

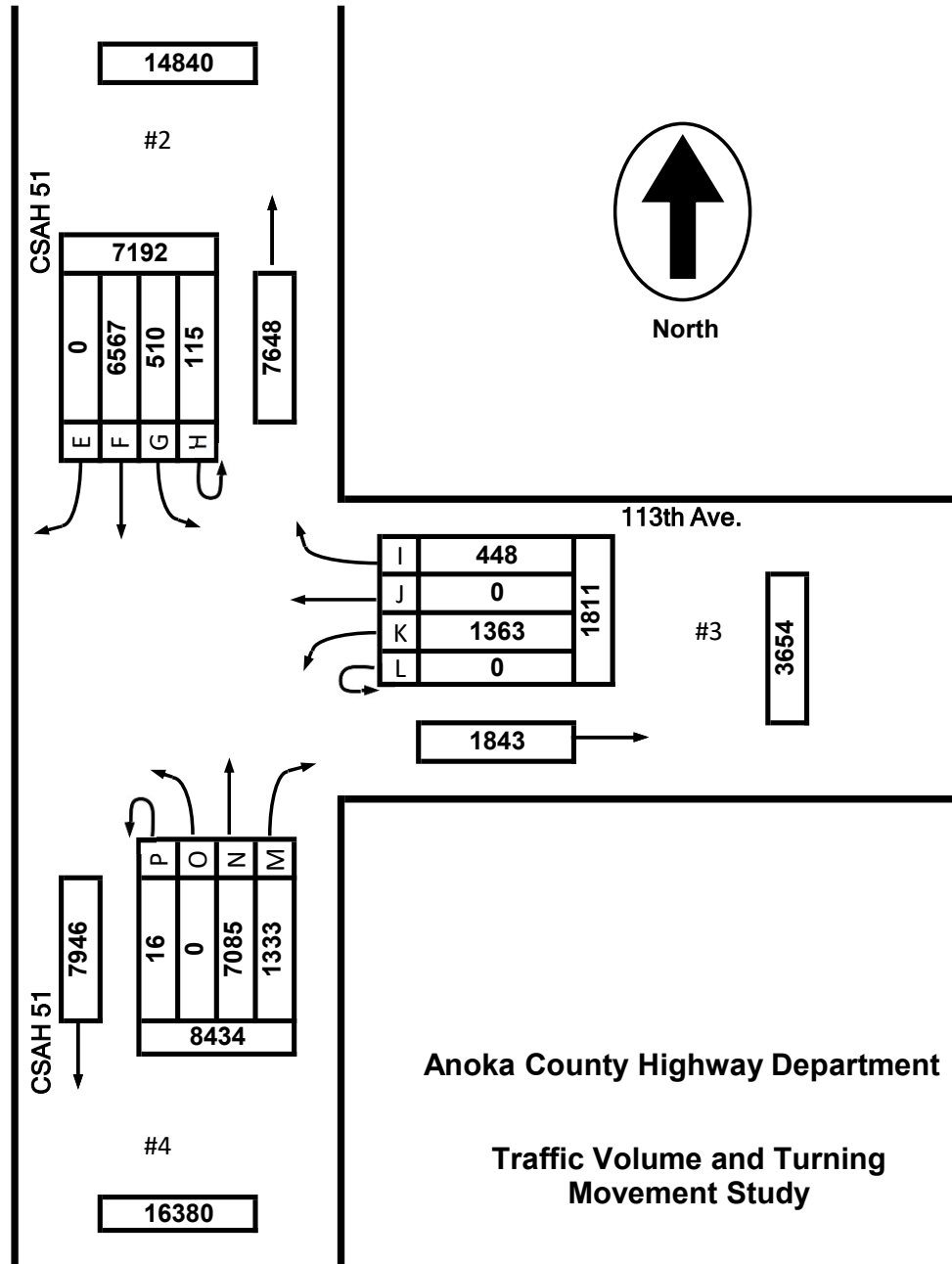
Date : 10/07/21

Count Number : TMC 2116

Location : CSAH 51 (University Ave.)
@ 113th Ave.

