

← DATE, TIME, LIGHT, WEATHER			OVERTURN FIRE OR EXPLOSION MOVING VEHICLE REAR END BACKING VEHICLE COLLISION WITH FIXED OBJECT SIDE SWIPE SAME DIRECTION SIDE SWIPE OPPOSITE DIRECTION	PARKED VEHICLE MOTORCYCLE DEER PEDESTRIAN BICYCLE FIXED OBJECT RIGHT ANGLE VEHICLE OUT OF CONTROL LEFT TURN INTO ONCOMING TRAFFIC	ADT: 26497 ACCIDENT RATE: 0.06 CR INDEX: 0.08 SEVERITY RATE: 0.13 FAR INDEX: 0.64
LIGHT	WEATHER	SEVERITY CODE	ANOKA COUNTY HIGHWAY DEPT.	COLLISION DIAGRAM	
L = LIGHT DN = DAWN DU = DUSK D = DARK X = UNKNOWN	C = CLEAR CL = CLOUDY R = RAIN S = SNOW/SLEET X = OTHER/UNKNOWN	(N) PROPERTY DAMAGE (C) POSSIBLE INJURY (B) MINOR INJURY (A) SERIOUS INJURY (K) FATALITY			CSAH 116 (BUNKER LAKE BLVD) @ HEATHER ST JANUARY 2018 - JUNE 2023
				Sheet <u> 1 </u> of <u> 1 </u> Sheets	

Intersection Safety Screening

Intersection: CSAH 116 @ Heather St

Statewide Averages based on 2016-2020 crashes

Crashes by Crash Severity	
Fatal (K)	0
Serious Injury (A)	1
Minor Injury (B)	0
Possible Injury (C)	1
Property Damage (PDO)	1
Total Crashes	3

Intersection Characteristics	
Entering Volume	26,497
Environment	Urban
Lighting	Lit
Traffic Control	Signal

Annual crash cost = \$176,600

Statewide comparison = Signal, Low Volume (<=20K)

Total Crash Rate	
Observed	0.062
Statewide Average	0.508
Critical Rate	0.780
Critical Index	0.08

Fatal & Serious Injury Crash Rate	
Observed	2.066
Statewide Average	0.690
Critical Rate	3.250
Critical Index	0.64

The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference (i.e. observed crash rate ÷ critical crash rate).

The observed total crash rate for this period is 0.06 per MEV; this is 92% below the critical rate. Based on similar statewide intersections, an additional 35 crashes over the five years would indicate this intersection operates outside the normal range.

The observed fatal and serious injury crash rate for this period is 2.07 per 100 MEV; this is 36% below the critical rate. The intersection operates within the normal range.

ACCIDENT AND SEVERITY RATES FOR AN INTERSECTION

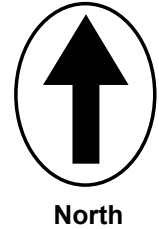
Intersection:	CSAH 116 @ Heather St		
Study Start Date:	01/01/2018		
Study End Date:	06/30/2023		
Length of study in years:	5.50	Days = 2006.486	Weighted
Intersection ADT:	26497	Total Accidents = 3	
Number of Fatal Accidents:	0	Total Fatal Accidents = 0	0
Number of "A" P.I. Accidents:	1	Total "A" Injury Accidents = 1	4
Number of "B" P.I. Accidents:	0	Total "B" Injury Accidents = 0	0
Number of "C" P.I. Accidents:	1	Total "C" Injury Accidents = 1	2
Number of Property Damage Accidents:	1	Total Property Damage Accidents = 1	1
		Sum of weighted accidents =	7
Accident Rate (AR) =	0.06		
Severity Rate (SR) =	0.13		

Date : 09/21/23

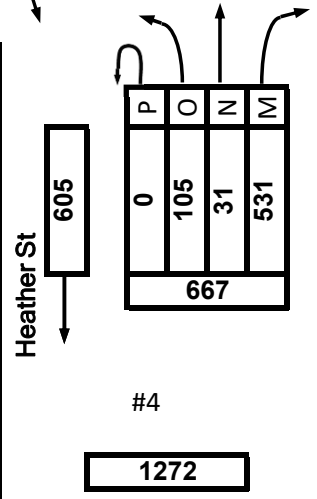
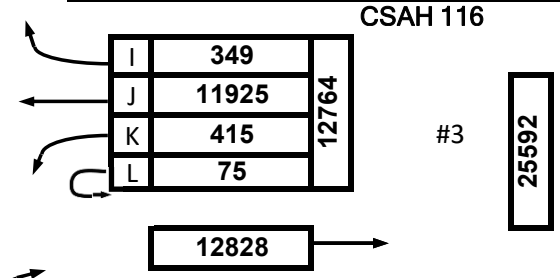
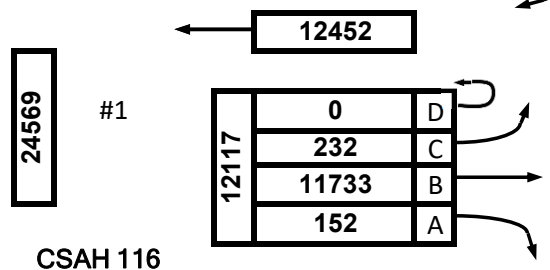
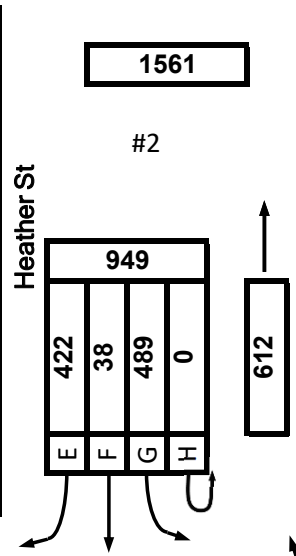
Count Number : TMC 2351

