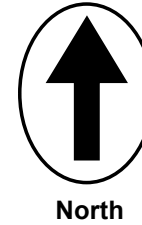
Date : 11/04/21

Count Number : TMC 2154

Location : CSAH 116 (Bunker Lake Blvd.)  
@ CSAH 18 (Crosstown Blvd.)

Collection Period : 4:15 - 5:15 PM

PM PEAK



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

Anoka County Highway Department  
 Traffic Volume and Turning Movement Study

**TMC 2154**  
**Andover MN**  
**Thursday, November 4, 2021**

Time	Southbound CSAH 18						Westbound CSAH 116						Northbound CSAH 18						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	0	2	0	0	2	0	1	5	0	0	6	0	0	3	1	0	4	15
12:15 AM	0	0	1	0	0	1	0	0	2	0	0	2	0	1	1	2	0	4	0	2	5	1	0	8	15
12:30 AM	0	0	2	0	0	2	0	0	2	0	0	2	0	1	2	0	0	3	0	1	3	0	0	4	11
12:45 AM	0	0	1	0	0	1	0	1	3	2	0	6	0	2	3	0	0	5	0	0	3	1	0	4	16
Hourly Total	0	1	6	0	0	7	0	1	9	2	0	12	0	5	11	2	0	18	0	3	14	3	0	20	57
1:00 AM	0	1	1	1	0	3	0	0	1	0	0	1	0	0	1	2	0	3	0	0	4	0	0	4	11
1:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	2	0	0	2	0	0	2	5
1:30 AM	0	0	1	0	0	1	0	0	6	0	0	6	0	1	0	1	0	2	0	0	2	0	0	2	11
1:45 AM	0	0	3	0	0	3	0	0	2	0	0	2	0	0	2	0	0	2	0	0	1	0	0	1	8
Hourly Total	0	2	5	1	0	8	0	0	9	0	0	9	0	1	4	4	0	9	0	0	9	0	0	9	35
2:00 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	2	0	0	2	0	0	1	0	0	1	6
2:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2	1	0	5	0	0	3	0	0	3	10
2:30 AM	0	1	0	0	0	1	0	0	0	1	0	1	0	1	2	0	0	3	0	0	2	0	0	2	7
2:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	0	0	3	0	0	5	0	0	5	9
Hourly Total	0	1	0	0	0	1	0	0	6	1	0	7	0	3	9	1	0	13	0	0	11	0	0	11	32
3:00 AM	0	1	2	0	0	3	0	0	2	1	0	3	0	0	2	0	0	2	0	0	1	1	0	2	10
3:15 AM	0	0	2	0	0	2	0	2	0	0	0	2	0	1	0	0	0	1	0	0	1	0	0	1	6
3:30 AM	0	3	11	0	0	14	0	0	0	1	0	1	0	2	0	0	0	2	0	0	5	0	0	5	22
3:45 AM	0	1	4	0	0	5	0	0	2	0	0	2	0	1	2	0	0	3	0	0	3	1	0	4	14
Hourly Total	0	5	19	0	0	24	0	2	4	2	0	8	0	4	4	0	0	8	0	0	10	2	0	12	52
4:00 AM	0	0	1	0	0	1	0	1	2	0	0	3	0	0	1	1	0	2	0	0	2	2	0	4	10
4:15 AM	0	0	5	1	0	6	0	3	1	0	0	4	0	0	0	0	0	0	0	0	9	1	0	10	20
4:30 AM	0	9	14	0	0	23	0	2	7	0	0	9	0	0	0	0	0	0	0	0	17	0	0	17	49
4:45 AM	0	7	11	0	0	18	0	3	10	1	0	14	0	4	4	1	0	9	1	0	26	2	0	29	70
Hourly Total	0	16	31	1	0	48	0	9	20	1	0	30	0	4	5	2	0	11	1	0	54	5	0	60	149
5:00 AM	0	3	14	0	0	17	0	2	10	0	0	12	0	1	1	1	0	3	0	0	13	2	0	15	47
5:15 AM	0	4	27	0	1	31	0	3	15	0	0	18	0	1	2	1	0	4	1	0	15	5	0	21	74
5:30 AM	0	4	36	0	0	40	0	5	15	0	0	20	0	6	6	1	2	13	0	1	21	4	0	26	99
5:45 AM	0	5	40	2	0	47	0	8	24	1	0	33	0	7	9	2	0	18	1	0	46	2	0	49	147
Hourly Total	0	16	117	2	1	135	0	18	64	1	0	83	0	15	18	5	2	38	2	1	95	13	0	111	367
6:00 AM	0	7	23	1	0	31	0	5	17	2	0	24	0	7	7	1	0	15	1	1	38	7	0	47	117
6:15 AM	0	7	58	1	0	66	0	10	38	2	0	50	0	9	6	2	0	17	0	0	57	2	0	59	192
6:30 AM	0	10	58	1	0	69	0	10	52	2	0	64	0	8	6	10	0	24	0	0	58	10	0	68	225
6:45 AM	0	14	52	3	0	69	0	17	71	5	0	93	0	23	17	6	0	46	1	1	95	16	0	113	321
Hourly Total	0	38	191	6	0	235	0	42	178	11	0	231	0	47	36	19	0	102	2	2	248	35	0	287	855
7:00 AM	0	10	82	1	0	93	0	19	59	12	0	90	0	26	31	5	0	62	1	5	73	11	0	90	335
7:15 AM	0	17	80	6	0	103	0	13	111	5	0	129	0	21	28	2	0	51	2	7	103	16	0	128	411
7:30 AM	0	29	86	3	1	118	0	21	129	7	0	157	0	29	23	12	0	64	3	7	170	34	0	214	553
7:45 AM	0	19	59	5	0	83	0	18	89	14	1	121	0	18	25	16	0	59	1	5	131	21	0	158	421
Hourly Total	0	75	307	15	1	397	0	71	388	38	1	497	0	94	107	35	0	236	7	24	477	82	0	590	1720