Collection Period : 24 Hours

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



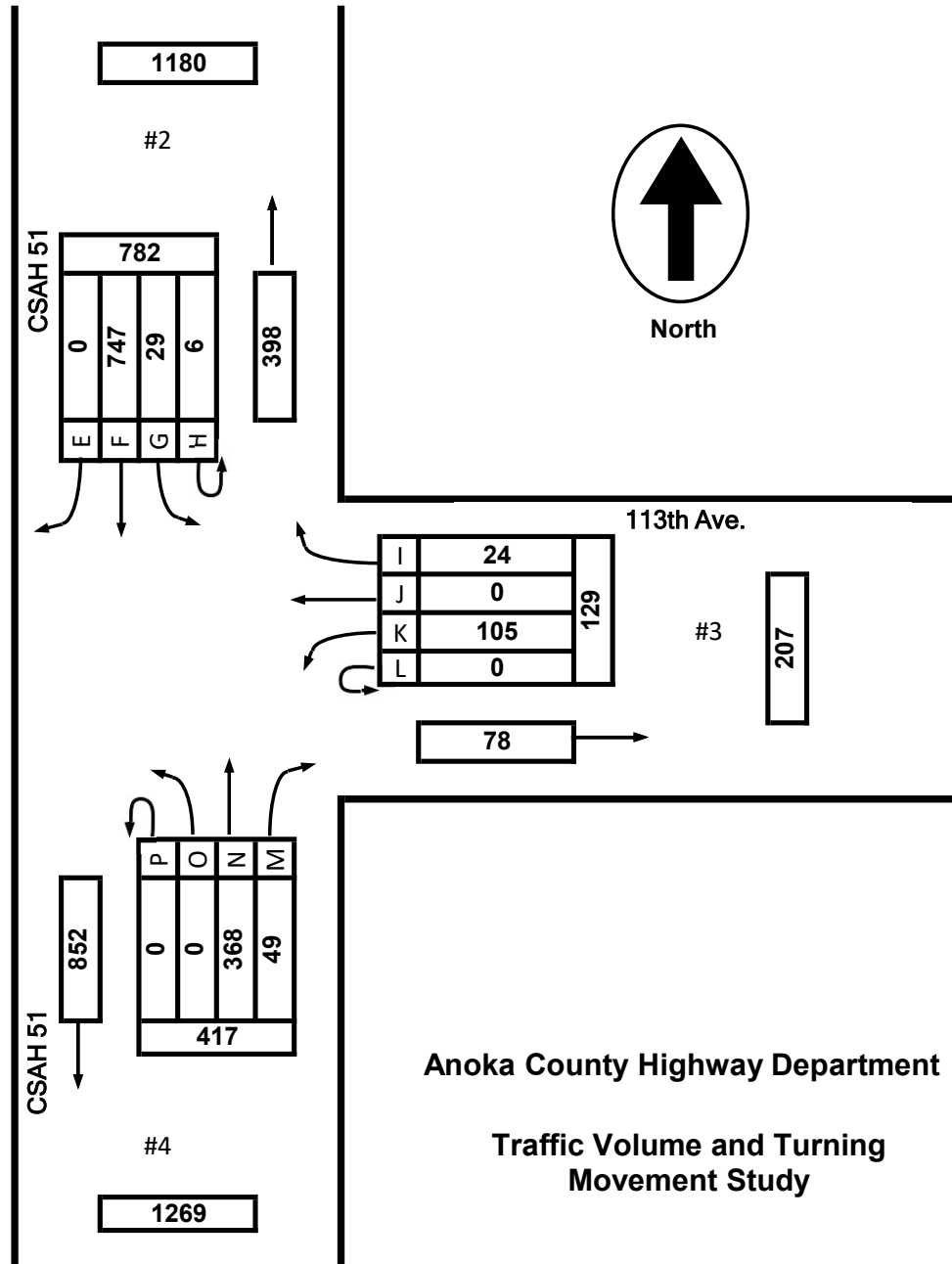
Date : 10/07/21

Count Number : TMC 2116

Location : CSAH 51 (University Ave.)
@ 113th Ave.

