

Date : 10/05/21

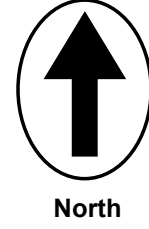
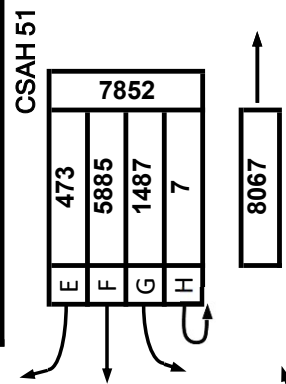
Count Number : TMC 2114

Location : CSAH 51 (University Ave.)
@ CSAH 12 (109th Ave.)

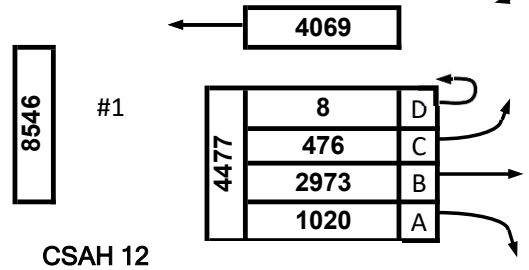
Collection Period : 24 Hours

15919

#2

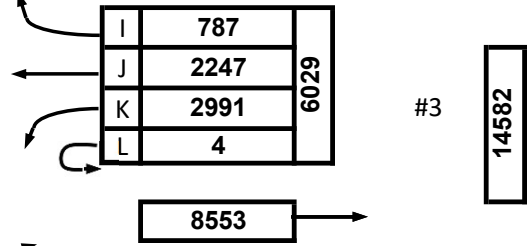


CSAH 12

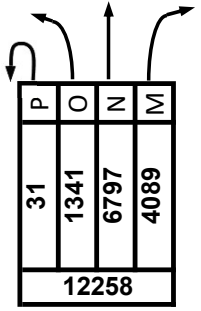


#1

CSAH 12



#3



#4

22185

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

Anoka County Highway Department

Traffic Volume and Turning Movement Study

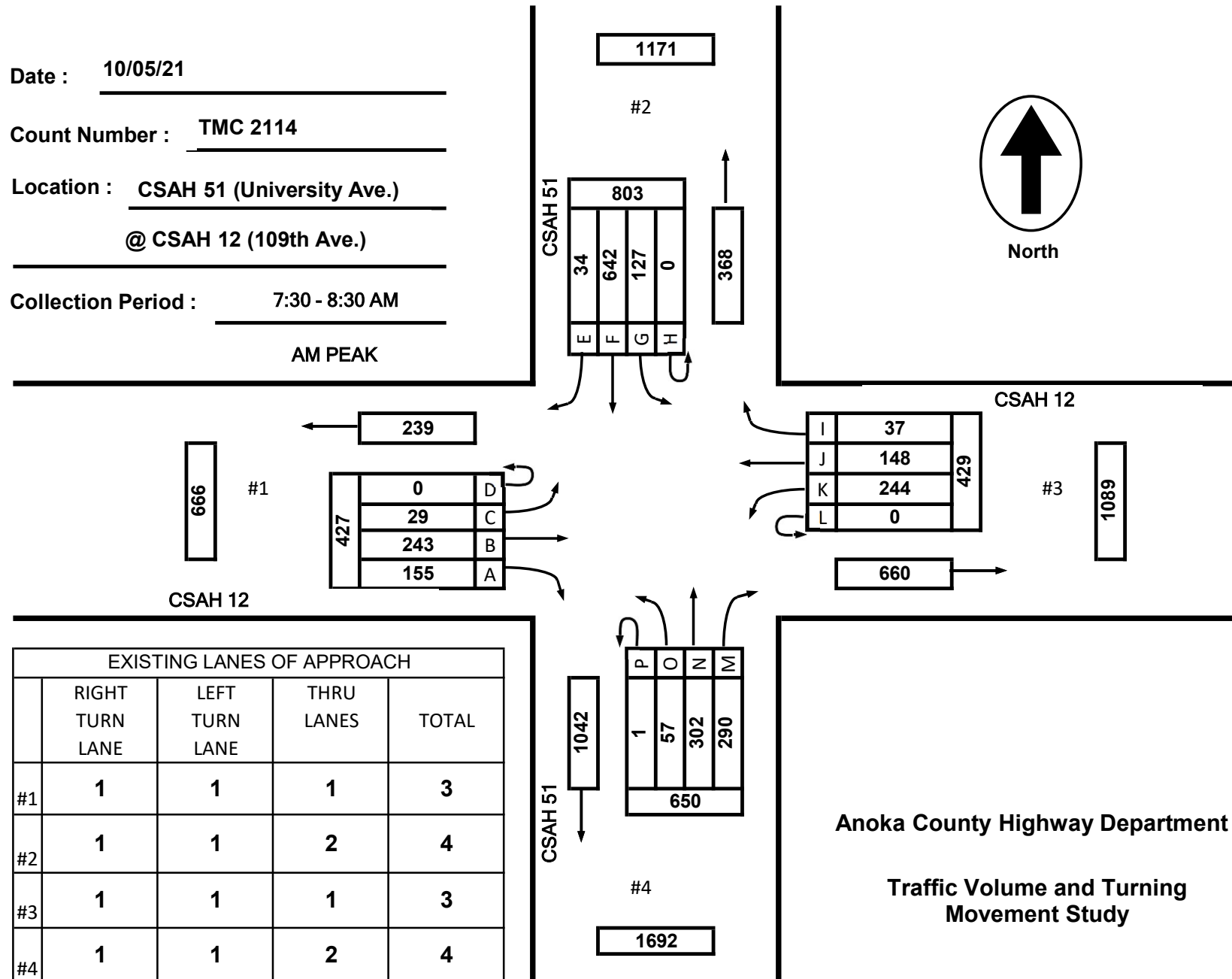
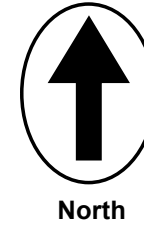
Date : 10/05/21

Count Number : TMC 2114

Location : CSAH 51 (University Ave.)
@ CSAH 12 (109th Ave.)