**TMC 2154  
Andover MN  
Thursday, November 4, 2021**

Time	Southbound CSAH 18						Westbound CSAH 116						Northbound CSAH 18						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	11	38	1	0	50	0	12	91	8	0	111	0	12	21	8	0	41	1	1	84	13	0	99	301
8:15 AM	0	11	47	1	0	59	0	11	66	2	0	79	0	14	16	6	0	36	0	3	63	7	0	73	247
8:30 AM	0	15	31	6	1	52	1	13	77	5	0	96	0	15	18	6	0	39	0	5	66	6	0	77	264
8:45 AM	0	6	40	7	0	53	1	10	56	4	1	71	0	30	23	10	0	63	1	4	82	19	0	106	293
Hourly Total	0	43	156	15	1	214	2	46	290	19	1	357	0	71	78	30	0	179	2	13	295	45	0	355	1105
9:00 AM	0	10	38	3	0	51	1	21	65	2	0	89	0	20	13	12	0	45	3	7	78	15	0	103	288
9:15 AM	0	14	54	2	0	70	0	14	85	8	0	107	0	22	33	13	1	68	1	1	83	16	0	101	346
9:30 AM	0	12	37	4	0	53	0	23	85	7	0	115	0	16	9	4	0	29	1	4	84	12	0	101	298
9:45 AM	0	12	41	0	0	53	0	18	77	14	0	109	0	20	18	13	0	51	0	3	101	9	0	113	326
Hourly Total	0	48	170	9	0	227	1	76	312	31	0	420	0	78	73	42	1	193	5	15	346	52	0	418	1258
10:00 AM	0	10	36	4	0	50	0	16	78	4	0	98	0	9	19	16	0	44	0	8	87	10	0	105	297
10:15 AM	0	14	43	3	1	60	0	14	72	3	0	89	0	19	18	9	0	46	0	8	94	16	0	118	313
10:30 AM	0	12	41	4	0	57	0	20	86	11	1	117	0	19	20	21	1	60	2	5	113	6	0	126	360
10:45 AM	0	13	35	1	0	49	0	14	102	2	0	118	0	19	26	19	0	64	2	8	107	13	0	130	361
Hourly Total	0	49	155	12	1	216	0	64	338	20	1	422	0	66	83	65	1	214	4	29	401	45	0	479	1331
11:00 AM	0	19	41	1	1	61	0	15	60	8	1	83	0	17	24	20	0	61	0	2	113	14	0	129	334
11:15 AM	0	17	39	5	0	61	0	16	83	14	1	113	0	18	25	16	1	59	0	5	90	11	0	106	339
11:30 AM	0	15	44	0	0	59	2	17	96	13	0	128	0	27	24	17	1	68	1	2	108	10	1	121	376
11:45 AM	0	13	32	7	0	52	0	21	113	6	0	140	0	18	51	13	1	82	2	5	99	15	0	121	395
Hourly Total	0	64	156	13	1	233	2	69	352	41	2	464	0	80	124	66	3	270	3	14	410	50	1	477	1444
12:00 PM	0	13	32	10	1	55	0	20	95	13	0	128	0	19	36	26	0	81	1	4	105	13	0	123	387
12:15 PM	0	13	46	8	0	67	0	22	110	15	1	147	0	19	34	15	1	68	0	4	102	9	0	115	397
12:30 PM	0	15	39	5	0	59	0	22	100	10	0	132	0	17	36	12	0	65	0	1	99	17	2	117	373
12:45 PM	0	13	31	3	0	47	0	21	118	12	0	151	0	23	26	19	0	68	1	6	119	16	0	142	408
Hourly Total	0	54	148	26	1	228	0	85	423	50	1	558	0	78	132	72	1	282	2	15	425	55	2	497	1565
1:00 PM	0	11	38	4	0	53	0	19	84	15	0	118	0	23	35	12	0	70	0	12	121	11	0	144	385
1:15 PM	0	9	32	3	0	44	1	22	110	13	0	146	0	26	37	19	0	82	2	12	110	15	0	139	411
1:30 PM	0	28	48	4	0	80	0	21	115	14	0	150	0	30	45	16	0	91	1	6	111	16	0	134	455
1:45 PM	0	27	38	8	0	73	0	17	134	17	0	168	0	26	46	26	0	98	2	9	132	21	0	164	503
Hourly Total	0	75	156	19	0	250	1	79	443	59	0	582	0	105	163	73	0	341	5	39	474	63	0	581	1754
2:00 PM	0	13	32	5	4	50	0	23	127	16	0	166	0	33	41	19	0	93	3	13	123	20	2	159	468
2:15 PM	0	11	22	3	0	36	0	19	117	17	0	153	0	20	45	22	0	87	3	11	187	23	0	224	500
2:30 PM	0	9	29	17	0	55	0	19	114	12	0	145	0	25	45	19	0	89	0	9	139	17	1	165	454
2:45 PM	0	11	35	3	0	49	0	18	107	15	0	140	0	29	48	27	0	104	2	12	144	9	0	167	460
Hourly Total	0	44	118	28	4	190	0	79	465	60	0	604	0	107	179	87	0	373	8	45	593	69	3	715	1882
3:00 PM	0	20	33	1	0	54	0	19	134	16	0	169	0	32	56	26	0	114	1	10	140	11	0	162	499
3:15 PM	0	20	62	5	0	87	0	21	160	23	1	204	0	29	58	24	2	111	1	14	125	22	0	162	564
3:30 PM	0	20	37	4	0	61	0	27	160	23	0	210	0	40	69	29	0	138	1	8	167	21	1	197	606
3:45 PM	0	6	28	3	0	37	1	23	133	21	0	178	0	27	65	39	0	131	1	15	186	27	0	229	575
Hourly Total	0	66	160	13	0	239	1	90	587	83	1	761	0	128	248	118	2	494	4	47	618	81	1	750	2244