Collection Period : 7 AM - 8 AM
AM PEAK

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



Anoka County Highway Department

Traffic Volume and Turning Movement Study

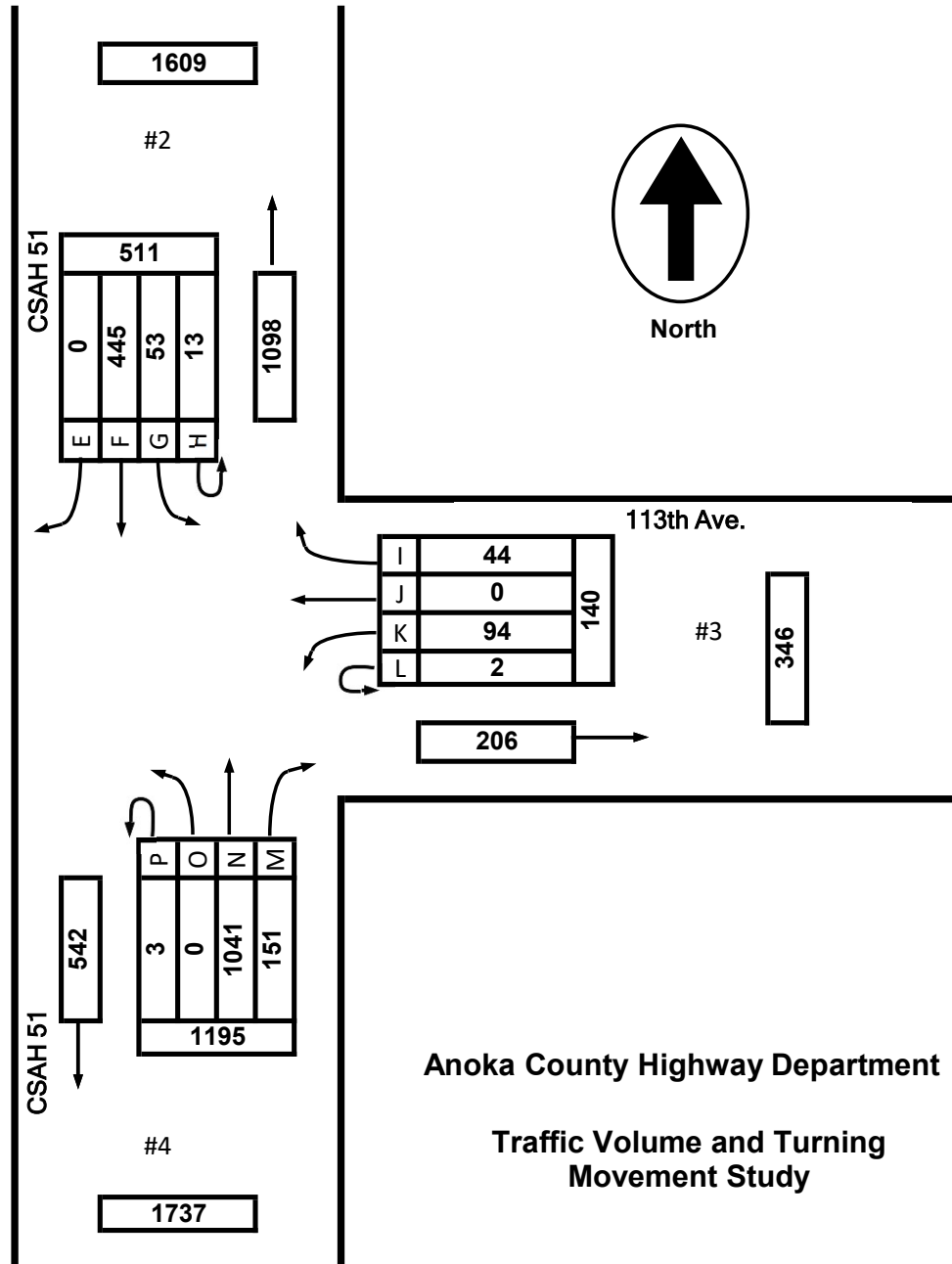
Date : 10/07/21

Count Number : TMC 2116

Location : CSAH 51 (University Ave.)
@ 113th Ave.