Collection Period : 7:30 - 8:30 AM

AM PEAK



666 #1

0	D
29	C
243	B
155	A

427

1171 #2

34	E
642	F
127	G
0	H

803

368

CSAH 12

37	I
148	J
244	K
0	L

429

#3

1089

660

CSAH 12

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

CSAH 51

1042

1	P
57	O
302	N
290	M

650

#4

1692

Anoka County Highway Department

Traffic Volume and Turning Movement Study

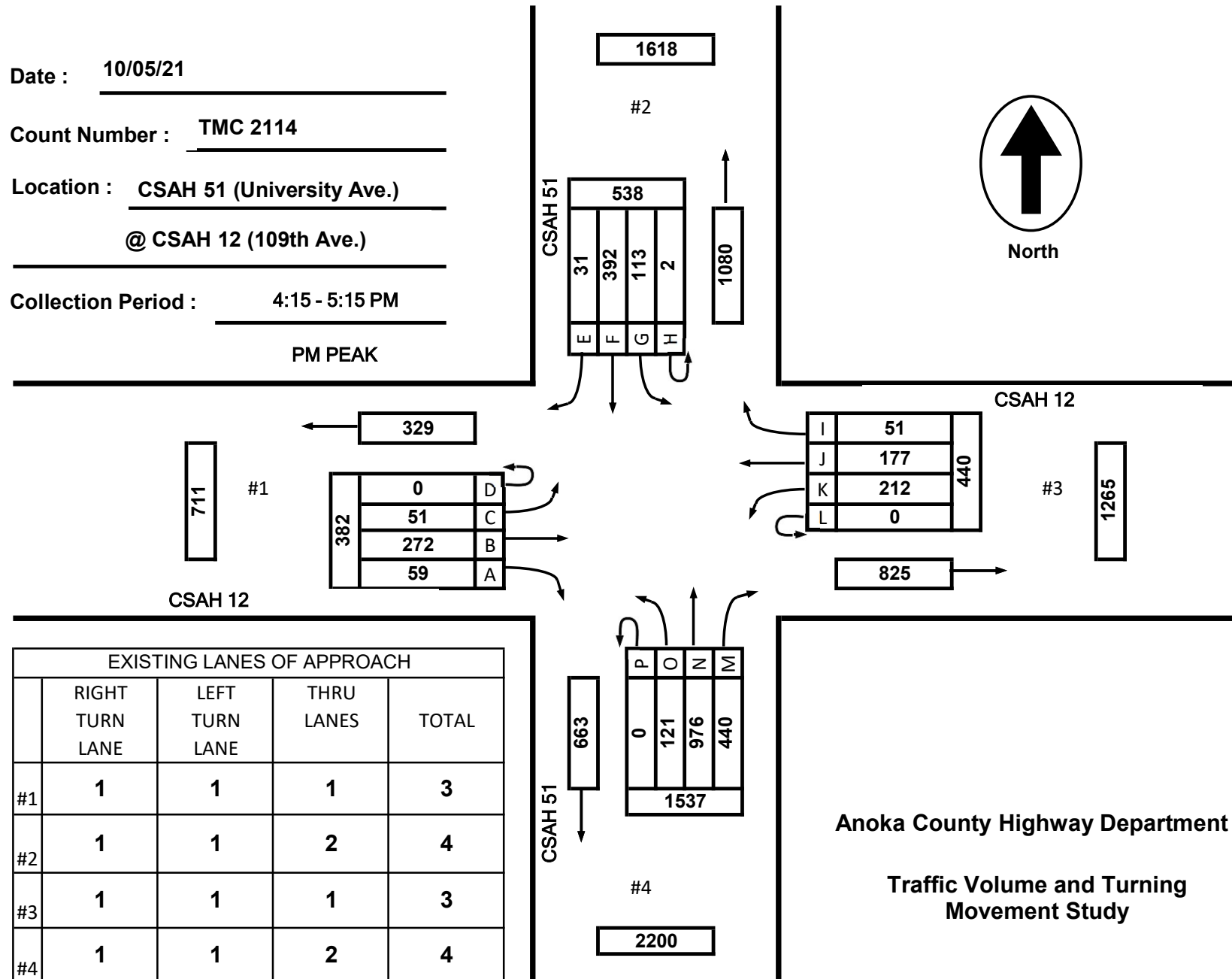
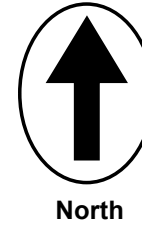
Date : 10/05/21

Count Number : TMC 2114

Location : CSAH 51 (University Ave.)
@ CSAH 12 (109th Ave.)