**TMC 2154  
Andover MN  
Thursday, November 4, 2021**

Time	Southbound CSAH 18						Westbound CSAH 116						Northbound CSAH 18						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	0	28	49	3	0	80	0	22	143	19	0	184	0	35	70	26	0	131	1	10	147	18	0	176	571
4:15 PM	0	23	43	7	0	73	0	21	187	20	0	228	0	41	58	34	0	133	4	6	188	21	1	219	653
4:30 PM	0	16	45	4	0	65	2	24	169	28	0	223	0	44	75	34	0	153	2	22	149	20	0	193	634
4:45 PM	0	22	44	2	0	68	0	23	199	31	0	253	0	32	61	18	0	111	1	10	184	28	0	223	655
Hourly Total	0	89	181	16	0	286	2	90	698	98	0	888	0	152	264	112	0	528	8	48	668	87	1	811	2513
5:00 PM	0	23	52	3	0	78	0	27	154	26	0	207	0	38	73	33	0	144	0	9	154	31	0	194	623
5:15 PM	0	26	39	6	0	71	1	20	167	23	0	211	0	42	64	31	0	137	3	12	169	19	0	203	622
5:30 PM	0	24	50	5	0	79	2	45	118	11	0	176	0	41	78	27	0	146	2	13	147	14	0	176	577
5:45 PM	0	20	38	3	0	61	0	23	152	29	0	204	0	28	58	19	2	105	0	15	152	17	0	184	554
Hourly Total	0	93	179	17	0	289	3	115	591	89	0	798	0	149	273	110	2	532	5	49	622	81	0	757	2376
6:00 PM	0	13	49	1	0	63	0	27	115	25	0	167	0	30	59	15	0	104	2	11	131	9	0	153	487
6:15 PM	0	20	40	5	0	65	1	19	116	23	0	159	0	39	59	26	0	124	1	12	133	19	0	165	513
6:30 PM	0	17	36	2	0	55	0	27	112	18	0	157	0	33	54	19	0	106	0	10	117	10	0	137	455
6:45 PM	0	14	32	2	0	48	0	16	102	13	0	131	0	18	45	14	0	77	3	9	118	11	0	141	397
Hourly Total	0	64	157	10	0	231	1	89	445	79	0	614	0	120	217	74	0	411	6	42	499	49	0	596	1852
7:00 PM	0	13	18	5	0	36	0	19	86	15	0	120	0	17	38	17	0	72	2	6	82	7	0	97	325
7:15 PM	0	8	29	1	0	38	0	16	82	12	0	110	0	17	47	25	0	89	0	0	69	10	0	79	316
7:30 PM	0	7	21	3	0	31	0	15	69	8	0	92	0	16	39	17	0	72	0	6	81	11	0	98	293
7:45 PM	0	8	17	2	0	27	0	13	71	7	0	91	0	13	33	10	0	56	1	3	59	12	0	75	249
Hourly Total	0	36	85	11	0	132	0	63	308	42	0	413	0	63	157	69	0	289	3	15	291	40	0	349	1183
8:00 PM	0	9	18	3	0	30	1	13	63	13	0	90	0	16	41	17	0	74	0	5	61	6	0	72	266
8:15 PM	0	25	26	5	0	56	0	12	62	12	0	86	0	9	35	14	0	58	2	2	60	11	0	75	275
8:30 PM	0	8	14	2	0	24	0	4	50	14	0	68	0	20	27	7	0	54	0	5	63	7	0	75	221
8:45 PM	0	5	8	1	0	14	0	10	46	7	0	63	0	7	27	7	0	41	2	2	43	11	0	58	176
Hourly Total	0	47	66	11	0	124	1	39	221	46	0	307	0	52	130	45	0	227	4	14	227	35	0	280	938
