

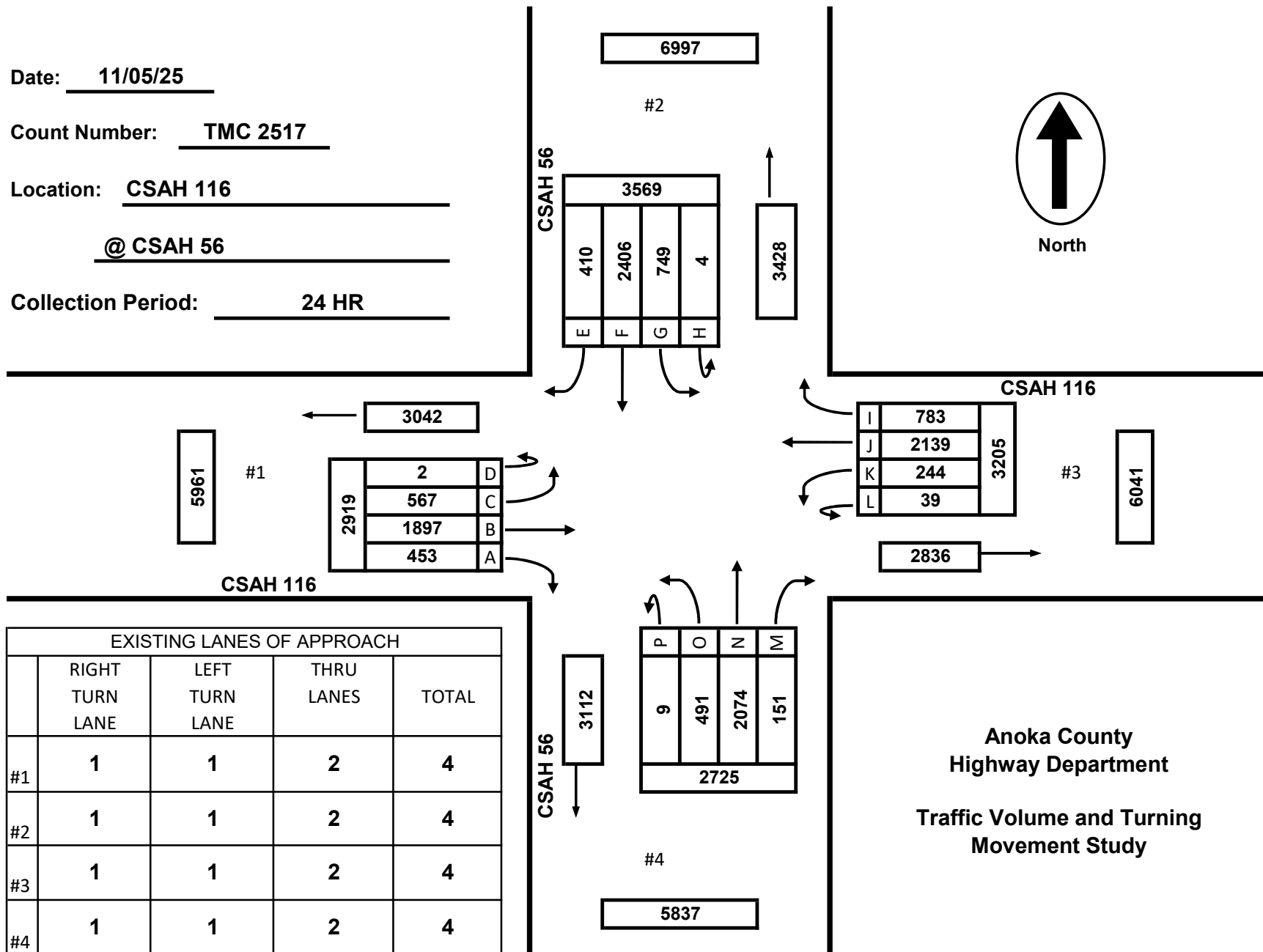
Date: 11/05/25

Count Number: TMC 2517

Location: CSAH 116

@ CSAH 56

Collection Period: 24 HR



Date: 11/05/25

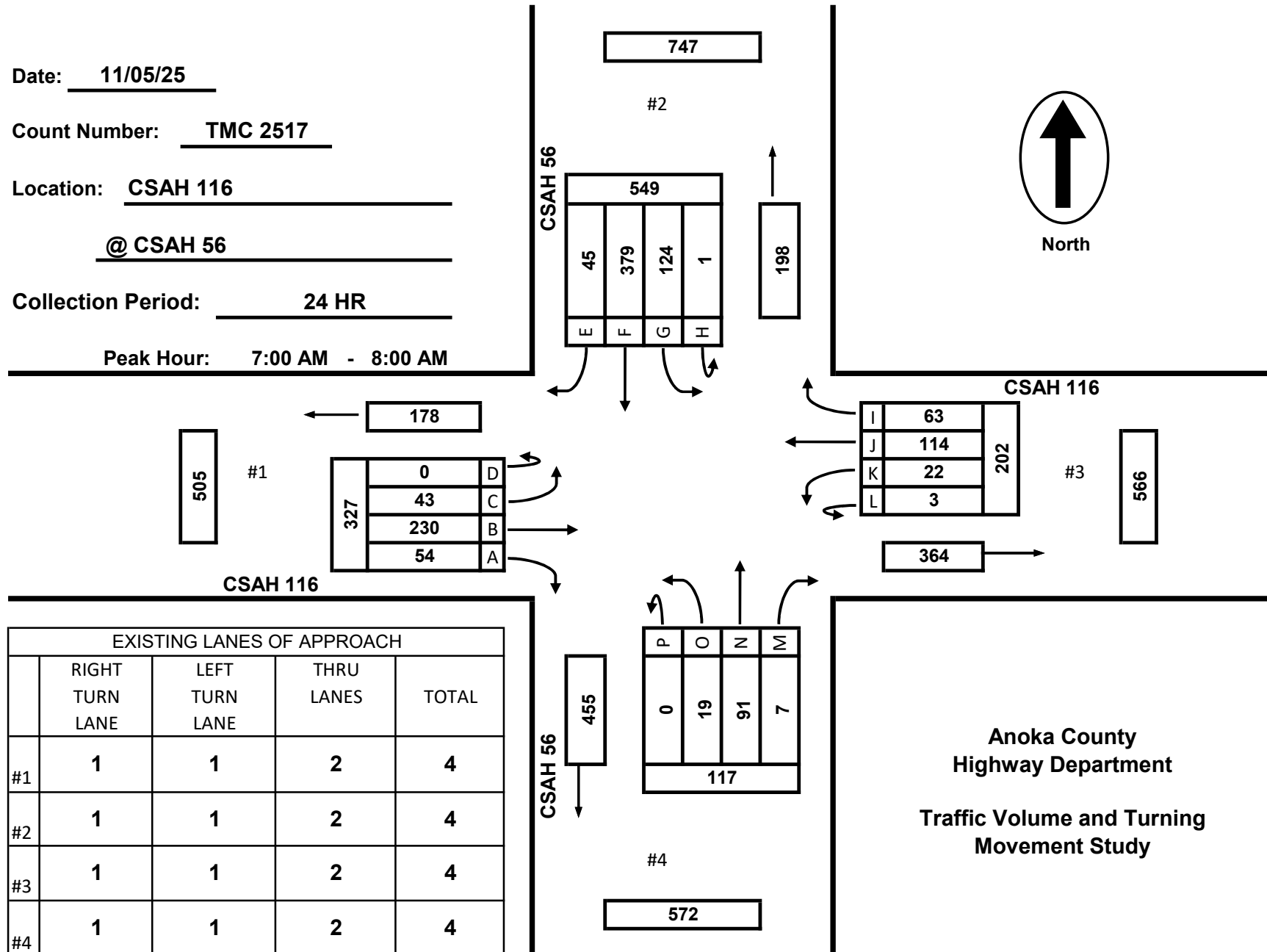
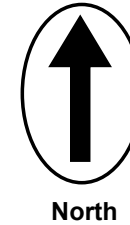
Count Number: TMC 2517

