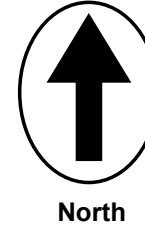
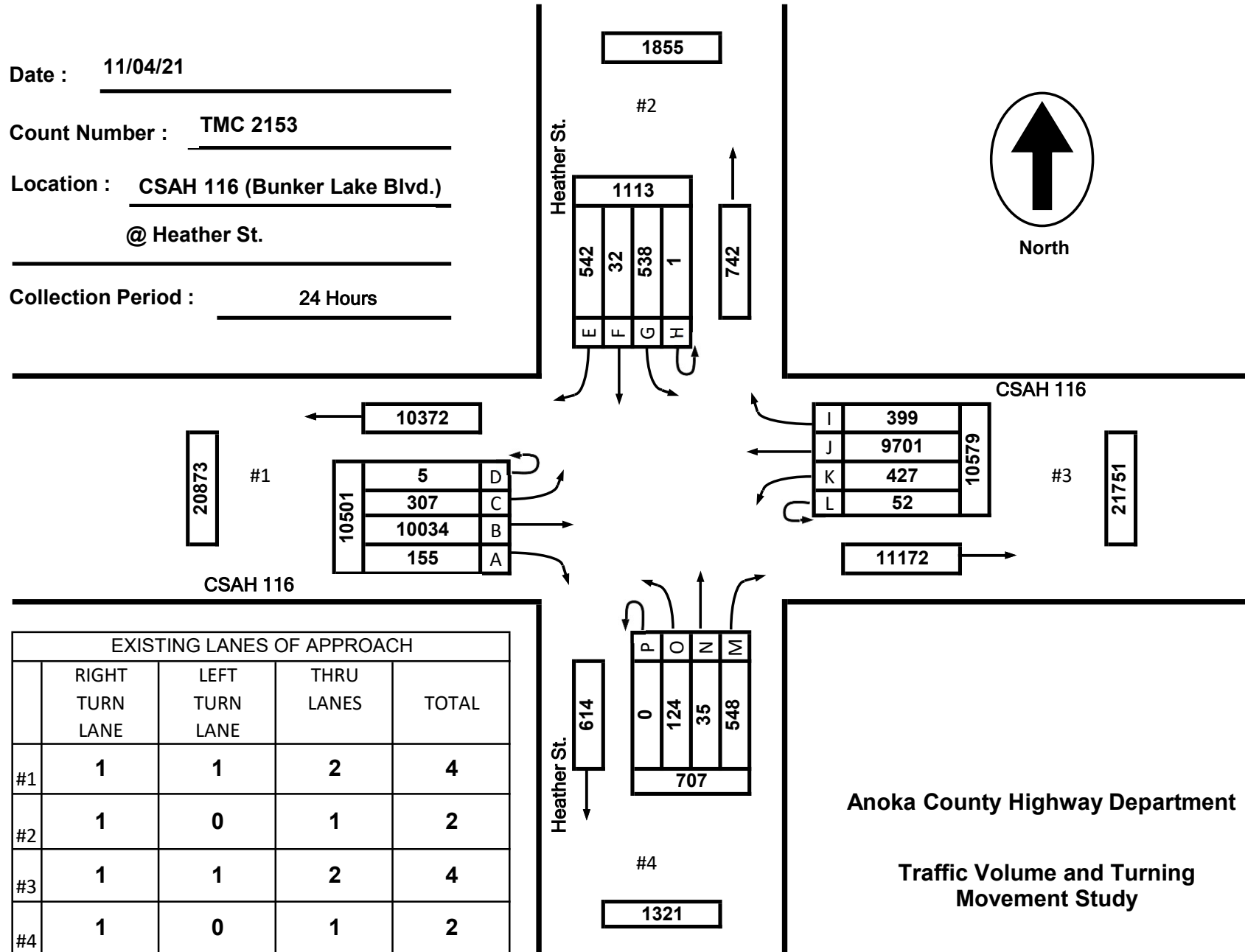


Date : 11/04/21

Count Number : TMC 2153

Location : CSAH 116 (Bunker Lake Blvd.)
@ Heather St.