Location : CSAH 116
@ Heather St

Collection Period : 24 HR



North



CSAH 116

CSAH 116

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

Anoka County Highway Department

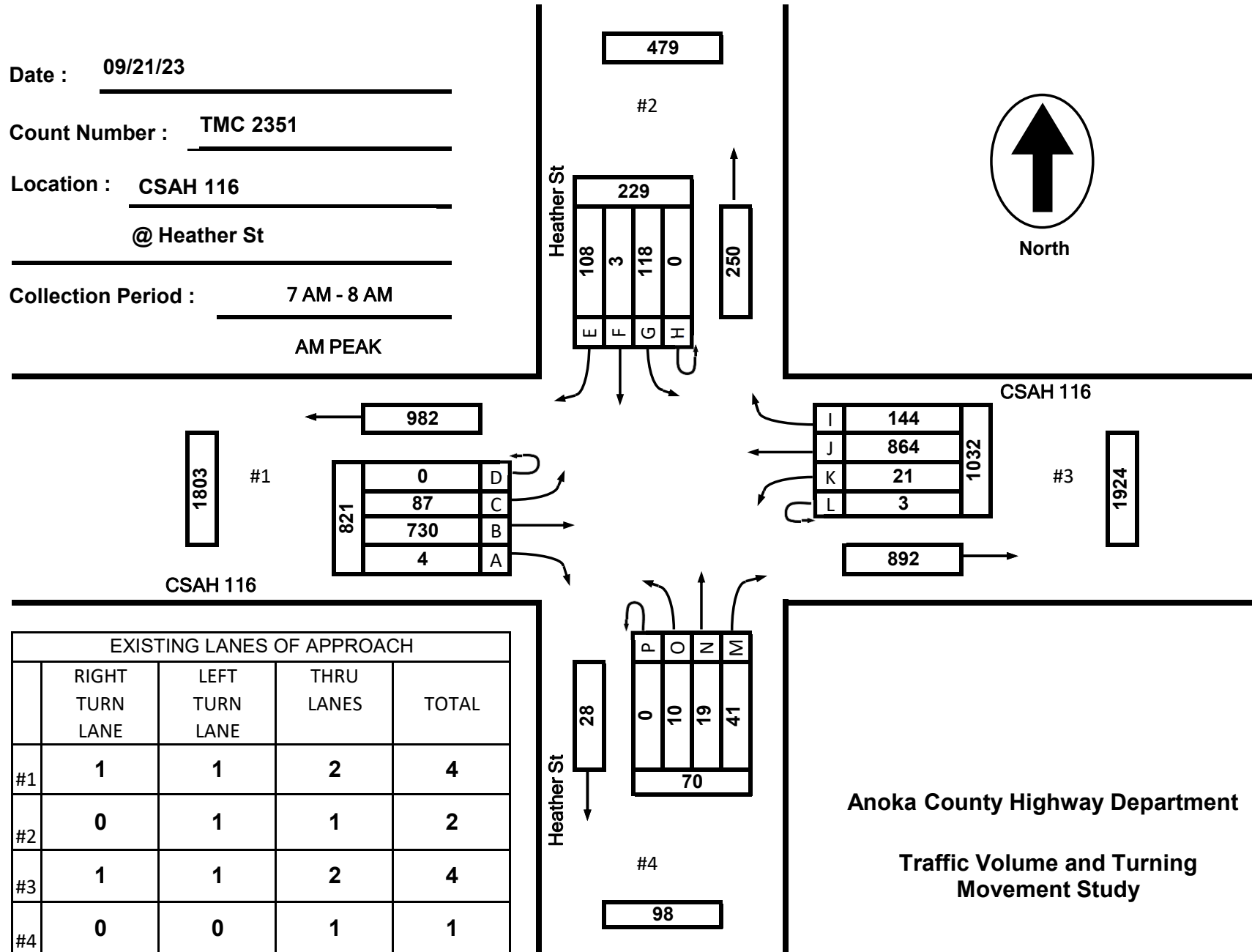
Traffic Volume and Turning Movement Study

