

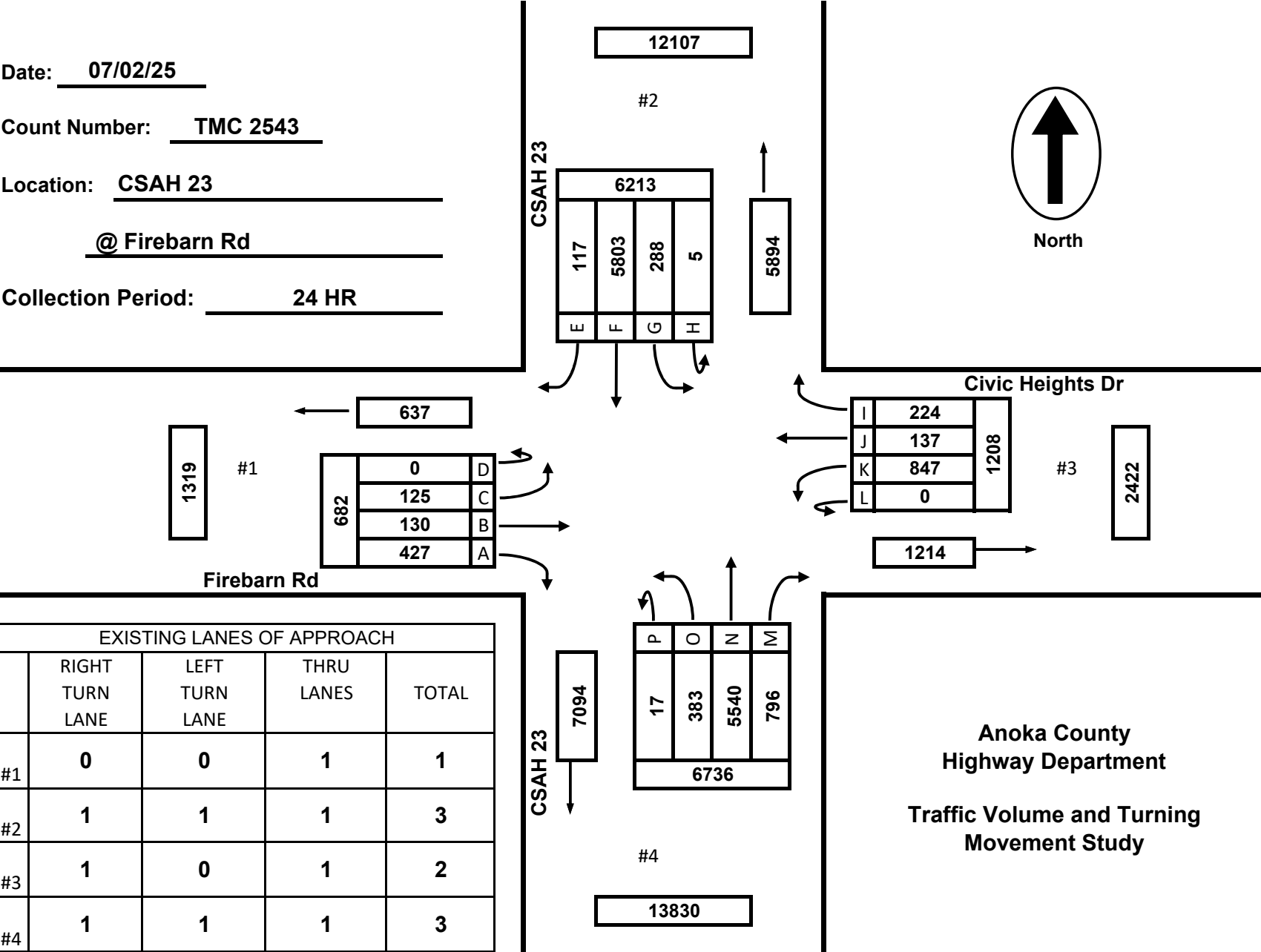
Date: 07/02/25

Count Number: TMC 2543

Location: CSAH 23

@ Firebarn Rd

Collection Period: 24 HR



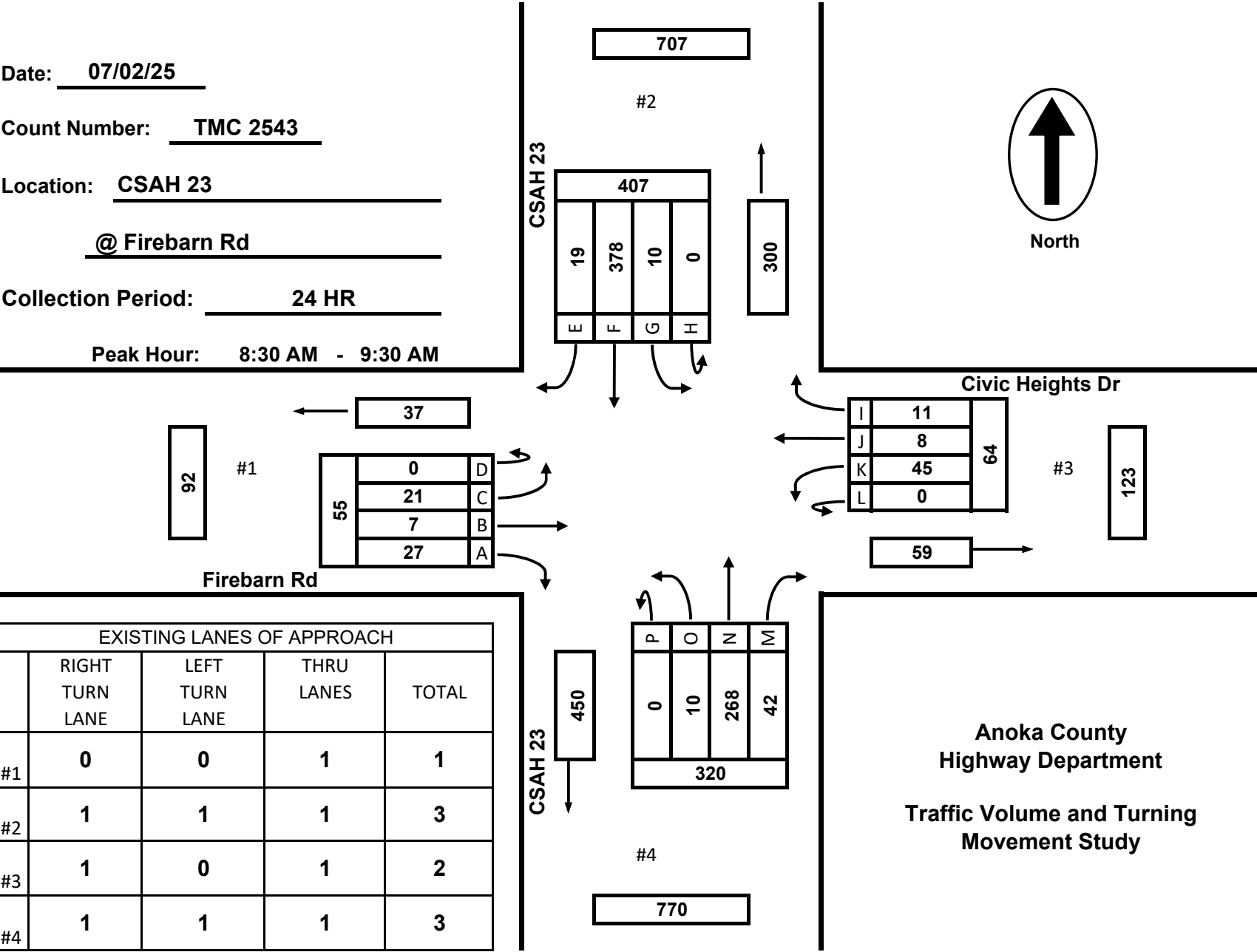
Date: 07/02/25

Count Number: TMC 2543

Location: CSAH 23
@ Firebarn Rd

Collection Period: 24 HR

Peak Hour: 8:30 AM - 9:30 AM



Date: 07/02/25

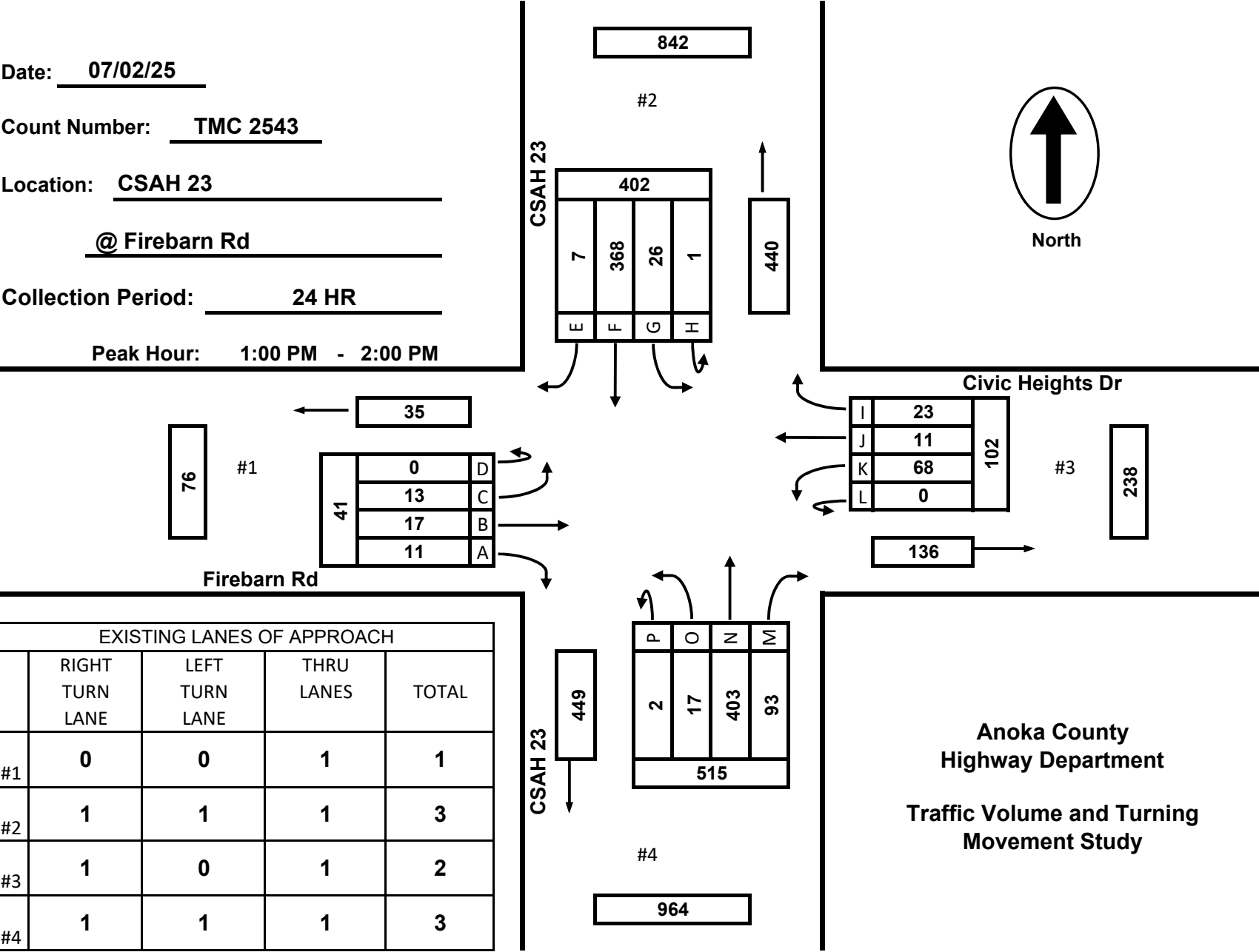
Count Number: TMC 2543

Location: CSAH 23

@ Firebarn Rd

Collection Period: 24 HR

Peak Hour: 1:00 PM - 2:00 PM



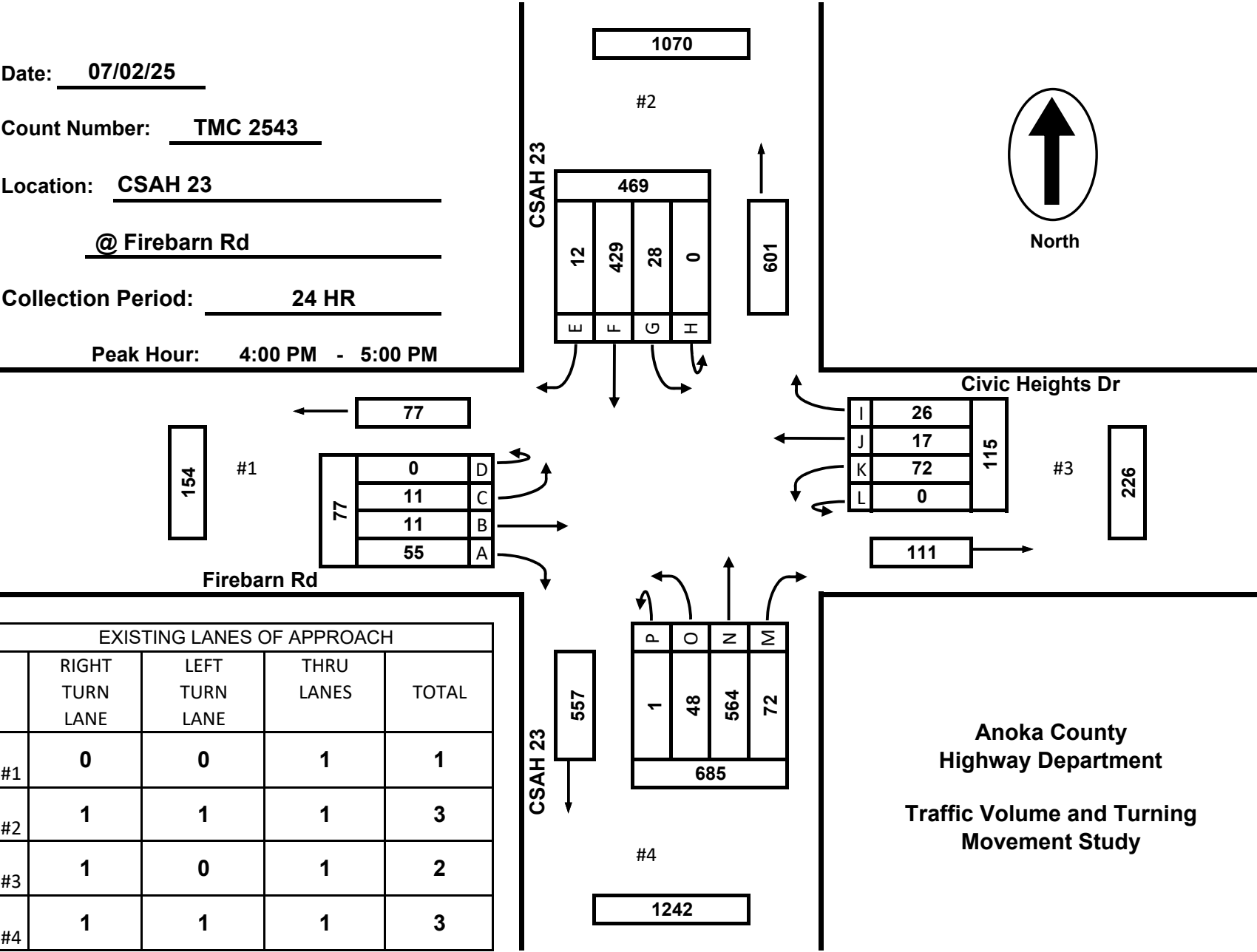
Date: 07/02/25

Count Number: TMC 2543

Location: CSAH 23
@ Firebarn Rd

Collection Period: 24 HR

Peak Hour: 4:00 PM - 5:00 PM



TMC 2543 - CSAH 23 @ Firebarn Rd
Circle Pines MN
Wednesday, July 2, 2025

Time	Southbound CSAH 23						Westbound Civic Heights Dr						Northbound CSAH 23						Eastbound Firebarn Rd						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	9	0	0	9	0	0	0	0	0	0	0	0	6	0	0	6	0	0	0	1	0	1	16
12:15 AM	0	0	4	0	0	4	0	0	1	0	0	1	0	1	10	0	0	11	0	0	0	0	0	0	16
12:30 AM	0	0	6	0	0	6	0	0	0	0	0	0	0	1	3	2	1	6	0	0	0	0	0	0	12
12:45 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	8
Hourly Total	0	0	21	0	0	21	0	0	1	0	0	1	0	2	25	2	1	29	0	0	0	1	0	1	52
