

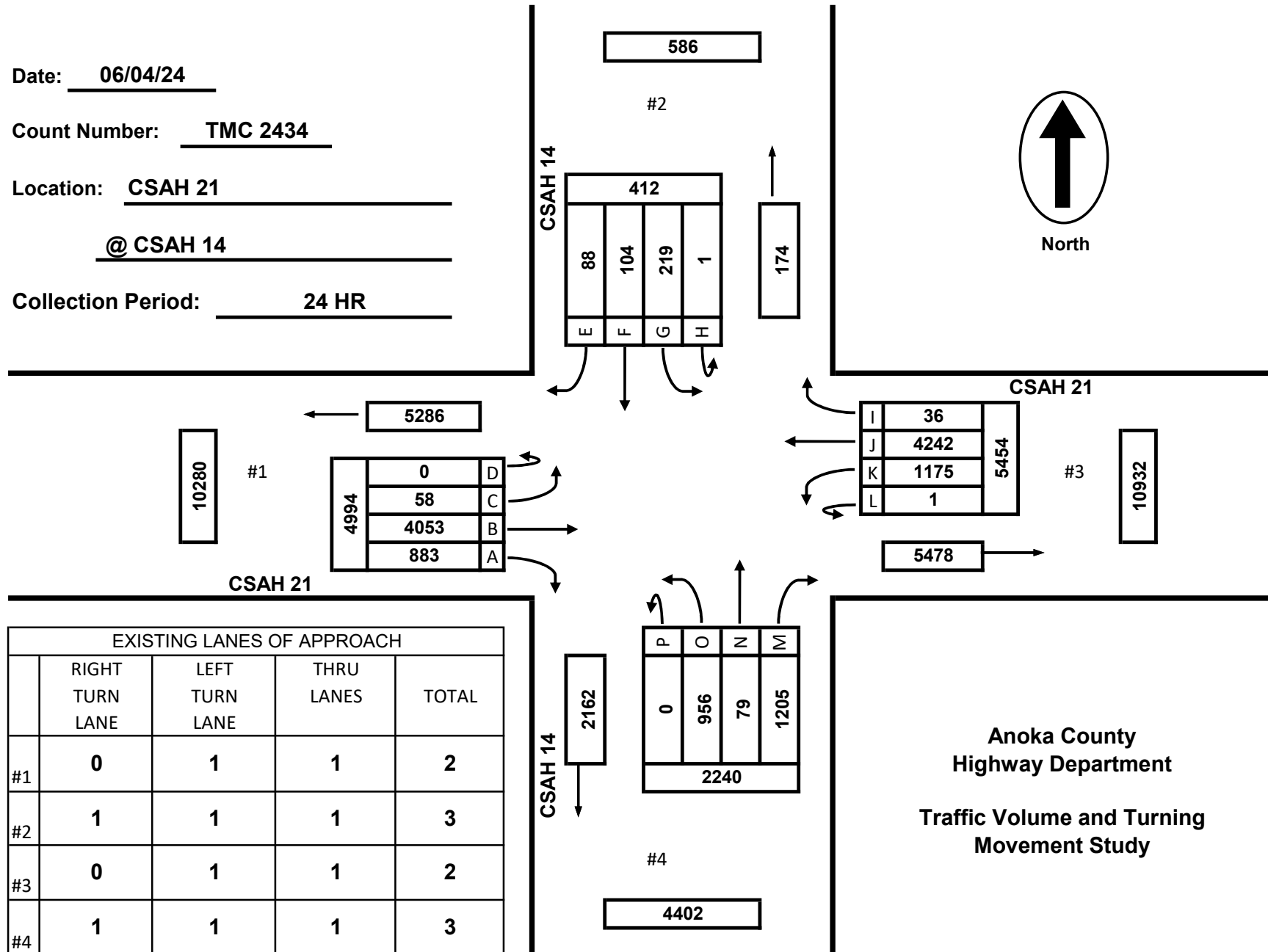
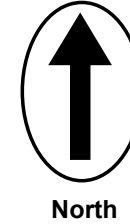
Date: 06/04/24