Date : 09/21/23

Count Number : TMC 2351

Location : CSAH 116
@ Heather St

Collection Period : 7 AM - 8 AM
AM PEAK



EXISTING LANES OF APPROACH

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

Anoka County Highway Department

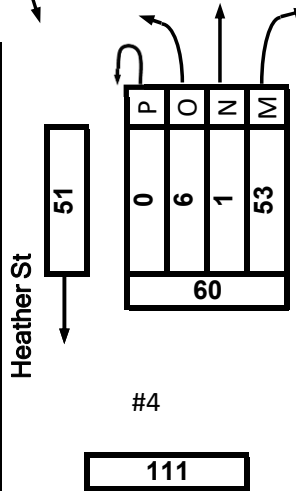
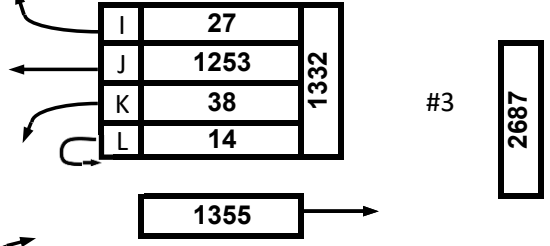
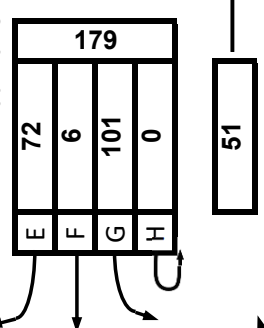
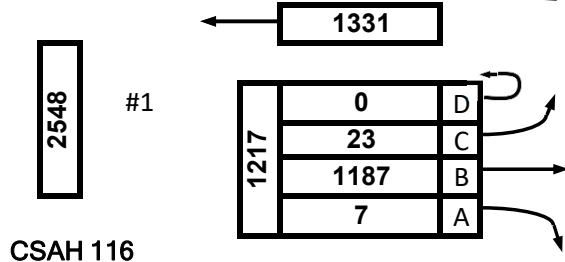
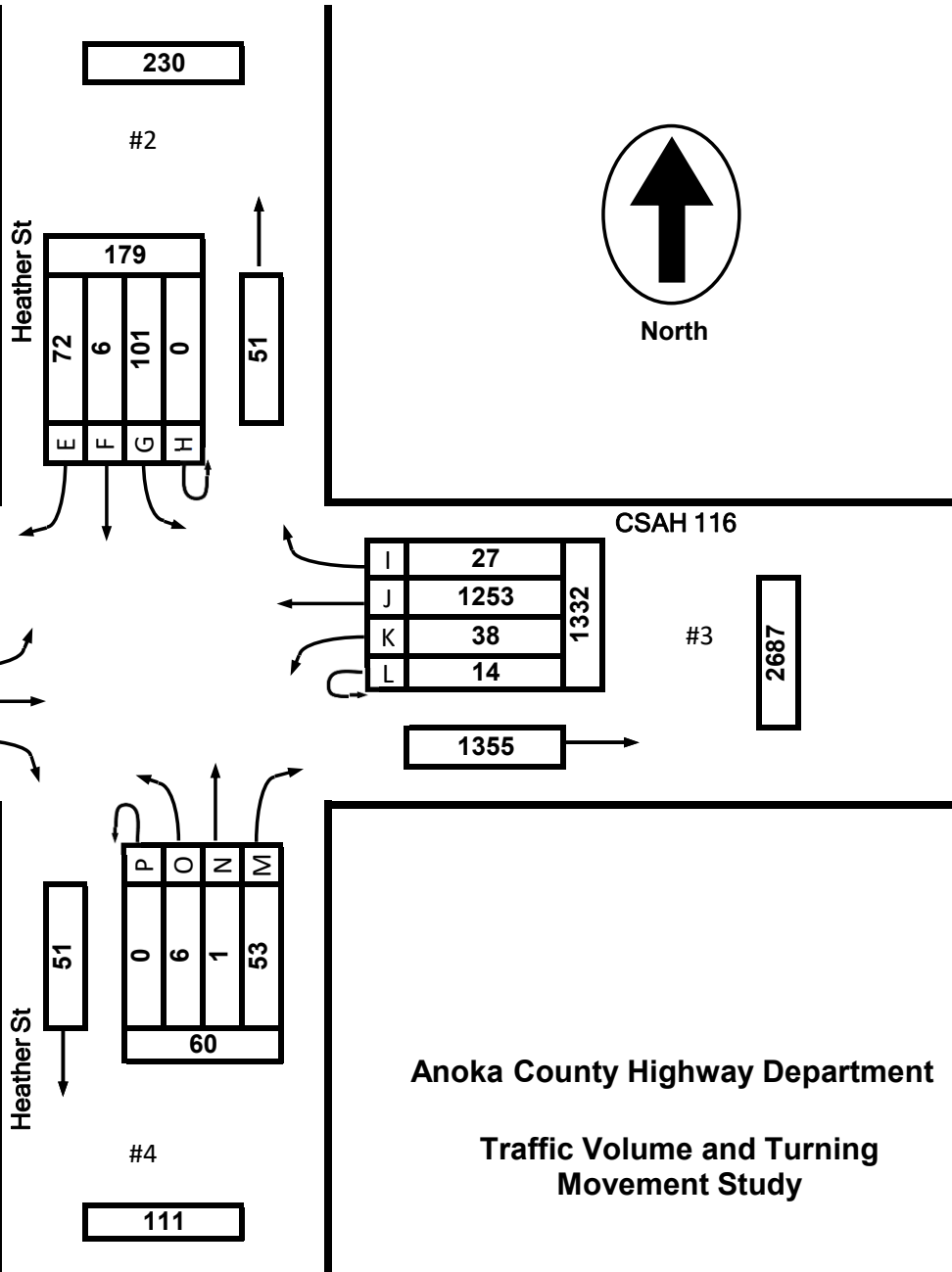
Traffic Volume and Turning Movement Study