Collection Period : 24 Hours



Anoka County Highway Department

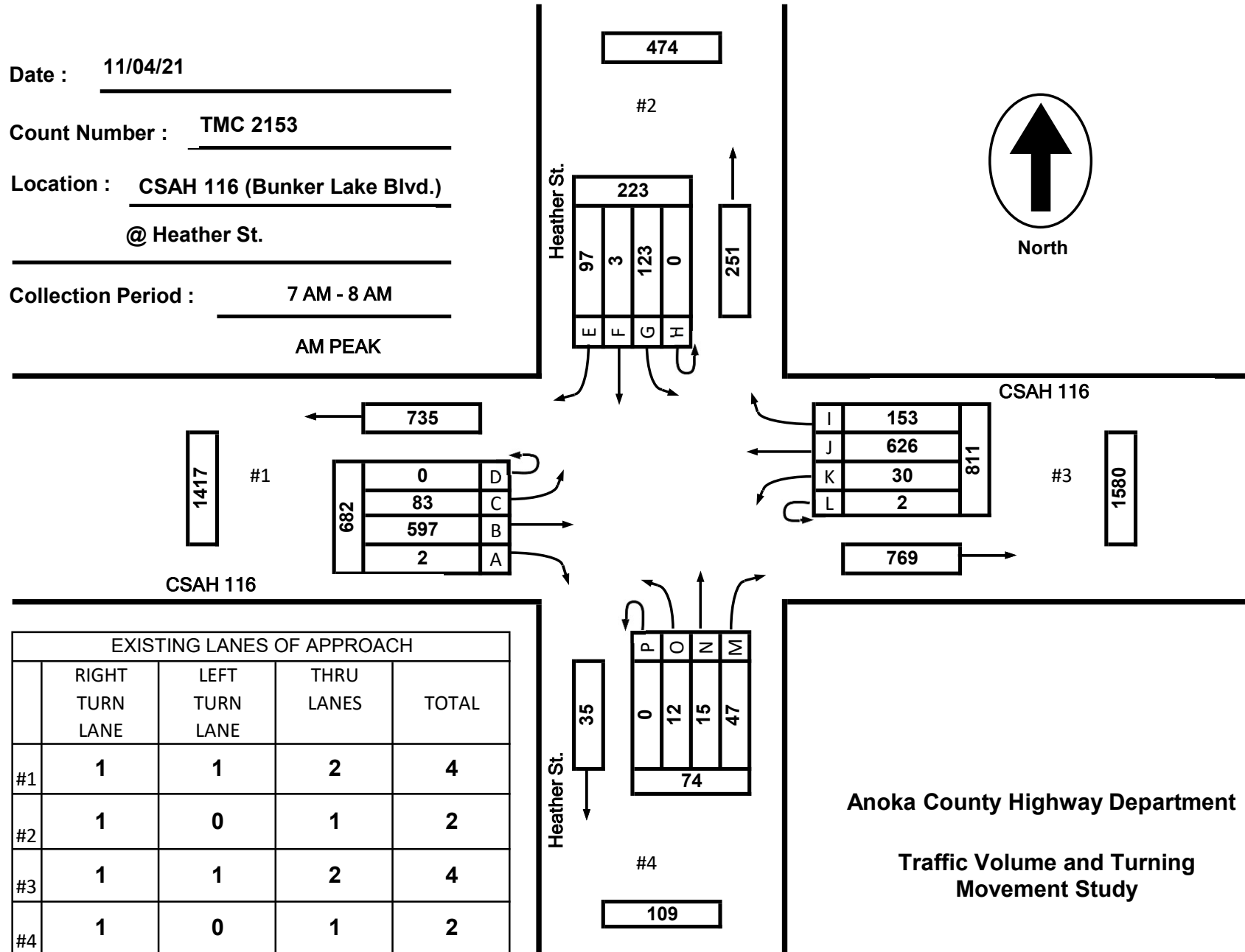
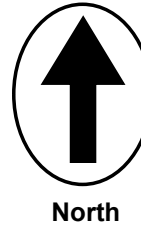
Traffic Volume and Turning Movement Study

Date : 11/04/21

Count Number : TMC 2153

Location : CSAH 116 (Bunker Lake Blvd.)
@ Heather St.

Collection Period : 7 AM - 8 AM
AM PEAK



1417

#1

CSAH 116

682	0	D
	83	C
	597	B
	2	A

735

Heather St.

223			
97	3	123	0
E	F	G	H

474

#2

251

CSAH 116

I	153	811
J	626	
K	30	
L	2	

#3

1580

769

Heather St.