Location: CSAH 116

@ CSAH 56

Collection Period: 24 HR

Peak Hour: 7:00 AM - 8:00 AM



Anoka County
Highway Department
Traffic Volume and Turning
Movement Study

Date: 11/05/25

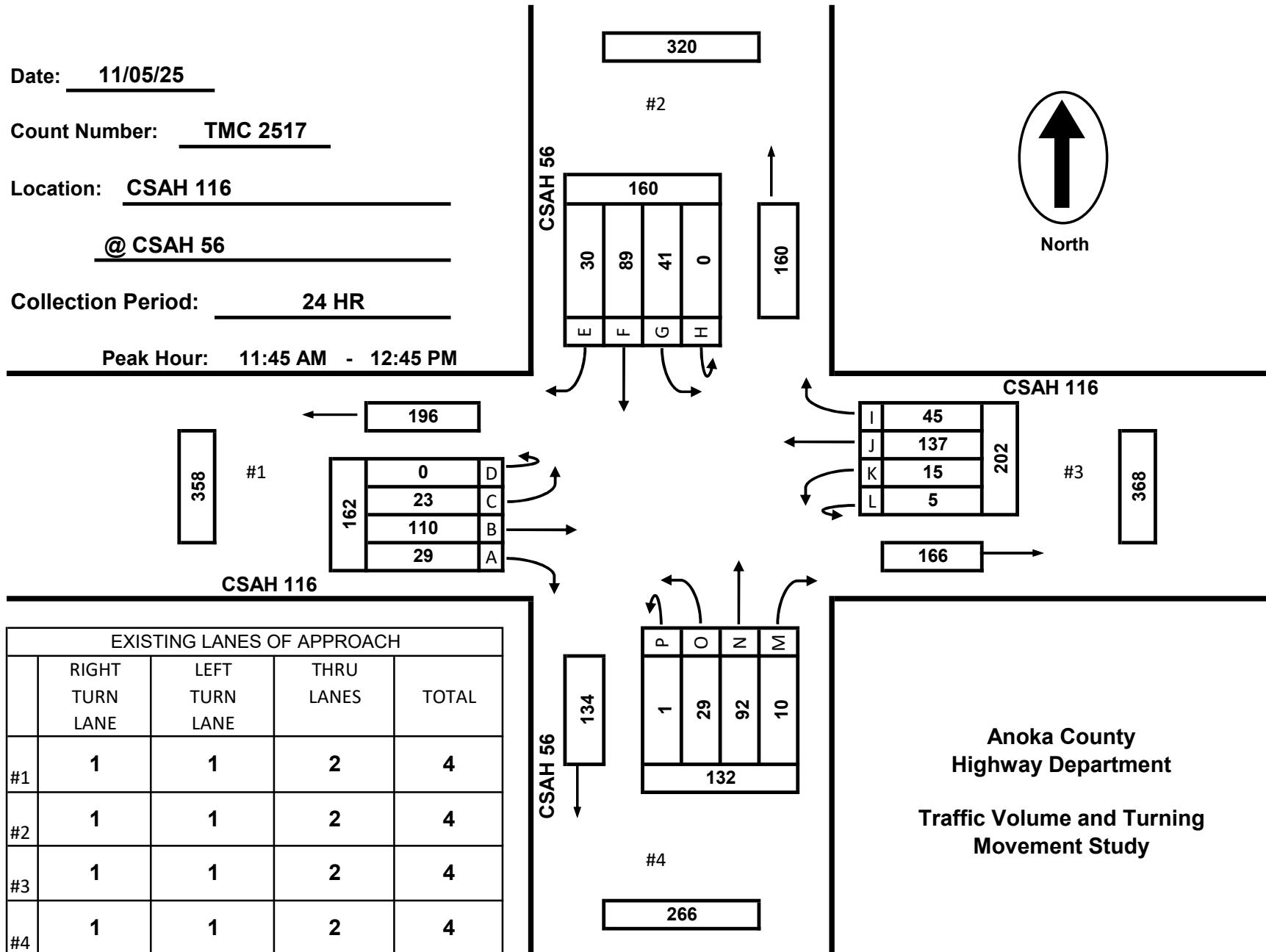
Count Number: TMC 2517

Location: CSAH 116

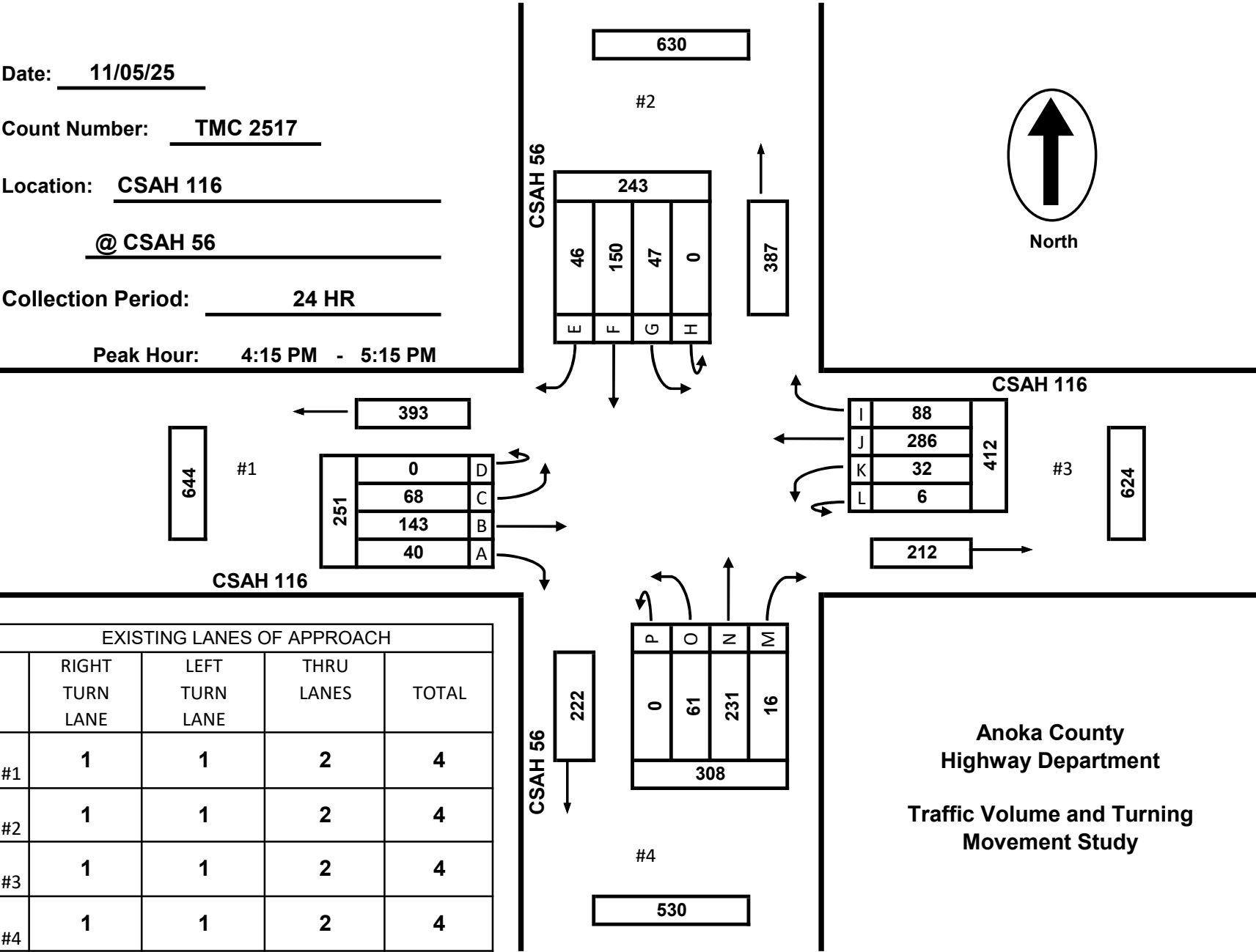
@ CSAH 56

Collection Period: 24 HR

Peak Hour: 11:45 AM - 12:45 PM



Date: 11/05/25
 Count Number: TMC 2517
 Location: CSAH 116
@ CSAH 56
 Collection Period: 24 HR
 Peak Hour: 4:15 PM - 5:15 PM