Date : 09/21/23

Count Number : TMC 2351

Location : CSAH 116
@ Heather St

Collection Period : 3:30 - 4:30 PM
PM PEAK



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

Anoka County Highway Department
Traffic Volume and Turning Movement Study

**TMC 2351 - CSAH 116 @ Heather St
Thursday, September 21, 2023**

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	0						0						0						0						
	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	8	0	0	8	0	0	0	0	0	0	0	0	10	0	0	10	18
12:15 AM	0	0	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	6	0	0	6	12
12:30 AM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	7	0	0	7	12
12:45 AM	0	0	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	2	0	0	2	8
Hourly Total	0	0	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	0	0	25	0	0	25	50
1:00 AM	0	0	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	4	0	0	4	10
1:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	5	0	0	5	6
1:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	5	0	0	5	6
1:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	8	0	0	8	9
Hourly Total	0	0	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	0	0	22	0	0	22	31
2:00 AM	0	0	0	0	0	0	0	1	4	0	0	5	0	0	0	1	0	1	0	0	7	0	0	7	13
2:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	7	0	0	7	8
2:30 AM	0	0	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	6	0	0	6	12
2:45 AM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	4	0	0	4	8
Hourly Total	0	0	0	0	0	0	0	1	15	0	0	16	0	0	0	1	0	1	0	0	24	0	0	24	41
3:00 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	4	0	0	4	7
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	8	0	0	8	0	0	0	0	0	0	0	0	2	0	0	2	10
3:45 AM	0	0	0	0	0	0	0	0	6	0	0	6	0	0	0	1	0	1	0	0	7	0	0	7	14
Hourly Total	0	0	0	0	0	0	0	0	18	0	0	18	0	0	0	1	0	1	0	0	17	0	0	17	36
4:00 AM	0	0	0	0	0	0	0	0	7	0	0	7	0	0	0	1	0	1	0	0	3	0	0	3	11
4:15 AM	0	0	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	0	0	13	0	0	13	28
4:30 AM	0	0	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	0	0	15	0	0	15	35
4:45 AM	0	0	0	0	0	0	0	0	18	0	0	18	0	0	0	2	0	2	0	0	20	0	0	20	40
Hourly Total	0	0	0	0	0	0	0	0	60	0	0	60	0	0	0	3	0	3	0	0	51	0	0	51	114
5:00 AM	0	0	0	0	0	0	0	1	29	0	0	30	0	0	0	0	0	0	0	0	10	0	0	10	40
5:15 AM	0	0	0	1	0	1	0	0	37	1	0	38	0	0	0	2	0	2	0	0	34	0	0	34	75
5:30 AM	0	0	0	1	0	1	0	0	54	1	0	55	0	1	1	5	0	7	0	0	50	0	0	50	113
5:45 AM	0	0	0	0	0	0	0	0	52	1	0	53	0	2	0	2	0	4	0	0	65	0	0	65	122
Hourly Total	0	0	0	2	0	2	0	1	172	3	0	176	0	3	1	9	0	13	0	0	159	0	0	159	350
6:00 AM	0	0	0	2	0	2	0	2	62	0	0	64	0	1	0	3	0	4	0	0	56	1	0	57	127
6:15 AM	0	1	0	1	0	2	0	0	74	0	0	74	0	1	0	1	1	2	0	3	96	2	0	101	179
6:30 AM	0	4	0	3	1	7	1	2	158	0	0	161	0	2	0	6	0	8	0	0	111	1	0	112	288
6:45 AM	0	5	0	5	0	10	0	3	125	7	0	135	0	2	0	8	0	10	0	7	141	1	0	149	304
Hourly Total	0	10	0	11	1	21	1	7	419	7	0	434	0	6	0	18	1	24	0	10	404	5	0	419	898
7:00 AM	0	10	0	11	0	21	1	6	169	9	0	185	0	1	2	5	0	8	0	12	160	1	1	173	387
7:15 AM	0	31	0	26	0	57	1	6	245	66	0	318	0	3	5	12	1	20	0	32	182	1	0	215	610
7:30 AM	0	63	2	60	0	125	0	6	248	57	0	311	0	2	11	15	1	28	0	36	203	1	1	240	704
7:45 AM	0	14	1	11	0	26	1	3	202	12	3	218	0	4	1	9	0	14	0	7	185	1	0	193	451
Hourly Total	0	118	3	108	0	229	3	21	864	144	3	1032	0	10	19	41	2	70	0	87	730	4	2	821	2152

**TMC 2351 - CSAH 116 @ Heather St
Thursday, September 21, 2023**

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	0						0						0						0						
	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	8	0	8	0	16	0	8	165	4	0	177	0	3	0	5	0	8	0	1	172	0	3	173	374
8:15 AM	0	5	0	3	0	8	0	10	125	2	0	137	0	1	0	8	2	9	0	2	145	0	0	147	301
8:30 AM	0	1	0	2	1	3	0	3	125	0	11	128	0	0	0	12	0	12	0	1	157	0	0	158	301
8:45 AM	0	31	5	13	0	49	21	10	158	3	4	192	0	3	0	11	2	14	0	0	141	2	0	143	398
Hourly Total	0	45	5	26	1	76	21	31	573	9	15	634	0	7	0	36	4	43	0	4	615	2	3	621	1374
9:00 AM	0	14	1	9	0	24	0	3	116	2	0	121	0	2	0	8	0	10	0	2	136	2	0	140	295
9:15 AM	0	4	0	4	2	8	2	5	144	2	0	153	0	3	0	6	0	9	0	1	150	2	0	153	323
9:30 AM	0	2	1	1	1	4	0	7	135	0	0	142	0	0	0	15	0	15	0	2	158	2	0	162	323
9:45 AM	0	3	0	2	0	5	0	8	148	3	0	159	0	2	0	11	0	13	0	1	156	3	0	160	337
Hourly Total	0	23	2	16	3	41	2	23	543	7	0	575	0	7	0	40	0	47	0	6	600	9	0	615	1278
10:00 AM	0	1	0	2	0	3	3	9	140	0	0	152	0	2	0	5	0	7	0	2	150	0	0	152	314
10:15 AM	0	1	1	6	1	8	2	8	146	2	0	158	0	1	0	5	0	6	0	3	133	3	0	139	311
10:30 AM	0	3	0	3	0	6	1	3	153	7	0	164	0	2	0	3	0	5	0	2	145	1	1	148	323
10:45 AM	0	6	0	4	1	10	1	9	145	3	0	158	0	0	0	10	0	10	0	1	163	3	0	167	345
Hourly Total	0	11	1	15	2	27	7	29	584	12	0	632	0	5	0	23	0	28	0	8	591	7	1	606	1293
11:00 AM	0	5	0	4	0	9	2	7	146	3	0	158	0	1	0	13	1	14	0	0	163	3	0	166	347
11:15 AM	0	2	0	1	0	3	0	5	168	1	0	174	0	3	0	9	1	12	0	1	153	2	0	156	345
11:30 AM	0	0	0	0	1	0	2	3	183	3	0	191	0	3	0	7	0	10	0	5	166	2	0	173	374
11:45 AM	0	11	0	5	0	16	0	6	184	4	0	194	0	2	0	7	0	9	0	1	158	3	0	162	381
Hourly Total	0	18	0	10	1	28	4	21	681	11	0	717	0	9	0	36	2	45	0	7	640	10	0	657	1447
12:00 PM	0	0	0	8	1	8	0	5	188	1	0	194	0	2	0	7	0	9	0	2	185	3	0	190	401
12:15 PM	0	3	0	3	0	6	0	2	159	1	1	162	0	1	0	6	0	7	0	4	171	4	0	179	354
12:30 PM	0	1	0	2	2	3	0	7	140	1	0	148	0	0	0	6	0	6	0	2	178	2	0	182	339
12:45 PM	0	1	0	3	1	4	0	5	157	0	0	162	0	2	1	6	0	9	0	3	207	1	1	211	386
Hourly Total	0	5	0	16	4	21	0	19	644	3	1	666	0	5	1	25	0	31	0	11	741	10	1	762	1480
1:00 PM	0	2	0	1	1	3	1	6	165	0	0	172	0	1	0	2	0	3	0	1	173	3	0	177	355
1:15 PM	0	0	0	3	1	3	0	3	169	0	0	172	0	2	0	8	0	10	0	1	174	1	0	176	361
1:30 PM	0	1	0	1	0	2	1	5	170	11	0	187	0	2	0	9	0	11	0	8	172	5	1	185	385
1:45 PM	0	2	0	4	0	6	0	8	154	13	0	175	0	2	0	10	1	12	0	9	177	1	2	187	380
Hourly Total	0	5	0	9	2	14	2	22	658	24	0	706	0	7	0	29	1	36	0	19	696	10	3	725	1481
2:00 PM	0	7	2	9	0	18	1	7	185	12	0	205	0	4	1	6	0	11	0	11	196	3	6	210	444
2:15 PM	0	53	3	36	0	92	3	5	185	26	0	219	0	3	0	17	1	20	0	18	269	7	0	294	625
2:30 PM	0	22	1	4	0	27	0	8	212	2	0	222	0	2	0	4	0	6	0	5	220	4	1	229	484
2:45 PM	0	1	0	6	1	7	0	9	244	7	0	260	0	1	0	11	0	12	0	2	223	6	0	231	510
Hourly Total	0	83	6	55	1	144	4	29	826	47	0	906	0	10	1	38	1	49	0	36	908	20	7	964	2063
3:00 PM	0	5	1	6	0	12	1	4	277	5	0	287	0	3	2	13	1	18	0	5	266	2	1	273	590
3:15 PM	0	6	0	5	0	11	2	8	259	10	5	279	0	0	0	10	0	10	0	5	244	2	0	251	551
3:30 PM	0	46	2	32	0	80	9	7	322	6	10	344	0	2	0	8	0	10	0	6	279	1	0	286	720
3:45 PM	0	17	1	21	0	39	3	7	297	7	3	314	0	3	0	14	0	17	0	1	313	1	0	315	685
Hourly Total	0	74	4	64	0	142	15	26	1155	28	18	1224	0	8	2	45	1	55	0	17	1102	6	1	1125	2546