P	O	N	M
0	12	15	47
74			

#4

109

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

Anoka County Highway Department

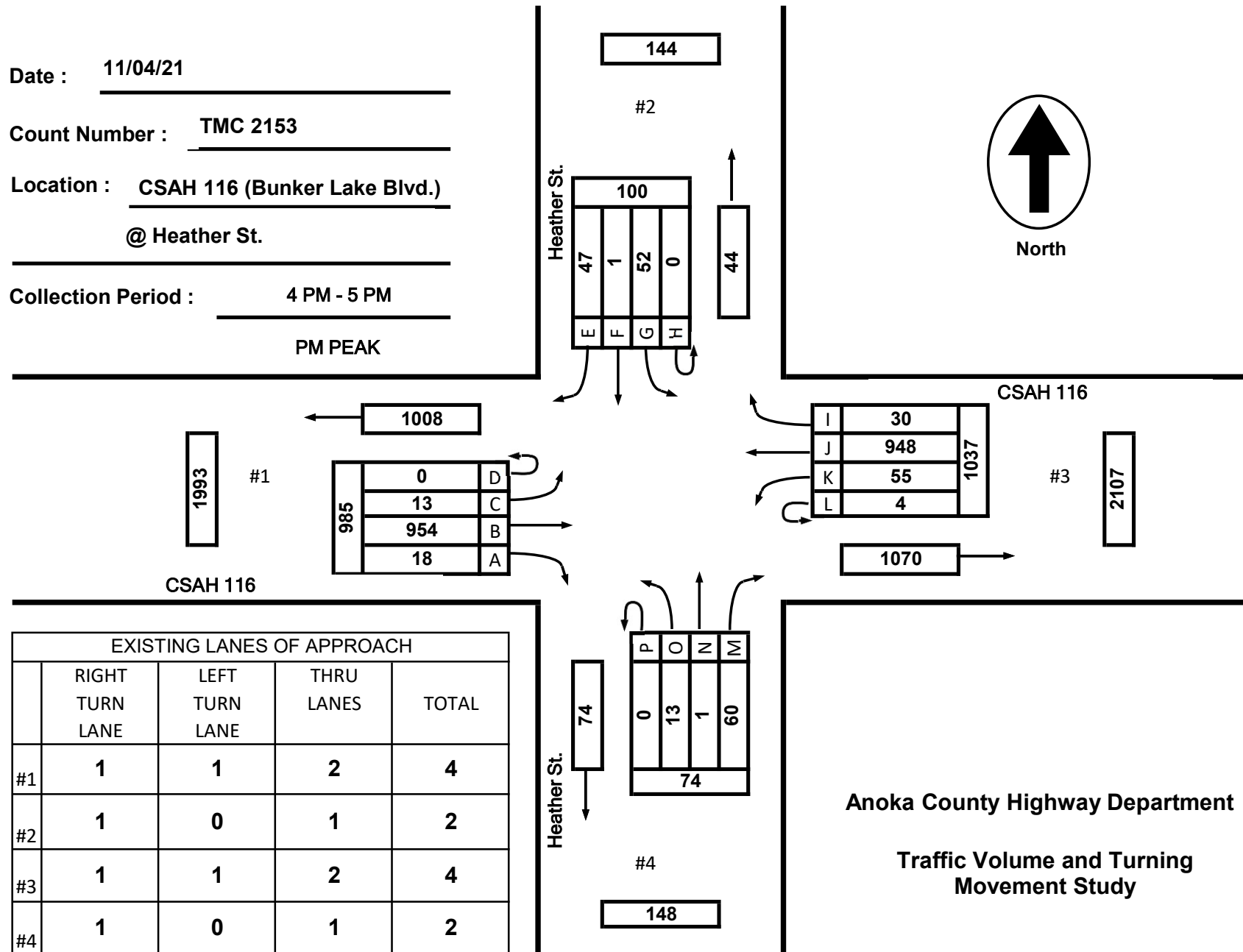
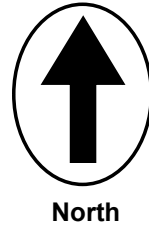
Traffic Volume and Turning Movement Study

Date : 11/04/21

Count Number : TMC 2153

Location : CSAH 116 (Bunker Lake Blvd.)
@ Heather St.

Collection Period : 4 PM - 5 PM
PM PEAK



#1

1993	1008	985	18
		0	D
		13	C
		954	B
		18	A

#2

144	100	47	1	52	0
		E	F	G	H

#3

2107	1037	1070	1037
	I	J	K
	30	948	55
	L	4	

#4

148	74	74	148
	P	O	N
	0	13	1
			60

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

Anoka County Highway Department
Traffic Volume and Turning Movement Study

**TMC 2153
Andover MN
Thursday, November 4, 2021**

Time	Southbound Heather St.						Westbound CSAH 116						Northbound Heather St.						Eastbound CSAH 116						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
12:00 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	5	0	0	5	7
12:15 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	12	0	0	12	15
12:30 AM	0	0	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	0	0	7	0	0	7	13
12:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	4	0	0	4	5
Hourly Total	0	0	0	0	0	0	0	1	11	0	0	12	0	0	0	0	0	0	0	0	28	0	0	28	40
1:00 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	5	0	0	5	8
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4
1:30 AM	0	0	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	0	0	3	0	0	3	11
1:45 AM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	3	0	0	3	7
Hourly Total	0	0	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	0	0	15	0	0	15	30
2:00 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	3
2:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	1	0	1	0	0	3	0	0	3	6
2:30 AM	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	7	0	0	7	9
2:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	5	6	
Hourly Total	0	0	0	0	0	0	0	2	5	0	0	7	0	0	0	1	0	1	0	0	16	0	0	16	24
3:00 AM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	3	0	0	3	8
3:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	4	0	0	4	5
3:30 AM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	3	0	0	3	8
3:45 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	1	0	1	0	0	4	0	0	4	8
Hourly Total	0	0	0	0	0	0	0	0	14	0	0	14	0	0	0	1	0	1	0	0	14	0	0	14	29
4:00 AM	0	0	0	0	0	0	0	0	8	0	0	8	0	0	0	1	0	1	0	0	4	0	0	4	13
4:15 AM	0	0	0	0	0	0	0	0	11	0	0	11	0	1	0	0	0	1	0	0	11	0	0	11	23
4:30 AM	0	0	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	0	0	22	0	0	22	38
4:45 AM	0	0	0	0	0	0	0	0	22	0	0	22	0	0	0	2	0	2	0	0	30	0	0	30	54
Hourly Total	0	0	0	0	0	0	0	0	57	0	0	57	0	1	0	3	0	4	0	0	67	0	0	67	128
5:00 AM	0	0	0	0	0	0	0	0	28	0	0	28	0	0	0	2	0	2	0	0	14	0	0	14	44
5:15 AM	0	0	0	0	0	0	0	0	31	0	0	31	0	0	0	2	0	2	0	0	23	0	0	23	56
5:30 AM	0	0	0	0	0	0	0	0	37	0	0	37	0	1	0	1	0	2	0	0	41	0	0	41	80
5:45 AM	0	0	0	0	0	0	0	0	52	1	0	53	0	2	0	1	0	3	0	0	49	0	0	49	105
Hourly Total	0	0	0	0	0	0	0	0	148	1	0	149	0	3	0	6	0	9	0	0	127	0	0	127	285
6:00 AM	0	0	0	0	0	0	0	2	41	0	0	43	0	0	0	4	0	4	0	0	57	0	0	57	104
6:15 AM	0	1	0	0	0	0	1	0	3	82	1	86	0	1	0	4	0	5	0	1	73	1	0	75	167
6:30 AM	0	1	1	2	0	4	1	3	110	0	0	114	0	3	1	9	0	13	0	3	88	1	0	92	223
6:45 AM	0	2	0	3	0	5	0	7	116	6	0	129	0	1	1	8	0	10	0	8	133	0	0	141	285
Hourly Total	0	4	1	5	0	10	1	15	349	7	0	372	0	5	2	25	0	32	0	12	351	2	0	365	779
7:00 AM	0	10	0	9	0	19	0	4	130	19	0	153	0	1	4	6	0	11	0	13	143	1	0	157	340
7:15 AM	0	27	1	24	0	52	0	10	169	64	2	243	0	4	6	11	0	21	0	37	133	0	0	170	486
7:30 AM	0	65	2	54	0	121	0	8	179	67	2	254	0	5	5	22	0	32	0	28	194	1	0	223	630
7:45 AM	0	21	0	10	0	31	2	8	148	3	0	161	0	2	0	8	0	10	0	5	127	0	0	132	334
Hourly Total	0	123	3	97	0	223	2	30	626	153	4	811	0	12	15	47	0	74	0	83	597	2	0	682	1790