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	1	3
#2	1	1	2	4
#3	1	1	1	3
#4	1	1	2	4

Anoka County Highway Department
 Traffic Volume and Turning Movement Study

**CSAH 51 @ CSAH 12
Blaine MN
Tuesday, October 5, 2021**

Time	Southbound CSAH 51						Westbound CSAH 12						Northbound CSAH 51						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	1	1	0	0	2	0	1	3	5	0	9	0	0	8	3	0	11	0	0	6	0	0	6	28
12:15 AM	0	0	4	0	0	4	0	1	4	4	0	9	0	1	13	2	0	16	0	1	3	0	0	4	33
12:30 AM	0	1	1	0	0	2	0	3	1	1	0	5	0	1	9	3	0	13	0	1	5	0	0	6	26
12:45 AM	0	1	1	1	0	3	0	2	2	0	0	4	0	1	10	3	0	14	0	3	3	1	0	7	28
Hourly Total	0	3	7	1	0	11	0	7	10	10	0	27	0	3	40	11	0	54	0	5	17	1	0	23	115
1:00 AM	0	1	4	0	0	5	0	2	4	4	0	10	0	0	15	1	0	16	0	1	2	0	0	3	34
1:15 AM	0	0	5	1	0	6	0	1	1	6	0	8	0	2	8	2	0	12	0	0	4	2	0	6	32
1:30 AM	0	1	4	0	0	5	0	1	5	2	0	8	0	0	9	3	0	12	0	0	1	0	0	1	26
1:45 AM	0	0	2	0	0	2	0	0	3	3	0	6	0	0	4	3	0	7	0	0	1	0	0	1	16
Hourly Total	0	2	15	1	0	18	0	4	13	15	0	32	0	2	36	9	0	47	0	1	8	2	0	11	108
2:00 AM	0	0	2	0	0	2	0	2	0	2	0	4	0	1	3	5	0	9	0	0	0	0	0	0	15
2:15 AM	0	1	8	0	0	9	0	1	2	1	0	4	0	0	5	4	0	9	0	0	1	0	0	1	23
2:30 AM	0	2	1	1	0	4	0	3	2	0	0	5	0	0	8	2	0	10	0	0	1	0	0	1	20
2:45 AM	0	8	3	1	0	12	0	0	1	2	0	3	0	0	7	1	0	8	0	2	1	0	0	3	26
Hourly Total	0	11	14	2	0	27	0	6	5	5	0	16	0	1	23	12	0	36	0	2	3	0	0	5	84
3:00 AM	0	1	7	0	0	8	0	2	0	1	0	3	0	0	2	1	0	3	0	0	1	0	0	1	15
3:15 AM	0	3	9	0	0	12	0	0	1	1	0	2	0	1	6	2	0	9	0	0	1	0	0	1	24
3:30 AM	0	1	16	0	0	17	0	8	0	1	0	9	0	1	1	2	0	4	0	0	1	2	0	3	33
3:45 AM	0	1	10	0	0	11	0	4	0	1	0	5	0	0	2	2	0	4	0	0	0	2	0	2	22
Hourly Total	0	6	42	0	0	48	0	14	1	4	0	19	0	2	11	7	0	20	0	0	3	4	0	7	94
4:00 AM	0	1	15	0	0	16	0	2	2	1	0	5	0	0	4	4	0	8	0	0	2	2	0	4	33
4:15 AM	0	2	32	2	0	36	0	11	2	2	0	15	1	2	6	3	0	12	0	0	3	2	0	5	68
4:30 AM	0	5	38	0	0	43	0	6	5	1	0	12	0	0	2	4	0	6	0	0	5	3	0	8	69
4:45 AM	0	4	33	0	0	37	0	9	1	1	0	11	0	1	3	6	0	10	0	0	2	3	0	5	63
Hourly Total	0	12	118	2	0	132	0	28	10	5	0	43	1	3	15	17	0	36	0	0	12	10	0	22	233
5:00 AM	0	5	54	0	0	59	0	15	3	2	0	20	0	2	11	6	0	19	0	1	4	3	0	8	106
5:15 AM	0	8	68	0	0	76	0	22	9	6	0	37	0	1	9	10	0	20	0	2	4	2	0	8	141
5:30 AM	0	7	92	3	0	102	0	31	8	1	0	40	0	4	16	15	0	35	0	1	13	3	0	17	194
5:45 AM	0	8	88	3	0	99	0	23	4	1	0	28	2	2	7	12	0	23	0	1	14	7	0	22	172
Hourly Total	0	28	302	6	0	336	0	91	24	10	0	125	2	9	43	43	0	97	0	5	35	15	0	55	613
6:00 AM	0	4	93	2	0	99	0	33	6	6	0	45	0	4	16	20	0	40	0	1	14	7	0	22	206
6:15 AM	0	11	116	4	0	131	0	35	10	3	0	48	0	15	29	26	0	70	0	1	15	3	0	19	268
6:30 AM	0	14	143	5	0	162	0	52	8	13	0	73	0	9	29	34	0	72	0	2	21	7	0	30	337
6:45 AM	0	21	123	9	0	153	0	57	14	12	0	83	1	4	64	41	0	110	0	2	18	14	0	34	380
Hourly Total	0	50	475	20	0	545	0	177	38	34	0	249	1	32	138	121	0	292	0	6	68	31	0	105	1191
7:00 AM	0	16	171	7	0	194	0	46	29	25	0	100	1	10	89	37	0	137	0	4	25	12	0	41	472
7:15 AM	0	35	170	7	0	212	0	65	23	18	0	106	1	20	86	48	1	155	0	5	41	25	0	71	544
7:30 AM	0	33	174	5	1	212	0	70	28	15	0	113	0	13	71	62	0	146	0	5	64	46	0	115	586
7:45 AM	0	24	179	9	0	212	0	64	35	11	0	110	0	14	73	76	0	163	0	4	59	35	0	98	583
Hourly Total	0	108	694	28	1	830	0	245	115	69	0	429	2	57	319	223	1	601	0	18	189	118	0	325	2185