9:00 PM	0	2	8	2	0	12	0	9	47	7	0	63	0	7	30	7	1	44	0	5	38	4	0	47	166
9:15 PM	0	1	7	0	0	8	0	7	48	1	0	56	0	11	16	12	0	39	2	0	38	4	0	44	147
9:30 PM	0	1	5	0	0	6	0	2	39	2	0	43	0	5	14	8	0	27	2	3	24	2	0	31	107
9:45 PM	0	2	6	0	0	8	0	4	43	4	0	51	0	9	16	9	0	34	0	1	35	4	0	40	133
Hourly Total	0	6	26	2	0	34	0	22	177	14	0	213	0	32	76	36	1	144	4	9	135	14	0	162	553
10:00 PM	0	0	4	0	0	4	0	3	30	1	0	34	0	9	7	4	1	20	0	2	32	2	0	36	94
10:15 PM	0	2	2	0	0	4	0	3	24	2	0	29	0	5	15	4	0	24	0	1	19	1	0	21	78
10:30 PM	0	2	0	1	1	3	0	4	15	3	0	22	0	5	8	2	0	15	0	1	13	3	0	17	57
10:45 PM	0	1	5	1	0	7	0	3	14	2	0	19	0	2	10	2	0	14	1	0	16	3	0	20	60
Hourly Total	0	5	11	2	1	18	0	13	83	8	0	104	0	21	40	12	1	73	1	4	80	9	0	94	289
11:00 PM	0	0	1	0	0	1	0	2	12	1	0	15	0	1	5	4	0	10	0	1	7	3	0	11	37
11:15 PM	0	3	6	0	0	9	0	3	12	1	0	16	0	4	6	2	0	12	1	0	10	2	0	13	50
11:30 PM	0	1	4	0	0	5	0	0	7	0	0	7	0	2	4	2	0	8	0	0	7	1	0	8	28
11:45 PM	0	1	1	0	0	2	0	1	7	0	0	8	0	2	5	0	0	7	0	1	7	0	0	8	25
Hourly Total	0	5	12	0	0	17	0	6	38	2	0	46	0	9	20	8	0	37	1	2	31	6	0	40	140
<b>DAILY TOTAL</b>	<b>0</b>	<b>942</b>	<b>2612</b>	<b>229</b>	<b>11</b>	<b>3783</b>	<b>14</b>	<b>1168</b>	<b>6449</b>	<b>797</b>	<b>7</b>	<b>8428</b>	<b>0</b>	<b>1484</b>	<b>2451</b>	<b>1087</b>	<b>14</b>	<b>5022</b>	<b>77</b>	<b>430</b>	<b>7033</b>	<b>921</b>	<b>8</b>	<b>8461</b>	<b>25694</b>
<b>Cars</b>	<b>0</b>	<b>934</b>	<b>2587</b>	<b>222</b>	<b>9</b>	<b>3743</b>	<b>14</b>	<b>1145</b>	<b>6306</b>	<b>787</b>	<b>6</b>	<b>8252</b>	<b>0</b>	<b>1457</b>	<b>2435</b>	<b>1082</b>	<b>12</b>	<b>4974</b>	<b>76</b>	<b>420</b>	<b>6882</b>	<b>898</b>	<b>3</b>	<b>8276</b>	<b>25245</b>
<b>Heavy Vehicles</b>	<b>0</b>	<b>8</b>	<b>25</b>	<b>7</b>	<b>2</b>	<b>40</b>	<b>0</b>	<b>23</b>	<b>143</b>	<b>10</b>	<b>1</b>	<b>176</b>	<b>0</b>	<b>27</b>	<b>16</b>	<b>5</b>	<b>2</b>	<b>48</b>	<b>1</b>	<b>10</b>	<b>151</b>	<b>23</b>	<b>5</b>	<b>185</b>	<b>449</b>
<b>Heavy Vehicle %</b>	<b>0.00%</b>	<b>0.85%</b>	<b>0.96%</b>	<b>3.06%</b>	<b>18.18%</b>	<b>1.06%</b>	<b>0.00%</b>	<b>1.97%</b>	<b>2.22%</b>	<b>1.25%</b>	<b>14.29%</b>	<b>2.09%</b>	<b>0.00%</b>	<b>1.82%</b>	<b>0.65%</b>	<b>0.46%</b>	<b>14.29%</b>	<b>0.96%</b>	<b>1.30%</b>	<b>2.33%</b>	<b>2.15%</b>	<b>2.50%</b>	<b>62.50%</b>	<b>2.19%</b>	<b>1.75%</b>