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

Anoka County
Highway Department
Traffic Volume and Turning
Movement Study

TMC 2517 - CSAH 116 @ CSAH 56
Ramsey MN
Wednesday, November 5, 2025

Time	Southbound CSAH 56						Westbound CSAH 116						Northbound CSAH 56						Eastbound CSAH 116						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	
12:00 AM	0	0	0	0	0	0	0	0	3	3	0	6	0	1	2	0	0	3	0	0	2	1	0	3	12
12:15 AM	0	0	2	0	0	2	0	0	1	0	0	1	0	3	3	0	0	6	0	1	0	0	0	1	10
12:30 AM	0	0	0	1	0	1	0	0	1	0	0	1	0	1	2	0	0	3	0	0	0	0	0	0	5
12:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	1	0	0	0	0	0	0	2
Hourly Total	0	0	2	1	0	3	0	0	5	4	0	9	0	5	8	0	0	13	0	1	2	1	0	4	29
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	2
1:15 AM	0	0	3	0	0	3	0	0	1	1	0	2	0	2	3	0	0	5	0	0	0	0	0	0	10
1:30 AM	0	0	0	1	0	1	0	0	2	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	4
1:45 AM	0	0	1	0	0	1	0	0	3	0	0	3	0	1	2	0	0	3	0	0	0	0	0	0	7
Hourly Total	0	0	4	1	0	5	0	0	6	1	0	7	0	5	6	0	0	11	0	0	0	0	0	0	23
2:00 AM	0	0	2	0	0	2	0	1	6	1	0	8	0	0	0	0	0	0	0	0	0	0	0	0	10
2:15 AM	0	0	2	0	0	2	0	0	1	0	0	1	0	1	0	0	0	1	0	0	1	0	0	1	5
2:30 AM	0	2	1	0	0	3	0	1	2	1	0	4	0	1	1	0	0	2	0	0	2	1	0	3	12
2:45 AM	0	1	3	0	0	4	0	0	3	0	0	3	0	0	2	0	0	2	0	0	0	0	0	0	9
Hourly Total	0	3	8	0	0	11	0	2	12	2	0	16	0	2	3	0	0	5	0	0	3	1	0	4	36
3:00 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3:15 AM	0	0	5	1	0	6	0	0	1	1	0	2	0	0	0	0	0	0	0	1	1	0	0	2	10
3:30 AM	0	1	4	0	0	5	0	0	1	0	0	1	0	0	1	0	0	1	0	0	2	1	0	3	10
3:45 AM	0	0	9	0	0	9	0	0	3	0	0	3	0	0	3	0	0	3	0	0	5	0	0	5	20
Hourly Total	0	1	20	1	0	22	0	0	5	1	0	6	0	0	4	0	0	4	0	1	8	1	0	10	42
4:00 AM	0	4	7	0	0	11	0	1	0	1	0	2	0	0	2	0	0	2	0	0	2	0	0	2	17
4:15 AM	0	1	13	1	0	15	0	0	1	1	0	2	0	0	0	0	0	0	0	1	4	6	0	11	28
4:30 AM	0	5	13	1	0	19	0	0	2	0	0	2	0	0	1	0	0	1	0	0	10	1	0	11	33
4:45 AM	0	4	15	1	0	20	0	0	2	1	0	3	0	0	0	0	0	0	0	1	16	3	0	20	43
Hourly Total	0	14	48	3	0	65	0	1	5	3	0	9	0	0	3	0	0	3	0	2	32	10	0	44	121
5:00 AM	0	7	27	0	0	34	0	0	2	1	0	3	0	1	3	1	0	5	0	1	11	2	0	14	56
5:15 AM	0	6	22	2	0	30	0	1	6	0	0	7	0	1	3	1	0	5	0	0	18	4	0	22	64
5:30 AM	0	17	29	2	0	48	0	1	9	0	0	10	0	1	5	0	0	6	0	2	23	4	0	29	93
5:45 AM	0	21	33	2	0	56	0	0	7	4	0	11	0	1	7	0	0	8	0	0	32	11	0	43	118
Hourly Total	0	51	111	6	0	168	0	2	24	5	0	31	0	4	18	2	0	24	0	3	84	21	0	108	331
6:00 AM	0	13	52	3	0	68	0	3	10	1	0	14	0	2	6	0	0	8	0	3	15	6	0	24	114
6:15 AM	0	7	57	4	0	68	0	3	14	3	0	20	0	5	11	1	0	17	0	3	28	11	0	42	147
6:30 AM	0	18	67	2	0	87	2	7	20	1	0	30	0	1	10	1	0	12	0	2	27	4	0	33	162
6:45 AM	0	27	58	5	0	90	0	6	22	3	0	31	0	3	17	1	0	21	0	4	62	9	1	75	217
Hourly Total	0	65	234	14	0	313	2	19	66	8	0	95	0	11	44	3	0	58	0	12	132	30	1	174	640
7:00 AM	0	42	76	6	0	124	1	3	15	3	0	22	0	6	16	2	0	24	0	7	71	14	0	92	262
7:15 AM	1	30	73	14	0	118	0	8	29	13	0	50	0	2	26	1	0	29	0	10	63	12	0	85	282
7:30 AM	0	26	102	14	0	142	1	4	38	28	0	71	0	7	21	1	0	29	0	12	46	8	0	66	308
7:45 AM	0	26	128	11	0	165	1	7	32	19	0	59	0	4	28	3	0	35	0	14	50	20	0	84	343
Hourly Total	1	124	379	45	0	549	3	22	114	63	0	202	0	19	91	7	0	117	0	43	230	54	0	327	1195

TMC 2517 - CSAH 116 @ CSAH 56
Ramsey MN
Wednesday, November 5, 2025