Collection Period : 4 PM - 5 PM
PM PEAK

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



Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

**TMC 2116
Blaine MN
Thursday, October 7, 2021**

Time	Southbound CSAH 51						Westbound 113th Ave						Northbound CSAH 51						Eastbound 0						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	8	0	0	9	0	2	0	0	0	2	0	0	13	5	0	18	0	0	0	0	0	0	29
12:15 AM	0	1	5	0	0	6	0	2	0	2	0	4	1	0	16	5	0	22	0	0	0	0	0	0	32
12:30 AM	0	1	7	0	0	8	0	3	0	0	0	3	0	0	9	3	0	12	0	0	0	0	0	0	23
12:45 AM	0	0	2	0	0	2	0	0	0	0	1	0	0	0	6	2	0	8	0	0	0	0	0	0	10
Hourly Total	0	3	22	0	0	25	0	7	0	2	1	9	1	0	44	15	0	60	0	0	0	0	0	0	94
1:00 AM	0	0	2	0	0	2	0	1	0	0	0	1	0	0	6	6	0	12	0	0	0	0	0	0	15
1:15 AM	0	1	3	0	0	4	0	0	0	0	0	0	0	0	9	1	0	10	0	0	0	0	0	0	14
1:30 AM	0	3	3	0	0	6	0	2	0	0	0	2	0	0	2	3	0	3	0	0	0	0	0	0	11
1:45 AM	0	0	3	0	0	3	0	1	0	0	0	1	0	0	5	2	0	7	0	0	0	0	0	0	11
Hourly Total	0	4	11	0	0	15	0	4	0	0	0	4	0	0	20	12	0	32	0	0	0	0	0	0	51
2:00 AM	0	0	5	0	0	5	0	0	0	0	0	0	0	0	6	2	0	8	0	0	0	0	0	0	13
2:15 AM	0	2	7	0	0	9	0	5	0	1	0	6	0	0	2	2	0	4	0	0	0	0	0	0	19
2:30 AM	1	0	1	0	0	2	0	2	0	2	0	4	0	0	9	1	0	10	0	0	0	0	0	0	16
2:45 AM	0	1	6	0	0	7	0	2	0	0	0	2	0	0	5	4	0	9	0	0	0	0	0	0	18
Hourly Total	1	3	19	0	0	23	0	9	0	3	0	12	0	0	22	9	0	31	0	0	0	0	0	0	66
3:00 AM	0	0	2	0	0	2	0	3	0	0	0	3	0	0	2	1	0	3	0	0	0	0	0	0	8
3:15 AM	0	0	8	0	0	8	0	4	0	0	0	4	0	0	5	2	0	7	0	0	0	0	0	0	19
3:30 AM	0	0	9	0	0	9	0	4	0	1	0	5	0	0	2	1	0	3	0	0	0	0	0	0	17
3:45 AM	0	1	8	0	0	9	0	1	0	0	0	1	0	0	4	1	0	5	0	0	0	0	0	0	15
Hourly Total	0	1	27	0	0	28	0	12	0	1	0	13	0	0	13	5	0	18	0	0	0	0	0	0	59
4:00 AM	1	0	10	0	0	11	0	4	0	0	0	4	0	0	2	1	0	3	0	0	0	0	0	0	18
4:15 AM	0	0	25	0	0	25	0	7	0	1	0	8	0	0	6	1	0	7	0	0	0	0	0	0	40
4:30 AM	0	0	33	0	0	33	0	15	0	2	0	17	0	0	6	1	0	7	0	0	0	0	0	0	57
4:45 AM	0	1	31	0	0	32	0	7	0	2	0	9	0	0	6	0	0	6	0	0	0	0	0	0	47
Hourly Total	1	1	99	0	0	101	0	33	0	5	0	38	0	0	20	3	0	23	0	0	0	0	0	0	162
5:00 AM	0	1	42	0	0	43	0	14	0	0	0	14	0	0	7	4	0	11	0	0	0	0	0	0	68
5:15 AM	0	0	70	0	0	70	0	19	0	1	0	20	0	0	9	4	0	13	0	0	0	0	0	0	103
5:30 AM	0	1	79	0	0	80	0	20	0	3	0	23	0	0	14	2	0	16	0	0	0	0	0	0	119
5:45 AM	0	0	81	0	0	81	0	13	0	6	0	19	1	0	8	3	0	12	0	0	0	0	0	0	112
Hourly Total	0	2	272	0	0	274	0	66	0	10	0	76	1	0	38	13	0	52	0	0	0	0	0	0	402
6:00 AM	0	2	96	0	0	98	0	23	0	1	0	24	0	0	14	5	0	19	0	0	0	0	0	0	141
6:15 AM	0	1	97	0	0	98	0	19	0	9	0	28	0	0	19	6	0	30	0	0	0	0	0	0	156
6:30 AM	0	0	158	0	0	158	0	28	0	4	0	32	0	0	36	4	0	40	0	0	0	0	0	0	230
6:45 AM	0	1	120	0	0	121	0	27	0	12	0	39	0	0	59	6	0	65	0	0	0	0	0	0	225
Hourly Total	0	4	471	0	0	475	0	97	0	26	0	123	0	0	133	21	0	154	0	0	0	0	0	0	752
7:00 AM	0	7	170	0	0	177	0	27	0	5	0	32	0	0	101	12	0	113	0	0	0	0	0	0	322
7:15 AM	1	8	196	0	1	205	0	20	0	11	0	31	0	0	106	12	0	118	0	0	0	0	0	0	354
7:30 AM	0	2	190	0	2	192	0	31	0	5	2	36	0	0	94	10	1	104	0	0	0	0	0	0	332
7:45 AM	5	12	191	0	7	208	0	27	0	3	2	30	0	0	67	15	1	82	0	0	0	0	0	0	320
Hourly Total	6	29	747	0	10	782	0	105	0	24	4	129	0	0	368	49	2	417	0	0	0	0	0	0	1328

