

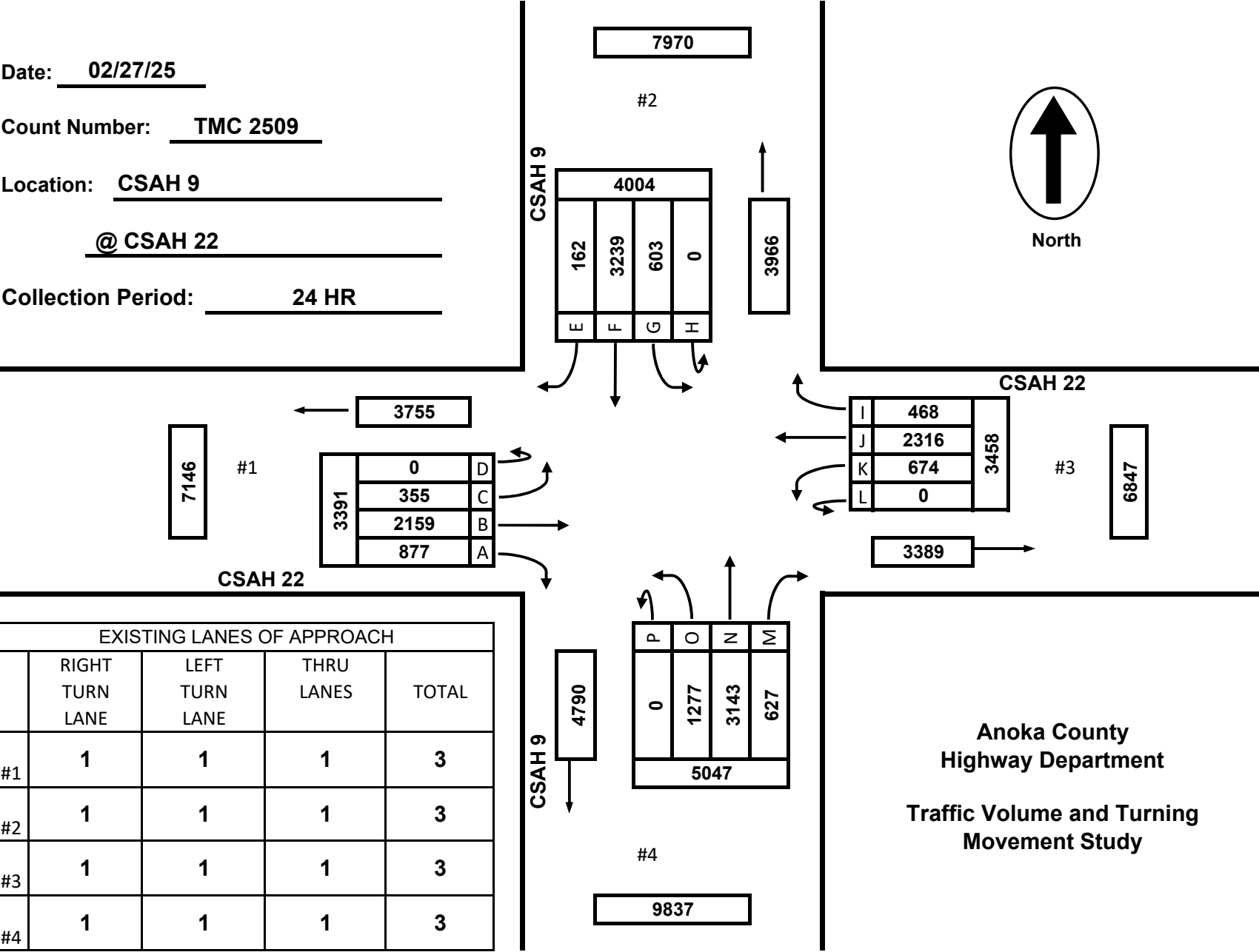
Date: 02/27/25

Count Number: TMC 2509

Location: CSAH 9

@ CSAH 22

Collection Period: 24 HR



Date: 02/27/25