Time	Southbound CSAH 56						Westbound CSAH 116						Northbound CSAH 56						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	18	74	3	0	95	3	5	31	6	0	45	0	5	29	4	0	38	0	13	55	5	0	73	251
8:15 AM	0	11	37	7	0	55	0	6	29	3	0	38	1	9	27	1	0	38	1	10	28	9	0	48	179
8:30 AM	0	15	40	3	0	58	2	6	15	3	0	26	0	7	18	1	0	26	0	7	37	8	1	52	162
8:45 AM	0	6	20	4	1	30	3	5	31	6	0	45	1	4	12	6	0	23	0	6	23	8	0	37	135
Hourly Total	0	50	171	17	1	238	8	22	106	18	0	154	2	25	86	12	0	125	1	36	143	30	1	210	727
9:00 AM	1	9	39	1	0	50	0	2	13	8	0	23	0	3	29	0	0	32	0	9	30	11	0	50	155
9:15 AM	0	8	38	10	0	56	0	3	30	10	0	43	0	3	17	2	0	22	0	13	29	13	0	55	176
9:30 AM	0	12	39	8	0	59	0	4	21	9	0	34	1	4	23	3	0	31	0	10	25	4	0	39	163
9:45 AM	0	7	24	3	0	34	1	2	14	11	0	28	1	5	22	3	0	31	0	4	27	3	0	34	127
Hourly Total	1	36	140	22	0	199	1	11	78	38	0	128	2	15	91	8	0	116	0	36	111	31	0	178	621
10:00 AM	0	8	29	2	0	39	0	1	20	4	0	25	0	7	15	1	0	23	0	3	15	8	0	26	113
10:15 AM	0	5	18	3	0	26	0	5	18	6	0	29	0	5	27	2	0	34	0	7	23	8	1	38	127
10:30 AM	0	9	26	6	0	41	0	5	20	3	0	28	0	8	22	2	0	32	1	0	23	8	0	32	133
10:45 AM	0	10	35	6	0	51	0	4	30	10	0	44	0	6	12	5	0	23	0	3	23	4	0	30	148
Hourly Total	0	32	108	17	0	157	0	15	88	23	0	126	0	26	76	10	0	112	1	13	84	28	1	126	521
11:00 AM	0	6	22	3	0	31	0	6	27	10	0	43	0	7	22	2	0	31	0	10	20	2	0	32	137
11:15 AM	0	10	31	5	0	46	0	1	22	16	0	39	1	4	21	7	0	33	0	6	15	7	1	28	146
11:30 AM	0	15	30	6	0	51	0	5	37	8	0	50	0	6	22	3	1	31	0	8	17	4	0	29	161
11:45 AM	0	10	19	6	0	35	1	3	33	11	0	48	0	8	24	2	0	34	0	3	20	9	0	32	149
Hourly Total	0	41	102	20	0	163	1	15	119	45	0	180	1	25	89	14	1	129	0	27	72	22	1	121	593
12:00 PM	0	11	18	6	0	35	0	2	34	9	0	45	1	9	19	3	0	32	0	8	35	7	1	50	162
12:15 PM	0	9	29	8	0	46	0	7	36	13	0	56	0	5	22	3	0	30	0	5	29	7	0	41	173
12:30 PM	0	11	23	10	0	44	4	3	34	12	0	53	0	7	27	2	0	36	0	7	26	6	0	39	172
12:45 PM	0	4	25	8	0	37	0	4	21	7	0	32	0	3	31	1	0	35	0	5	24	7	0	36	140
Hourly Total	0	35	95	32	0	162	4	16	125	41	0	186	1	24	99	9	0	133	0	25	114	27	1	166	647
1:00 PM	0	6	28	6	1	40	0	2	34	8	0	44	0	5	33	1	0	39	0	3	22	8	0	33	156
1:15 PM	0	8	32	11	0	51	0	4	23	13	0	40	0	9	29	4	0	42	0	4	27	2	0	33	166
1:30 PM	0	10	18	3	1	31	0	0	25	7	0	32	0	4	19	2	0	25	0	17	31	7	0	55	143
1:45 PM	0	7	31	8	0	46	0	2	27	11	0	40	0	3	34	1	0	38	0	12	30	5	0	47	171
Hourly Total	0	31	109	28	2	168	0	8	109	39	0	156	0	21	115	8	0	144	0	36	110	22	0	168	636
2:00 PM	0	16	29	1	0	46	1	3	27	11	0	42	0	7	40	5	0	52	0	12	26	6	1	44	184
2:15 PM	1	11	24	8	0	44	0	2	45	29	0	76	0	8	49	3	0	60	0	14	36	9	0	59	239
2:30 PM	0	11	34	9	0	54	1	2	35	21	0	59	0	9	45	3	0	57	0	6	30	4	0	40	210
2:45 PM	0	12	30	11	1	53	0	5	41	19	0	65	2	8	45	2	0	57	0	12	22	3	1	37	212
Hourly Total	1	50	117	29	1	197	2	12	148	80	0	242	2	32	179	13	0	226	0	44	114	22	2	180	845
3:00 PM	0	19	44	12	0	75	0	4	40	17	0	61	0	6	45	3	1	54	0	14	23	8	0	45	235
3:15 PM	0	22	63	7	3	92	0	4	49	18	0	71	0	10	53	5	0	68	0	22	32	6	0	60	291
3:30 PM	0	9	36	6	0	51	1	9	85	33	0	128	0	9	73	0	0	82	0	19	37	2	0	58	319
3:45 PM	0	14	31	5	0	50	1	6	75	36	0	118	0	5	57	2	2	64	0	15	29	7	1	51	283
Hourly Total	0	64	174	30	3	268	2	23	249	104	0	378	0	30	228	10	3	268	0	70	121	23	1	214	1128