**TMC 2153
Andover MN
Thursday, November 4, 2021**

Time	Southbound Heather St.						Westbound CSAH 116						Northbound Heather St.						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	6	0	10	0	16	0	6	132	5	0	143	0	2	0	13	0	15	0	2	109	1	0	112	286
8:15 AM	0	2	0	1	1	3	0	5	118	3	0	126	0	0	0	14	0	14	0	2	100	2	0	104	247
8:30 AM	0	3	0	2	0	5	2	7	104	2	0	115	0	1	0	7	0	8	0	1	106	1	0	108	236
8:45 AM	0	21	2	8	0	31	2	7	145	4	2	158	0	2	0	10	0	12	0	6	121	0	0	127	328
Hourly Total	0	32	2	21	1	55	4	25	499	14	2	542	0	5	0	44	0	49	0	11	436	4	0	451	1097
9:00 AM	0	9	0	5	1	14	0	3	108	0	0	111	0	0	0	9	0	9	1	2	94	3	0	100	234
9:15 AM	0	10	0	10	0	20	1	2	150	4	0	157	0	1	1	9	2	11	0	2	101	2	2	105	293
9:30 AM	0	3	0	3	0	6	0	4	131	6	0	141	0	0	0	4	0	4	0	2	113	0	0	115	266
9:45 AM	0	3	0	5	2	8	1	10	122	1	2	134	0	2	0	6	0	8	0	1	161	1	0	163	313
Hourly Total	0	25	0	23	3	48	2	19	511	11	2	543	0	3	1	28	2	32	1	7	469	6	2	483	1106
10:00 AM	0	1	0	2	0	3	0	5	111	2	0	118	0	1	0	9	1	10	0	2	107	1	0	110	241
10:15 AM	0	2	0	3	1	5	0	2	124	2	0	128	0	0	0	3	1	3	0	3	127	2	0	132	268
10:30 AM	0	0	0	0	0	0	0	6	151	3	0	160	0	1	0	8	0	9	0	2	150	1	0	153	322
10:45 AM	0	7	0	6	0	13	1	7	131	4	0	143	0	3	0	6	0	9	0	2	131	5	0	138	303
Hourly Total	0	10	0	11	1	21	1	20	517	11	0	549	0	5	0	26	2	31	0	9	515	9	0	533	1134
11:00 AM	0	2	1	7	1	10	1	9	104	0	0	114	0	2	0	3	0	5	0	1	149	2	0	152	281
11:15 AM	0	2	0	2	1	4	0	3	150	2	0	155	0	2	0	3	2	5	0	1	121	0	0	122	286
11:30 AM	0	2	0	0	0	2	0	5	148	3	0	156	0	1	0	3	0	4	0	0	139	1	0	140	302
11:45 AM	0	3	0	6	0	9	0	3	184	0	0	187	0	2	0	9	0	11	0	0	127	2	0	129	336
Hourly Total	0	9	1	15	2	25	1	20	586	5	0	612	0	7	0	18	2	25	0	2	536	5	0	543	1205
12:00 PM	0	1	0	3	0	4	0	8	146	0	0	154	0	3	0	14	0	17	1	0	150	1	0	152	327
12:15 PM	0	2	1	3	0	6	1	5	147	2	0	155	0	2	0	5	1	7	0	0	124	5	0	129	297
12:30 PM	0	3	0	4	0	7	0	3	158	1	0	162	0	1	0	7	0	8	0	1	145	3	0	149	326
12:45 PM	0	0	0	6	0	6	0	7	137	1	0	145	0	2	0	5	0	7	0	2	169	0	0	171	329
Hourly Total	0	6	1	16	0	23	1	23	588	4	0	616	0	8	0	31	1	39	1	3	588	9	0	601	1279
1:00 PM	0	2	1	1	0	4	1	9	139	2	0	151	0	2	0	8	0	10	0	1	168	2	0	171	336
1:15 PM	0	2	0	2	0	4	1	2	166	2	0	171	0	1	1	4	0	6	0	6	170	3	0	179	360
1:30 PM	0	5	1	0	0	6	1	2	193	10	0	206	0	5	1	8	0	14	0	12	192	4	0	208	434
1:45 PM	0	0	0	0	0	0	1	4	190	17	0	212	0	0	0	15	0	15	0	21	189	2	0	212	439
Hourly Total	0	9	2	3	0	14	4	17	688	31	0	740	0	8	2	35	0	45	0	40	719	11	0	770	1569
2:00 PM	0	16	0	32	0	48	2	7	189	14	0	212	0	1	1	9	0	11	0	11	216	3	2	230	501
2:15 PM	1	53	2	25	0	81	0	6	163	11	0	180	0	5	2	10	1	17	0	2	204	5	8	211	489
2:30 PM	0	14	0	8	0	22	1	8	152	4	0	165	0	2	0	10	0	12	1	3	190	4	0	198	397
2:45 PM	0	5	1	6	0	12	1	12	148	2	0	163	0	5	0	9	0	14	0	2	215	5	0	222	411
Hourly Total	1	88	3	71	0	163	4	33	652	31	0	720	0	13	3	38	1	54	1	18	825	17	10	861	1798
3:00 PM	0	10	1	8	0	19	0	6	200	7	0	213	0	6	0	2	0	8	1	4	218	6	1	229	469
3:15 PM	0	11	2	18	0	31	2	5	203	8	3	218	0	4	1	10	2	15	1	7	232	5	0	245	509
3:30 PM	0	29	5	34	0	68	12	13	216	0	7	241	0	2	1	15	0	18	0	5	254	6	0	265	592
3:45 PM	0	13	1	10	0	24	0	10	187	2	0	199	0	2	1	11	0	14	0	3	219	3	0	225	462
Hourly Total	0	63	9	70	0	142	14	34	806	17	10	871	0	14	3	38	2	55	2	19	923	20	1	964	2032