1:00 AM	0	0	4	1	0	5	0	0	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	13
1:15 AM	0	0	3	0	0	3	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	1	0	1	7
1:30 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	8
1:45 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	0	1	8
Hourly Total	0	0	15	1	0	16	0	0	0	0	0	0	0	0	18	0	0	18	0	1	0	1	0	2	36
2:00 AM	0	0	2	0	0	2	0	1	0	0	0	1	0	1	0	2	0	3	0	0	0	0	0	0	6
2:15 AM	0	0	2	1	0	3	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	6
2:30 AM	0	0	3	0	0	3	0	1	0	0	0	1	0	0	3	0	0	3	0	0	0	0	0	0	7
2:45 AM	0	0	5	0	0	5	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	1	7
Hourly Total	0	0	12	1	0	13	0	2	0	0	0	2	0	1	6	3	0	10	0	0	0	1	0	1	26
3:00 AM	0	0	5	0	0	5	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	9
3:15 AM	0	0	5	0	0	5	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	8
3:30 AM	0	0	5	0	0	5	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	7
3:45 AM	0	0	6	0	0	6	0	2	0	0	0	2	0	0	4	0	0	4	0	0	0	0	0	0	12
Hourly Total	0	0	21	0	0	21	0	2	0	0	0	2	0	0	13	0	0	13	0	0	0	0	0	0	36
4:00 AM	0	0	11	0	0	11	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	13
4:15 AM	0	0	6	0	0	6	0	2	0	0	0	2	0	1	1	0	0	2	0	0	0	3	0	3	13