TMC 2517 - CSAH 116 @ CSAH 56
Ramsey MN
Wednesday, November 5, 2025

Time	Southbound CSAH 56						Westbound CSAH 116						Northbound CSAH 56						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	9	33	16	0	58	2	6	62	23	0	93	0	13	63	3	0	79	0	19	22	9	0	50	280
4:15 PM	0	6	49	6	0	61	1	10	64	24	0	99	0	13	53	3	0	69	0	13	22	5	0	40	269
4:30 PM	0	13	34	15	0	62	3	7	79	23	0	112	0	15	55	1	2	71	0	19	42	15	0	76	321
4:45 PM	0	11	34	13	0	58	1	6	72	25	0	104	0	16	49	6	0	71	0	16	33	13	0	62	295
Hourly Total	0	39	150	50	0	239	7	29	277	95	0	408	0	57	220	13	2	290	0	67	119	42	0	228	1165
5:00 PM	0	17	33	12	0	62	1	9	71	16	0	97	0	17	74	6	0	97	0	20	46	7	0	73	329
5:15 PM	0	4	32	6	0	42	3	4	46	27	0	80	1	14	49	4	0	68	0	17	24	6	0	47	237
5:30 PM	0	10	43	7	0	60	1	4	62	10	0	77	0	14	59	1	0	74	0	10	34	9	0	53	264
5:45 PM	0	7	27	11	0	45	2	3	52	9	0	66	0	8	48	2	0	58	0	10	33	2	0	45	214
Hourly Total	0	38	135	36	0	209	7	20	231	62	0	320	1	53	230	13	0	297	0	57	137	24	0	218	1044
6:00 PM	0	4	39	7	0	50	2	4	38	13	0	57	0	3	44	3	0	50	0	7	24	5	0	36	193
6:15 PM	0	5	38	5	0	48	0	5	29	18	0	52	0	6	37	2	0	45	0	13	21	10	0	44	189
6:30 PM	0	5	34	6	0	45	0	3	40	12	0	55	0	8	49	3	0	60	0	8	17	8	0	33	193
6:45 PM	1	7	31	7	0	46	0	2	25	9	0	36	0	8	29	2	0	39	0	6	19	5	0	30	151
Hourly Total	1	21	142	25	0	189	2	14	132	52	0	200	0	25	159	10	0	194	0	34	81	28	0	143	726
7:00 PM	0	6	13	3	0	22	0	1	18	10	0	29	0	13	28	0	0	41	0	9	27	4	0	40	132
7:15 PM	0	7	16	4	0	27	0	0	18	4	0	22	0	5	25	2	0	32	0	7	16	6	0	29	110
7:30 PM	0	9	11	3	0	23	0	1	23	4	0	28	0	16	26	2	0	44	0	7	10	5	0	22	117
7:45 PM	0	3	15	3	0	21	0	1	29	5	0	35	0	6	34	0	0	40	0	4	8	6	0	18	114
Hourly Total	0	25	55	13	0	93	0	3	88	23	0	114	0	40	113	4	0	157	0	27	61	21	0	109	473
8:00 PM	0	4	15	3	0	22	0	2	16	8	0	26	0	4	28	2	0	34	0	5	23	3	0	31	113
8:15 PM	0	6	14	6	0	26	0	1	14	7	0	22	0	6	19	0	0	25	0	8	18	1	0	27	100
8:30 PM	0	5	14	3	0	22	0	1	11	12	0	24	0	13	24	5	0	42	0	3	12	3	0	18	106
8:45 PM	0	2	9	2	0	13	0	1	21	5	0	27	0	5	28	0	0	33	0	2	11	0	0	13	86
Hourly Total	0	17	52	14	0	83	0	5	62	32	0	99	0	28	99	7	0	134	0	18	64	7	0	89	405
9:00 PM	0	2	5	1	0	8	0	1	17	9	0	27	0	4	17	1	0	22	0	7	21	1	0	29	86
9:15 PM	0	3	4	0	0	7	0	0	14	11	0	25	0	11	21	0	0	32	0	3	11	1	0	15	79
9:30 PM	0	0	13	1	0	14	0	0	13	5	0	18	0	8	13	2	0	23	0	2	8	1	0	11	66
9:45 PM	0	3	6	0	0	9	0	1	8	0	0	9	0	7	7	1	0	15	0	1	3	1	0	5	38
Hourly Total	0	8	28	2	0	38	0	2	52	25	0	79	0	30	58	4	0	92	0	13	43	4	0	60	269
10:00 PM	0	3	5	0	0	8	0	1	8	3	0	12	0	0	8	0	0	8	0	0	7	2	0	9	37
10:15 PM	0	1	5	0	0	6	0	1	6	4	0	11	0	2	9	1	0	12	0	2	10	0	0	12	41
10:30 PM	0	0	2	1	0	3	0	0	3	2	0	5	0	1	10	0	0	11	0	0	2	0	0	2	21
10:45 PM	0	0	2	0	0	2	0	1	6	3	0	10	0	1	8	3	0	12	0	0	8	0	0	8	32
Hourly Total	0	4	14	1	0	19	0	3	23	12	0	38	0	4	35	4	0	43	0	2	27	2	0	31	131
11:00 PM	0	0	2	0	0	2	0	0	2	3	0	5	0	3	7	0	0	10	0	0	1	1	0	2	19
11:15 PM	0	0	1	0	0	1	0	0	4	3	0	7	0	2	4	0	0	6	0	0	3	0	0	3	17
11:30 PM	0	0	1	3	0	4	0	0	4	1	0	5	0	1	5	0	0	6	0	0	1	0	0	1	16
11:45 PM	0	0	4	0	0	4	0	0	5	0	0	5	0	4	4	0	0	8	0	0	0	1	0	1	18
Hourly Total	0	0	8	3	0	11	0	0	15	7	0	22	0	10	20	0	0	30	0	0	5	2	0	7	70
DAILY TOTAL	4	749	2406	410	7	3569	39	244	2139	783	0	3205	9	491	2074	151	6	2725	2	567	1897	453	8	2919	12418
Cars	4	727	2347	403	7	3481	39	239	2067	754	0	3099	9	459	2033	140	6	2641	2	554	1820	428	7	2804	12025
Heavy Vehicles	0	22	59	7	0	88	0	5	72	29	0	106	0	32	41	11	0	84	0	13	77	25	1	115	393
Heavy Vehicle %	0.00%	2.94%	2.45%	1.71%	0.00%	2.47%	0.00%	2.05%	3.37%	3.70%	0.00%	3.31%	0.00%	6.52%	1.98%	7.28%	0.00%	3.08%	0.00%	2.29%	4.06%	5.52%	12.50%	3.94%	3.16%