**TMC 2153
Andover MN
Thursday, November 4, 2021**

Time	Southbound Heather St.						Westbound CSAH 116						Northbound Heather St.						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	12	0	12	1	24	2	12	210	6	0	230	0	4	0	16	0	20	0	1	249	3	0	253	
4:15 PM	0	14	0	10	2	24	2	14	250	11	0	277	0	4	0	11	0	15	0	3	212	6	2	221	
4:30 PM	0	17	1	15	0	33	0	13	250	5	0	268	0	3	1	20	0	24	0	6	250	6	0	262	
4:45 PM	0	9	0	10	2	19	0	16	238	8	0	262	0	2	0	13	0	15	0	3	243	3	0	249	
Hourly Total	0	52	1	47	5	100	4	55	948	30	0	1037	0	13	1	60	0	74	0	13	954	18	2	985	
5:00 PM	0	17	0	12	0	29	2	18	234	1	0	255	0	2	0	17	0	19	0	1	221	0	0	222	
5:15 PM	0	9	1	5	0	15	0	6	228	3	0	237	0	3	0	20	1	23	0	0	236	2	0	238	
5:30 PM	0	6	0	5	0	11	2	12	194	2	0	210	0	1	0	13	0	14	0	2	207	5	0	214	
5:45 PM	0	2	0	0	0	2	0	8	188	3	0	199	0	3	0	13	0	16	0	9	204	6	2	219	
Hourly Total	0	34	1	22	0	57	4	44	844	9	0	901	0	9	0	63	1	72	0	12	868	13	2	893	
6:00 PM	0	0	1	1	0	2	0	3	187	7	0	197	0	1	0	4	0	5	0	3	234	6	0	243	
6:15 PM	0	2	0	1	0	3	0	8	190	9	0	207	0	0	1	14	0	15	0	12	180	3	0	195	
6:30 PM	0	13	1	12	0	26	1	6	140	25	0	172	0	3	4	8	0	15	0	20	181	4	0	205	
6:45 PM	0	5	0	5	0	10	1	9	125	14	0	149	0	1	3	12	0	16	0	17	160	4	0	181	
Hourly Total	0	20	2	19	0	41	2	26	642	55	0	725	0	5	8	38	0	51	0	52	755	17	0	824	
7:00 PM	0	2	0	3	0	5	0	13	136	6	0	155	0	1	0	6	0	7	0	12	136	2	0	150	
7:15 PM	0	1	0	1	0	2	0	7	103	1	0	111	0	1	0	5	0	6	0	3	132	2	0	137	
7:30 PM	0	5	1	6	0	12	0	11	111	5	0	127	0	0	0	3	0	3	0	2	107	2	0	111	
7:45 PM	0	0	0	6	0	6	1	4	96	2	0	103	0	2	0	4	0	6	0	1	101	1	0	103	
Hourly Total	0	8	1	16	0	25	1	35	446	14	0	496	0	4	0	18	0	22	0	18	476	7	0	501	
8:00 PM	0	5	0	2	0	7	0	2	110	2	0	114	0	2	0	1	0	3	0	2	103	1	0	106	
8:15 PM	0	12	0	14	0	26	2	2	105	0	0	109	0	0	0	7	0	7	0	2	103	0	0	105	
8:30 PM	0	24	1	41	0	66	1	5	78	3	0	87	0	2	0	8	0	10	0	1	75	2	0	78	
8:45 PM	0	7	2	30	0	39	0	7	58	1	0	66	0	0	0	1	0	1	0	0	59	1	0	60	
Hourly Total	0	48	3	87	0	138	3	16	351	6	0	376	0	4	0	17	0	21	0	5	340	4	0	349	
9:00 PM	0	6	0	15	0	21	1	3	64	0	0	68	0	1	0	1	0	2	0	0	63	1	0	64	
9:15 PM	0	0	0	0	0	0	0	2	67	0	0	69	0	1	0	1	0	2	0	0	63	0	0	63	
9:30 PM	0	0	0	0	0	0	2	1	55	0	0	58	0	0	0	0	0	0	0	0	50	2	0	52	
9:45 PM	0	0	0	0	0	0	1	0	55	0	0	56	0	0	0	3	0	3	0	1	61	0	0	62	
Hourly Total	0	6	0	15	0	21	4	6	241	0	0	251	0	2	0	5	0	7	0	1	237	3	0	241	
10:00 PM	0	0	1	0	0	1	0	0	39	0	0	39	0	2	0	0	0	2	0	0	49	0	0	49	
10:15 PM	0	0	1	0	0	1	0	3	31	0	0	34	0	1	0	3	0	4	0	1	27	2	0	30	
10:30 PM	0	0	0	2	0	2	0	0	23	0	0	23	0	0	0	2	0	2	0	0	17	1	0	18	
10:45 PM	0	1	0	0	0	1	0	1	16	0	0	17	0	0	0	0	0	0	0	1	23	1	0	25	
Hourly Total	0	1	2	2	0	5	0	4	109	0	0	113	0	3	0	5	0	8	0	2	116	4	0	122	
11:00 PM	0	0	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	0	0	16	2	0	18	
11:15 PM	0	0	0	0	0	0	0	1	11	0	0	12	0	0	0	0	0	0	0	0	15	2	0	17	
11:30 PM	0	0	0	2	0	2	0	1	10	0	0	11	0	0	0	0	0	0	0	0	21	0	0	21	
11:45 PM	0	0	0	0	0	0	0	0	9	0	0	9	0	0	0	1	0	1	0	0	10	0	0	10	
Hourly Total	0	0	0	2	0	2	0	2	48	0	0	50	0	0	0	1	0	1	0	0	62	4	0	66	
DAILY TOTAL	1	538	32	542	12	1113	52	427	9701	399	18	10579	0	124	35	548	11	707	5	307	10034	155	17	10501	22900
Cars	1	516	31	533	12	1081	52	418	9515	398	18	10383	0	113	34	529	9	676	5	306	9840	149	15	10300	22440
Heavy Vehicles	0	22	1	9	0	32	0	9	186	1	0	196	0	11	1	19	2	31	0	1	194	6	2	201	460
Heavy Vehicle %	0.00%	4.09%	3.13%	1.66%	0.00%	2.88%	0.00%	2.11%	1.92%	0.25%	0.00%	1.85%	0.00%	8.87%	2.86%	3.47%	18.18%	4.38%	0.00%	0.33%	1.93%	3.87%	11.76%	1.91%	2.01%