4:30 AM	0	0	17	0	0	17	0	0	0	0	0	0	0	0	3	1	0	4	0	0	0	2	0	2	23
4:45 AM	0	0	21	0	0	21	0	1	0	0	0	1	0	1	6	0	0	7	0	1	0	2	0	3	32
Hourly Total	0	0	55	0	0	55	0	4	0	0	0	4	0	2	10	1	0	13	0	1	0	8	0	9	81
5:00 AM	0	0	25	0	0	25	0	1	1	0	0	2	0	0	5	4	0	9	0	0	0	4	0	4	40
5:15 AM	0	0	37	0	0	37	0	3	0	0	0	3	0	0	8	2	0	10	0	0	0	4	0	4	54
5:30 AM	0	1	67	0	0	68	0	3	0	1	0	4	0	0	10	3	0	13	0	1	0	4	0	5	90
5:45 AM	0	0	63	0	0	63	0	6	0	1	0	7	0	0	11	2	2	13	0	0	1	5	0	6	89
Hourly Total	0	1	192	0	0	193	0	13	1	2	0	16	0	0	34	11	2	45	0	1	1	17	0	19	273
6:00 AM	0	0	61	0	1	61	0	2	0	1	0	3	0	1	21	2	1	24	0	1	1	12	0	14	102
6:15 AM	0	2	77	0	0	79	0	6	0	1	0	7	0	2	16	4	2	22	0	1	0	9	0	10	118
6:30 AM	0	2	94	0	0	96	0	7	0	0	0	7	0	2	27	5	0	34	0	1	4	8	1	13	150
6:45 AM	0	3	101	2	0	106	0	11	1	0	0	12	0	0	39	6	0	45	0	2	3	7	0	12	175
Hourly Total	0	7	333	2	1	342	0	26	1	2	0	29	0	5	103	17	3	125	0	5	8	36	1	49	545
7:00 AM	0	3	102	1	0	106	0	5	1	2	0	8	0	1	31	7	0	39	0	2	2	9	0	13	166
7:15 AM	0	1	102	0	0	103	0	12	0	0	0	12	0	3	45	4	0	52	0	0	0	8	0	8	175
7:30 AM	0	3	109	0	0	112	0	13	1	1	0	15	0	5	53	2	0	60	0	1	0	13	0	14	201
7:45 AM	0	3	106	1	0	110	0	9	0	1	0	10	0	5	59	9	1	73	0	0	1	5	0	6	199
Hourly Total	0	10	419	2	0	431	0	39	2	4	0	45	0	14	188	22	1	224	0	3	3	35	0	41	741