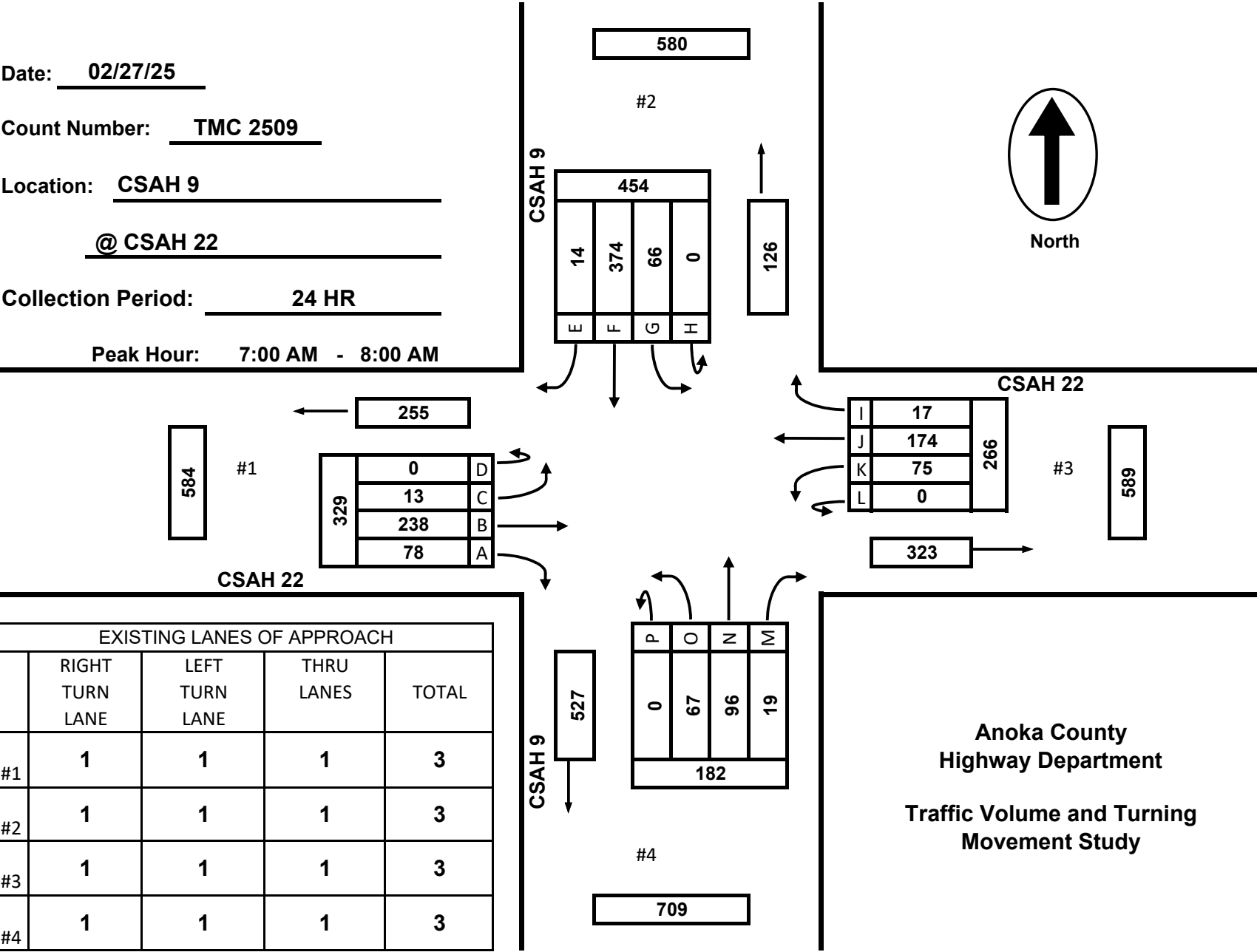
Count Number: TMC 2509

Location: CSAH 9

@ CSAH 22

Collection Period: 24 HR