**CSAH 51 @ CSAH 12
Blaine MN
Tuesday, October 5, 2021**

Time	Southbound CSAH 51						Westbound CSAH 12						Northbound CSAH 51						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	0	41	146	14	0	201	0	59	50	4	0	113	1	19	63	72	0	155	0	7	55	38	0	100	569
8:15 AM	0	29	143	6	0	178	0	51	35	7	0	93	0	11	95	80	0	186	0	13	65	36	0	114	571
8:30 AM	0	21	119	9	0	149	0	57	36	10	0	103	0	11	67	88	0	166	0	9	59	27	0	95	513
8:45 AM	0	19	85	14	0	118	0	60	43	11	0	114	0	16	76	72	0	164	0	5	42	22	0	69	465
Hourly Total	0	110	493	43	0	646	0	227	164	32	0	423	1	57	301	312	0	671	0	34	221	123	0	378	2118
9:00 AM	0	26	85	22	0	133	0	40	44	14	0	98	1	12	52	45	0	110	0	8	53	25	0	86	427
9:15 AM	0	10	86	18	0	114	0	37	28	12	0	77	0	30	63	64	0	157	0	15	54	23	0	92	440
9:30 AM	0	13	75	5	0	93	0	46	25	9	0	80	2	15	39	45	0	101	0	7	37	12	0	56	330
9:45 AM	0	17	62	6	0	85	0	41	29	10	0	80	0	10	50	45	0	105	1	6	39	14	0	60	330
Hourly Total	0	66	308	51	0	425	0	164	126	45	0	335	3	67	204	199	0	473	1	36	183	74	0	294	1527
10:00 AM	1	17	65	6	0	89	0	38	32	5	0	75	1	15	46	52	0	114	0	9	29	16	0	54	332
10:15 AM	0	14	67	4	0	85	0	46	28	12	0	86	0	17	62	45	0	124	0	2	33	9	0	44	339
10:30 AM	0	17	56	4	0	77	0	37	35	16	0	88	0	13	53	42	0	108	0	2	44	10	0	56	329
10:45 AM	0	15	62	8	0	85	0	39	27	10	0	76	1	9	55	39	0	104	0	3	35	5	0	43	308
Hourly Total	1	63	250	22	0	336	0	160	122	43	0	325	2	54	216	178	0	450	0	16	141	40	0	197	1308
11:00 AM	0	14	57	2	0	73	0	46	33	11	0	90	0	15	62	49	0	126	0	7	44	11	0	62	351
11:15 AM	0	13	47	6	0	66	0	33	27	12	0	72	0	20	61	43	0	124	0	5	37	9	0	51	313
11:30 AM	0	30	67	5	0	102	0	46	43	12	0	101	2	11	64	56	0	133	2	9	45	8	0	64	400
11:45 AM	0	26	52	6	0	84	0	39	45	10	0	94	0	20	71	53	0	144	0	9	54	11	0	74	396
Hourly Total	0	83	223	19	0	325	0	164	148	45	0	357	2	66	258	201	0	527	2	30	180	39	0	251	1460
12:00 PM	0	21	59	5	0	85	0	30	42	12	0	84	1	18	82	49	0	150	0	6	53	15	0	74	393
12:15 PM	0	10	70	5	0	85	0	47	37	8	0	92	0	20	71	66	0	157	0	8	38	10	0	56	390
12:30 PM	0	16	51	10	0	77	0	53	37	8	1	98	0	18	58	45	0	121	0	2	45	13	0	60	356
12:45 PM	0	15	61	5	0	81	0	44	37	9	0	90	1	17	71	53	0	142	0	7	42	10	0	59	372
Hourly Total	0	62	241	25	0	328	0	174	153	37	1	364	2	73	282	213	0	570	0	23	178	48	0	249	1511
1:00 PM	0	15	73	6	0	94	1	35	28	9	3	73	1	19	87	59	0	166	0	3	35	12	0	50	383
1:15 PM	0	14	71	2	0	87	0	40	33	11	0	84	0	21	62	52	0	135	0	1	34	14	0	49	355
1:30 PM	0	27	65	5	0	97	0	44	37	15	0	96	0	23	79	51	0	153	0	7	35	15	0	57	403
1:45 PM	0	24	70	6	0	100	0	39	44	9	0	92	0	20	96	56	0	172	0	5	45	7	0	57	421
Hourly Total	0	80	279	19	0	378	1	158	142	44	3	345	1	83	324	218	0	626	0	16	149	48	0	213	1562
2:00 PM	0	17	77	7	0	101	0	46	36	10	0	92	0	20	113	78	0	211	0	10	41	14	0	65	469
2:15 PM	0	29	83	4	0	116	0	48	33	12	1	93	0	23	115	70	0	208	0	7	52	15	0	74	491
2:30 PM	1	41	98	9	0	149	0	51	43	11	0	105	0	28	121	74	2	223	2	8	42	12	0	64	541
2:45 PM	0	23	97	14	0	134	0	52	44	7	1	103	0	31	168	93	0	292	0	11	47	24	0	82	611
Hourly Total	1	110	355	34	0	500	0	197	156	40	2	393	0	102	517	315	2	934	2	36	182	65	0	285	2112
3:00 PM	0	23	86	7	0	116	0	66	36	14	0	116	1	22	142	82	0	247	0	18	56	21	0	95	574
3:15 PM	0	37	106	13	0	156	0	54	39	15	0	108	0	27	170	99	0	296	1	14	84	25	0	124	684
3:30 PM	0	45	95	7	0	147	0	44	43	11	0	98	0	33	184	108	0	325	1	11	63	23	0	98	668
3:45 PM	1	33	94	14	0	142	0	54	41	9	0	104	1	35	231	104	0	371	0	15	41	19	0	75	692
Hourly Total	1	138	381	41	0	561	0	218	159	49	0	426	2	117	727	393	0	1239	2	58	244	88	0	392	2618