Count Number: TMC 2434

Location: CSAH 21

@ CSAH 14

Collection Period: 24 HR



Anoka County
Highway Department
Traffic Volume and Turning
Movement Study

Date: 06/04/24

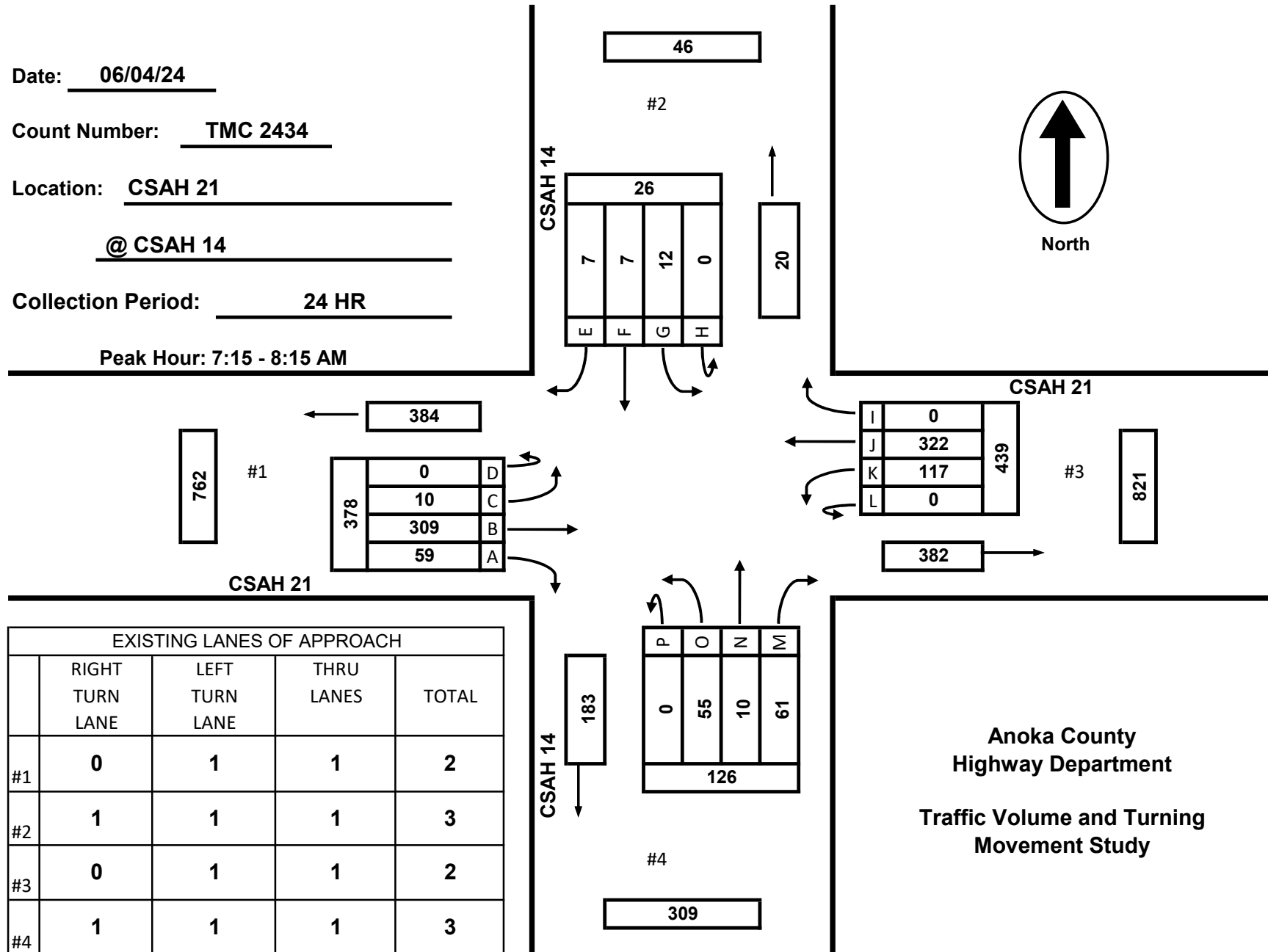
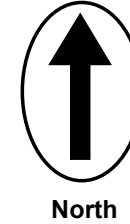
Count Number: TMC 2434

Location: CSAH 21

@ CSAH 14

Collection Period: 24 HR

Peak Hour: 7:15 - 8:15 AM



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

26			
7	7	12	0
E	F	G	H

I	0	439
J	322	
K	117	
L	0	

P	O	N	M
0	55	10	61
126			

378	0	D
	10	C
	309	B
	59	A

Date: 06/04/24

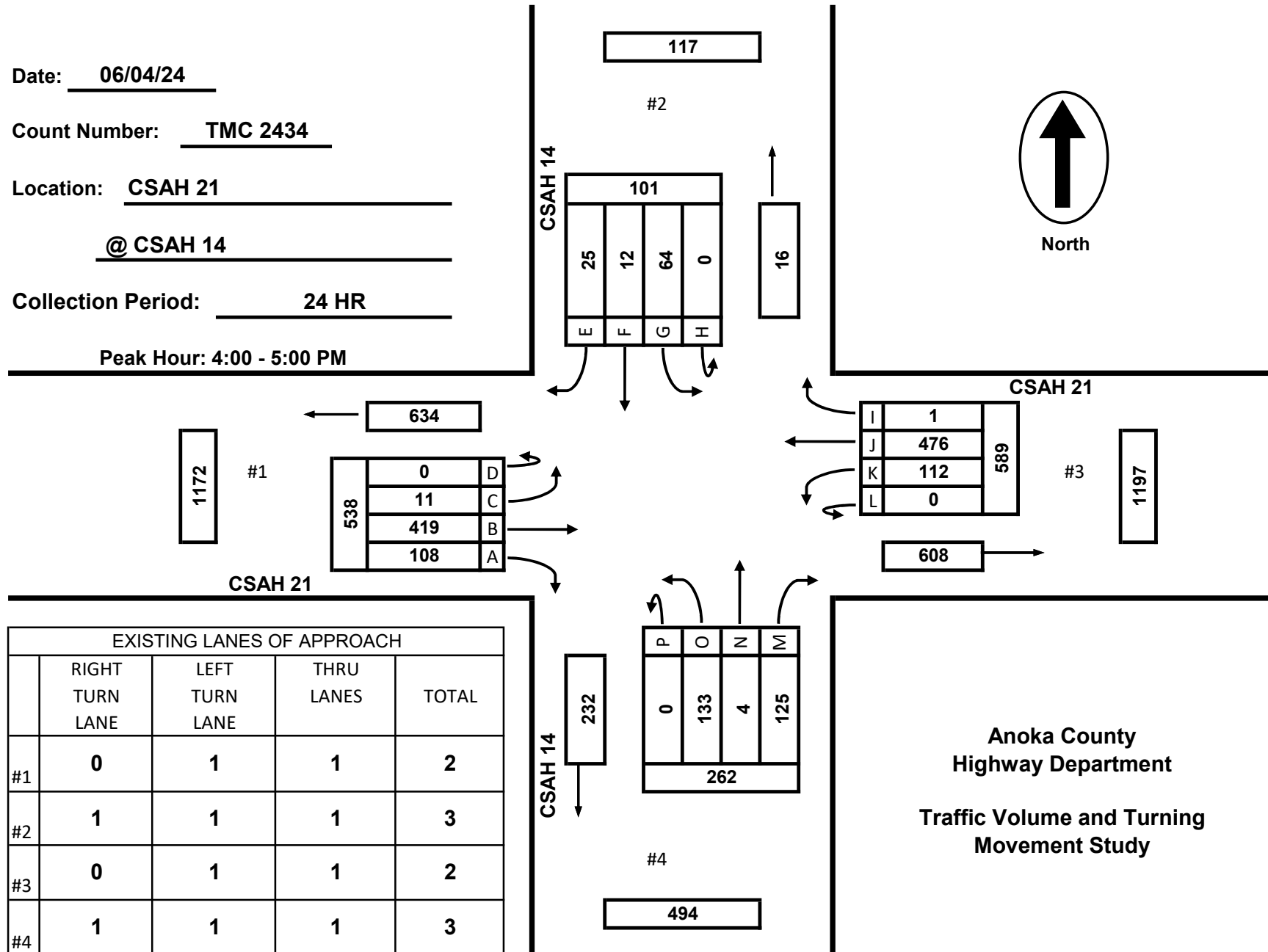
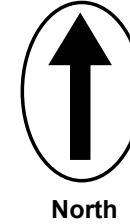
Count Number: TMC 2434