**TMC 2351 - CSAH 116 @ Heather St
Thursday, September 21, 2023**

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	0						0						0						0						
	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	16	0	11	1	27	2	12	346	9	3	369	0	0	1	16	0	17	0	8	279	3	0	290	703
4:15 PM	0	22	3	8	0	33	0	12	288	5	0	305	0	1	0	15	0	16	0	8	316	2	1	326	680
4:30 PM	0	10	0	9	2	19	1	12	319	4	1	336	0	0	0	12	0	12	0	1	319	5	0	325	692
4:45 PM	0	7	1	10	3	18	0	10	300	7	0	317	0	2	1	10	0	13	0	0	291	2	2	293	641
Hourly Total	0	55	4	38	6	97	3	46	1253	25	4	1327	0	3	2	53	0	58	0	17	1205	12	3	1234	2716
5:00 PM	0	10	3	6	0	19	3	13	278	0	0	294	0	0	1	10	0	11	0	1	295	4	0	300	624
5:15 PM	0	4	2	10	0	16	2	9	360	3	0	374	0	2	0	7	0	9	0	1	248	3	0	252	651
5:30 PM	0	2	0	2	0	4	1	12	312	3	0	328	0	1	0	17	0	18	0	1	237	1	1	239	589
5:45 PM	0	2	1	3	0	6	0	12	292	7	1	311	0	1	1	9	0	11	0	0	208	2	1	210	538
Hourly Total	0	18	6	21	0	45	6	46	1242	13	2	1307	0	4	2	43	0	49	0	3	988	10	2	1001	2402
6:00 PM	0	8	2	10	3	20	0	11	208	5	0	224	0	3	1	14	0	18	0	0	196	4	0	200	462
6:15 PM	0	2	0	1	1	3	1	12	196	4	1	213	0	1	1	13	0	15	0	0	191	3	1	194	425
6:30 PM	0	0	1	0	1	1	1	2	193	0	0	196	0	2	0	5	0	7	0	0	176	2	0	178	382
6:45 PM	0	1	0	0	2	1	1	0	171	1	0	173	0	1	0	11	0	12	0	1	176	7	0	184	370
Hourly Total	0	11	3	11	7	25	3	25	768	10	1	806	0	7	2	43	0	52	0	1	739	16	1	756	1639
7:00 PM	0	0	1	1	1	2	0	5	185	2	0	192	0	2	1	4	0	7	0	1	152	2	0	155	356
7:15 PM	0	2	0	1	0	3	1	6	165	1	0	173	0	4	0	8	0	12	0	0	167	2	0	169	357
7:30 PM	0	0	0	0	0	0	0	7	127	1	0	135	0	3	0	6	0	9	0	0	170	6	0	176	320
7:45 PM	0	1	0	1	0	2	2	4	142	0	2	148	0	1	0	1	0	2	0	3	135	1	2	139	291
Hourly Total	0	3	1	3	1	7	3	22	619	4	2	648	0	10	1	19	0	30	0	4	624	11	2	639	1324
8:00 PM	0	4	0	2	0	6	0	4	129	2	1	135	0	0	0	3	0	3	0	0	114	5	0	119	263
8:15 PM	0	0	1	5	0	6	1	5	112	0	0	118	0	0	0	9	0	9	0	2	138	3	0	143	276
8:30 PM	0	1	1	1	0	3	0	9	104	0	0	113	0	0	0	2	0	2	0	0	108	3	0	111	229
8:45 PM	0	2	0	1	0	3	0	5	70	0	0	75	0	0	0	0	0	0	0	0	78	1	0	79	157
Hourly Total	0	7	2	9	0	18	1	23	415	2	1	441	0	0	0	14	0	14	0	2	438	12	0	452	925
9:00 PM	0	0	1	0	0	1	0	3	73	0	0	76	0	1	0	3	0	4	0	0	80	1	0	81	162
9:15 PM	0	1	0	2	0	3	0	3	80	0	0	83	0	0	0	1	0	1	0	0	65	0	0	65	152
9:30 PM	0	0	0	2	0	2	0	3	56	0	0	59	0	1	0	2	0	3	0	0	47	2	0	49	113
9:45 PM	0	0	0	0	0	0	0	3	26	0	0	29	0	2	0	1	0	3	0	0	45	0	0	45	77
Hourly Total	0	1	1	4	0	6	0	12	235	0	0	247	0	4	0	7	0	11	0	0	237	3	0	240	504
10:00 PM	0	0	0	4	0	4	0	3	32	0	0	35	0	0	0	1	0	1	0	0	41	1	0	42	82
10:15 PM	0	1	0	0	0	1	0	2	33	0	0	35	0	0	0	2	0	2	0	0	40	1	0	41	79
10:30 PM	0	0	0	0	0	0	0	2	19	0	0	21	0	0	0	2	0	2	0	0	26	0	0	26	49
10:45 PM	0	0	0	0	0	0	0	4	18	0	0	22	0	0	0	1	0	1	0	0	16	0	0	16	39
Hourly Total	0	1	0	4	0	5	0	11	102	0	0	113	0	0	0	6	0	6	0	0	123	2	0	125	249
11:00 PM	0	0	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	0	0	16	1	0	17	29
11:15 PM	0	1	0	0	0	1	0	0	16	0	0	16	0	0	0	0	0	0	0	0	17	0	0	17	34
11:30 PM	0	0	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	0	0	12	2	0	14	23
11:45 PM	0	0	0	0	0	0	0	0	8	0	0	8	0	0	0	1	0	1	0	0	9	0	0	9	18
Hourly Total	0	1	0	0	0	1	0	0	45	0	0	45	0	0	0	1	0	1	0	0	54	3	0	57	104
DAILY TOTAL	0	489	38	422	29	949	75	415	11925	349	47	12764	0	105	31	531	12	667	0	232	11733	152	26	12117	26497
Cars	0	466	38	415	12	919	75	409	11664	349	40	12497	0	104	31	513	7	648	0	231	11481	150	20	11862	25926
Heavy Vehicles	0	23	0	7	17	30	0	6	261	0	7	267	0	1	0	18	5	19	0	1	252	2	6	255	571
Heavy Vehicle %	0.00%	4.70%	0.00%	1.66%	58.62%	3.16%	0.00%	1.45%	2.19%	0.00%	14.89%	2.09%	0.00%	0.95%	0.00%	3.39%	41.67%	2.85%	0.00%	0.43%	2.15%	1.32%	23.08%	2.10%	2.15%