**TMC 2154  
Andover MN  
Thursday, November 4, 2021  
AM Peak Hour**

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Veh</i> Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Veh</i> Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Veh</i> Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Veh</i> Approach Total	
7:00 AM	0	10	82	1	0	93	0	19	59	12	0	90	0	26	31	5	0	62	1	5	73	11	0	90	335
7:15 AM	0	17	80	6	0	103	0	13	111	5	0	129	0	21	28	2	0	51	2	7	103	16	0	128	411
7:30 AM	0	29	86	3	1	118	0	21	129	7	0	157	0	29	23	12	0	64	3	7	170	34	0	214	553
7:45 AM	0	19	59	5	0	83	0	18	89	14	1	121	0	18	25	16	0	59	1	5	131	21	0	158	421
Peak Hour Total	0	75	307	15	1	397	0	71	388	38	1	497	0	94	107	35	0	236	7	24	477	82	0	590	1720
PHF	0.000	0.647	0.892	0.625	0.250	0.841	0.000	0.845	0.752	0.679	0.250	0.791	0.000	0.810	0.863	0.547	0.000	0.922	0.583	0.857	0.701	0.603	0.000	0.689	0.778

**PM Peak Hour**

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Veh</i> Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Veh</i> Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Veh</i> Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Veh</i> Approach Total	
4:15 PM	0	23	43	7	0	73	0	21	187	20	0	228	0	41	58	34	0	133	4	6	188	21	1	219	653
4:30 PM	0	16	45	4	0	65	2	24	169	28	0	223	0	44	75	34	0	153	2	22	149	20	0	193	634
4:45 PM	0	22	44	2	0	68	0	23	199	31	0	253	0	32	61	18	0	111	1	10	184	28	0	223	655
5:00 PM	0	23	52	3	0	78	0	27	154	26	0	207	0	38	73	33	0	144	0	9	154	31	0	194	623
Peak Hour Total	0	84	184	16	0	284	2	95	709	105	0	911	0	155	267	119	0	541	7	47	675	100	1	829	2565
PHF	0.000	0.913	0.885	0.571	0.000	0.910	0.250	0.880	0.891	0.847	0.000	0.900	0.000	0.881	0.890	0.875	0.000	0.884	0.438	0.534	0.898	0.806	0.250	0.929	0.979

Total Vehicles On Leg		7461	
Vehicles Entering Intersection	3783	Vehicles Exiting Intersection	3678
<b>Southbound</b>			
Cars	222	2587	934
Heavy	7	25	8
<b>Total</b>	<b>229</b>	<b>2612</b>	<b>942</b>