Location: CSAH 21

@ CSAH 14

Collection Period: 24 HR

Peak Hour: 4:00 - 5:00 PM



Anoka County
Highway Department
Traffic Volume and Turning
Movement Study

TMC 2434 - CSAH 21 @ CSAH 14
Centerville MN
Tuesday, June 4, 2024

Time	Southbound Centerville Rd						Westbound CSAH 14						Northbound CSAH 21						Eastbound CSAH 14						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	1	8	0	0	9	0	2	0	0	0	2	0	0	3	0	0	3	14
12:15 AM	0	0	0	0	0	0	0	0	8	0	0	8	0	1	0	0	0	1	0	0	5	1	0	6	15
12:30 AM	0	0	0	0	0	0	0	1	2	0	0	3	0	0	0	1	0	1	0	0	4	0	0	4	8
12:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	2	0	2	0	0	6	0	0	6	10
Hourly Total	0	0	0	0	0	0	0	2	20	0	0	22	0	3	0	3	0	6	0	0	18	1	0	19	47
1:00 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	2	0	0	2	5
1:15 AM	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	1	0	2	0	0	2	1	0	3	6
1:30 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	1	0	1	0	2	0	0	4	1	0	5	9
1:45 AM	0	0	0	0	0	0	0	1	1	0	0	2	0	1	0	0	0	1	0	0	3	0	0	3	6
Hourly Total	0	0	0	0	0	0	1	1	6	0	0	8	0	3	0	2	0	5	0	0	11	2	0	13	26
2:00 AM	0	0	0	0	0	0	0	2	4	0	0	6	0	2	0	0	0	2	0	0	2	0	0	2	10
2:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0	2	0	0	5	0	0	5	8
2:30 AM	0	0	0	0	0	0	0	1	2	0	0	3	0	3	0	0	0	3	0	0	1	0	0	1	7
2:45 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Hourly Total	0	0	0	0	0	0	0	3	10	0	0	13	0	5	0	2	0	7	0	0	8	0	0	8	28
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	3
3:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	2	3
3:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	2	0	3	0	0	2	2	0	4	8
3:45 AM	0	0	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	0	0	4	0	0	4	10
Hourly Total	0	0	0	0	0	0	0	2	6	0	0	8	0	1	0	2	0	3	0	0	9	4	0	13	24
4:00 AM	0	0	0	0	0	0	0	1	1	0	0	2	0	1	0	0	0	1	0	0	5	1	0	6	9
4:15 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	2	0	2	0	4	0	0	3	0	0	3	10
4:30 AM	0	0	0	0	0	0	0	2	8	0	0	10	0	4	0	1	0	5	0	0	13	3	0	16	31
4:45 AM	0	0	0	0	0	0	0	3	7	0	0	10	0	0	0	0	0	0	0	0	7	2	0	9	19
Hourly Total	0	0	0	0	0	0	0	6	19	0	0	25	0	7	0	3	0	10	0	0	28	6	0	34	69
5:00 AM	0	0	0	0	0	0	0	5	14	0	0	19	0	3	0	1	0	4	0	0	10	1	0	11	34
5:15 AM	0	0	0	0	0	0	0	1	20	0	0	21	0	1	0	1	0	2	0	0	31	7	0	38	61
5:30 AM	0	0	0	0	0	0	0	3	37	0	0	40	0	1	0	2	0	3	0	0	27	10	0	37	80
5:45 AM	0	0	0	0	0	0	0	3	23	0	0	26	0	8	0	4	0	12	0	0	23	5	0	28	66
Hourly Total	0	0	0	0	0	0	0	12	94	0	0	106	0	13	0	8	0	21	0	0	91	23	0	114	241
6:00 AM	0	0	0	0	0	0	0	4	31	0	0	35	0	5	0	2	0	7	0	0	31	7	0	38	80
6:15 AM	0	0	0	0	0	0	0	8	39	0	0	47	0	3	1	4	0	8	0	1	53	9	0	63	118
6:30 AM	0	3	3	0	0	6	0	16	62	0	0	78	0	6	0	5	2	11	0	1	75	14	0	90	185
6:45 AM	0	1	0	0	0	1	0	14	53	1	0	68	0	10	2	14	1	26	0	2	78	10	0	90	185
Hourly Total	0	4	3	0	0	7	0	42	185	1	0	228	0	24	3	25	3	52	0	4	237	40	0	281	568
7:00 AM	0	3	1	1	0	5	0	15	67	2	0	84	0	5	0	12	0	17	0	0	69	14	0	83	189
7:15 AM	0	1	1	2	0	4	0	31	81	0	0	112	0	14	3	10	0	27	0	4	67	15	0	86	229
7:30 AM	0	5	3	3	0	11	0	37	97	0	0	134	0	18	3	21	1	42	0	1	72	15	0	88	275
7:45 AM	0	5	1	0	1	6	0	27	78	0	0	105	0	12	2	13	1	27	0	2	92	11	0	105	243
Hourly Total	0	14	6	6	1	26	0	110	323	2	0	435	0	49	8	56	2	113	0	7	300	55	0	362	936