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



Date: 02/27/25

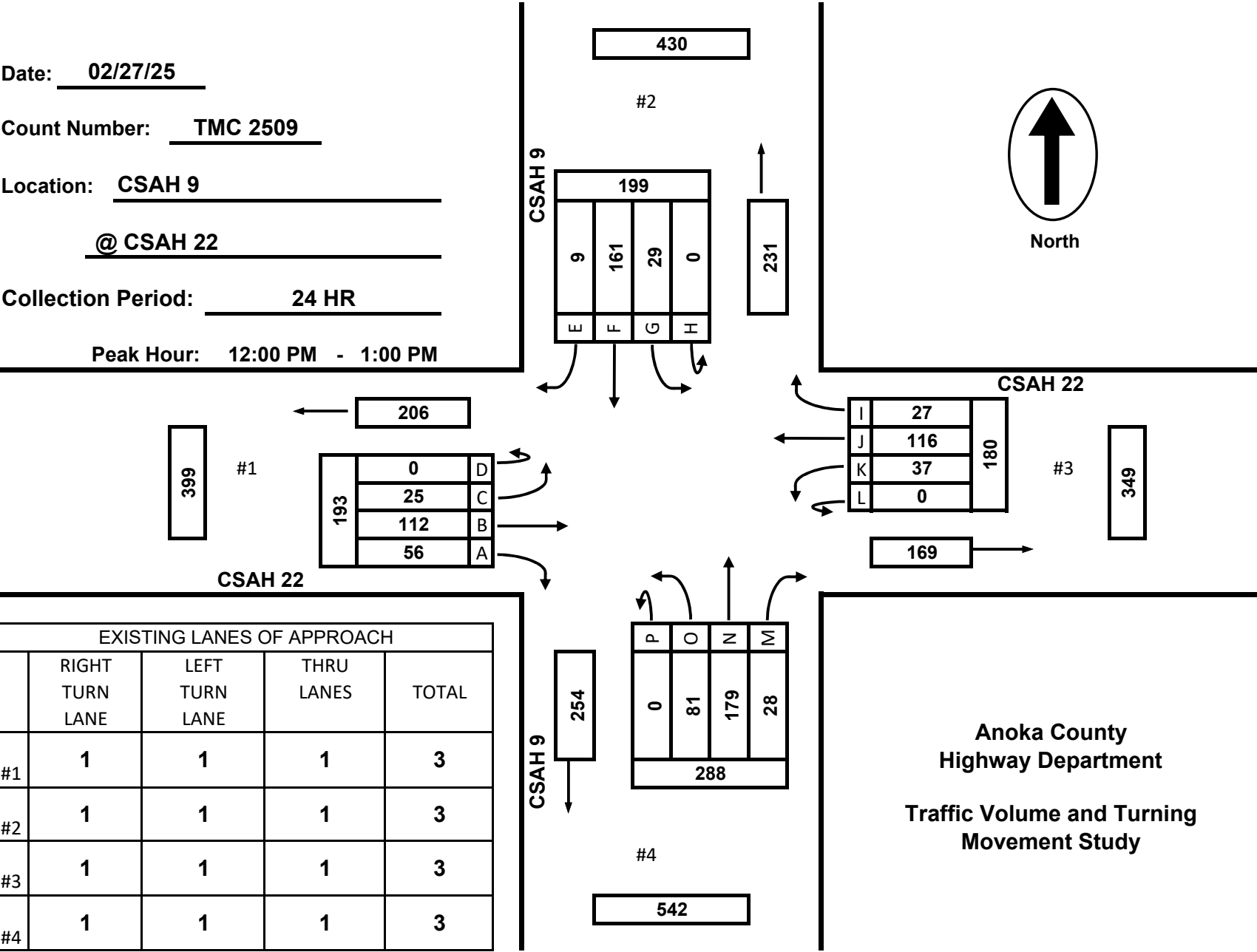
Count Number: TMC 2509

Location: CSAH 9

@ CSAH 22