**TMC 2351 - CSAH 116 @ Heather St
Thursday, September 21, 2023**

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	11	0	21	1	6	169	9	0	185	0	1	2	5	0	8	0	12	160	1	1	1	173	387
7:15 AM	0	31	0	26	0	57	1	6	245	66	0	318	0	3	5	12	1	20	0	32	182	1	0	0	215	610
7:30 AM	0	63	2	60	0	125	0	6	248	57	0	311	0	2	11	15	1	28	0	36	203	1	1	0	240	704
7:45 AM	0	14	1	11	0	26	1	3	202	12	3	218	0	4	1	9	0	14	0	7	185	1	0	0	193	451
Peak Hour Total	0	118	3	108	0	229	3	21	864	144	3	1032	0	10	19	41	2	70	0	87	730	4	2	0	821	2152
PHF	0.000	0.468	0.375	0.450	0.000	0.458	0.750	0.875	0.871	0.545	0.250	0.811	0.000	0.625	0.432	0.683	0.500	0.625	0.000	0.604	0.899	1.000	0.500	0.855	0.764	

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		
3:30 PM	0	46	2	32	0	80	9	7	322	6	10	344	0	2	0	8	0	10	0	6	279	1	0	0	286	720
3:45 PM	0	17	1	21	0	39	3	7	297	7	3	314	0	3	0	14	0	17	0	1	313	1	0	0	315	685
4:00 PM	0	16	0	11	1	27	2	12	346	9	3	369	0	0	1	16	0	17	0	8	279	3	0	0	290	703
4:15 PM	0	22	3	8	0	33	0	12	288	5	0	305	0	1	0	15	0	16	0	8	316	2	1	0	326	680
Peak Hour Total	0	101	6	72	1	179	14	38	1253	27	16	1332	0	6	1	53	0	60	0	23	1187	7	1	0	1217	2788
PHF	0.000	0.549	0.500	0.563	0.250	0.559	0.389	0.792	0.905	0.750	0.400	0.902	0.000	0.500	0.250	0.828	0.000	0.882	0.000	0.719	0.939	0.583	0.250	0.933	0.968	

Total Vehicles On Leg				1561		
Vehicles Entering Intersection			949	Vehicles Exiting Intersection		612
Southbound						
Cars	415	38	466	0	12	
Heavy	7	0	23	0	17	
Total	422	38	489	0	29	

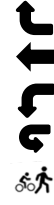


Total Vehicles on Leg 24569	Eastbound	Vehicles Entering Intersection	12117	Cars	20	Heavy	6	Total	26
		Vehicles Exiting Intersection	12452		0		0		0
				231		1		232	
				11481		252		11733	
				150		2		152	



Daily Volumes

Cars	Heavy	Total	Westbound	Vehicles Entering Intersection	Total Vehicles on Leg 25592
349	0	349		Vehicles Exiting Intersection	
11664	261	11925			
409	6	415			
75	0	75			
40	7	47			



Cars	7	0	104	31	513	
Heavy	5	0	1	0	18	
Total	12	0	105	31	531	
Northbound						
Vehicles Entering Intersection			667	Vehicles Exiting Intersection		605
Total Vehicles On Leg			1272			