TMC 2434 - CSAH 21 @ CSAH 14
Centerville MN
Tuesday, June 4, 2024

Time	Southbound Centerville Rd						Westbound CSAH 14						Northbound CSAH 21						Eastbound CSAH 14						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	1	2	2	0	5	0	22	66	0	0	88	0	11	2	17	0	30	0	3	78	18	0	99	222
8:15 AM	0	2	2	0	2	4	0	12	60	0	0	72	0	13	2	14	0	29	0	2	76	9	2	87	192
8:30 AM	0	5	3	1	14	9	0	11	86	2	0	99	0	14	5	18	0	37	0	3	62	10	14	75	220
8:45 AM	0	2	1	1	23	4	0	23	67	2	4	92	0	14	3	19	4	36	0	4	74	9	21	87	219
Hourly Total	0	10	8	4	39	22	0	68	279	4	4	351	0	52	12	68	4	132	0	12	290	46	37	348	853
9:00 AM	0	28	10	7	0	45	0	15	53	5	10	73	0	7	5	17	3	29	0	2	66	8	13	76	223
9:15 AM	0	15	18	6	0	39	0	16	55	0	4	71	0	8	3	11	3	22	0	2	65	14	0	81	213
9:30 AM	0	4	1	0	0	5	0	20	48	1	0	69	0	5	2	17	0	24	0	0	46	8	0	54	152
9:45 AM	0	0	2	0	0	2	0	14	49	0	0	63	0	8	0	18	1	26	0	0	61	16	0	77	168
Hourly Total	0	47	31	13	0	91	0	65	205	6	14	276	0	28	10	63	7	101	0	4	238	46	13	288	756
10:00 AM	0	0	1	0	0	1	0	14	52	0	0	66	0	9	2	11	0	22	0	0	67	11	0	78	167
10:15 AM	0	2	0	0	0	2	0	17	47	0	0	64	0	8	0	16	3	24	0	0	56	10	0	66	156
10:30 AM	0	1	1	0	0	2	0	23	50	0	0	73	0	9	2	10	2	21	0	0	64	17	0	81	177
10:45 AM	0	1	0	2	0	3	0	10	60	0	0	70	0	18	1	19	0	38	0	0	54	9	0	63	174
Hourly Total	0	4	2	2	0	8	0	64	209	0	0	273	0	44	5	56	5	105	0	0	241	47	0	288	674
11:00 AM	0	1	3	1	0	5	0	17	64	1	0	82	0	16	2	12	0	30	0	0	48	13	0	61	178
11:15 AM	0	1	2	0	0	3	0	17	58	0	0	75	0	12	1	14	0	27	0	1	49	15	0	65	170
11:30 AM	0	3	1	1	0	5	0	20	61	0	0	81	0	16	1	26	2	43	0	0	65	11	0	76	205
11:45 AM	0	1	1	2	0	4	0	20	61	0	0	81	0	16	0	21	0	37	0	1	53	10	0	64	186
Hourly Total	0	6	7	4	0	17	0	74	244	1	0	319	0	60	4	73	2	137	0	2	215	49	0	266	739
12:00 PM	0	1	0	0	0	1	0	23	87	2	0	112	0	10	2	19	0	31	0	0	57	13	0	70	214
12:15 PM	0	0	0	0	0	0	0	15	52	1	1	68	0	15	0	25	1	40	0	0	62	9	0	71	179
12:30 PM	0	0	1	1	0	2	0	16	56	0	0	72	0	19	0	25	1	44	0	1	78	17	0	96	214
12:45 PM	0	0	0	0	0	0	0	17	47	0	0	64	0	6	0	28	0	34	0	0	58	12	0	70	168
Hourly Total	0	1	1	1	0	3	0	71	242	3	1	316	0	50	2	97	2	149	0	1	255	51	0	307	775
1:00 PM	0	0	1	1	0	2	0	16	54	1	0	71	0	11	0	18	0	29	0	0	32	15	0	47	149
1:15 PM	0	0	0	2	0	2	0	15	65	0	0	80	0	11	1	27	0	39	0	2	53	12	0	67	188
1:30 PM	0	0	2	1	0	3	0	23	61	2	0	86	0	18	0	24	0	42	0	0	60	14	0	74	205
1:45 PM	0	0	0	0	0	0	0	20	51	0	0	71	0	15	1	23	0	39	0	0	71	19	0	90	200
Hourly Total	0	0	3	4	0	7	0	74	231	3	0	308	0	55	2	92	0	149	0	2	216	60	0	278	742
2:00 PM	0	1	1	1	0	3	0	15	69	1	0	85	0	19	0	22	0	41	0	0	61	17	0	78	207
2:15 PM	0	0	1	0	0	1	0	16	77	0	0	93	0	12	2	33	1	47	0	0	65	9	0	74	215
2:30 PM	0	2	0	0	0	2	0	25	79	0	0	104	0	21	0	20	0	41	0	0	54	15	0	69	216
2:45 PM	0	0	1	0	0	1	0	16	72	0	0	88	0	15	1	23	0	39	0	1	68	12	0	81	209
Hourly Total	0	3	3	1	0	7	0	72	297	1	0	370	0	67	3	98	1	168	0	1	248	53	0	302	847
3:00 PM	0	1	0	1	0	2	0	18	90	1	0	109	0	35	4	29	0	68	0	1	76	18	0	95	274
3:15 PM	0	2	0	2	0	4	0	30	89	2	2	121	0	23	4	22	3	49	0	0	84	20	0	104	278
3:30 PM	0	9	6	2	0	17	0	20	74	4	9	98	0	33	5	35	0	73	0	1	69	17	5	87	275
3:45 PM	1	36	9	8	0	54	0	25	93	1	19	119	0	29	0	34	17	63	0	1	64	27	31	92	328
Hourly Total	1	48	15	13	0	77	0	93	346	8	30	447	0	120	13	120	20	263	0	3	293	82	36	378	1155