CSAH 51 @ CSAH 12
Blaine MN
Tuesday, October 5, 2021

Time	Southbound CSAH 51						Westbound CSAH 12						Northbound CSAH 51						Eastbound CSAH 12						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	
4:00 PM	0	34	110	13	0	157	0	54	38	11	1	103	2	29	220	115	0	366	0	16	65	19	0	100	726
4:15 PM	1	29	84	6	0	120	0	51	52	13	0	116	0	24	237	119	0	380	0	9	74	8	0	91	707
4:30 PM	0	25	93	5	0	123	0	52	37	14	0	103	0	26	246	108	0	380	0	11	49	19	0	79	685
4:45 PM	0	31	107	14	0	152	0	60	37	14	0	111	0	44	245	112	0	401	0	15	77	19	0	111	775
Hourly Total	1	119	394	38	0	552	0	217	164	52	1	433	2	123	948	454	0	1527	0	51	265	65	0	381	2893
5:00 PM	1	28	108	6	0	143	0	49	51	10	0	110	0	27	248	101	0	376	0	16	72	13	0	101	730
5:15 PM	0	45	99	6	0	150	0	56	48	14	0	118	0	34	169	95	0	298	0	9	73	23	0	105	671
5:30 PM	0	21	101	7	0	129	0	50	52	16	0	118	0	45	181	90	0	316	0	11	54	16	0	81	644
5:45 PM	0	33	85	8	0	126	0	55	37	14	0	106	1	35	174	93	0	303	0	7	47	19	0	73	608
Hourly Total	1	127	393	27	0	548	0	210	188	54	0	452	1	141	772	379	0	1293	0	43	246	71	0	360	2653
6:00 PM	0	32	96	6	0	134	0	49	43	21	0	113	0	47	121	72	0	240	0	6	54	12	0	72	559
6:15 PM	0	36	91	7	0	134	0	51	43	10	0	104	5	32	128	62	0	227	0	6	54	12	0	72	537
6:30 PM	0	27	72	8	0	107	0	44	51	11	0	106	0	26	128	59	0	213	0	7	48	12	0	67	493
6:45 PM	1	22	54	5	0	82	0	35	53	16	0	104	1	20	119	46	0	186	0	10	52	16	0	78	450
Hourly Total	1	117	313	26	0	457	0	179	190	58	0	427	6	125	496	239	0	866	0	29	208	52	0	289	2039
7:00 PM	0	27	55	6	0	88	0	34	41	10	0	85	0	24	98	54	0	176	0	4	30	15	0	49	398
7:15 PM	1	22	60	5	0	88	0	31	28	14	0	73	0	28	104	39	0	171	0	9	40	11	0	60	392
7:30 PM	0	13	56	4	0	73	0	32	27	9	0	68	0	13	90	55	0	158	0	4	26	14	0	44	343
7:45 PM	0	16	41	7	0	64	0	25	28	8	0	61	0	12	87	30	0	129	0	3	27	8	0	38	292
Hourly Total	1	78	212	22	0	313	0	122	124	41	0	287	0	77	379	178	0	634	0	20	123	48	0	191	1425
8:00 PM	0	7	66	4	0	77	0	30	23	10	0	63	0	20	79	49	0	148	0	7	43	7	0	57	345
8:15 PM	0	17	42	8	0	67	0	27	24	9	0	60	0	15	64	37	0	116	1	5	35	13	0	54	297
8:30 PM	0	18	26	6	0	50	0	23	18	10	0	51	0	18	78	38	0	134	0	4	22	4	0	30	265
8:45 PM	0	9	33	5	0	47	0	29	16	6	0	51	0	16	76	37	0	129	0	4	29	5	0	38	265
Hourly Total	0	51	167	23	0	241	0	109	81	35	0	225	0	69	297	161	0	527	1	20	129	29	0	179	1172
9:00 PM	0	8	37	2	0	47	0	14	12	10	0	36	0	10	54	44	0	108	0	4	20	4	0	28	219
9:15 PM	0	12	44	5	0	61	0	12	22	11	0	45	0	12	60	40	0	112	0	1	37	7	0	45	263
9:30 PM	0	9	30	3	0	42	0	15	14	4	0	33	0	7	44	17	0	68	0	5	47	10	0	62	205
9:45 PM	0	11	19	3	0	33	1	17	6	7	0	31	1	7	46	20	0	74	0	1	16	2	0	19	157
Hourly Total	0	40	130	13	0	183	1	58	54	32	0	145	1	36	204	121	0	362	0	11	120	23	0	154	844
10:00 PM	0	2	13	2	0	17	0	17	13	9	0	39	1	9	50	16	0	76	0	3	15	5	0	23	155
10:15 PM	0	6	19	2	0	27	0	14	11	1	0	26	0	6	43	16	0	65	0	3	12	7	0	22	140
10:30 PM	0	2	10	0	0	12	0	7	8	3	0	18	0	8	38	10	0	56	0	3	18	4	0	25	111
10:45 PM	0	2	11	3	0	16	0	6	4	3	0	13	1	3	25	11	0	40	0	1	9	2	0	12	81
Hourly Total	0	12	53	7	0	72	0	44	36	16	0	96	2	26	156	53	0	237	0	10	54	18	0	82	487
11:00 PM	0	5	7	1	0	13	1	2	10	2	0	15	0	4	24	12	0	40	0	1	4	3	0	8	76
11:15 PM	0	1	8	1	0	10	0	3	8	4	0	15	0	3	31	9	0	43	0	1	4	2	0	7	75
11:30 PM	0	4	9	1	0	14	1	6	4	3	0	14	0	6	24	7	0	37	0	4	7	2	0	13	78
11:45 PM	0	1	2	0	0	3	0	7	2	3	0	12	0	3	12	4	0	19	0	0	0	1	0	1	35
Hourly Total	0	11	26	3	0	40	2	18	24	12	0	56	0	16	91	32	0	139	0	6	15	8	0	29	264
DAILY TOTAL	7	1487	5885	473	1	7852	4	2991	2247	787	7	6029	31	1341	6797	4089	3	12258	8	476	2973	1020	0	4477	30616
Cars	7	1437	5809	442	1	7695	4	2946	2206	750	7	5906	31	1326	6696	4004	3	12057	8	453	2908	1005	0	4374	30032
Heavy Vehicles	0	50	76	31	0	157	0	45	41	37	0	123	0	15	101	85	0	201	0	23	65	15	0	103	584
Heavy Vehicle %	0.00%	3.36%	1.29%	6.55%	0.00%	2.00%	0.00%	1.50%	1.82%	4.70%	0.00%	2.04%	0.00%	1.12%	1.49%	2.08%	0.00%	1.64%	0.00%	4.83%	2.19%	1.47%	0.00%	2.30%	1.91%