TMC 2543 - CSAH 23 @ Firebarn Rd
Circle Pines MN
Wednesday, July 2, 2025

Time	Southbound CSAH 23						Westbound Civic Heights Dr						Northbound CSAH 23						Eastbound Firebarn Rd						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	3	89	2	0	94	0	2	1	2	0	5	0	1	60	7	0	68	0	1	1	11	0	13	180
8:15 AM	0	3	81	0	1	84	0	13	1	2	0	16	0	0	54	10	0	64	0	2	2	2	0	6	170
8:30 AM	0	1	106	6	1	113	0	14	0	5	0	19	0	2	72	12	0	86	0	5	1	9	0	15	233
8:45 AM	0	3	100	9	3	112	0	14	2	1	0	17	0	6	55	7	0	68	0	8	1	7	0	16	213
Hourly Total	0	10	376	17	5	403	0	43	4	10	0	57	0	9	241	36	0	286	0	16	5	29	0	50	796
9:00 AM	0	4	86	1	0	91	0	12	3	1	0	16	0	1	76	11	0	88	0	6	2	7	0	15	210
9:15 AM	0	2	86	3	1	91	0	5	3	4	0	12	0	1	65	12	0	78	0	2	3	4	0	9	190
9:30 AM	0	5	69	0	1	74	0	15	1	1	0	17	0	3	64	7	0	74	0	1	3	2	0	6	171
9:45 AM	0	12	91	2	0	105	0	10	4	2	0	16	0	3	65	13	0	81	0	2	4	8	0	14	216
Hourly Total	0	23	332	6	2	361	0	42	11	8	0	61	0	8	270	43	0	321	0	11	12	21	0	44	787
10:00 AM	0	9	71	2	0	82	0	17	6	4	0	27	0	8	63	16	0	87	0	0	4	3	0	7	203
10:15 AM	1	7	84	2	0	94	0	20	3	2	0	25	1	2	70	18	0	91	0	4	1	5	0	10	220
10:30 AM	0	10	81	1	0	92	0	16	3	4	0	23	0	0	71	14	0	85	0	1	2	8	0	11	211
10:45 AM	0	9	90	1	0	100	0	28	4	6	0	38	1	7	66	15	2	89	0	2	7	3	0	12	239
Hourly Total	1	35	326	6	0	368	0	81	16	16	0	113	2	17	270	63	2	352	0	7	14	19	0	40	873
11:00 AM	0	12	103	2	1	117	0	18	3	9	0	30	0	8	70	10	0	88	0	0	4	3	0	7	242
11:15 AM	0	9	84	2	0	95	0	21	8	6	0	35	0	4	92	17	1	113	0	2	1	7	0	10	253
11:30 AM	1	6	88	0	0	95	0	17	3	7	0	27	0	6	85	16	0	107	0	1	3	1	0	5	234
11:45 AM	1	8	96	1	0	106	0	24	1	4	0	29	1	3	93	10	2	107	0	0	1	4	0	5	247
Hourly Total	2	35	371	5	1	413	0	80	15	26	0	121	1	21	340	53	3	415	0	3	9	15	0	27	976
12:00 PM	0	7	111	1	0	119	0	19	3	7	0	29	0	6	94	21	0	121	0	0	4	6	0	10	279
12:15 PM	0	12	104	3	0	119	0	17	8	6	0	31	1	7	85	13	0	106	0	1	3	10	0	14	270
12:30 PM	0	12	75	2	1	89	0	26	5	8	0	39	0	4	86	11	0	101	0	0	5	2	0	7	236
12:45 PM	0	13	83	8	0	104	0	17	2	7	0	26	0	3	80	16	0	99	0	2	4	5	0	11	240
Hourly Total	0	44	373	14	1	431	0	79	18	28	0	125	1	20	345	61	0	427	0	3	16	23	0	42	1025
1:00 PM	0	9	83	2	0	94	0	14	3	6	0	23	1	6	98	22	1	127	0	13	5	3	0	21	265
1:15 PM	0	5	105	3	0	113	0	12	2	4	0	18	0	1	103	23	2	127	0	0	3	2	0	5	263
1:30 PM	0	5	97	0	0	102	0	21	1	7	0	29	1	4	103	20	0	128	0	0	4	3	0	7	266
1:45 PM	1	7	83	2	0	93	0	21	5	6	0	32	0	6	99	28	1	133	0	0	5	3	0	8	266
Hourly Total	1	26	368	7	0	402	0	68	11	23	0	102	2	17	403	93	4	515	0	13	17	11	0	41	1060
2:00 PM	0	9	84	2	0	95	0	24	3	5	1	32	0	8	92	14	0	114	0	1	1	6	0	8	249
2:15 PM	0	8	95	1	0	104	0	23	2	8	0	33	1	9	113	23	0	146	0	1	4	4	0	9	292
2:30 PM	0	5	103	2	0	110	0	21	3	10	0	34	0	3	95	24	1	122	0	6	5	7	0	18	284
2:45 PM	0	5	83	1	0	89	0	21	5	5	0	31	0	7	104	21	1	132	0	2	2	6	0	10	262
Hourly Total	0	27	365	6	0	398	0	89	13	28	1	130	1	27	404	82	2	514	0	10	12	23	0	45	1087
3:00 PM	0	4	86	1	0	91	0	18	1	9	0	28	1	6	103	29	1	139	0	0	1	7	0	8	266
3:15 PM	0	5	98	3	0	106	0	17	4	8	0	29	0	6	127	23	0	156	0	1	3	2	0	6	297
3:30 PM	0	4	108	0	0	112	0	13	3	5	1	21	1	9	133	27	1	170	0	1	2	5	0	8	311
3:45 PM	0	2	110	1	0	113	0	22	2	8	0	32	1	15	133	24	1	173	0	1	3	5	0	9	327
Hourly Total	0	15	402	5	0	422	0	70	10	30	1	110	3	36	496	103	3	638	0	3	9	19	0	31	1201