**TMC 2434 - CSAH 21 @ CSAH 14
Centerville MN
Tuesday, June 4, 2024**

Time	Southbound Centerville Rd						Westbound CSAH 14						Northbound CSAH 21						Eastbound CSAH 14						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	35	5	13	0	53	0	31	123	0	0	154	0	36	0	36	0	72	0	4	99	18	0	121	400
4:15 PM	0	14	3	3	0	20	0	24	130	0	0	154	0	32	0	24	0	56	0	2	118	20	0	140	370
4:30 PM	0	5	1	6	2	12	0	30	113	1	0	144	0	38	2	33	0	73	0	3	97	25	2	125	354
4:45 PM	0	10	3	3	1	16	0	27	110	0	0	137	0	27	2	32	0	61	0	2	105	45	0	152	366
Hourly Total	0	64	12	25	3	101	0	112	476	1	0	589	0	133	4	125	0	262	0	11	419	108	2	538	1490
5:00 PM	0	3	2	2	6	7	0	34	141	0	0	175	0	30	3	38	0	71	0	0	98	18	5	116	369
5:15 PM	0	5	2	2	0	9	0	27	121	2	2	150	0	23	2	27	1	52	0	2	87	15	1	104	315
5:30 PM	0	2	0	0	4	2	0	24	103	0	1	127	0	13	1	23	1	37	0	1	72	10	4	83	249
5:45 PM	0	3	1	2	2	6	0	20	67	1	0	88	0	22	1	21	0	44	0	1	74	20	2	95	233
Hourly Total	0	13	5	6	12	24	0	105	432	3	3	540	0	88	7	109	2	204	0	4	331	63	12	398	1166
6:00 PM	0	2	0	0	1	2	0	19	74	0	0	93	0	16	0	27	0	43	0	1	74	22	0	97	235
6:15 PM	0	1	1	0	0	2	0	22	58	1	0	81	0	15	5	29	0	49	0	1	63	9	0	73	205
6:30 PM	0	1	3	3	0	7	0	12	58	0	0	70	0	14	0	15	0	29	0	2	64	10	0	76	182
6:45 PM	0	0	0	0	0	0	0	18	43	0	0	61	0	13	0	7	0	20	0	0	47	12	0	59	140
Hourly Total	0	4	4	3	1	11	0	71	233	1	0	305	0	58	5	78	0	141	0	4	248	53	0	305	762
7:00 PM	0	0	0	0	0	0	0	9	37	0	0	46	0	6	0	10	0	16	0	0	36	5	0	41	103
7:15 PM	0	0	3	3	0	6	0	13	40	0	0	53	0	12	0	13	0	25	0	0	22	10	0	32	116
7:30 PM	0	1	0	0	0	1	0	10	39	0	0	49	0	14	0	10	0	24	0	0	29	14	0	43	117
7:45 PM	0	0	0	1	0	1	0	10	35	1	0	46	0	5	0	11	0	16	0	0	34	6	0	40	103
Hourly Total	0	1	3	4	0	8	0	42	151	1	0	194	0	37	0	44	0	81	0	0	121	35	0	156	439
8:00 PM	0	0	0	0	0	0	0	15	21	0	0	36	0	8	0	10	0	18	0	0	19	4	0	23	77
8:15 PM	0	0	1	0	1	1	0	10	27	0	0	37	0	6	1	8	0	15	0	0	20	5	0	25	78
8:30 PM	0	0	0	0	0	0	0	13	33	0	0	46	0	5	0	6	1	11	0	0	31	10	0	41	98
8:45 PM	0	0	0	0	0	0	0	5	24	0	0	29	0	4	0	15	0	19	0	0	25	2	0	27	75
Hourly Total	0	0	1	0	1	1	0	43	105	0	0	148	0	23	1	39	1	63	0	0	95	21	0	116	328
9:00 PM	0	0	0	1	0	1	0	8	22	0	0	30	0	11	0	8	0	19	0	2	26	9	0	37	87
9:15 PM	0	0	0	0	0	0	0	7	17	0	0	24	0	4	0	5	0	9	0	0	19	4	0	23	56
9:30 PM	0	0	0	0	0	0	0	1	11	0	0	12	0	5	0	6	0	11	0	0	15	7	0	22	45
9:45 PM	0	0	0	0	0	0	0	4	16	0	0	20	0	3	0	2	0	5	0	1	9	4	0	14	39
Hourly Total	0	0	0	1	0	1	0	20	66	0	0	86	0	23	0	21	0	44	0	3	69	24	0	96	227
10:00 PM	0	0	0	0	0	0	0	3	16	1	0	20	0	1	0	2	0	3	0	0	18	1	0	19	42
10:15 PM	0	0	0	0	0	0	0	6	9	0	0	15	0	1	0	2	0	3	0	0	16	4	0	20	38
10:30 PM	0	0	0	0	0	0	0	3	13	0	0	16	0	1	0	4	0	5	0	0	8	3	0	11	32
10:45 PM	0	0	0	0	0	0	0	8	8	0	0	16	0	1	0	3	0	4	0	0	7	0	0	7	27
Hourly Total	0	0	0	0	0	0	0	20	46	1	0	67	0	4	0	11	0	15	0	0	49	8	0	57	139
11:00 PM	0	0	0	1	0	1	0	0	5	0	0	5	0	2	0	2	0	4	0	0	7	0	0	7	17
11:15 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	3	0	2	0	5	0	0	7	1	0	8	16
11:30 PM	0	0	0	0	0	0	0	1	3	0	0	4	0	1	0	2	0	3	0	0	6	1	0	7	14
11:45 PM	0	0	0	0	0	0	0	2	6	0	0	8	0	3	0	4	0	7	0	0	3	4	0	7	22
Hourly Total	0	0	0	1	0	1	0	3	17	0	0	20	0	9	0	10	0	19	0	0	23	6	0	29	69
DAILY TOTAL	1	219	104	88	57	412	1	1175	4242	36	52	5454	0	956	79	1205	49	2240	0	58	4053	883	100	4994	13100
Cars	1	210	84	87	2	382	1	1160	4027	23	13	5211	0	936	67	1182	12	2185	0	55	3817	870	2	4742	12520
Heavy Vehicles	0	9	20	1	55	30	0	15	215	13	39	243	0	20	12	23	37	55	0	3	236	13	98	252	580
Heavy Vehicle %	0.00%	4.11%	19.23%	1.14%	96.49%	7.28%	0.00%	1.28%	5.07%	36.11%	75.00%	4.46%	0.00%	2.09%	15.19%	1.91%	75.51%	2.46%	0.00%	5.17%	5.82%	1.47%	98.00%	5.05%	4.43%

**TMC 2434 - CSAH 21 @ CSAH 14
Centerville MN
Tuesday, June 4, 2024**

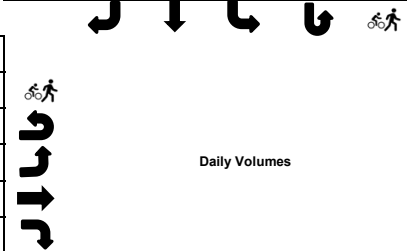
AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
7:15 AM	0	1	1	2	0	4	0	31	81	0	0	112	0	14	3	10	0	27	0	4	67	15	0	86	
7:30 AM	0	5	3	3	0	11	0	37	97	0	0	134	0	18	3	21	1	42	0	1	72	15	0	88	
7:45 AM	0	5	1	0	1	6	0	27	78	0	0	105	0	12	2	13	1	27	0	2	92	11	0	105	
8:00 AM	0	1	2	2	0	5	0	22	66	0	0	88	0	11	2	17	0	30	0	3	78	18	0	99	
Peak Hour Total	0	12	7	7	1	26	0	117	322	0	0	439	0	55	10	61	2	126	0	10	309	59	0	378	
PHF	0.000	0.600	0.583	0.583	0.250	0.591	0.000	0.791	0.830	0.000	0.000	0.819	0.000	0.764	0.833	0.726	0.500	0.750	0.000	0.625	0.840	0.819	0.000	0.900	