**TMC 2116
Blaine MN
Thursday, October 7, 2021**

Time	Southbound CSAH 51						Westbound 113th Ave						Northbound CSAH 51						Eastbound 0						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	8	8	148	0	2	164	0	17	0	6	0	23	0	0	54	9	0	63	0	0	0	0	0	0	250
8:15 AM	3	9	112	0	1	124	0	21	0	4	1	25	0	0	64	12	0	76	0	0	0	0	0	0	225
8:30 AM	1	4	99	0	0	104	0	19	0	4	1	23	0	0	53	12	0	65	0	0	0	0	0	0	192
8:45 AM	0	3	83	0	3	86	0	14	0	6	0	20	0	0	45	14	1	59	0	0	0	0	0	0	165
Hourly Total	12	24	442	0	6	478	0	71	0	20	2	91	0	0	216	47	1	263	0	0	0	0	0	0	832
9:00 AM	1	9	103	0	0	113	0	26	0	6	0	32	0	0	59	9	0	68	0	0	0	0	0	0	213
9:15 AM	0	8	79	0	0	87	0	26	0	5	0	31	0	0	71	11	0	82	0	0	0	0	0	0	200
9:30 AM	0	8	91	0	0	99	0	18	0	5	0	23	0	0	51	13	0	64	0	0	0	0	0	0	186
9:45 AM	0	2	72	0	0	74	0	13	0	6	0	19	0	0	62	8	0	70	0	0	0	0	0	0	163
Hourly Total	1	27	345	0	0	373	0	83	0	22	0	105	0	0	243	41	0	284	0	0	0	0	0	0	762
10:00 AM	1	2	73	0	0	76	0	15	0	4	0	19	0	0	63	8	0	71	0	0	0	0	0	0	166
10:15 AM	0	4	78	0	0	82	0	13	0	8	1	21	0	0	62	15	0	77	0	0	0	0	0	0	180
10:30 AM	0	1	64	0	0	65	0	13	0	5	2	18	0	0	55	12	0	67	0	0	0	0	0	0	150
10:45 AM	0	6	61	0	0	67	0	16	0	7	0	23	0	0	82	14	0	96	0	0	0	0	0	0	186
Hourly Total	1	13	276	0	0	290	0	57	0	24	3	81	0	0	262	49	0	311	0	0	0	0	0	0	682
11:00 AM	2	7	77	0	0	86	0	10	0	11	0	21	0	0	70	10	0	80	0	0	0	0	0	0	187
11:15 AM	2	7	60	0	0	69	0	12	0	5	0	17	0	0	63	11	0	74	0	0	0	0	0	0	160
11:30 AM	1	3	71	0	0	75	0	22	0	4	0	26	1	0	68	7	0	76	0	0	0	0	0	0	177
11:45 AM	0	6	52	0	0	58	0	16	0	1	0	17	0	0	66	13	0	79	0	0	0	0	0	0	154
Hourly Total	5	23	260	0	0	288	0	60	0	21	0	81	1	0	267	41	0	309	0	0	0	0	0	0	678
12:00 PM	1	0	62	0	0	63	0	7	0	2	0	9	0	0	84	8	0	92	0	0	0	0	0	0	164
12:15 PM	1	0	83	0	0	84	0	13	0	6	0	19	0	0	66	14	0	80	0	0	0	0	0	0	183
12:30 PM	0	5	64	0	0	69	0	20	0	2	0	22	1	0	79	11	0	91	0	0	0	0	0	0	182
12:45 PM	1	3	65	0	0	69	0	12	0	14	0	26	1	0	92	14	0	107	0	0	0	0	0	0	202
Hourly Total	3	8	274	0	0	285	0	52	0	24	0	76	2	0	321	47	0	370	0	0	0	0	0	0	731
1:00 PM	1	3	77	0	0	81	0	22	0	7	0	29	0	0	80	8	0	88	0	0	0	0	0	0	198
1:15 PM	1	4	99	0	0	104	0	23	0	6	2	29	0	0	110	16	0	126	0	0	0	0	0	0	259
1:30 PM	0	9	127	0	0	136	0	19	0	6	0	25	0	0	114	11	0	125	0	0	0	0	0	0	286
1:45 PM	0	14	139	0	3	153	0	14	0	9	5	23	1	0	115	24	4	140	0	0	0	0	0	0	316
Hourly Total	2	30	442	0	3	474	0	78	0	28	7	106	1	0	419	59	4	479	0	0	0	0	0	0	1059
2:00 PM	1	7	83	0	3	91	0	19	0	2	3	21	0	0	120	24	4	144	0	0	0	0	0	0	256
2:15 PM	0	13	105	0	0	118	0	15	0	6	2	21	0	0	130	29	0	159	0	0	0	0	0	0	298
2:30 PM	1	8	104	0	0	113	0	25	0	7	0	32	0	0	111	21	0	132	0	0	0	0	0	0	277
2:45 PM	2	17	78	0	3	97	0	17	0	8	2	25	0	0	148	25	0	173	0	0	0	0	0	0	295
Hourly Total	4	45	370	0	6	419	0	76	0	23	7	99	0	0	509	99	4	608	0	0	0	0	0	0	1126
3:00 PM	4	11	110	0	21	125	0	27	0	4	0	31	1	0	137	30	0	168	0	0	0	0	0	0	324
3:15 PM	1	17	116	0	8	134	1	23	0	12	2	36	0	0	210	31	1	241	0	0	0	0	0	0	411
3:30 PM	3	17	118	0	1	138	0	30	0	10	0	40	0	0	214	29	0	243	0	0	0	0	0	0	421
3:45 PM	3	9	112	0	0	124	0	19	0	7	0	26	0	0	231	38	0	269	0	0	0	0	0	0	419
Hourly Total	11	54	456	0	30	521	1	99	0	33	2	133	1	0	792	128	1	921	0	0	0	0	0	0	1575