TMC 2517 - CSAH 116 @ CSAH 56
Ramsey MN
Wednesday, November 5, 2025
AM Peak Hour (00:00 to 10:00)

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	42	76	6	0	124	1	3	15	3	0	22	0	6	16	2	0	24	0	7	71	14	0	92	262
7:15 AM	1	30	73	14	0	118	0	8	29	13	0	50	0	2	26	1	0	29	0	10	63	12	0	85	282
7:30 AM	0	26	102	14	0	142	1	4	38	28	0	71	0	7	21	1	0	29	0	12	46	8	0	66	308
7:45 AM	0	26	128	11	0	165	1	7	32	19	0	59	0	4	28	3	0	35	0	14	50	20	0	84	343
Peak Hour Total	1	124	379	45	0	549	3	22	114	63	0	202	0	19	91	7	0	117	0	43	230	54	0	327	1195
Peak Hour Heavy Vehicles	0	4	14	1	0	19	0	0	12	6	0	18	0	3	5	0	0	8	0	3	11	3	0	17	62
Peak Hour Heavy Vehicles %	0.00%	3.23%	3.69%	2.22%	0.00%	3.46%	0.00%	0.00%	10.53%	9.52%	0.00%	8.91%	0.00%	15.79%	5.49%	0.00%	0.00%	6.84%	0.00%	6.98%	4.78%	5.56%	0.00%	5.20%	5.19%
PHF	0.250	0.738	0.740	0.804	0.000	0.832	0.750	0.688	0.750	0.563	0.000	0.711	0.000	0.679	0.813	0.583	0.000	0.836	0.000	0.768	0.810	0.675	0.000	0.889	0.871

Mid Peak Hour (10:00 - 14:00)

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	
11:45 AM	0	10	19	6	0	35	1	3	33	11	0	48	0	8	24	2	0	34	0	3	20	9	0	32	149
12:00 PM	0	11	18	6	0	35	0	2	34	9	0	45	1	9	19	3	0	32	0	8	35	7	1	50	162
12:15 PM	0	9	29	8	0	46	0	7	36	13	0	56	0	5	22	3	0	30	0	5	29	7	0	41	173
12:30 PM	0	11	23	10	0	44	4	3	34	12	0	53	0	7	27	2	0	36	0	7	26	6	0	39	172
Peak Hour Total	0	41	89	30	0	160	5	15	137	45	0	202	1	29	92	10	0	132	0	23	110	29	1	162	656
Peak Hour Heavy Vehicles	0	1	4	0	0	5	0	0	11	2	0	13	0	3	2	0	0	5	0	0	10	2	0	12	35
Peak Hour Heavy Vehicles %	0.00%	2.44%	4.49%	0.00%	0.00%	3.13%	0.00%	0.00%	8.03%	4.44%	0.00%	6.44%	0.00%	10.34%	2.17%	0.00%	0.00%	3.79%	0.00%	0.00%	9.09%	6.90%	0.00%	7.41%	5.34%
PHF	0.000	0.932	0.767	0.750	0.000	0.870	0.313	0.536	0.951	0.865	0.000	0.902	0.250	0.806	0.852	0.833	0.000	0.917	0.000	0.719	0.786	0.806	0.250	0.810	0.948

PM Peak Hour (14:00 - 24:00)