Total Vehicles on Leg 16700	Vehicles Entering Intersection 8461	Eastbound	Cars	Heavy	<b>Total</b>
			3	5	<b>8</b>
			76	1	<b>77</b>
	420		10	<b>430</b>	
	Vehicles Exiting Intersection 8239		6882	151	<b>7033</b>
		898	23	<b>921</b>	



Daily Volumes

Cars	Heavy	<b>Total</b>	Westbound	Vehicles Entering Intersection 8428	Total Vehicles on Leg 17504
787	10	<b>797</b>			
6306	143	<b>6449</b>			
1145	23	<b>1168</b>			
14	0	<b>14</b>			
6	1	<b>7</b>	Vehicles Exiting Intersection 9076		



Cars	12	0	1457	2435	1082
Heavy	2	0	27	16	5
<b>Total</b>	<b>14</b>	<b>0</b>	<b>1484</b>	<b>2451</b>	<b>1087</b>
<b>Northbound</b>					
Vehicles Entering Intersection	5022		Vehicles Exiting Intersection	4701	
Total Vehicles On Leg			9723		



# 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
11/4/2021	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	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
	2:00	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	2	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	1	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	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
	4:30	0	0	0	0	0	0	0	1	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	0	0
	5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
	5:30	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	1	0	0	0	0	1	0	0	0	0	0	0	0
	6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
	6:15	0	0	0	0	0	0	0	4	1	0	0	0	1	0	0	0	0	2	0	0
	6:30	0	0	0	0	0	0	2	5	0	0	0	1	1	0	0	0	0	0	1	0
	6:45	0	0	2	0	0	0	2	8	2	0	0	1	1	0	0	0	0	1	0	0
	7:00	0	0	0	0	0	0	1	3	0	0	0	2	0	0	0	0	0	1	0	0
	7:15	0	1	2	0	0	0	1	6	0	0	0	2	1	0	0	0	1	4	1	0
	7:30	0	2	1	1	0	0	0	1	1	0	0	3	0	0	0	0	0	7	1	0
	7:45	0	0	1	0	0	0	0	4	1	0	0	1	0	1	0	0	0	6	1	0
	8:00	0	0	2	0	0	0	0	2	0	0	0	0	2	1	0	0	0	1	0	0
	8:15	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	7	1	0
	8:30	0	0	1	0	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0
	8:45	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	5	0	0
	9:00	0	0	0	0	0	0	1	2	0	0	0	0	1	0	0	1	3	3	1	0
	9:15	0	2	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	5	1	0
	9:30	0	1	0	0	0	0	1	3	0	0	0	0	1	0	0	0	1	7	0	0
	9:45	0	0	0	0	0	0	0	1	0	0	0	3	1	0	0	0	1	3	0	0
	10:00	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0	0
	10:15	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
	10:30	0	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	2	0	0
	10:45	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	2	0	0
	11:00	0	1	0	0	0	0	0	4	1	0	0	1	0	0	0	0	0	3	1	0
	11:15	0	0	0	0	0	0	0	2	0	1	0	0	0	1	0	0	0	6	0	0
	11:30	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	4	0	0
	11:45	0	0	0	0	0	0	0	6	1	0	0	0	0	0	0	0	0	1	1	0





# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2154

Study Date : 12/13/2021

## Signal Warrants - Summary

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### Major Street Approaches

**Eastbound: CSAH 116**

Number of Lanes : 2+

Total Approach Volume: 8,461

**Westbound: CSAH 116**

Number of Lanes : 2+

Total Approach Volume: 8,428

### Minor Street Approaches

**Northbound: CSAH 18**

Number of Lanes : 1

Total Approach Volume: 5,022

**Southbound: CSAH 18**

Number of Lanes : 1

Total Approach Volume: 3,783

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### 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 14 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 15 hours, 8 are needed

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

Number of hours (15) volumes exceed minimum >= minimum required (4).