TMC 2116
Blaine MN
Thursday, October 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	
7:00 AM	0	7	170	0	0	177	0	27	0	5	0	32	0	0	101	12	0	113	0	0	0	0	0	0	0
7:15 AM	1	8	196	0	1	205	0	20	0	11	0	31	0	0	106	12	0	118	0	0	0	0	0	0	0
7:30 AM	0	2	190	0	2	192	0	31	0	5	2	36	0	0	94	10	1	104	0	0	0	0	0	0	0
7:45 AM	5	12	191	0	7	208	0	27	0	3	2	30	0	0	67	15	1	82	0	0	0	0	0	0	0
Peak Hour Total PHF	6	29	747	0	10	782	0	105	0	24	4	129	0	0	368	49	2	417	0	0	0	0	0	0	0
	0.300	0.604	0.953	0.000	0.357	0.940	0.000	0.847	0.000	0.545	0.500	0.896	0.000	0.000	0.868	0.817	0.500	0.883	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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	10	113	0	1	123	1	19	0	8	0	28	1	0	262	41	0	304	0	0	0	0	0	0	0
4:15 PM	3	13	109	0	6	125	0	30	0	11	0	41	0	0	230	51	0	281	0	0	0	0	0	0	0
4:30 PM	4	14	111	0	2	129	0	17	0	15	0	32	2	0	308	31	0	341	0	0	0	0	0	0	0
4:45 PM	6	16	112	0	1	134	1	28	0	10	0	39	0	0	241	28	0	269	0	0	0	0	0	0	0
Peak Hour Total PHF	13	53	445	0	10	511	2	94	0	44	0	140	3	0	1041	151	0	1195	0	0	0	0	0	0	0
	0.542	0.828	0.985	0.000	0.417	0.953	0.500	0.783	0.000	0.733	0.000	0.854	0.375	0.000	0.845	0.740	0.000	0.876	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Total Vehicles On Leg		14840					
Vehicles Entering Intersection		7192		Vehicles Exiting Intersection		7648	
Southbound							
Cars	0	6441	477	115	56		
Heavy	0	126	33	0	14		
Total	0	6567	510	115	70		

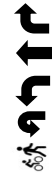


Total Vehicles on Leg 0	Vehicles Entering Intersection 0	Eastbound	Cars	Heavy	Total
			0	0	0
			0	0	0
	Vehicles Exiting Intersection 0		0	0	0
			0	0	0



Daily Volumes

Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 1815	Total Vehicles on Leg 3662
422	26	448			
0	0	0			
1320	43	1363			
4	0	4			
20	8	28	Vehicles Exiting Intersection 1847		



Cars	5	16	0	6972	1292
Heavy	7	0	0	113	41
Total	12	16	0	7085	1333
Northbound					
Vehicles Entering Intersection			Vehicles Exiting Intersection		
8434			7946		
Total Vehicles On Leg			16380		



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
10/7/2021	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	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	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	1	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	0	0	0	0	1	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	1	0	0	0	0	0	0	0	0
	5:15	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	5:30	0	0	1	0	0	0	0	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	0	0	0
	6:00	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
	6:15	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	6:30	0	0	6	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	6:45	0	1	4	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0
	7:00	0	1	7	0	0	0	2	0	2	0	0	9	2	0	0	0	0	0	0	0
	7:15	0	1	9	0	0	0	0	0	1	0	0	2	1	0	0	0	0	0	0	0
	7:30	0	1	7	0	0	0	2	0	1	1	0	2	2	1	0	0	0	0	0	0
	7:45	0	8	4	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0
	8:00	0	1	6	0	0	0	2	0	1	0	0	6	0	0	0	0	0	0	0	0
	8:15	0	1	3	0	0	0	0	0	1	0	0	3	1	0	0	0	0	0	0	0
	8:30	0	1	1	0	0	0	3	0	1	0	0	4	2	0	0	0	0	0	0	0
	8:45	0	1	4	0	0	0	2	0	0	0	0	2	1	0	0	0	0	0	0	0
	9:00	0	1	4	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
	9:15	0	0	3	0	0	0	2	0	1	0	0	12	1	0	0	0	0	0	0	0
	9:30	0	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
	9:45	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	10:00	0	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	10:15	0	0	0	0	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0
	10:30	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
	10:45	0	0	1	0	0	0	0	0	1	0	0	3	1	0	0	0	0	0	0	0
	11:00	0	0	0	0	0	0	1	0	0	0	0	3	1	0	0	0	0	0	0	0
	11:15	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
	11:30	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
	11:45	0	0	1	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2116

Study Date : 11/05/2021

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 51 (University Ave.)