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
4:15 PM	0	6	49	6	0	61	1	10	64	24	0	99	0	13	53	3	0	69	0	13	22	5	0	40	269
4:30 PM	0	13	34	15	0	62	3	7	79	23	0	112	0	15	55	1	2	71	0	19	42	15	0	76	321
4:45 PM	0	11	34	13	0	58	1	6	72	25	0	104	0	16	49	6	0	71	0	16	33	13	0	62	295
5:00 PM	0	17	33	12	0	62	1	9	71	16	0	97	0	17	74	6	0	97	0	20	46	7	0	73	329
Peak Hour Total	0	47	150	46	0	243	6	32	286	88	0	412	0	61	231	16	2	308	0	68	143	40	0	251	1214
Peak Hour Heavy Vehicles	0	1	8	2	0	11	0	0	4	1	0	5	0	0	0	1	0	1	0	0	6	4	0	10	27
Peak Hour Heavy Vehicles %	0.00%	2.13%	5.33%	4.35%	0.00%	4.53%	0.00%	0.00%	1.40%	1.14%	0.00%	1.21%	0.00%	0.00%	0.00%	6.25%	0.00%	0.32%	0.00%	0.00%	4.20%	10.00%	0.00%	3.98%	2.22%
PHF	0.000	0.691	0.765	0.767	0.000	0.980	0.500	0.800	0.905	0.880	0.000	0.920	0.000	0.897	0.780	0.667	0.250	0.794	0.000	0.850	0.777	0.667	0.000	0.826	0.922

Total Vehicles On Leg			6997		
Vehicles Entering Intersection 3569			Vehicles Exiting Intersection 3428		
Southbound					
Cars	403	2347	727	4	7
Heavy	7	59	22	0	0
Total	410	2406	749	4	7



Total Vehicles on Leg 5961	Vehicles Entering Intersection 2919	Eastbound	Cars	Heavy	Total
			7	1	8
			2	0	2
	554		13	567	
	1820		77	1897	
	428		25	453	
Vehicles Exiting Intersection 3042					



Daily Volumes

Cars	754	29	783
Heavy	2067	72	2139
Total	239	5	244
	39	0	39
	0	0	0

Westbound

Vehicles Entering Intersection 3205

Total Vehicles on Leg 6041

Vehicles Exiting Intersection 2836



Cars	6	9	459	2033	140
Heavy	0	0	32	41	11
Total	6	9	491	2074	151
Northbound					
Vehicles Entering Intersection 2725			Vehicles Exiting Intersection 3112		
Total Vehicles On Leg			5837		

TMC 2517 - CSAH 116 @ CSAH 56
Ramsey MN
Wednesday, November 5, 2025

Time	Southbound Heavy CSAH 56						Westbound Heavy CSAH 116						Northbound Heavy CSAH 56						Eastbound Heavy 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	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
12:30 AM	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
12:45 AM	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
Hourly 'Heavy Vehicles'	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
1:00 AM	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
1:15 AM	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
1:30 AM	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
1:45 AM	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
Hourly 'Heavy Vehicles'	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
2:00 AM	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
2:15 AM	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
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
2:45 AM	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
Hourly 'Heavy Vehicles'	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
3:00 AM	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
3:15 AM	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
3:30 AM	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
3:45 AM	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
Hourly 'Heavy Vehicles'	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
4:00 AM	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
4:15 AM	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
4:30 AM	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
4:45 AM	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
Hourly 'Heavy Vehicles'	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
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
5:15 AM	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
5:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 AM	0	0	1	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Hourly 'Heavy Vehicles'	0	0	1	0	0	1	0	0	1	1	0	2	0	0	1	0	0	1	0	0	0	0	0	0	4
6:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 AM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
6:30 AM	0	0	1	0	0	1	0	0	3	0	0	3	0	1	0	0	0	1	0	0	2	0	0	2	7
6:45 AM	0	1	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	3	0	0	3	6
Hourly 'Heavy Vehicles'	0	1	2	0	0	3	0	0	5	1	0	6	0	1	1	0	0	2	0	0	5	0	0	5	16
7:00 AM	0	3	0	0	0	3	0	0	1	0	0	1	0	1	0	0	0	1	0	1	4	0	0	5	10
7:15 AM	0	0	0	1	0	1	0	0	3	1	0	4	0	0	0	0	0	0	0	0	3	1	0	4	9
7:30 AM	0	0	1	0	0	1	0	0	6	2	0	8	0	0	2	0	0	2	0	0	3	0	0	3	14
7:45 AM	0	1	13	0	0	14	0	0	2	3	0	5	0	2	3	0	0	5	0	2	1	2	0	5	29
Hourly 'Heavy Vehicles'	0	4	14	1	0	19	0	0	12	6	0	18	0	3	5	0	0	8	0	3	11	3	0	17	62