Collection Period: 24 HR

Peak Hour: 12:00 PM - 1:00 PM



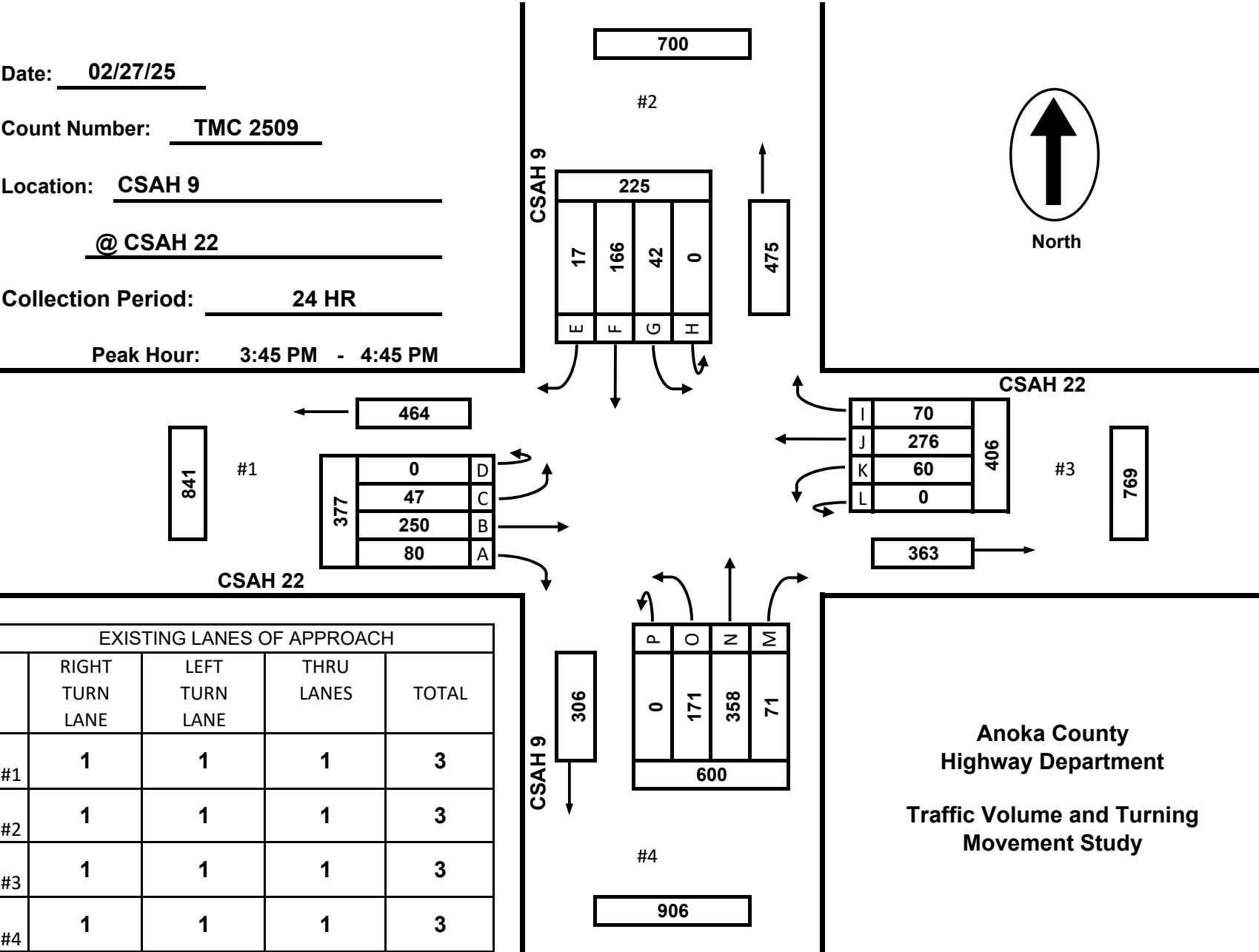
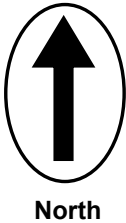
Date: 02/27/25