Number of Lanes : 2+

Total Approach Volume: 8,434

Southbound: CSAH 51 (University Ave.)

Number of Lanes :2+

Total Approach Volume: 7,192

Minor Street Approaches

Westbound: 113th Ave.

Number of Lanes :1

Total Approach Volume: 1,815

Warrant Summary (Rural Values Apply)

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

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

Required volumes reached for 8 hours, 8 are needed

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

Required volumes reached for 11 hours, 8 are needed

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

Required 1A volumes reached for 13 hours, 8 are needed

Required 1B volumes reached for 15 hours, 8 are needed

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

Number of hours (10) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (32) 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 2116

Study Date : 11/05/2021

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

8 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.)					113th Ave.		
16:15 - 17:15	1163	+	525	=	1688	0	147	Yes
15:15 - 16:15	1057	+	519	=	1576	0	130	Yes
17:15 - 18:15	839	+	493	=	1332	0	137	Yes
07:00 - 08:00	417	+	782	=	1199	0	129	Yes
14:15 - 15:15	632	+	453	=	1085	0	109	Yes
12:30 - 13:30	412	+	323	=	735	0	106	Yes
08:30 - 09:30	274	+	390	=	664	0	106	Yes
06:00 - 07:00	154	+	475	=	629	0	123	Yes
13:30 - 14:30	568	+	498	=	1066	0	90	No
13:45 - 14:45	575	+	475	=	1050	0	97	No
14:00 - 15:00	608	+	419	=	1027	0	99	No
18:15 - 19:15	543	+	414	=	957	0	100	No
18:30 - 19:30	549	+	377	=	926	0	92	No
18:45 - 19:45	508	+	357	=	865	0	93	No
19:00 - 20:00	453	+	300	=	753	0	91	No
08:00 - 09:00	263	+	478	=	741	0	91	No
19:15 - 20:15	437	+	290	=	727	0	73	No
08:15 - 09:15	268	+	427	=	695	0	100	No
19:30 - 20:30	398	+	280	=	678	0	58	No
12:15 - 13:15	366	+	303	=	669	0	96	No
12:00 - 13:00	370	+	285	=	655	0	76	No
19:45 - 20:45	377	+	257	=	634	0	50	No
10:45 - 11:45	326	+	297	=	623	0	87	No
10:15 - 11:15	320	+	300	=	620	0	83	No
11:45 - 12:45	342		274		616	0	67	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2116

Study Date : 11/05/2021

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

11 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
 Number of Major Lanes = **2 or more**
 Number of Minor Lanes = **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.)					113th Ave.		
16:00 - 17:00	1195	+	511	=	1706	0	140	Yes
17:00 - 18:00	945	+	518	=	1463	0	135	Yes
15:00 - 16:00	921	+	521	=	1442	0	133	Yes
07:15 - 08:15	367	+	769	=	1136	0	120	Yes
18:00 - 19:00	594	+	441	=	1035	0	109	Yes
14:00 - 15:00	608	+	419	=	1027	0	99	Yes
13:00 - 14:00	479	+	474	=	953	0	106	Yes
06:15 - 07:15	248	+	554	=	802	0	131	Yes
19:00 - 20:00	453	+	300	=	753	0	91	Yes
08:15 - 09:15	268	+	427	=	695	0	100	Yes
12:00 - 13:00	370	+	285	=	655	0	76	Yes
06:00 - 07:00	154	+	475	=	629	0	123	No
10:45 - 11:45	326	+	297	=	623	0	87	No
09:15 - 10:15	287	+	336	=	623	0	92	No
10:15 - 11:15	320	+	300	=	620	0	83	No
11:45 - 12:45	342	+	274	=	616	0	67	No
09:30 - 10:30	282	+	331	=	613	0	82	No
11:30 - 12:30	327	+	280	=	607	0	71	No
10:30 - 11:30	317	+	287	=	604	0	79	No
10:00 - 11:00	311	+	290	=	601	0	81	No
20:00 - 21:00	347	+	250	=	597	0	55	No
11:00 - 12:00	309	+	288	=	597	0	81	No
11:15 - 12:15	321	+	265	=	586	0	69	No
09:45 - 10:45	285	+	297	=	582	0	77	No
20:15 - 21:15	324		239		563	0	59	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2116

Study Date : 11/05/2021

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

13 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 51 (University Ave.)

Minor Road 113th Ave.