**CSAH 51 @ CSAH 12
Blaine MN
Tuesday, October 5, 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																																																																									
7:30 AM	0	33	174	5	1	212	0	70	28	15	0	113	0	13	71	62	0	146	0	5	64	46	0	115	0	24	179	9	0	212	0	64	35	11	0	110	0	14	73	76	0	163	0	4	59	35	0	98	0	41	146	14	0	201	0	59	50	4	0	113	1	19	63	72	0	155	0	7	55	38	0	100	0	29	143	6	0	178	0	51	35	7	0	93	0	11	95	80	0	186	0	13	65	36	0	114	586
7:45 AM	0	24	179	9	0	212	0	64	35	11	0	110	0	14	73	76	0	163	0	4	59	35	0	98	0	41	146	14	0	201	0	59	50	4	0	113	1	19	63	72	0	155	0	7	55	38	0	100	0	29	143	6	0	178	0	51	35	7	0	93	0	11	95	80	0	186	0	13	65	36	0	114	583																								
8:00 AM	0	41	146	14	0	201	0	59	50	4	0	113	1	19	63	72	0	155	0	7	55	38	0	100	0	29	143	6	0	178	0	51	35	7	0	93	0	11	95	80	0	186	0	13	65	36	0	114	569																																																
8:15 AM	0	29	143	6	0	178	0	51	35	7	0	93	0	11	95	80	0	186	0	13	65	36	0	114	0	29	143	6	0	178	0	51	35	7	0	93	0	11	95	80	0	186	0	13	65	36	0	114	571																																																
Peak Hour Total	0	127	642	34	1	803	0	244	148	37	0	429	1	57	302	290	0	650	0	29	243	155	0	427	0	127	642	34	1	803	0	244	148	37	0	429	1	57	302	290	0	650	0	29	243	155	0	427	0	127	642	34	1	803	2309																																										
PHF	0.000	0.774	0.897	0.607	0.250	0.947	0.000	0.871	0.740	0.617	0.000	0.949	0.250	0.750	0.795	0.906	0.000	0.874	0.000	0.558	0.935	0.842	0.000	0.928	0.000	0.774	0.897	0.607	0.250	0.947	0.000	0.871	0.740	0.617	0.000	0.949	0.250	0.750	0.795	0.906	0.000	0.874	0.000	0.558	0.935	0.842	0.000	0.928	0.985																																																

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	1	29	84	6	0	120	0	51	52	13	0	116	0	24	237	119	0	380	0	9	74	8	0	91	0	25	93	5	0	123	0	52	37	14	0	103	0	26	246	108	0	380	0	11	49	19	0	79	0	31	107	14	0	152	0	60	37	14	0	111	0	44	245	112	0	401	0	15	77	19	0	111	0	28	108	6	0	143	0	49	51	10	0	110	0	27	248	101	0	376	0	16	72	13	0	101	707
4:30 PM	0	25	93	5	0	123	0	52	37	14	0	103	0	26	246	108	0	380	0	11	49	19	0	79	0	31	107	14	0	152	0	60	37	14	0	111	0	44	245	112	0	401	0	15	77	19	0	111	0	28	108	6	0	143	0	49	51	10	0	110	0	27	248	101	0	376	0	16	72	13	0	101	685																								
4:45 PM	0	31	107	14	0	152	0	60	37	14	0	111	0	44	245	112	0	401	0	15	77	19	0	111	0	31	107	14	0	152	0	60	37	14	0	111	0	44	245	112	0	401	0	15	77	19	0	111	0	28	108	6	0	143	0	49	51	10	0	110	0	27	248	101	0	376	0	16	72	13	0	101	775																								
5:00 PM	1	28	108	6	0	143	0	49	51	10	0	110	0	27	248	101	0	376	0	16	72	13	0	101	0	28	108	6	0	143	0	49	51	10	0	110	0	27	248	101	0	376	0	16	72	13	0	101	0	28	108	6	0	143	0	49	51	10	0	110	730																																				
Peak Hour Total	2	113	392	31	0	538	0	212	177	51	0	440	0	121	976	440	0	1537	0	51	272	59	0	382	2	113	392	31	0	538	0	212	177	51	0	440	0	121	976	440	0	1537	0	51	272	59	0	382	2	113	392	31	0	538	0	212	177	51	0	440	0	121	976	440	0	1537	2897																														
PHF	0.500	0.911	0.907	0.554	0.000	0.885	0.000	0.883	0.851	0.911	0.000	0.948	0.000	0.688	0.984	0.924	0.000	0.958	0.000	0.797	0.883	0.776	0.000	0.860	0.500	0.911	0.907	0.554	0.000	0.885	0.000	0.883	0.851	0.911	0.000	0.948	0.000	0.688	0.984	0.924	0.000	0.958	0.000	0.797	0.883	0.776	0.000	0.860	0.935																																																