Heavy Vehicles

Date	Time	Southbound						Westbound						Northbound						Eastbound					
		U Turns	Left Turns	Straight Through	Right Turns	EB Bicycles in Crosswalk	WB Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	NB Bicycles in Crosswalk	SB Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	EB Bicycles in Crosswalk	WB Bicycles in Crosswalk	U Turns	Left Turns	Straight Through	Right Turns	NB Bicycles in Crosswalk	SB Bicycles in Crosswalk
09/21/2023	0:00	0	0	0	0	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	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	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	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	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	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	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	1	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	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	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	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	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	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	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	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	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	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	0	0	0	0
	4:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	1	0	0	0
	5:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
	5:45	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:00	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	1	0	1	3	0	0	0
	6:30	0	1	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	6:45	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
	7:00	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0
	7:15	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	2	1	0	0	0	9	0	0	0
	7:30	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	3	0	1	0	0	9	0	1	0
	7:45	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0
	8:00	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0
	8:15	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0	0	0	7	0	0	0
	8:30	0	0	0	1	1	0	0	0	5	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0
	8:45	0	4	0	1	0	0	0	0	6	0	0	1	0	0	0	2	0	0	0	0	4	0	0	0
	9:00	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
	9:15	0	0	0	0	0	1	0	1	6	0	0	0	0	0	0	1	0	0	0	0	9	0	0	0
	9:30	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0
	9:45	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
	10:00	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	10:15	0	0	0	0	0	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0
	10:30	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	4	1	0	0
	10:45	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0
	11:00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
	11:15	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	1	0	0	5	0	0	0	0
	11:30	0	0	0	0	0	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0
	11:45	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	1	0	0	0	0	4	0	0	0

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2351

Study Date : 09/27/2023

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 116

Number of Lanes : 2+

Total Approach Volume: 12,117

Westbound: CSAH 116

Number of Lanes : 2+

Total Approach Volume: 12,764

Minor Street Approaches

Northbound: Heather St.

Number of Lanes : 1

Total Approach Volume: 667

Southbound: Heather St.

Number of Lanes : 1

Total Approach Volume: 949

Warrant Summary (Rural Values Apply)

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

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

Required volumes reached for 4 hours, 8 are needed

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

Required volumes reached for 8 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 9 hours, 8 are needed

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

Number of hours (7) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (13) 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 2351

Study Date : 09/27/2023

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 4 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				Total	Minor Road		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
	CSAH 116					Heather St.		
15:45 - 16:45	1256	+	1324	=	2580	62	118	Yes
14:45 - 15:45	1041	+	1170	=	2211	50	110	Yes
06:45 - 07:45	777	+	949	=	1726	66	213	Yes
13:30 - 14:30	876	+	786	=	1662	54	118	Yes
16:45 - 17:45	1084	+	1313	=	2397	51	57	No
17:00 - 18:00	1001	+	1307	=	2308	49	45	No
17:15 - 18:15	901	+	1237	=	2138	56	46	No
14:30 - 15:30	984	+	1048	=	2032	46	57	No
17:30 - 18:30	843	+	1076	=	1919	62	33	No
17:45 - 18:45	782	+	944	=	1726	51	30	No
18:00 - 19:00	756	+	806	=	1562	52	25	No
13:15 - 14:15	758	+	739	=	1497	44	29	No
18:15 - 19:15	711	+	774	=	1485	41	7	No
06:30 - 07:30	649	+	799	=	1448	46	95	No
11:30 - 12:30	704	+	741	=	1445	35	30	No
12:45 - 13:45	749	+	693	=	1442	33	12	No
11:15 - 12:15	681	+	753	=	1434	40	27	No
13:00 - 14:00	725	+	706	=	1431	36	14	No
12:00 - 13:00	762	+	666	=	1428	31	21	No
18:30 - 19:30	686	+	734	=	1420	38	7	No
11:45 - 12:45	713	+	698	=	1411	31	33	No
12:30 - 13:30	746	+	654	=	1400	28	13	No
12:15 - 13:15	749	+	644	=	1393	25	16	No
11:00 - 12:00	657	+	717	=	1374	45	28	No
18:45 - 19:45	684		673		1357	40	6	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2351

Study Date : 09/27/2023

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

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

Time	Major Road				Total	Minor Road		Met?
	Major EB	+	Major WB	=		Minor NB	Minor SB	
15:30 - 16:30	1217	+	1332	=	2549	60	179	Yes
16:30 - 17:30	1170	+	1321	=	2491	45	72	Yes
14:30 - 15:30	984	+	1048	=	2032	46	57	Yes
17:30 - 18:30	843	+	1076	=	1919	62	33	Yes
13:30 - 14:30	876	+	786	=	1662	54	118	Yes
07:30 - 08:30	753	+	843	=	1596	59	175	Yes
06:30 - 07:30	649	+	799	=	1448	46	95	Yes
08:30 - 09:30	594	+	594	=	1188	45	84	Yes
13:15 - 14:15	758	+	739	=	1497	44	29	No
11:30 - 12:30	704	+	741	=	1445	35	30	No
12:45 - 13:45	749	+	693	=	1442	33	12	No
11:15 - 12:15	681	+	753	=	1434	40	27	No
13:00 - 14:00	725	+	706	=	1431	36	14	No
12:00 - 13:00	762	+	666	=	1428	31	21	No
18:30 - 19:30	686	+	734	=	1420	38	7	No
11:45 - 12:45	713	+	698	=	1411	31	33	No
12:30 - 13:30	746	+	654	=	1400	28	13	No
12:15 - 13:15	749	+	644	=	1393	25	16	No
11:00 - 12:00	657	+	717	=	1374	45	28	No
18:45 - 19:45	684	+	673	=	1357	40	6	No
10:45 - 11:45	662	+	681	=	1343	46	22	No
10:30 - 11:30	637	+	654	=	1291	41	28	No
19:00 - 20:00	639	+	648	=	1287	30	7	No
10:15 - 11:15	620	+	638	=	1258	35	33	No
10:00 - 11:00	606		632		1238	28	27	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2351