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	35	5	13	0	53	0	31	123	0	0	154	0	36	0	36	0	72	0	4	99	18	0	121	
4:15 PM	0	14	3	3	0	20	0	24	130	0	0	154	0	32	0	24	0	56	0	2	118	20	0	140	
4:30 PM	0	5	1	6	2	12	0	30	113	1	0	144	0	38	2	33	0	73	0	3	97	25	2	125	
4:45 PM	0	10	3	3	1	16	0	27	110	0	0	137	0	27	2	32	0	61	0	2	105	45	0	152	
Peak Hour Total	0	64	12	25	3	101	0	112	476	1	0	589	0	133	4	125	0	262	0	11	419	108	2	538	
PHF	0.000	0.457	0.600	0.481	0.375	0.476	0.000	0.903	0.915	0.250	0.000	0.956	0.000	0.875	0.500	0.868	0.000	0.897	0.000	0.688	0.888	0.600	0.250	0.885	

Total Vehicles On Leg		586	
Vehicles Entering Intersection	412	Vehicles Exiting Intersection	174
Southbound			
Cars	87	84	210
Heavy	1	20	9
Total	88	104	219



Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 5454	Total Vehicles on Leg 10932
23	13	36			
4027	215	4242	Eastbound	Vehicles Exiting Intersection 5478	
1160	15	1175			
1	0	1			
13	39	52			

Total Vehicles on Leg 10280	Vehicles Entering Intersection 4994	Eastbound	Cars	Heavy	Total
			2	98	100
	0		0	0	
	55		3	58	
	3817		236	4053	
	Vehicles Exiting Intersection 5286		870	13	883

Cars	12	0	936	67	1182
Heavy	37	0	20	12	23
Total	49	0	956	79	1205
Northbound					
Vehicles Entering Intersection			Vehicles Exiting Intersection		
2240			2162		
Total Vehicles On Leg			4402		

ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2434

Study Date : 08/14/2024

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 14

Number of Lanes : 2+

Total Approach Volume: 4,111

Westbound: CSAH 14

Number of Lanes :2+

Total Approach Volume: 5,454

Minor Street Approaches

Northbound: CSAH 21

Number of Lanes :2+

Total Approach Volume: 2,240

Southbound: Centerville Rd

Number of Lanes :2+

Total Approach Volume: 412

Warrant Summary (Urban Values Apply)

Warrant 1 - Eight Hour Vehicular Volumes.....Not Satisfied

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

Required volumes reached for 3 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic.....Not Satisfied

Required volumes reached for 2 hours, 8 are needed

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

Required 1A volumes reached for 5 hours, 8 are needed

Required 1B volumes reached for 4 hours, 8 are needed

Warrant 2 - Four Hour Volumes.....Not Satisfied

Number of hours (2) volumes exceed minimum < minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (14) volumes exceed minimum >= required (1). Delay data not evaluated.

Warrant 3B - Peak Hour Volumes.....Not Satisfied

Volumes do not exceed minimums for any 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 2434

Study Date : 08/14/2024

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 3 one hour periods meet minimums.
Warrant is NOT met.

Site Data Required

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

Volume Requirements

Veh/Hr Major = **600**

Veh/Hr Minor = **200**

Time	Major Road				Total	Minor Road		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
15:45 - 16:45	388	+	571	=	959	264	139	Yes
16:45 - 17:45	367	+	589	=	956	221	34	Yes
14:45 - 15:45	300	+	416	=	716	229	24	Yes
07:15 - 08:15	319	+	439	=	758	126	26	No
07:00 - 08:00	307	+	435	=	742	113	26	No
07:30 - 08:30	326	+	399	=	725	128	26	No
14:30 - 15:30	284	+	422	=	706	197	9	No
06:45 - 07:45	293	+	398	=	691	112	21	No
07:45 - 08:45	318	+	364	=	682	123	24	No
14:15 - 15:15	265	+	394	=	659	195	6	No
08:00 - 09:00	302	+	351	=	653	132	22	No
06:30 - 07:30	296	+	342	=	638	81	16	No
08:15 - 09:15	289	+	336	=	625	131	62	No
14:00 - 15:00	249	+	370	=	619	168	7	No
08:30 - 09:30	278	+	335	=	613	124	97	No
17:45 - 18:45	280	+	332	=	612	165	17	No
13:45 - 14:45	251	+	353	=	604	168	6	No
13:30 - 14:30	257	+	335	=	592	169	7	No
11:45 - 12:45	252	+	333	=	585	152	7	No
11:30 - 12:30	238	+	342	=	580	151	10	No
11:15 - 12:15	226	+	349	=	575	138	13	No
12:00 - 13:00	256	+	316	=	572	149	3	No
13:15 - 14:15	247	+	322	=	569	161	8	No
08:45 - 09:45	259	+	305	=	564	111	93	No
18:00 - 19:00	252		305		557	141	11	No

ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2434

Study Date : 08/14/2024

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

Only 2 one hour periods meet minimums.
Warrant is NOT met.