Total Vehicles On Leg		15919			
Vehicles Entering Intersection		7852	Vehicles Exiting Intersection		8067
Southbound					
Cars	442	5809	1437	7	1
Heavy	31	76	50	0	0
Total	473	5885	1487	7	1



Total Vehicles on Leg 8546	Vehicles Entering Intersection 4477	Eastbound	Cars	Heavy	Total	
	Vehicles Exiting Intersection 4069		0	0	0	
			8	0	8	
			453	23	476	
			2908	65	2973	
1005	15	1020				

Daily Volumes

Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 6029	Total Vehicles on Leg 14582
750	37	787			
2206	41	2247			
2946	45	2991			
4	0	4			
7	0	7		Vehicles Exiting Intersection 8553	



Cars	3	31	1326	6696	4004
Heavy	0	0	15	101	85
Total	3	31	1341	6797	4089
Northbound					
Vehicles Entering Intersection 12258			Vehicles Exiting Intersection 9927		
Total Vehicles On Leg			22185		

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

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2114

Study Date : 11/04/2021

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 51 (University Ave.)

Number of Lanes : 2+

Total Approach Volume: 12,258

Southbound: CSAH 51 (University Ave.)

Number of Lanes :2+

Total Approach Volume: 7,852

Minor Street Approaches

Eastbound: CSAH 12 (109th Ave.)

Number of Lanes :1

Total Approach Volume: 4,477

Westbound: CSAH 12 (109th Ave.)

Number of Lanes :1

Total Approach Volume: 6,029

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 15 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 (63) 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 2114

Study Date : 11/04/2021

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

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 = **1**

Volume Requirements

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

Time	Major Road				Total	Minor Road		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
	CSAH 51 (University Ave.)					CSAH 12 (109th Ave.)		
16:00 - 17:00	1527	+	552	=	2079	381	433	Yes
17:00 - 18:00	1293	+	548	=	1841	360	452	Yes
15:00 - 16:00	1239	+	561	=	1800	392	426	Yes
14:00 - 15:00	934	+	500	=	1434	285	393	Yes
07:00 - 08:00	601	+	830	=	1431	325	429	Yes
18:00 - 19:00	866	+	457	=	1323	289	427	Yes
08:00 - 09:00	671	+	646	=	1317	378	423	Yes
13:00 - 14:00	626	+	378	=	1004	213	345	Yes
19:00 - 20:00	634	+	313	=	947	191	287	Yes
12:00 - 13:00	570	+	328	=	898	249	364	Yes
09:00 - 10:00	473	+	425	=	898	294	335	Yes
11:00 - 12:00	527	+	325	=	852	251	357	Yes
06:00 - 07:00	292	+	545	=	837	105	249	Yes
10:00 - 11:00	450	+	336	=	786	197	325	Yes
20:00 - 21:00	527	+	241	=	768	179	225	Yes
21:00 - 22:00	362	+	183	=	545	154	145	Yes
05:00 - 06:00	97	+	336	=	433	55	125	Yes
04:45 - 05:45	84	+	274	=	358	38	108	No
22:00 - 23:00	237	+	72	=	309	82	96	No
04:30 - 05:30	55	+	215	=	270	29	80	No
22:15 - 23:15	201	+	68	=	269	67	72	No
22:30 - 23:30	179	+	51	=	230	52	61	No
04:15 - 05:15	47	+	175	=	222	26	58	No
22:45 - 23:45	160	+	53	=	213	40	57	No
23:00 - 00:00	139		40		179	29	56	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2114

Study Date : 11/04/2021

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 = **1**

Volume Requirements

Rural Factor of 70 % applied
 Veh/Hr Major = **630**
 Veh/Hr Minor = **53**

Time	Major Road				Total	Minor Road		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
	CSAH 51 (University Ave.)					CSAH 12 (109th Ave.)		
15:45 - 16:45	1497	+	542	=	2039	345	426	Yes
16:45 - 17:45	1391	+	574	=	1965	398	457	Yes
14:45 - 15:45	1160	+	553	=	1713	399	425	Yes
17:45 - 18:45	983	+	501	=	1484	284	429	Yes
07:45 - 08:45	670	+	740	=	1410	407	419	Yes
06:45 - 07:45	548	+	771	=	1319	261	402	Yes
13:45 - 14:45	814	+	466	=	1280	260	382	Yes
18:45 - 19:45	691	+	331	=	1022	231	330	Yes
08:45 - 09:45	532	+	458	=	990	303	369	Yes
12:45 - 13:45	596	+	359	=	955	215	343	Yes
11:45 - 12:45	572	+	331	=	903	264	368	Yes
10:45 - 11:45	487	+	326	=	813	220	339	Yes
09:45 - 10:45	451	+	336	=	787	214	329	Yes
19:45 - 20:45	527	+	258	=	785	179	235	Yes
05:45 - 06:45	205	+	491	=	696	93	194	Yes
20:45 - 21:45	417	+	197	=	614	173	165	No
05:30 - 06:30	168	+	431	=	599	80	161	No
21:00 - 22:00	362	+	183	=	545	154	145	No
05:15 - 06:15	118	+	376	=	494	69	150	No
21:15 - 22:15	330	+	153	=	483	149	148	No
05:00 - 06:00	97	+	336	=	433	55	125	No
21:30 - 22:30	283	+	119	=	402	126	129	No
21:45 - 22:45	271	+	89	=	360	89	114	No
04:45 - 05:45	84	+	274	=	358	38	108	No
22:00 - 23:00	237		72		309	82	96	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2114

Study Date : 11/04/2021

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

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 = **1**

Volume Requirements

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

Veh/Hr Minor = **84 42**

Major Road CSAH 51 (University Ave.)