Study Date : 09/27/2023

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.
9 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?
15:45 - 16:45	1256	+	1324	=	2580	62	118	Yes
14:45 - 15:45	1041	+	1170	=	2211	50	110	Yes
13:30 - 14:30	876	+	786	=	1662	54	118	Yes
07:30 - 08:30	753	+	843	=	1596	59	175	Yes
06:30 - 07:30	649	+	799	=	1448	46	95	Yes
08:30 - 09:30	594	+	594	=	1188	45	84	Yes
16:45 - 17:45	1084	+	1313	=	2397	51	57	No
17:00 - 18:00	1001	+	1307	=	2308	49	45	No
17:15 - 18:15	901	+	1237	=	2138	56	46	No
14:30 - 15:30	984	+	1048	=	2032	46	57	No
17:30 - 18:30	843	+	1076	=	1919	62	33	No
17:45 - 18:45	782	+	944	=	1726	51	30	No

Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met1B?
16:15 - 17:15	1244	+	1252	=	2496	52	89	Yes
15:15 - 16:15	1142	+	1306	=	2448	54	157	Yes
17:15 - 18:15	901	+	1237	=	2138	56	46	Yes
14:15 - 15:15	1027	+	988	=	2015	56	138	Yes
07:30 - 08:30	753	+	843	=	1596	59	175	Yes
13:15 - 14:15	758	+	739	=	1497	44	29	Yes
06:30 - 07:30	649	+	799	=	1448	46	95	Yes
10:45 - 11:45	662	+	681	=	1343	46	22	Yes
08:30 - 09:30	594	+	594	=	1188	45	84	Yes
18:15 - 19:15	711	+	774	=	1485	41	7	No
12:45 - 13:45	749	+	693	=	1442	33	12	No
13:00 - 14:00	725	+	706	=	1431	36	14	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2351

Study Date : 09/27/2023

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.

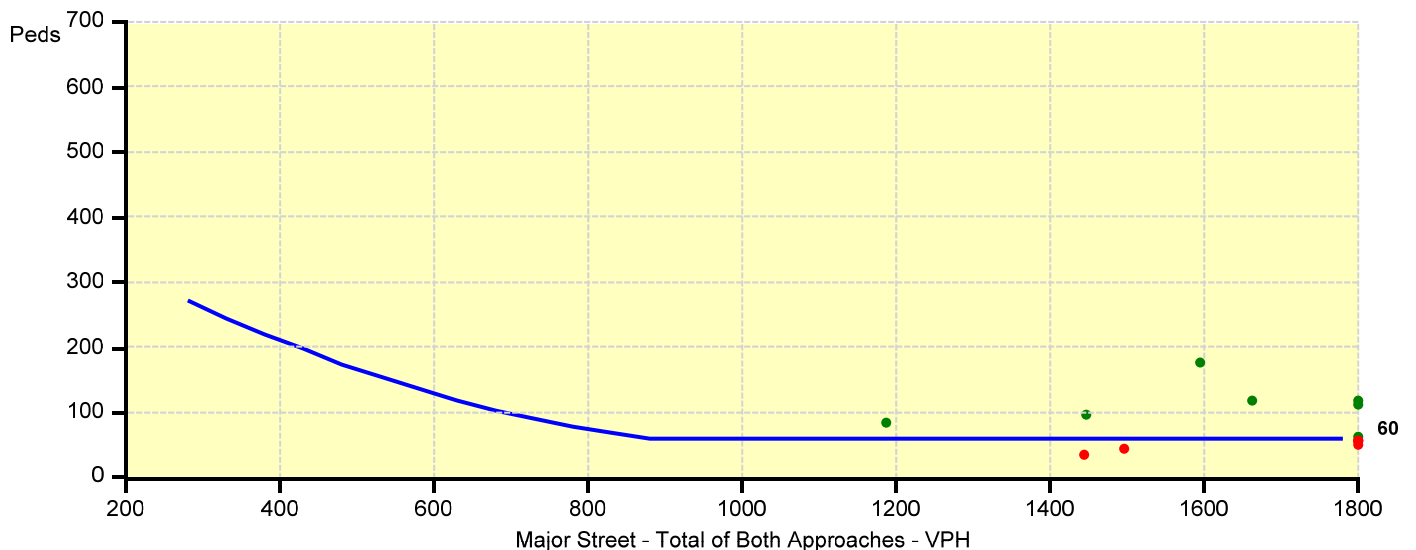
Summary

7 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	
15:45 - 16:45	1256	+	1324	=	2580	62	118	Yes
14:45 - 15:45	1041	+	1170	=	2211	50	110	Yes
17:30 - 18:30	843	+	1076	=	1919	62	33	Yes
13:30 - 14:30	876	+	786	=	1662	54	118	Yes
07:30 - 08:30	753	+	843	=	1596	59	175	Yes
06:30 - 07:30	649	+	799	=	1448	46	95	Yes
08:30 - 09:30	594	+	594	=	1188	45	84	Yes
16:45 - 17:45	1084	+	1313	=	2397	51	57	No
17:00 - 18:00	1001	+	1307	=	2308	49	45	No
17:15 - 18:15	901	+	1237	=	2138	56	46	No
14:30 - 15:30	984	+	1048	=	2032	46	57	No
13:15 - 14:15	758	+	739	=	1497	44	29	No



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2351

Study Date : 09/27/2023

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

20 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	
15:45 - 16:45	1256	+	1324	=	2580	62	118	Yes
16:00 - 17:00	1234	+	1327	=	2561	58	97	Yes
15:30 - 16:30	1217	+	1332	=	2549	60	179	Yes
16:15 - 17:15	1244	+	1252	=	2496	52	89	Yes
15:15 - 16:15	1142	+	1306	=	2448	54	157	Yes
15:00 - 16:00	1125	+	1224	=	2349	55	142	Yes
14:45 - 15:45	1041	+	1170	=	2211	50	110	Yes
14:15 - 15:15	1027	+	988	=	2015	56	138	Yes
14:00 - 15:00	964	+	906	=	1870	49	144	Yes
07:00 - 08:00	821	+	1032	=	1853	70	229	Yes
07:15 - 08:15	821	+	1024	=	1845	70	224	Yes
13:45 - 14:45	920		821		1741	49	143	Yes