TMC 2543 - CSAH 23 @ Firebarn Rd
Circle Pines MN
Wednesday, July 2, 2025

Time	Southbound CSAH 23						Westbound Civic Heights Dr						Northbound CSAH 23						Eastbound Firebarn Rd						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	7	107	2	0	116	0	18	4	7	0	29	0	14	138	24	3	176	0	2	4	7	0	13	334
4:15 PM	0	5	90	2	0	97	0	25	2	4	0	31	0	13	134	15	0	162	0	5	3	14	0	22	312
4:30 PM	0	7	116	4	0	127	0	9	6	4	0	19	1	12	138	19	1	170	0	3	3	11	0	17	333
4:45 PM	0	9	116	4	0	129	0	20	5	11	0	36	0	9	154	14	0	177	0	1	1	23	0	25	367
Hourly Total	0	28	429	12	0	469	0	72	17	26	0	115	1	48	564	72	4	685	0	11	11	55	0	77	1346
5:00 PM	0	4	103	2	2	109	0	13	3	2	0	18	1	7	157	11	4	176	0	4	1	5	0	10	313
5:15 PM	0	4	112	1	0	117	0	12	0	3	0	15	0	4	144	10	0	158	0	2	1	4	0	7	297
5:30 PM	0	2	94	4	0	100	0	13	1	1	0	15	0	15	104	9	0	128	0	3	3	4	0	10	253
5:45 PM	0	5	90	1	0	96	0	17	3	3	0	23	1	12	94	8	2	115	0	2	2	5	0	9	243
Hourly Total	0	15	399	8	2	422	0	55	7	9	0	71	2	38	499	38	6	577	0	11	7	18	0	36	1106
6:00 PM	0	0	91	7	0	98	0	11	1	2	0	14	1	14	115	9	0	139	0	0	0	12	0	12	263
6:15 PM	0	0	88	3	0	91	0	14	0	3	0	17	0	8	106	14	0	128	0	10	0	8	0	18	254
6:30 PM	0	0	78	0	0	78	0	10	1	0	0	11	0	9	94	7	0	110	0	1	0	4	0	5	204
6:45 PM	0	1	50	0	0	51	0	6	0	0	0	6	0	9	94	6	0	109	0	0	1	11	0	12	178
Hourly Total	0	1	307	10	0	318	0	41	2	5	0	48	1	40	409	36	0	486	0	11	1	35	0	47	899
7:00 PM	0	3	65	0	0	68	0	0	2	1	0	3	0	3	72	5	0	80	0	2	0	5	0	7	158
7:15 PM	0	1	53	1	0	55	0	6	2	1	0	9	0	5	82	2	1	89	0	2	0	8	0	10	163
7:30 PM	0	0	63	1	0	64	0	4	0	0	0	4	0	4	71	4	0	79	0	1	2	6	0	9	156
7:45 PM	0	1	56	0	0	57	0	5	0	1	0	6	0	6	75	3	0	84	0	2	0	3	0	5	152
Hourly Total	0	5	237	2	0	244	0	15	4	3	0	22	0	18	300	14	1	332	0	7	2	22	0	31	629
8:00 PM	0	0	41	1	0	42	0	2	0	0	0	2	1	5	63	6	3	75	0	0	0	5	0	5	124
8:15 PM	0	2	66	2	0	70	0	5	2	1	0	8	0	6	61	7	1	74	0	2	0	10	0	12	164
8:30 PM	1	1	51	2	0	55	0	1	0	0	0	1	1	7	65	3	0	76	0	1	1	4	0	6	138
8:45 PM	0	0	47	1	0	48	0	0	0	0	0	0	0	5	59	6	2	70	0	2	0	2	0	4	122
Hourly Total	1	3	205	6	0	215	0	8	2	1	0	11	2	23	248	22	6	295	0	5	1	21	0	27	548
9:00 PM	0	0	41	1	1	42	0	4	0	1	0	5	0	10	44	5	1	59	0	0	0	1	0	1	107
9:15 PM	0	0	33	1	0	34	0	1	1	0	0	2	0	4	59	4	1	67	0	0	0	3	0	3	106
9:30 PM	0	0	34	1	0	35	0	2	0	0	0	2	0	5	46	3	0	54	0	0	1	1	0	2	93
9:45 PM	0	1	24	0	0	25	0	3	0	1	0	4	1	2	37	2	0	42	0	0	0	2	0	2	73
Hourly Total	0	1	132	3	1	136	0	10	1	2	0	13	1	21	186	14	2	222	0	0	1	7	0	8	379
10:00 PM	0	0	19	1	0	20	0	5	0	0	0	5	0	3	32	2	0	37	0	0	0	2	0	2	64
10:15 PM	0	1	24	2	0	27	0	1	1	0	0	2	0	5	38	2	0	45	0	0	0	1	0	1	75
10:30 PM	0	0	27	0	0	27	0	0	0	0	0	0	0	2	26	2	0	30	0	1	0	4	0	5	62
10:45 PM	0	0	19	0	0	19	0	1	0	0	0	1	0	1	22	2	1	25	0	0	0	1	0	1	46
Hourly Total	0	1	89	3	0	93	0	7	1	0	0	8	0	11	118	8	1	137	0	1	0	8	0	9	247
11:00 PM	0	1	11	1	0	13	0	1	0	1	0	2	0	3	19	0	0	22	0	2	0	1	0	3	40
11:15 PM	0	0	6	0	0	6	0	0	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	16
11:30 PM	0	0	3	0	0	3	0	0	0	0	0	0	0	1	9	1	0	11	0	0	1	0	0	1	15
11:45 PM	0	0	4	0	0	4	0	0	0	0	0	0	0	1	12	1	0	14	0	0	0	1	0	1	19
Hourly Total	0	1	24	1	0	26	0	1	0	1	0	2	0	5	50	2	0	57	0	2	1	2	0	5	90
DAILY TOTAL	5	288	5803	117	13	6213	0	847	137	224	2	1208	17	383	5540	796	41	6736	0	125	130	427	1	682	14839
Cars	5	287	5717	116	10	6125	0	839	137	221	0	1197	17	383	5453	786	18	6639	0	122	130	427	1	679	14640
Heavy Vehicles	0	1	86	1	3	88	0	8	0	3	2	11	0	0	87	10	23	97	0	3	0	0	0	3	199
Heavy Vehicle %	0.00%	0.35%	1.48%	0.85%	23.08%	1.42%	0.00%	0.94%	0.00%	1.34%	100.00%	0.91%	0.00%	0.00%	1.57%	1.26%	56.10%	1.44%	0.00%	2.40%	0.00%	0.00%	0.00%	0.44%	1.34%

TMC 2543 - CSAH 23 @ Firebarn Rd
Circle Pines MN
Wednesday, July 2, 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	
8:30 AM	0	1	106	6	1	113	0	14	0	5	0	19	0	2	72	12	0	86	0	5	1	9	0	15	233
8:45 AM	0	3	100	9	3	112	0	14	2	1	0	17	0	6	55	7	0	68	0	8	1	7	0	16	213
9:00 AM	0	4	86	1	0	91	0	12	3	1	0	16	0	1	76	11	0	88	0	6	2	7	0	15	210
9:15 AM	0	2	86	3	1	91	0	5	3	4	0	12	0	1	65	12	0	78	0	2	3	4	0	9	190
Peak Hour Total	0	10	378	19	5	407	0	45	8	11	0	64	0	10	268	42	0	320	0	21	7	27	0	55	846
Peak Hour Heavy Vehicles	0	0	9	0	1	9	0	2	0	0	0	2	0	0	15	2	1	17	0	1	0	0	0	1	29
Peak Hour Heavy Vehicles %	0.00%	0.00%	2.38%	0.00%	20.00%	2.21%	0.00%	4.44%	0.00%	0.00%	0.00%	3.13%	0.00%	0.00%	5.60%	4.76%	0.00%	5.31%	0.00%	4.76%	0.00%	0.00%	0.00%	1.82%	3.43%
PHF	0.000	0.625	0.892	0.528	0.417	0.900	0.000	0.804	0.667	0.550	0.000	0.842	0.000	0.417	0.882	0.875	0.000	0.909	0.000	0.656	0.583	0.750	0.000	0.859	0.908

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	
1:00 PM	0	9	83	2	0	94	0	14	3	6	0	23	1	6	98	22	1	127	0	13	5	3	0	21	265
1:15 PM	0	5	105	3	0	113	0	12	2	4	0	18	0	1	103	23	2	127	0	0	3	2	0	5	263
1:30 PM	0	5	97	0	0	102	0	21	1	7	0	29	1	4	103	20	0	128	0	0	4	3	0	7	266
1:45 PM	1	7	83	2	0	93	0	21	5	6	0	32	0	6	99	28	1	133	0	0	5	3	0	8	266
Peak Hour Total	1	26	368	7	0	402	0	68	11	23	0	102	2	17	403	93	4	515	0	13	17	11	0	41	1060
Peak Hour Heavy Vehicles	0	0	6	0	0	6	0	0	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	14
Peak Hour Heavy Vehicles %	0.00%	0.00%	1.63%	0.00%	0.00%	1.49%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.99%	0.00%	0.00%	1.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.32%
PHF	0.250	0.722	0.876	0.583	0.000	0.889	0.000	0.810	0.550	0.821	0.000	0.797	0.500	0.708	0.978	0.830	0.500	0.968	0.000	0.250	0.850	0.917	0.000	0.488	0.996

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	
4:00 PM	0	7	107	2	0	116	0	18	4	7	0	29	0	14	138	24	3	176	0	2	4	7	0	13	334
4:15 PM	0	5	90	2	0	97	0	25	2	4	0	31	0	13	134	15	0	162	0	5	3	14	0	22	312
4:30 PM	0	7	116	4	0	127	0	9	6	4	0	19	1	12	138	19	1	170	0	3	3	11	0	17	333
4:45 PM	0	9	116	4	0	129	0	20	5	11	0	36	0	9	154	14	0	177	0	1	1	23	0	25	367
Peak Hour Total	0	28	429	12	0	469	0	72	17	26	0	115	1	48	564	72	4	685	0	11	11	55	0	77	1346
Peak Hour Heavy Vehicles	0	0	6	0	0	6	0	0	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	11
Peak Hour Heavy Vehicles %	0.00%	0.00%	1.40%	0.00%	0.00%	1.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.71%	1.39%	0.00%	0.73%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.82%
PHF	0.000	0.778	0.925	0.750	0.000	0.909	0.000	0.720	0.708	0.591	0.000	0.799	0.250	0.857	0.916	0.750	0.333	0.968	0.000	0.550	0.688	0.598	0.000	0.770	0.917