TMC 2153
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	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	10	0	9	0	19	0	4	130	19	0	153	0	1	4	6	0	11	0	13	143	1	0	157	340
7:15 AM	0	27	1	24	0	52	0	10	169	64	2	243	0	4	6	11	0	21	0	37	133	0	0	170	486
7:30 AM	0	65	2	54	0	121	0	8	179	67	2	254	0	5	5	22	0	32	0	28	194	1	0	223	630
7:45 AM	0	21	0	10	0	31	2	8	148	3	0	161	0	2	0	8	0	10	0	5	127	0	0	132	334
Peak Hour Total	0	123	3	97	0	223	2	30	626	153	4	811	0	12	15	47	0	74	0	83	597	2	0	682	1790
PHF	0.000	0.473	0.375	0.449	0.000	0.461	0.250	0.750	0.874	0.571	0.500	0.798	0.000	0.600	0.625	0.534	0.000	0.578	0.000	0.561	0.769	0.500	0.000	0.765	0.710

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	0	12	1	24	2	12	210	6	0	230	0	4	0	16	0	20	0	1	249	3	0	253	527
4:15 PM	0	14	0	10	2	24	2	14	250	11	0	277	0	4	0	11	0	15	0	3	212	6	2	221	537
4:30 PM	0	17	1	15	0	33	0	13	250	5	0	268	0	3	1	20	0	24	0	6	250	6	0	262	587
4:45 PM	0	9	0	10	2	19	0	16	238	8	0	262	0	2	0	13	0	15	0	3	243	3	0	249	545
Peak Hour Total	0	52	1	47	5	100	4	55	948	30	0	1037	0	13	1	60	0	74	0	13	954	18	2	985	2196
PHF	0.000	0.765	0.250	0.783	0.625	0.758	0.500	0.859	0.948	0.682	0.000	0.936	0.000	0.813	0.250	0.750	0.000	0.771	0.000	0.542	0.954	0.750	0.250	0.940	0.935

Total Vehicles On Leg				1855	
Vehicles Entering Intersection			1113	Vehicles Exiting Intersection 742	
Southbound					
Cars	533	31	516	1	12
Heavy	9	1	22	0	0
Total	542	32	538	1	12