**TMC 2517 - CSAH 116 @ CSAH 56
Ramsey MN
Wednesday, November 5, 2025**

Time	Southbound Heavy CSAH 56						Westbound Heavy CSAH 116						Northbound Heavy CSAH 56						Eastbound Heavy CSAH 116						VEHICLE 'Heavy Vehicles'
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach 'Heavy Vehicles'</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach 'Heavy Vehicles'</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach 'Heavy Vehicles'</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach 'Heavy Vehicles'</i>	
8:00 AM	0	1	1	0	0	2	0	0	4	1	0	5	0	0	4	0	0	4	0	0	3	0	0	3	14
8:15 AM	0	0	1	0	0	1	0	0	3	0	0	3	0	1	5	0	0	6	0	0	1	0	0	1	11
8:30 AM	0	0	2	0	0	2	0	2	2	0	0	4	0	3	1	0	0	4	0	0	2	1	0	3	13
8:45 AM	0	0	0	0	0	0	0	1	4	0	0	5	0	1	1	3	0	5	0	1	2	1	0	4	14
Hourly 'Heavy Vehicles'	0	1	4	0	0	5	0	3	13	1	0	17	0	5	11	3	0	19	0	1	8	2	0	11	52
9:00 AM	0	1	1	0	0	2	0	0	2	0	0	2	0	0	3	0	0	3	0	1	5	2	0	8	15
9:15 AM	0	0	1	0	0	1	0	1	2	0	0	3	0	2	0	0	0	2	0	1	2	0	0	3	9
9:30 AM	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	1	1	1	0	3	6
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	1	3	1	0	5	8
Hourly 'Heavy Vehicles'	0	1	3	0	0	4	0	1	5	0	0	6	0	4	5	0	0	9	0	4	11	4	0	19	38
10:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	3
10:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1	2
10:30 AM	0	0	1	0	0	1	0	0	1	0	0	1	0	1	0	0	0	1	0	0	1	0	0	1	4
10:45 AM	0	1	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Hourly 'Heavy Vehicles'	0	1	2	0	0	3	0	0	3	0	0	3	0	2	1	0	0	3	0	0	2	0	1	2	11
11:00 AM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	3
11:30 AM	0	2	1	0	0	3	0	0	5	0	0	5	0	0	1	1	0	2	0	0	0	0	0	0	10
11:45 AM	0	1	1	0	0	2	0	0	1	0	0	1	0	2	2	0	0	4	0	0	1	1	0	2	9
Hourly 'Heavy Vehicles'	0	3	2	0	0	5	0	0	7	1	0	8	0	2	3	1	0	6	0	1	3	1	0	5	24
12:00 PM	0	0	1	0	0	1	0	0	3	0	0	3	0	1	0	0	0	1	0	0	3	1	0	4	9
12:15 PM	0	0	1	0	0	1	0	0	6	1	0	7	0	0	0	0	0	0	0	0	3	0	0	3	11
12:30 PM	0	0	1	0	0	1	0	0	1	1	0	2	0	0	0	0	0	0	0	0	3	0	0	3	6
12:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	2	3	1	0	6	0	1	2	0	0	3	10
Hourly 'Heavy Vehicles'	0	0	3	0	0	3	0	0	11	2	0	13	0	3	3	1	0	7	0	1	11	1	0	13	36
1:00 PM	0	0	0	1	0	1	0	0	2	0	0	2	0	0	0	1	0	1	0	0	0	1	0	1	5
1:15 PM	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	4
1:30 PM	0	0	0	0	0	0	0	0	2	2	0	4	0	2	0	0	0	2	0	0	1	1	0	2	8
1:45 PM	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	3
Hourly 'Heavy Vehicles'	0	0	1	2	0	3	0	0	5	3	0	8	0	2	0	2	0	4	0	0	3	2	0	5	20
2:00 PM	0	1	0	0	0	1	0	0	1	1	0	2	0	0	1	2	0	3	0	1	1	2	0	4	10
2:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0	2	0	1	3	1	0	5	8
2:30 PM	0	1	1	0	0	2	0	1	2	5	0	8	0	2	1	1	0	4	0	0	4	0	0	4	18
2:45 PM	0	3	1	0	0	4	0	0	0	2	0	2	0	1	0	0	0	1	0	0	1	0	0	1	8
Hourly 'Heavy Vehicles'	0	5	2	0	0	7	0	1	4	8	0	13	0	4	3	3	0	10	0	2	9	3	0	14	44
3:00 PM	0	2	0	0	0	2	0	0	1	1	0	2	0	1	1	0	0	2	0	0	1	1	0	2	8
3:15 PM	0	0	14	0	0	14	0	0	0	0	0	2	0	2	0	0	0	2	0	0	1	0	0	1	17
3:30 PM	0	2	0	0	0	2	0	0	0	3	0	3	0	0	6	0	0	6	0	0	0	0	0	0	11
3:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4	5
Hourly 'Heavy Vehicles'	0	4	15	0	0	19	0	0	1	4	0	5	0	3	7	0	0	10	0	0	5	2	0	7	41

TMC 2517 - CSAH 116 @ CSAH 56
Ramsey MN
Wednesday, November 5, 2025

Time	Southbound Heavy CSAH 56						Westbound Heavy CSAH 116						Northbound Heavy CSAH 56						Eastbound Heavy CSAH 116						VEHICLE 'Heavy Vehicles'
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach 'Heavy Vehicles'	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach 'Heavy Vehicles'	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach 'Heavy Vehicles'	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach 'Heavy Vehicles'	
4:00 PM	0	0	1	2	0	3	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	1	6
4:15 PM	0	0	1	0	0	1	0	0	3	1	0	4	0	0	0	0	0	0	0	0	0	3	1	0	9
4:30 PM	0	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3	6
4:45 PM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	7
Hourly 'Heavy Vehicles'	0	1	8	2	0	11	0	0	4	2	0	6	0	0	0	0	0	0	0	0	6	5	0	11	28
5:00 PM	0	0	1	2	0	3	0	0	1	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	5
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	1	0	2	3
5:30 PM	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
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	3
Hourly 'Heavy Vehicles'	0	1	1	2	0	4	0	0	1	0	0	1	0	1	1	1	0	3	0	1	1	1	0	3	11
6:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
6:30 PM	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
6:45 PM	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
Hourly 'Heavy Vehicles'	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2
7:15 PM	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
7:30 PM	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
7:45 PM	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
Hourly 'Heavy Vehicles'	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2
8:00 PM	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
8:15 PM	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
8:30 PM	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
8:45 PM	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
Hourly 'Heavy Vehicles'	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
9:00 PM	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
9:15 PM	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
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
9:45 PM	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
Hourly 'Heavy Vehicles'	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
10:00 PM	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
10:15 PM	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
10:30 PM	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
10:45 PM	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
Hourly 'Heavy Vehicles'	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
11:00 PM	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
11:15 PM	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
11:30 PM	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
11:45 PM	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
Hourly 'Heavy Vehicles'	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
DAILY 'Heavy Vehicles'	0	22	59	7	0	88	0	5	72	29	0	106	0	32	41	11	0	84	0	13	77	25	1	115	393

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

TMC	2517
Date	11/05/2025
Intersection Geometrics	Signal

Intersection Information			
Major Street (N/S Road)	CSAH 56	Minor Street (E/W Road)	CSAH 116
Analyzed with	2 or more approach lanes	Analyzed with	2 or more approach lanes
Total Approach Volume	6294 vehicles	Total Approach Volume	4888 vehicles
Total Ped/Bike Volume	13 crossings	Total Ped/Bike Volume	8 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	100% applied for EB/WB

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	5 hours	1 hour	8 (Cond. A) & 4 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor Street (veh/hr)	140	70	112 (Cond. A) & 56 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Satisfied
Required values reached for	4 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Examined	Satisfied
Required values reached for		1 hour
Criteria - Total Approach Volume (veh in one hour)		See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)		
Criteria - Minor Street High Side Delay (veh-hrs)		

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)