Total Vehicles On Leg				12107			
Vehicles Entering Intersection 6213				Vehicles Exiting Intersection 5894			
Southbound							
Cars	116	5717	287	5	10		
Heavy	1	86	1	0	3		
Total	117	5803	288	5	13		



Total Vehicles on Leg 1319	Vehicles Entering Intersection 682	Eastbound	Cars	Heavy	Total	
			1	0	1	
			0	0	0	
	Vehicles Exiting Intersection 637		122	3	125	
			130	0	130	
			427	0	427	



Daily Volumes



Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 1208	Total Vehicles on Leg 2422
221	3	224			
137	0	137			
839	8	847			
0	0	0			
0	2	2			

Cars	18	17	383	5453	786
Heavy	23	0	0	97	10
Total	41	17	383	5540	796
Northbound					
Vehicles Entering Intersection			Vehicles Exiting Intersection		
6736			7094		
Total Vehicles On Leg			13830		

TMC 2543 - CSAH 23 @ Firebarn Rd
Circle Pines MN
Wednesday, July 2, 2025

Time	Southbound Heavy CSAH 23						Westbound Heavy Civic Heights Dr						Northbound Heavy CSAH 23						Eastbound Heavy Firebarn Rd						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	0	0	0	0	0
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	0	0	0	0	0
3:00 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
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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	0	2	0	2	0	0	0	0	0	0	2
5:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	2
5:30 AM	0	0	0	0	0	0	0	0	0	1	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	1	0	1	0	2	0	0	0	2	0	2	0	0	0	0	0	0	5
Hourly 'Heavy Vehicles'	0	0	1	0	0	1	0	2	0	2	0	4	0	0	1	4	0	5	0	0	0	0	0	0	10
6:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0	0	0	4
6:15 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
6:30 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
6:45 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	3	0	0	3	0	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0	0	0	6
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	2
7:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
7:30 AM	0	0	3	0	0	3	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	7
7:45 AM	0	1	3	0	0	4	0	0	0	1	0	1	0	0	1	0	1	1	0	0	0	0	0	0	6
Hourly 'Heavy Vehicles'	0	1	7	0	0	8	0	0	0	1	0	1	0	0	7	1	1	8	0	0	0	0	0	0	17

TMC 2543 - CSAH 23 @ Firebarn Rd
Circle Pines MN
Wednesday, July 2, 2025

Time	Southbound Heavy CSAH 23						Westbound Heavy Civic Heights Dr						Northbound Heavy CSAH 23						Eastbound Heavy Firebarn Rd						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	0	2	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	4
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	6	0	0	0	6	0	0	0	0	0	7
8:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	4	1	0	5	0	1	0	0	0	1	7
8:45 AM	0	0	2	0	1	2	0	1	0	0	0	1	0	0	4	0	0	4	0	0	0	0	0	0	7
Hourly 'Heavy Vehicles'	0	0	5	0	1	5	0	2	0	0	0	2	0	0	16	1	0	17	0	1	0	0	0	1	25
9:00 AM	0	0	5	0	0	5	0	1	0	0	0	1	0	0	4	1	0	5	0	0	0	0	0	0	11
9:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4
9:30 AM	0	0	3	0	0	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4
9:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
Hourly 'Heavy Vehicles'	0	0	10	0	0	10	0	1	0	0	0	1	0	0	9	1	0	10	0	0	0	0	0	0	21
10:00 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3
10:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1	3
10:30 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4
10:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	3	0	1	3	0	0	0	0	0	0	4
Hourly 'Heavy Vehicles'	0	0	6	0	0	6	0	0	0	0	0	0	0	0	7	0	1	7	0	1	0	0	0	1	14
11:00 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	8
11:15 AM	0	0	3	1	0	4	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	6
11:30 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	0	0	2	0	0	0	0	0	0	3
11:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3
Hourly 'Heavy Vehicles'	0	0	8	1	0	9	0	1	0	0	0	1	0	0	10	0	0	10	0	0	0	0	0	0	20
12:00 PM	0	0	8	0	0	8	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	10
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2
12:30 PM	0	0	3	0	0	3	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	6
12:45 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3
Hourly 'Heavy Vehicles'	0	0	13	0	0	13	0	0	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	21
1:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	3	0	1	3	0	0	0	0	0	0	4
1:15 PM	0	0	3	0	0	3	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	0	0	0	4
1:30 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5
1:45 PM	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
Hourly 'Heavy Vehicles'	0	0	6	0	0	6	0	0	0	0	0	0	0	0	8	0	3	8	0	0	0	0	0	0	14
2:00 PM	0	0	1	0	0	1	0	0	0	0	1	0	0	0	2	0	0	2	0	0	0	0	0	0	3
2:15 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3
2:30 PM	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
2:45 PM	0	0	3	0	0	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4
Hourly 'Heavy Vehicles'	0	0	8	0	0	8	0	0	0	0	1	0	0	0	5	0	0	5	0	0	0	0	0	0	13
3:00 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2	1	1	3	0	0	0	0	0	0	5
3:15 PM	0	0	2	0	0	2	0	1	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	4
3:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	1	2	0	0	0	0	0	0	2
3:45 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	3
Hourly 'Heavy Vehicles'	0	0	6	0	0	6	0	1	0	0	1	1	0	0	6	1	3	7	0	0	0	0	0	0	14

TMC 2543 - CSAH 23 @ Firebarn Rd
Circle Pines MN
Wednesday, July 2, 2025

	Southbound Heavy CSAH 23						Westbound Heavy Civic Heights Dr						Northbound Heavy CSAH 23						Eastbound Heavy Firebarn Rd						VEHICLE 'Heavy Vehicles'
Time	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	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	2
4:15 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	3
4:30 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	1	2	0	0	0	0	0	0	3
4:45 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	3
Hourly 'Heavy Vehicles'	0	0	6	0	0	6	0	0	0	0	0	0	0	0	4	1	4	5	0	0	0	0	0	0	11
5:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
5:15 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
5:30 PM	0	0	1	0	0	1	0	1	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	3
5:45 PM	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
Hourly 'Heavy Vehicles'	0	0	1	0	2	1	0	1	0	0	0	1	0	0	1	1	4	2	0	0	0	0	0	0	4
6:00 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
6:15 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Hourly 'Heavy Vehicles'	0	0	2	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3
7:00 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
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	1
7:30 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
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	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1	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	1	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	1	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	1	0	2	1	0	0	0	0	0	0	1
Hourly 'Heavy Vehicles'	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	1	0	0	0	0	0	0	1
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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
9:30 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
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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	1	0	0	0	0	0	0	0	1
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	1	86	1	3	88	0	8	0	3	2	11	0	0	87	10	23	97	0	3	0	0	0	3	199