Total Vehicles on Leg 20873	Vehicles Entering Intersection 10501	Eastbound	Cars	Heavy	Total
			15	2	17
	5		0	5	
	306		1	307	
	Vehicles Exiting Intersection 10372		9840	194	10034
		149	6	155	



Daily Volumes

Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 10579	Total Vehicles on Leg 21751
398	1	399			
9515	186	9701			
418	9	427			
52	0	52			
18	0	18		Vehicles Exiting Intersection 11172	



Cars	9	0	113	34	529
Heavy	2	0	11	1	19
Total	11	0	124	35	548
Northbound					
Vehicles Entering Intersection 707			Vehicles Exiting Intersection 614		
Total Vehicles On Leg				1321	



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

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2153

Study Date : 12/09/2021

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 116

Number of Lanes : 2+

Total Approach Volume: 10,501

Westbound: CSAH 116

Number of Lanes :2+

Total Approach Volume: 10,579

Minor Street Approaches

Northbound: Heather St.

Number of Lanes :1

Total Approach Volume: 707

Southbound: Heather St.

Number of Lanes :1

Total Approach Volume: 1,113

Warrant Summary (Rural Values Apply)

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

Warrant 1A - Minimum Vehicular Volume.....Not Satisfied

Required volumes reached for 5 hours, 8 are needed

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

Required volumes reached for 10 hours, 8 are needed

Warrant 1C - Combination of Warrants.....Not Satisfied

Required 1A volumes reached for 6 hours, 8 are needed

Required 1B volumes reached for 12 hours, 8 are needed

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

Number of hours (8) volumes exceed minimum \geq minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (18) volumes exceed minimum \geq 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 2153

Study Date : 12/09/2021

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

Only 5 one hour periods meet minimums.
Warrant is NOT 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 Heather St.		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
15:45 - 16:45	961	+	974	=	1935	73	105	Yes
14:45 - 15:45	961	+	835	=	1796	55	130	Yes
13:30 - 14:30	861	+	810	=	1671	57	135	Yes
06:45 - 07:45	691	+	779	=	1470	74	197	Yes
19:45 - 20:45	392	+	413	=	805	26	105	Yes
16:45 - 17:45	923	+	964	=	1887	71	74	No
17:00 - 18:00	893	+	901	=	1794	72	57	No
17:15 - 18:15	914	+	843	=	1757	58	30	No
17:30 - 18:30	871	+	813	=	1684	50	18	No
14:30 - 15:30	894	+	759	=	1653	49	84	No
17:45 - 18:45	862	+	775	=	1637	51	33	No
13:15 - 14:15	829	+	801	=	1630	46	58	No
18:00 - 19:00	824	+	725	=	1549	51	41	No
13:00 - 14:00	770	+	740	=	1510	45	14	No
18:15 - 19:15	731	+	683	=	1414	53	44	No
12:45 - 13:45	729	+	673	=	1402	37	20	No
12:30 - 13:30	670	+	629	=	1299	31	21	No
18:30 - 19:30	673	+	587	=	1260	44	43	No
12:15 - 13:15	620	+	613	=	1233	32	23	No
12:00 - 13:00	601	+	616	=	1217	39	23	No
11:45 - 12:45	559	+	658	=	1217	43	26	No
11:30 - 12:30	550	+	652	=	1202	39	21	No
06:30 - 07:30	560	+	639	=	1199	55	80	No
11:15 - 12:15	543	+	652	=	1195	37	19	No
11:00 - 12:00	543		612		1155	25	25	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2153

Study Date : 12/09/2021

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

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**

Volume Requirements

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

Time	Major Road CSAH 116				Total	Minor Road Heather St.		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:15 - 17:15	954	+	1062	=	2016	73	105	Yes
15:15 - 16:15	988	+	888	=	1876	67	147	Yes
17:15 - 18:15	914	+	843	=	1757	58	30	Yes
13:15 - 14:15	829	+	801	=	1630	46	58	Yes
14:15 - 15:15	860	+	721	=	1581	51	134	Yes
18:15 - 19:15	731	+	683	=	1414	53	44	Yes
07:30 - 08:30	571	+	684	=	1255	71	171	Yes
06:30 - 07:30	560	+	639	=	1199	55	80	Yes
08:30 - 09:30	440	+	541	=	981	40	70	Yes
19:45 - 20:45	392	+	413	=	805	26	105	Yes
13:00 - 14:00	770	+	740	=	1510	45	14	No
12:45 - 13:45	729	+	673	=	1402	37	20	No
12:30 - 13:30	670	+	629	=	1299	31	21	No
12:15 - 13:15	620	+	613	=	1233	32	23	No
12:00 - 13:00	601	+	616	=	1217	39	23	No
11:45 - 12:45	559	+	658	=	1217	43	26	No
11:30 - 12:30	550	+	652	=	1202	39	21	No
11:15 - 12:15	543	+	652	=	1195	37	19	No
11:00 - 12:00	543	+	612	=	1155	25	25	No
10:30 - 11:30	565	+	572	=	1137	28	27	No
10:15 - 11:15	575	+	545	=	1120	26	28	No
10:45 - 11:45	552	+	568	=	1120	23	29	No
09:45 - 10:45	558	+	540	=	1098	30	16	No
10:00 - 11:00	533	+	549	=	1082	31	21	No
09:30 - 10:30	520		521		1041	25	22	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2153

Study Date : 12/09/2021

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

Only 6 hours meet 1A minimums.
12 hours meet 1B minimums.
Warrant is NOT 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 Heather St.

Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met1A?
16:30 - 17:30	971	+	1022	=	1993	81	96	Yes
15:30 - 16:30	964	+	947	=	1911	67	140	Yes
13:30 - 14:30	861	+	810	=	1671	57	135	Yes
14:30 - 15:30	894	+	759	=	1653	49	84	Yes
06:45 - 07:45	691	+	779	=	1470	74	197	Yes
19:45 - 20:45	392	+	413	=	805	26	105	Yes
17:30 - 18:30	871	+	813	=	1684	50	18	No
17:45 - 18:45	862	+	775	=	1637	51	33	No
13:15 - 14:15	829	+	801	=	1630	46	58	No
18:00 - 19:00	824	+	725	=	1549	51	41	No
13:00 - 14:00	770	+	740	=	1510	45	14	No
18:15 - 19:15	731	+	683	=	1414	53	44	No

Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met1B?
16:00 - 17:00	985	+	1037	=	2022	74	100	Yes
15:00 - 16:00	964	+	871	=	1835	55	142	Yes
17:00 - 18:00	893	+	901	=	1794	72	57	Yes
14:00 - 15:00	861	+	720	=	1581	54	163	Yes
18:00 - 19:00	824	+	725	=	1549	51	41	Yes
13:00 - 14:00	770	+	740	=	1510	45	14	Yes
07:30 - 08:30	571	+	684	=	1255	71	171	Yes
11:45 - 12:45	559	+	658	=	1217	43	26	Yes
06:30 - 07:30	560	+	639	=	1199	55	80	Yes
08:30 - 09:30	440	+	541	=	981	40	70	Yes
19:30 - 20:30	425	+	453	=	878	19	51	Yes
20:30 - 21:30	265	+	290	=	555	15	126	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2153

Study Date : 12/09/2021

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.

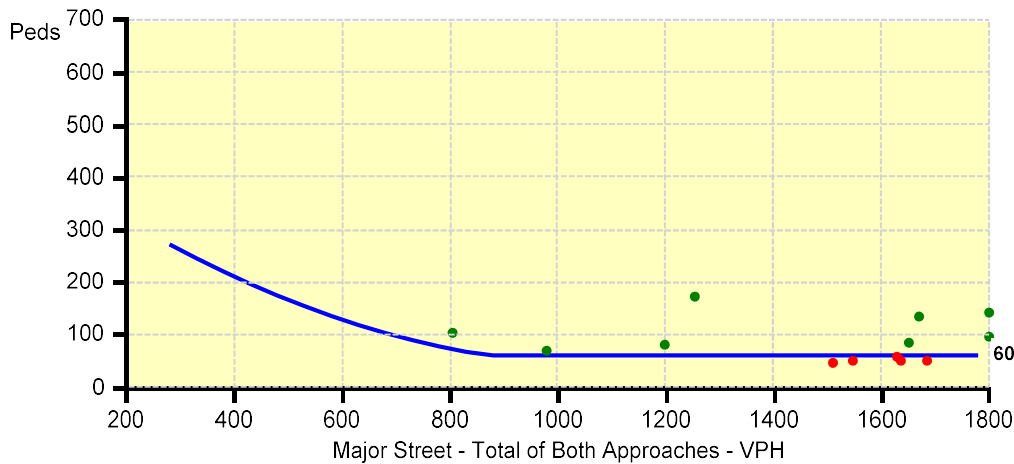
Summary

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**

Time	Major Road CSAH 116				=	Total	Minor Road Heather St.		Met?
	Major EB	+	Major WB				Minor NB	Minor SB	
16:30 - 17:30	971	+	1022	=	1993	81	96	Yes	
15:30 - 16:30	964	+	947	=	1911	67	140	Yes	
13:30 - 14:30	861	+	810	=	1671	57	135	Yes	
14:30 - 15:30	894	+	759	=	1653	49	84	Yes	
07:30 - 08:30	571	+	684	=	1255	71	171	Yes	
06:30 - 07:30	560	+	639	=	1199	55	80	Yes	
08:30 - 09:30	440	+	541	=	981	40	70	Yes	
19:45 - 20:45	392	+	413	=	805	26	105	Yes	
17:30 - 18:30	871	+	813	=	1684	50	18	No	
17:45 - 18:45	862	+	775	=	1637	51	33	No	
13:15 - 14:15	829	+	801	=	1630	46	58	No	
							41	No	



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2153

Study Date : 12/09/2021

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

18 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 Heather St.		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:00 - 17:00	985	+	1037	=	2022	74	100	Yes
16:15 - 17:15	954	+	1062	=	2016	73	105	Yes
16:30 - 17:30	971	+	1022	=	1993	81	96	Yes
15:45 - 16:45	961	+	974	=	1935	73	105	Yes
15:30 - 16:30	964	+	947	=	1911	67	140	Yes
15:15 - 16:15	988	+	888	=	1876	67	147	Yes
15:00 - 16:00	964	+	871	=	1835	55	142	Yes
14:45 - 15:45	961	+	835	=	1796	55	130	Yes
13:30 - 14:30	861	+	810	=	1671	57	135	Yes
14:30 - 15:30	894	+	759	=	1653	49	84	Yes
13:45 - 14:45	851	+	769	=	1620	55	151	Yes
							163	Yes