Site Data Required

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

Volume Requirements

Veh/Hr Major = **900**

Veh/Hr Minor = **100**

Time	Major Road				Total	Minor Road		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
15:45 - 16:45	388	+	571	=	959	264	139	Yes
16:45 - 17:45	367	+	589	=	956	221	34	Yes
15:30 - 16:30	358	+	525	=	883	264	144	No
15:15 - 16:15	322	+	492	=	814	257	128	No
07:15 - 08:15	319	+	439	=	758	126	26	No
15:00 - 16:00	296	+	447	=	743	253	77	No
07:00 - 08:00	307	+	435	=	742	113	26	No
07:30 - 08:30	326	+	399	=	725	128	26	No
14:45 - 15:45	300	+	416	=	716	229	24	No
14:30 - 15:30	284	+	422	=	706	197	9	No
06:45 - 07:45	293	+	398	=	691	112	21	No
07:45 - 08:45	318	+	364	=	682	123	24	No
14:15 - 15:15	265	+	394	=	659	195	6	No
08:00 - 09:00	302	+	351	=	653	132	22	No
06:30 - 07:30	296	+	342	=	638	81	16	No
08:15 - 09:15	289	+	336	=	625	131	62	No
14:00 - 15:00	249	+	370	=	619	168	7	No
08:30 - 09:30	278	+	335	=	613	124	97	No
17:45 - 18:45	280	+	332	=	612	165	17	No
13:45 - 14:45	251	+	353	=	604	168	6	No
13:30 - 14:30	257	+	335	=	592	169	7	No
11:45 - 12:45	252	+	333	=	585	152	7	No
11:30 - 12:30	238	+	342	=	580	151	10	No
11:15 - 12:15	226	+	349	=	575	138	13	No
12:00 - 13:00	256		316		572	149	3	No

ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2434

Study Date : 08/14/2024

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 5 hours meet 1A minimums.
Only 4 hours meet 1B minimums.
Warrant is NOT met.

Site Data Required

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

Volume Requirements

Warrant 1A 1B
Veh/Hr Major = **480 720**

Veh/Hr Minor = **160 80**

Time	Major Road				Total	Minor Road		Met1A?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:15 - 17:15	425	+	610	=	1035	261	55	Yes
15:15 - 16:15	322	+	492	=	814	257	128	Yes
17:15 - 18:15	312	+	458	=	770	176	19	Yes
14:15 - 15:15	265	+	394	=	659	195	6	Yes
13:15 - 14:15	247	+	322	=	569	161	8	Yes
07:15 - 08:15	319	+	439	=	758	126	26	No
07:00 - 08:00	307	+	435	=	742	113	26	No
07:30 - 08:30	326	+	399	=	725	128	26	No
06:45 - 07:45	293	+	398	=	691	112	21	No
07:45 - 08:45	318	+	364	=	682	123	24	No
08:00 - 09:00	302	+	351	=	653	132	22	No
06:30 - 07:30	296	+	342	=	638	81	16	No

Time	Major Road				Total	Minor Road		Met1B?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:00 - 17:00	430	+	589	=	1019	262	101	Yes
17:00 - 18:00	335	+	540	=	875	204	24	Yes
15:00 - 16:00	296	+	447	=	743	253	77	Yes
07:00 - 08:00	307	+	435	=	742	113	26	Yes
14:45 - 15:45	300	+	416	=	716	229	24	No
14:30 - 15:30	284	+	422	=	706	197	9	No
06:45 - 07:45	293	+	398	=	691	112	21	No
14:15 - 15:15	265	+	394	=	659	195	6	No
08:00 - 09:00	302	+	351	=	653	132	22	No
06:30 - 07:30	296	+	342	=	638	81	16	No
08:15 - 09:15	289	+	336	=	625	131	62	No
14:00 - 15:00	249	+	370	=	619	168	7	No

ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2434

Study Date : 08/14/2024

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.

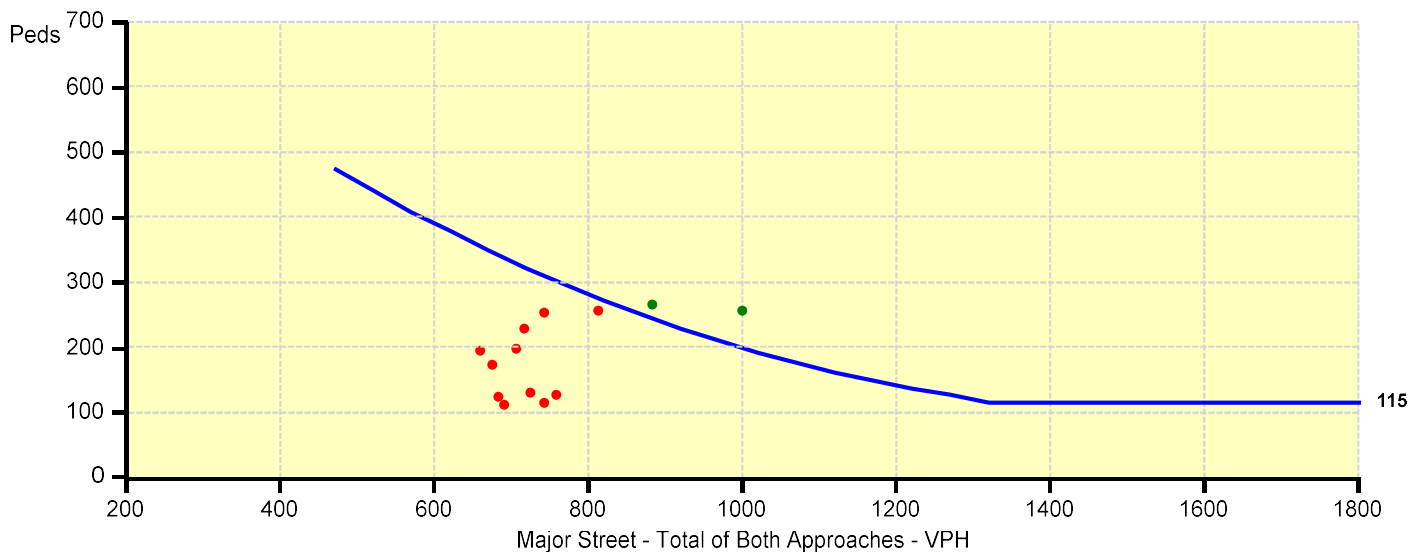
Summary

Only 2 one hour periods meet minimums.
Warrant is NOT met.

Site Data Required

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

Time	Major Road CSAH 14				Total	Minor Road CSAH 21		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:30 - 17:30	394	+	606	=	1000	257	44	Yes
15:30 - 16:30	358	+	525	=	883	264	144	Yes
15:15 - 16:15	322	+	492	=	814	257	128	No
07:15 - 08:15	319	+	439	=	758	126	26	No
15:00 - 16:00	296	+	447	=	743	253	77	No
07:00 - 08:00	307	+	435	=	742	113	26	No
07:30 - 08:30	326	+	399	=	725	128	26	No
14:45 - 15:45	300	+	416	=	716	229	24	No
14:30 - 15:30	284	+	422	=	706	197	9	No
06:45 - 07:45	293	+	398	=	691	112	21	No
07:45 - 08:45	318	+	364	=	682	123	24	No
17:30 - 18:30	287	+	389	=	676	173	12	No



ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2434

Study Date : 08/14/2024

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.