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
16:15 - 17:15	1163	+	525	=	1688	0	147	Yes
15:15 - 16:15	1057	+	519	=	1576	0	130	Yes
17:15 - 18:15	839	+	493	=	1332	0	137	Yes
07:15 - 08:15	367	+	769	=	1136	0	120	Yes
14:15 - 15:15	632	+	453	=	1085	0	109	Yes
13:15 - 14:15	535	+	484	=	1019	0	98	Yes
18:15 - 19:15	543	+	414	=	957	0	100	Yes
06:15 - 07:15	248	+	554	=	802	0	131	Yes
08:15 - 09:15	268	+	427	=	695	0	100	Yes
12:15 - 13:15	366	+	303	=	669	0	96	Yes
10:45 - 11:45	326	+	297	=	623	0	87	Yes
09:15 - 10:15	287	+	336	=	623	0	92	Yes

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
15:45 - 16:45	1195	+	501	=	1696	0	127	Yes
16:45 - 17:45	1016	+	514	=	1530	0	141	Yes
14:45 - 15:45	825	+	494	=	1319	0	132	Yes
06:45 - 07:45	400	+	695	=	1095	0	138	Yes
17:45 - 18:45	623	+	447	=	1070	0	123	Yes
13:45 - 14:45	575	+	475	=	1050	0	97	Yes
07:45 - 08:45	286	+	600	=	886	0	101	Yes
18:45 - 19:45	508	+	357	=	865	0	93	Yes
12:45 - 13:45	446	+	390	=	836	0	109	Yes
08:45 - 09:45	273	+	385	=	658	0	106	Yes
19:45 - 20:45	377	+	257	=	634	0	50	Yes
10:45 - 11:45	326	+	297	=	623	0	87	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2116

Study Date : 11/05/2021

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.

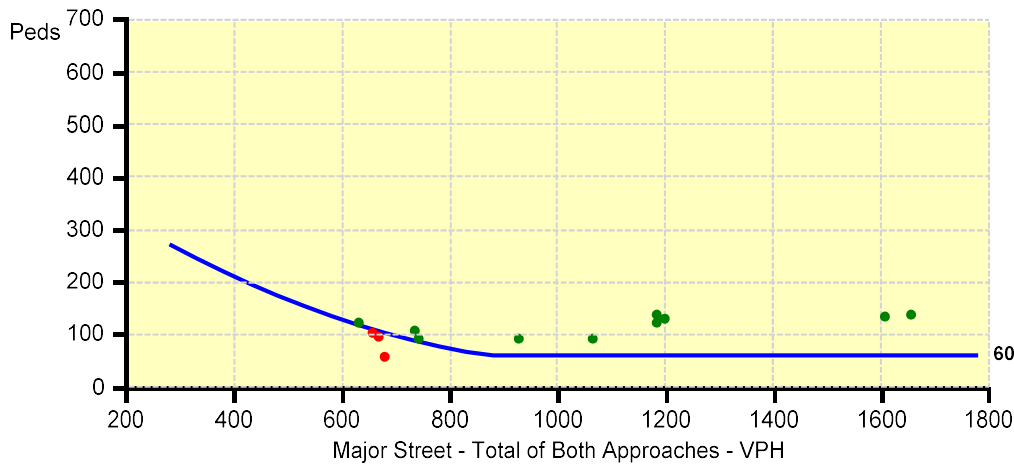
Summary

10 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 113th Ave.		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:30 - 17:30	1131	+	524	=	1655	0	137	Yes
15:30 - 16:30	1097	+	510	=	1607	0	135	Yes
07:00 - 08:00	417	+	782	=	1199	0	129	Yes
14:30 - 15:30	714	+	469	=	1183	0	124	Yes
17:30 - 18:30	706	+	477	=	1183	0	136	Yes
13:30 - 14:30	568	+	498	=	1066	0	90	Yes
18:30 - 19:30	549	+	377	=	926	0	92	Yes
08:00 - 09:00	263	+	478	=	741	0	91	Yes
12:30 - 13:30	412	+	323	=	735	0	106	Yes
06:00 - 07:00	154	+	475	=	629	0	123	Yes
19:30 - 20:30	398	+	280	=	678	0	58	No
							96	No



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2116

Study Date : 11/05/2021

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

21 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 113th Ave.		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:00 - 17:00	1195	+	511	=	1706	0	140	Yes
15:45 - 16:45	1195	+	501	=	1696	0	127	Yes
16:15 - 17:15	1163	+	525	=	1688	0	147	Yes
16:30 - 17:30	1131	+	524	=	1655	0	137	Yes
15:30 - 16:30	1097	+	510	=	1607	0	135	Yes
15:15 - 16:15	1057	+	519	=	1576	0	130	Yes
16:45 - 17:45	1016	+	514	=	1530	0	141	Yes
17:00 - 18:00	945	+	518	=	1463	0	135	Yes
15:00 - 16:00	921	+	521	=	1442	0	133	Yes
17:15 - 18:15	839	+	493	=	1332	0	137	Yes
14:45 - 15:45	825	+	494	=	1319	0	132	Yes
							129	Yes