Minor Road CSAH 12 (109th Ave.)

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
15:45 - 16:45	1497	+	542	=	2039	345	426	Yes
16:45 - 17:45	1391	+	574	=	1965	398	457	Yes
14:45 - 15:45	1160	+	553	=	1713	399	425	Yes
17:45 - 18:45	983	+	501	=	1484	284	429	Yes
07:45 - 08:45	670	+	740	=	1410	407	419	Yes
06:45 - 07:45	548	+	771	=	1319	261	402	Yes
13:45 - 14:45	814	+	466	=	1280	260	382	Yes
18:45 - 19:45	691	+	331	=	1022	231	330	Yes
08:45 - 09:45	532	+	458	=	990	303	369	Yes
12:45 - 13:45	596	+	359	=	955	215	343	Yes
11:45 - 12:45	572	+	331	=	903	264	368	Yes
10:45 - 11:45	487	+	326	=	813	220	339	Yes

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
16:30 - 17:30	1455	+	568	=	2023	396	442	Yes
15:30 - 16:30	1442	+	566	=	2008	364	421	Yes
14:30 - 15:30	1058	+	555	=	1613	365	432	Yes
17:30 - 18:30	1086	+	523	=	1609	298	441	Yes
07:30 - 08:30	650	+	803	=	1453	427	429	Yes
06:30 - 07:30	474	+	721	=	1195	176	362	Yes
13:30 - 14:30	744	+	414	=	1158	253	373	Yes
08:30 - 09:30	597	+	514	=	1111	342	392	Yes
18:30 - 19:30	746	+	365	=	1111	254	368	Yes
11:30 - 12:30	584	+	356	=	940	268	371	Yes
12:30 - 13:30	564	+	339	=	903	218	345	Yes
19:30 - 20:30	551	+	281	=	832	193	252	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2114

Study Date : 11/04/2021

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.

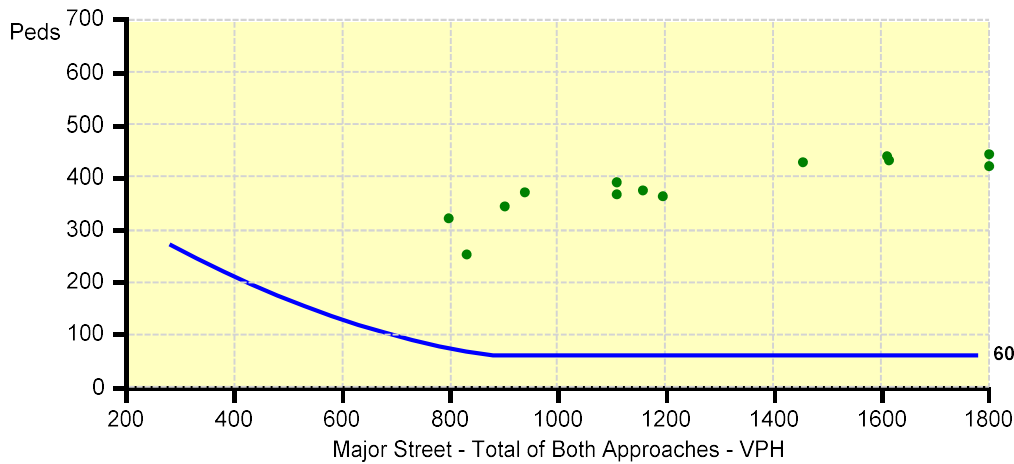
Summary

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 = **1**

Time	Major Road CSAH 51 (University Ave.)				Total	Minor Road CSAH 12 (109th Ave.)		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:30 - 17:30	1455	+	568	=	2023	396	442	Yes
15:30 - 16:30	1442	+	566	=	2008	364	421	Yes
14:30 - 15:30	1058	+	555	=	1613	365	432	Yes
17:30 - 18:30	1086	+	523	=	1609	298	441	Yes
07:30 - 08:30	650	+	803	=	1453	427	429	Yes
06:30 - 07:30	474	+	721	=	1195	176	362	Yes
13:30 - 14:30	744	+	414	=	1158	253	373	Yes
18:30 - 19:30	746	+	365	=	1111	254	368	Yes
08:30 - 09:30	597	+	514	=	1111	342	392	Yes
11:30 - 12:30	584	+	356	=	940	268	371	Yes
12:30 - 13:30	564	+	339	=	903	218	345	Yes
							252	Yes



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2114

Study Date : 11/04/2021

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

57 one hour periods meet minimums.
Warrant IS met.

Site Data Required

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

Time	Major Road CSAH 51 (University Ave.)				Total	Minor Road CSAH 12 (109th Ave.)		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:00 - 17:00	1527	+	552	=	2079	381	433	Yes
16:15 - 17:15	1537	+	538	=	2075	382	440	Yes
15:45 - 16:45	1497	+	542	=	2039	345	426	Yes
16:30 - 17:30	1455	+	568	=	2023	396	442	Yes
15:30 - 16:30	1442	+	566	=	2008	364	421	Yes
16:45 - 17:45	1391	+	574	=	1965	398	457	Yes
15:15 - 16:15	1358	+	602	=	1960	397	413	Yes
17:00 - 18:00	1293	+	548	=	1841	360	452	Yes
15:00 - 16:00	1239	+	561	=	1800	392	426	Yes
14:45 - 15:45	1160	+	553	=	1713	399	425	Yes
17:15 - 18:15	1157	+	539	=	1696	331	455	Yes
							432	Yes