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2543

Study Date : 08/13/2025

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 23

Number of Lanes : 2+

Total Approach Volume: 6,736

Southbound: CSAH 23

Number of Lanes : 2+

Total Approach Volume: 6,213

Minor Street Approaches

Eastbound: Firebarn Rd

Number of Lanes : 1

Total Approach Volume: 682

Westbound: Firebarn Rd

Number of Lanes : 1

Total Approach Volume: 984

Warrant Summary (Rural Values Apply)

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

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

Required volumes reached for 0 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 >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (6) 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 2543

Study Date : 08/13/2025

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 0 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**

Major Road						Minor Road			
CSAH 23						Firebarn Rd			
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?	
16:30 - 17:30	681	+	482	=	1163	59	68	No	
16:00 - 17:00	685	+	469	=	1154	77	89	No	
16:15 - 17:15	685	+	462	=	1147	74	83	No	
15:45 - 16:45	681	+	453	=	1134	61	88	No	
15:15 - 16:15	675	+	447	=	1122	36	83	No	
15:30 - 16:30	681	+	438	=	1119	52	89	No	
16:45 - 17:45	639	+	455	=	1094	52	67	No	
15:00 - 16:00	638	+	422	=	1060	31	80	No	
17:00 - 18:00	577	+	422	=	999	36	62	No	
14:45 - 15:45	597	+	398	=	995	32	82	No	
17:15 - 18:15	540	+	411	=	951	38	58	No	
14:30 - 15:30	549	+	396	=	945	42	90	No	
14:15 - 15:15	539	+	394	=	933	45	94	No	
13:00 - 14:00	515	+	402	=	917	41	79	No	
13:45 - 14:45	515	+	402	=	917	43	102	No	
13:30 - 14:30	521	+	394	=	915	32	100	No	
14:00 - 15:00	514	+	398	=	912	45	102	No	
13:15 - 14:15	502	+	403	=	905	28	89	No	
17:30 - 18:30	510	+	385	=	895	49	60	No	
12:45 - 13:45	481	+	413	=	894	44	72	No	
11:30 - 12:30	441	+	439	=	880	34	92	No	
11:45 - 12:45	435	+	433	=	868	36	103	No	
11:15 - 12:15	448	+	415	=	863	30	96	No	
12:00 - 13:00	427	+	431	=	858	42	97	No	
17:45 - 18:45	492		363		855	44	57	No	

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2543

Study Date : 08/13/2025

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**

Major Road CSAH 23						Minor Road Firebarn Rd		
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?
16:15 - 17:15	685	+	462	=	1147	74	83	Yes
15:15 - 16:15	675	+	447	=	1122	36	83	Yes
17:15 - 18:15	540	+	411	=	951	38	58	Yes
14:15 - 15:15	539	+	394	=	933	45	94	Yes
13:15 - 14:15	502	+	403	=	905	28	89	Yes
11:15 - 12:15	448	+	415	=	863	30	96	Yes
12:15 - 13:15	433	+	406	=	839	53	92	Yes
10:15 - 11:15	353	+	403	=	756	40	95	Yes
08:15 - 09:15	306	+	400	=	706	52	59	Yes
09:15 - 10:15	320	+	352	=	672	36	61	Yes
18:15 - 19:15	427	+	288	=	715	42	33	No
07:45 - 08:45	291	+	401	=	692	40	40	No
08:00 - 09:00	286	+	403	=	689	50	47	No
07:15 - 08:15	253	+	419	=	672	41	38	No
07:30 - 08:30	265	+	400	=	665	39	40	No
07:00 - 08:00	224	+	431	=	655	41	41	No
18:30 - 19:30	388	+	252	=	640	34	27	No
06:45 - 07:45	196	+	427	=	623	47	44	No
18:45 - 19:45	357	+	238	=	595	38	20	No
06:30 - 07:30	170	+	411	=	581	46	37	No
19:00 - 20:00	332	+	244	=	576	31	19	No
19:15 - 20:15	327	+	218	=	545	29	19	No
19:30 - 20:30	312	+	233	=	545	31	18	No
19:45 - 20:45	309	+	224	=	533	28	15	No
06:15 - 07:15	140		387		527	48	31	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2543

Study Date : 08/13/2025

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						Minor Road				
CSAH 23						Firebarn Rd				
Time	Major NB	+	Major SB	=	Total	Minor EB		Minor WB		Met1A?
15:30 - 16:30	681	+	438	=	1119	52		89		Yes
14:15 - 15:15	539	+	394	=	933	45		94		Yes
13:15 - 14:15	502	+	403	=	905	28		89		Yes
12:00 - 13:00	427	+	431	=	858	42		97		Yes
11:00 - 12:00	415	+	413	=	828	27		95		Yes
10:00 - 11:00	352	+	368	=	720	40		97		Yes
16:30 - 17:30	681	+	482	=	1163	59		68		No
15:15 - 16:15	675	+	447	=	1122	36		83		No
16:45 - 17:45	639	+	455	=	1094	52		67		No
17:00 - 18:00	577	+	422	=	999	36		62		No
17:15 - 18:15	540	+	411	=	951	38		58		No
13:00 - 14:00	515		402		917	41		79		No

Time	Major NB	+	Major SB	=	Total	Minor EB		Minor WB		Met1B?
16:00 - 17:00	685	+	469	=	1154	77		89		Yes
15:00 - 16:00	638	+	422	=	1060	31		80		Yes
17:00 - 18:00	577	+	422	=	999	36		62		Yes
13:00 - 14:00	515	+	402	=	917	41		79		Yes
14:00 - 15:00	514	+	398	=	912	45		102		Yes
12:00 - 13:00	427	+	431	=	858	42		97		Yes
11:00 - 12:00	415	+	413	=	828	27		95		Yes
18:00 - 19:00	486	+	318	=	804	47		43		Yes
10:00 - 11:00	352	+	368	=	720	40		97		Yes
08:00 - 09:00	286	+	403	=	689	50		47		Yes
09:00 - 10:00	321	+	361	=	682	44		53		Yes
06:15 - 07:15	140		387		527	48		31		Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2543

Study Date : 08/13/2025

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.