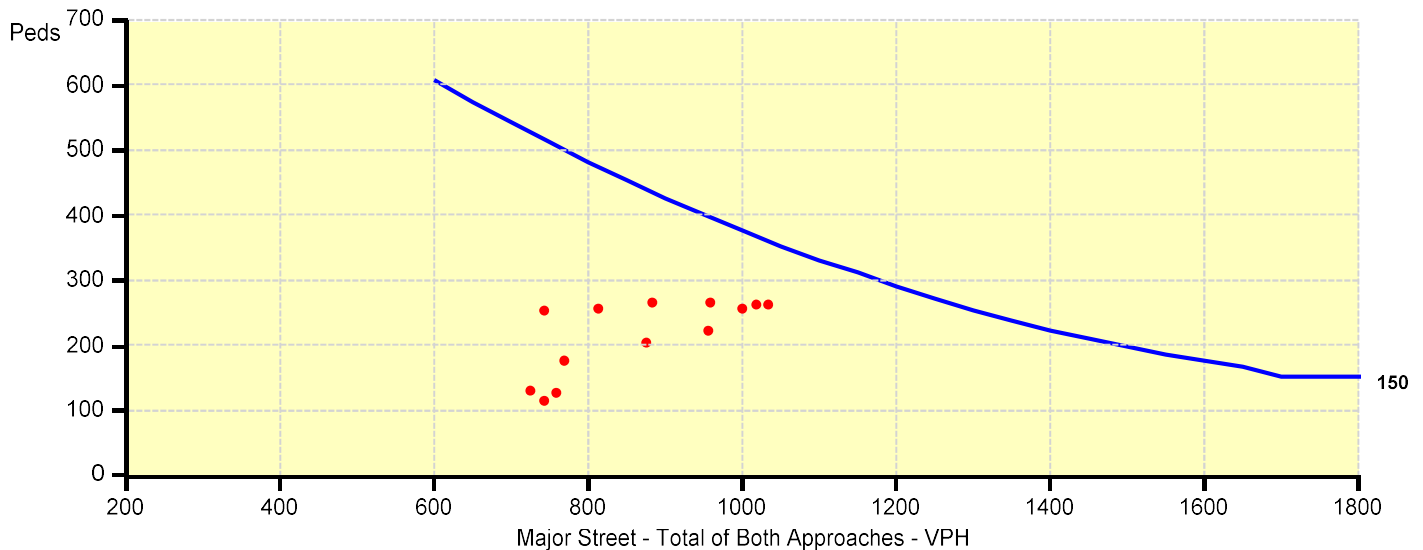
Summary

Only 0 one hour periods meet minimums.
Warrant is NOT met.

Site Data Required

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

Time	Major Road CSAH 14				Total	Minor Road CSAH 21		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
16:15 - 17:15	425	+	610	=	1035	261	55	No
16:00 - 17:00	430	+	589	=	1019	262	101	No
16:30 - 17:30	394	+	606	=	1000	257	44	No
15:45 - 16:45	388	+	571	=	959	264	139	No
16:45 - 17:45	367	+	589	=	956	221	34	No
15:30 - 16:30	358	+	525	=	883	264	144	No
17:00 - 18:00	335	+	540	=	875	204	24	No
15:15 - 16:15	322	+	492	=	814	257	128	No
17:15 - 18:15	312	+	458	=	770	176	19	No
07:15 - 08:15	319	+	439	=	758	126	26	No
15:00 - 16:00	296	+	447	=	743	253	77	No
07:00 - 08:00	307	+	435	=	742	113	26	No



ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2434

Study Date : 08/14/2024

Multiway Stop Warrants - Summary

Major Street Approaches

Eastbound: CSAH 14
 Number of Lanes : 2+
 Total Approach Volume: 4,111

Westbound: CSAH 14
 Number of Lanes :2+
 Total Approach Volume: 5,454

Minor Street Approaches

Northbound: CSAH 21
 Number of Lanes :2+
 Total Approach Volume: 2,240

Southbound: Centerville Rd
 Number of Lanes :2+
 Total Approach Volume: 412

Warrant Summary (Urban Values Apply)

Criteria A - Interim Measure	Not Evaluated
If traffic signals are justified, stop signs can be installed as an interim measure.	
Criteria B - Crash Experience	Not Satisfied
Number of crashes (-1) is less than minimum required (5).	
Criteria C - Minimum Volumes and Delays	Satisfied
Average of 8 highest hours meets or exceeds volume criteria.	
Criteria D - 80% of Volumes, Delays, and Crashes	Not Satisfied
Number of crashes (-1) is less than minimum required (4). Average of 8 highest hours meets or exceeds volume criteria.	

Criteria C Volume Summary

Time	Major Total	Major Avg	Minor Total	Minor Avg	Major Crit	Minor Crit	Meets?
16:00 - 17:00	1019	721.1	368	226.3	300	200	Yes
17:00 - 18:00	875		235				
15:00 - 16:00	743		332				
07:15 - 08:15	758		154				
08:30 - 09:30	613		227				
14:00 - 15:00	619		179				
11:45 - 12:45	585		163				
18:00 - 19:00	557		152				
13:00 - 14:00	526		158				
10:45 - 11:45	525		158				
06:15 - 07:15	556		83				
09:45 - 10:45	514		101				

Criteria D Volume Summary

Time	Major Total	Major Avg	Minor Total	Minor Avg	Major Crit	Minor Crit	Meets?
16:00 - 17:00	1019	721.1	368	226.3	240	160	Yes
17:00 - 18:00	875		235				
15:00 - 16:00	743		332				
07:15 - 08:15	758		154				
08:30 - 09:30	613		227				
14:00 - 15:00	619		179				
11:45 - 12:45	585		163				
18:00 - 19:00	557		152				
13:00 - 14:00	526		158				
10:45 - 11:45	525		158				
06:15 - 07:15	556		83				
09:45 - 10:45	514		101				