**Warrant 3 - Peak Hour.....Satisfied**

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

Number of one hour periods (58) 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 2154

Study Date : 12/13/2021

## 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 = **1**

#### Volume Requirements

Rural Factor of 70 % applied  
 Veh/Hr Major = **420**  
 Veh/Hr Minor = **105**

Time	Major Road CSAH 116				Total	Minor Road CSAH 18		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:00 - 17:00	811	+	888	=	1699	528	286	Yes
17:00 - 18:00	757	+	798	=	1555	532	289	Yes
15:00 - 16:00	750	+	761	=	1511	494	239	Yes
14:00 - 15:00	715	+	604	=	1319	373	190	Yes
18:00 - 19:00	596	+	614	=	1210	411	231	Yes
13:00 - 14:00	581	+	582	=	1163	341	250	Yes
07:00 - 08:00	590	+	497	=	1087	236	397	Yes
12:00 - 13:00	497	+	558	=	1055	282	228	Yes
11:00 - 12:00	477	+	464	=	941	270	233	Yes
10:00 - 11:00	479	+	422	=	901	214	216	Yes
09:00 - 10:00	418	+	420	=	838	193	227	Yes
19:00 - 20:00	349	+	413	=	762	289	132	Yes
08:00 - 09:00	355	+	357	=	712	179	214	Yes
20:00 - 21:00	280	+	307	=	587	227	124	Yes
06:00 - 07:00	287	+	231	=	518	102	235	Yes
05:45 - 06:45	223	+	171	=	394	74	213	No
21:00 - 22:00	162	+	213	=	375	144	34	No
21:15 - 22:15	151	+	184	=	335	120	26	No
05:30 - 06:30	181	+	127	=	308	63	184	No
21:30 - 22:30	128	+	157	=	285	105	22	No
21:45 - 22:45	114	+	136	=	250	93	19	No
05:15 - 06:15	143	+	95	=	238	50	149	No
22:00 - 23:00	94	+	104	=	198	73	18	No
05:00 - 06:00	111	+	83	=	194	38	135	No
04:45 - 05:45	91		64		155	29	106	No

# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2154

Study Date : 12/13/2021

## 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

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

Time	Major Road CSAH 116				Total	Minor Road CSAH 18		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:30 - 17:30	813	+	894	=	1707	545	282	Yes
15:30 - 16:30	821	+	800	=	1621	533	251	Yes
17:30 - 18:30	678	+	706	=	1384	479	268	Yes
13:30 - 14:30	681	+	637	=	1318	369	239	Yes
14:30 - 15:30	656	+	658	=	1314	418	245	Yes
12:30 - 13:30	542	+	547	=	1089	285	203	Yes
11:30 - 12:30	480	+	543	=	1023	299	233	Yes
07:30 - 08:30	544	+	468	=	1012	200	310	Yes
18:30 - 19:30	454	+	518	=	972	344	177	Yes
10:30 - 11:30	491	+	431	=	922	244	228	Yes
09:30 - 10:30	437	+	411	=	848	170	216	Yes
06:30 - 07:30	399	+	376	=	775	183	334	Yes
08:30 - 09:30	387	+	363	=	750	215	226	Yes
19:30 - 20:30	320	+	359	=	679	260	144	Yes
06:15 - 07:15	330	+	297	=	627	149	297	No
06:00 - 07:00	287	+	231	=	518	102	235	No
20:30 - 21:30	224	+	250	=	474	178	58	No
20:45 - 21:45	180	+	225	=	405	151	40	No
05:45 - 06:45	223	+	171	=	394	74	213	No
21:00 - 22:00	162	+	213	=	375	144	34	No
21:15 - 22:15	151	+	184	=	335	120	26	No
05:30 - 06:30	181	+	127	=	308	63	184	No
21:30 - 22:30	128	+	157	=	285	105	22	No
21:45 - 22:45	114	+	136	=	250	93	19	No
05:15 - 06:15	143		95		238	50	149	No

# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2154

Study Date : 12/13/2021

## 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.  
15 hours meet 1B minimums.  
Warrant IS met.

#### Site Data Required

Rural Settings Apply = **True**  
Number of Major Lanes = **2 or more**  
Number of Minor Lanes = **1**

#### Volume Requirements

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

Veh/Hr Minor = **84 42**

#### Major Road CSAH 116

#### Minor Road CSAH 18

Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met1A?
16:45 - 17:45	796	+	847	=	1643	538	296	Yes
15:45 - 16:45	817	+	813	=	1630	548	255	Yes
14:45 - 15:45	688	+	723	=	1411	467	251	Yes
13:45 - 14:45	712	+	632	=	1344	367	214	Yes
17:45 - 18:45	639	+	687	=	1326	439	244	Yes
12:45 - 13:45	559	+	565	=	1124	311	224	Yes
11:45 - 12:45	476	+	547	=	1023	296	233	Yes
06:45 - 07:45	545	+	469	=	1014	223	383	Yes
10:45 - 11:45	486	+	442	=	928	252	230	Yes
09:45 - 10:45	462	+	413	=	875	201	220	Yes
18:45 - 19:45	415	+	453	=	868	310	153	Yes
07:45 - 08:45	407	+	407	=	814	175	244	Yes

Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met1B?
16:00 - 17:00	811	+	888	=	1699	528	286	Yes
17:00 - 18:00	757	+	798	=	1555	532	289	Yes
15:00 - 16:00	750	+	761	=	1511	494	239	Yes
14:00 - 15:00	715	+	604	=	1319	373	190	Yes
18:00 - 19:00	596	+	614	=	1210	411	231	Yes
13:00 - 14:00	581	+	582	=	1163	341	250	Yes
07:00 - 08:00	590	+	497	=	1087	236	397	Yes
12:00 - 13:00	497	+	558	=	1055	282	228	Yes
11:00 - 12:00	477	+	464	=	941	270	233	Yes
10:00 - 11:00	479	+	422	=	901	214	216	Yes
09:00 - 10:00	418	+	420	=	838	193	227	Yes
19:00 - 20:00	349	+	413	=	762	289	132	Yes

# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2154

Study Date : 12/13/2021

## 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.

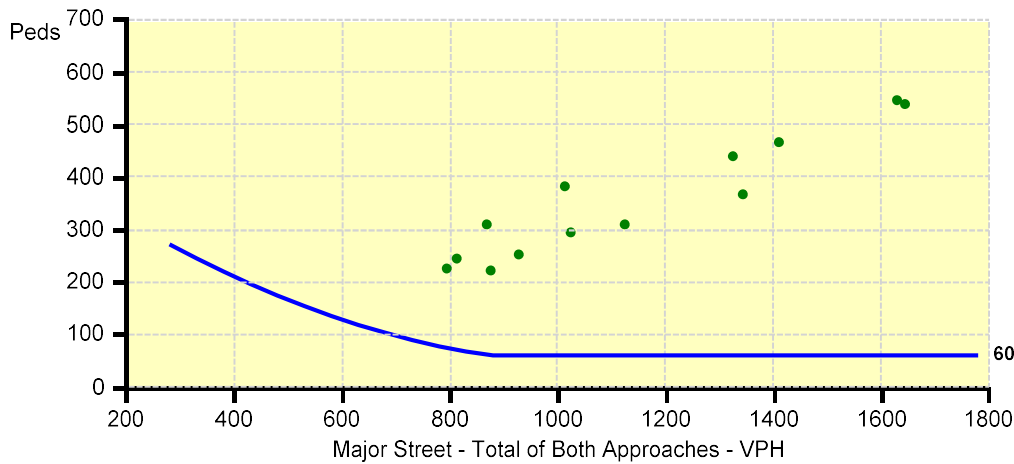
#### Summary

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 = **1**

Time	Major Road CSAH 116				=	Total	Minor Road CSAH 18		Met?
	Major EB	+	Major WB	Minor NB			Minor SB		
16:45 - 17:45	796	+	847	=	1643	538	296	Yes	
15:45 - 16:45	817	+	813	=	1630	548	255	Yes	
14:45 - 15:45	688	+	723	=	1411	467	251	Yes	
13:45 - 14:45	712	+	632	=	1344	367	214	Yes	
17:45 - 18:45	639	+	687	=	1326	439	244	Yes	
12:45 - 13:45	559	+	565	=	1124	311	224	Yes	
11:45 - 12:45	476	+	547	=	1023	296	233	Yes	
06:45 - 07:45	545	+	469	=	1014	223	383	Yes	
10:45 - 11:45	486	+	442	=	928	252	230	Yes	
09:45 - 10:45	462	+	413	=	875	201	220	Yes	
18:45 - 19:45	415	+	453	=	868	310	153	Yes	
							244	Yes	



# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2154

Study Date : 12/13/2021

## 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

55 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 116				Total	Minor Road CSAH 18		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:15 - 17:15	829	+	911	=	1740	541	284	Yes
16:30 - 17:30	813	+	894	=	1707	545	282	Yes
16:00 - 17:00	811	+	888	=	1699	528	286	Yes
16:45 - 17:45	796	+	847	=	1643	538	296	Yes
15:45 - 16:45	817	+	813	=	1630	548	255	Yes
15:30 - 16:30	821	+	800	=	1621	533	251	Yes
17:00 - 18:00	757	+	798	=	1555	532	289	Yes
15:15 - 16:15	764	+	776	=	1540	511	265	Yes
15:00 - 16:00	750	+	761	=	1511	494	239	Yes
17:15 - 18:15	716	+	758	=	1474	492	274	Yes
14:45 - 15:45	688	+	723	=	1411	467	251	Yes
							268	Yes