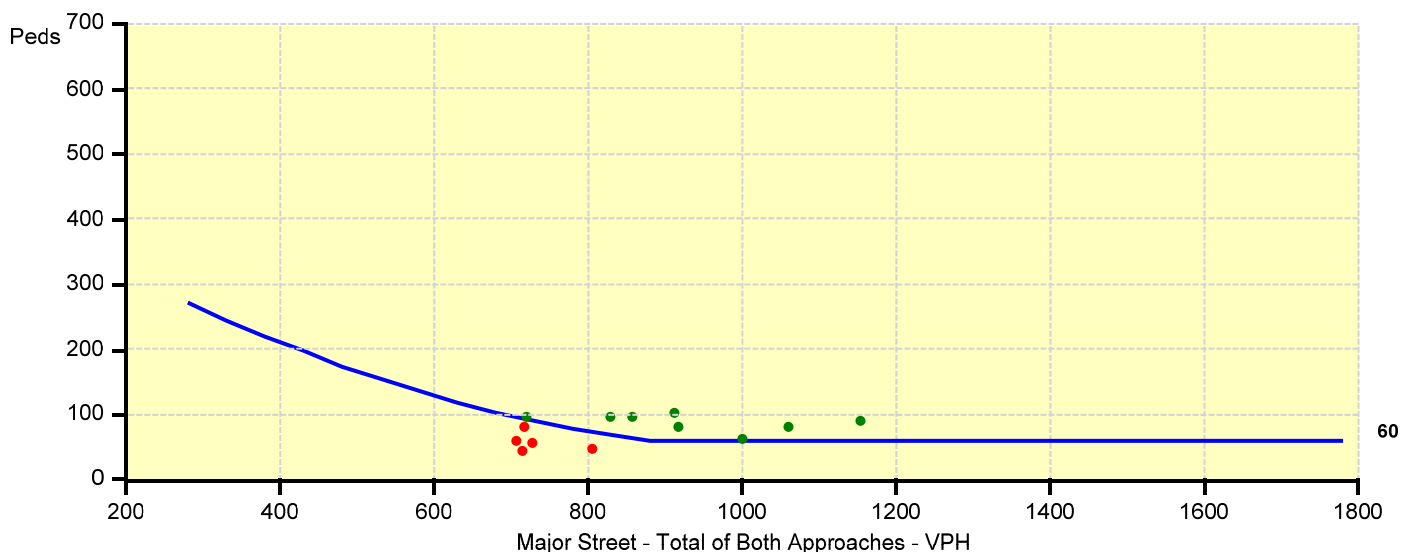
Summary

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**

Major Road CSAH 23						Minor Road Firebarn Rd		
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?
16:00 - 17:00	685	+	469	=	1154	77	89	Yes
15:00 - 16:00	638	+	422	=	1060	31	80	Yes
17:00 - 18:00	577	+	422	=	999	36	62	Yes
13:00 - 14:00	515	+	402	=	917	41	79	Yes
14:00 - 15:00	514	+	398	=	912	45	102	Yes
12:00 - 13:00	427	+	431	=	858	42	97	Yes
11:00 - 12:00	415	+	413	=	828	27	95	Yes
10:00 - 11:00	352	+	368	=	720	40	97	Yes
18:00 - 19:00	486	+	318	=	804	47	43	No
08:30 - 09:30	320	+	407	=	727	55	53	No
09:45 - 10:45	344	+	373	=	717	42	79	No
18:15 - 19:15	427	+	288	=	715	42	33	No



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2543

Study Date : 08/13/2025

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.

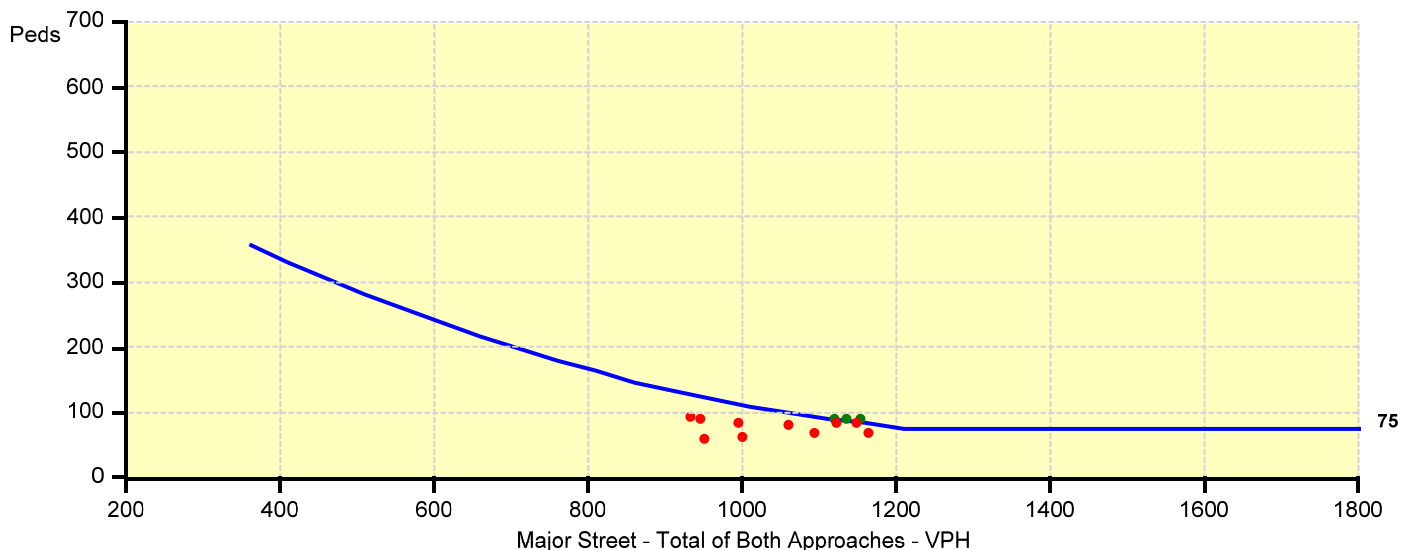
Summary

3 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**

Major Road CSAH 23						Minor Road Firebarn Rd		
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?
16:00 - 17:00	685	+	469	=	1154	77	89	Yes
15:45 - 16:45	681	+	453	=	1134	61	88	Yes
15:30 - 16:30	681	+	438	=	1119	52	89	Yes
16:30 - 17:30	681	+	482	=	1163	59	68	No
16:15 - 17:15	685	+	462	=	1147	74	83	No
15:15 - 16:15	675	+	447	=	1122	36	83	No
16:45 - 17:45	639	+	455	=	1094	52	67	No
15:00 - 16:00	638	+	422	=	1060	31	80	No
17:00 - 18:00	577	+	422	=	999	36	62	No
14:45 - 15:45	597	+	398	=	995	32	82	No
17:15 - 18:15	540	+	411	=	951	38	58	No
14:30 - 15:30	549	+	396	=	945	42	90	No



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2543

Study Date : 08/13/2025

Multiway Stop Warrants - Summary

Major Street Approaches

Northbound: CSAH 23

Number of Lanes : 2+

Total Approach Volume: 6,736

Southbound: CSAH 23

Number of Lanes : 2+

Total Approach Volume: 6,213

Minor Street Approaches

Eastbound: Firebarn Rd

Number of Lanes : 1

Total Approach Volume: 682

Westbound: Firebarn Rd

Number of Lanes : 1

Total Approach Volume: 984

Warrant Summary (Rural 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..... **Not Satisfied**
Average of 8 highest hours is less than 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 is less than volume criteria.

Criteria C Volume Summary

Time	Major Total	Major Avg	Minor Total	Minor Avg	Major Crit	Minor Crit	Meets?
16:00 - 17:00	1154	937.5	166	125.9	210	140	No
15:00 - 16:00	1060		111				
17:00 - 18:00	999		98				
13:45 - 14:45	917		145				
12:45 - 13:45	894		116				
11:45 - 12:45	868		143				
10:45 - 11:45	804		138				
18:00 - 19:00	804		90				
09:45 - 10:45	717		123				
08:30 - 09:30	727		120				
07:15 - 08:15	672		86				
19:00 - 20:00	576		50				

Criteria D Volume Summary

Time	Major Total	Major Avg	Minor Total	Minor Avg	Major Crit	Minor Crit	Meets?
16:00 - 17:00	1154	937.5	166	125.9	240	160	No
15:00 - 16:00	1060		111				
17:00 - 18:00	999		98				
13:45 - 14:45	917		145				
12:45 - 13:45	894		116				
11:45 - 12:45	868		143				
10:45 - 11:45	804		138				
18:00 - 19:00	804		90				
09:45 - 10:45	717		123				
08:30 - 09:30	727		120				
07:15 - 08:15	672		86				
19:00 - 20:00	576		50				