Count Number: TMC 2509

Location: CSAH 9
@ CSAH 22

Collection Period: 24 HR

Peak Hour: 3:45 PM - 4:45 PM



Anoka County
Highway Department
Traffic Volume and Turning
Movement Study

TMC 2509 - CSAH 9 @ CSAH 22
Oak Grove MN
Thursday, February 27, 2025

Time	Southbound CSAH 9						Westbound CSAH 22						Northbound CSAH 9						Eastbound CSAH 22						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	1	1	0	2	0	1	5	3	0	9	0	1	2	0	0	3	14
12:15 AM	0	0	2	0	0	2	0	1	0	0	0	1	0	0	4	0	0	4	0	1	1	0	0	2	9
12:30 AM	0	0	0	0	0	0	0	1	1	0	0	2	0	1	4	1	0	6	0	0	0	0	0	0	8
12:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0	2	0	1	0	0	0	1	4
Hourly Total	0	0	2	0	0	2	0	2	3	1	0	6	0	3	14	4	0	21	0	3	3	0	0	6	35
1:00 AM	0	0	3	0	0	3	0	0	3	0	0	3	0	1	4	0	0	5	0	0	1	0	0	1	12
1:15 AM	0	0	2	0	0	2	0	0	2	0	0	2	0	1	2	0	0	3	0	0	0	0	0	0	7
1:30 AM	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	4
1:45 AM	0	0	4	0	0	4	0	0	0	1	0	1	0	0	1	1	0	2	0	0	1	0	0	1	8
Hourly Total	0	0	10	0	0	10	0	0	6	1	0	7	0	2	8	1	0	11	0	0	3	0	0	3	31
2:00 AM	0	0	2	0	0	2	0	1	1	0	0	2	0	1	1	1	0	3	0	0	1	1	0	2	9
2:15 AM	0	0	3	0	0	3	0	0	1	0	0	1	0	1	3	0	0	4	0	0	3	1	0	4	12
2:30 AM	0	1	1	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
2:45 AM	0	1	4	1	0	6	0	1	0	0	0	1	0	0	2	0	0	2	0	0	2	0	0	2	11
Hourly Total	0	2	10	1	0	13	0	2	3	0	0	5	0	2	6	1	0	9	0	0	6	2	0	8	35
3:00 AM	0	1	5	0	0	6	0	0	2	0	0	2	0	0	1	0	0	1	0	1	0	0	0	1	10
3:15 AM	0	2	5	0	0	7	0	2	3	0	0	5	0	0	5	2	0	7	0	0	4	0	0	4	23
3:30 AM	0	0	12	0	0	12	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	15
3:45 AM	0	0	6	0	0	6	0	2	3	0	0	5	0	0	1	0	0	1	0	0	2	1	0	3	15
Hourly Total	0	3	28	0	0	31	0	5	8	0	0	13	0	0	7	2	0	9	0	1	8	1	0	10	63
4:00 AM	0	2	17	2	0	21	0	2	2	1	0	5	0	1	1	2	0	4	0	0	2	2	0	4	34
4:15 AM	0	2	24	1	0	27	0	1	10	0	0	11	0	1	3	2	0	6	0	0	3	4	0	7	51
4:30 AM	0	2	30	2	0	34	0	9	7	0	0	16	0	1	1	1	0	3	0	0	3	6	0	9	62
4:45 AM	0	0	38	2	0	40	0	4	10	1	0	15	0	1	3	1	0	5	0	0	9	2	0	11	71
Hourly Total	0	6	109	7	0	122	0	16	29	2	0	47	0	4	8	6	0	18	0	0	17	14	0	31	218
5:00 AM	0	8	49	2	0	59	0	1	8	0	0	9	0	0	2	0	0	2	0	0	10	5	0	15	85
5:15 AM	0	7	66	1	0	74	0	4	22	1	0	27	0	1	3	0	0	4	0	0	14	8	0	22	127
5:30 AM	0	4	70	2	0	76	0	11	19	2	0	32	0	1	5	4	0	10	0	1	20	11	0	32	150
5:45 AM	0	10	60	3	0	73	0	10	24	0	0	34	0	2	4	1	0	7	0	0	20	9	0	29	143
Hourly Total	0	29	245	8	0	282	0	26	73	3	0	102	0	4	14	5	0	23	0	1	64	33	0	98	505
6:00 AM	0	11	79	0	0	90	0	15	16	1	0	32	0	9	10	1	0	20	0	2	20	8	0	30	172
6:15 AM	0	11	100	2	0	113	0	17	32	0	0	49	0	6	10	0	0	16	0	2	24	5	0	31	209
6:30 AM	0	13	80	3	0	96	0	21	39	7	0	67	0	12	19	5	0	36	0	1	39	20	0	60	259
6:45 AM	0	12	98	1	0	111	0	9	51	6	0	66	0	10	19	5	0	34	0	2	29	19	0	50	261
Hourly Total	0	47	357	6	0	410	0	62	138	14	0	214	0	37	58	11	0	106	0	7	112	52	0	171	901
7:00 AM	0	14	96	0	0	110	0	20	47	4	0	71	0	18	26	3	0	47	0	3	52	19	0	74	302
7:15 AM	0	19	110	4	0	133	0	13	39	6	0	58	0	17	14	3	0	34	0	4	61	18	0	83	308
7:30 AM	0	15	84	4	0	103	0	23	51	4	0	78	0	13	33	9	0	55	0	2	65	22	0	89	325
7:45 AM	0	18	84	6	0	108	0	19	37	3	0	59	0	19	23	4	0	46	0	4	60	19	0	83	296
Hourly Total	0	66	374	14	0	454	0	75	174	17	0	266	0	67	96	19	0	182	0	13	238	78	0	329	1231

TMC 2509 - CSAH 9 @ CSAH 22
Oak Grove MN
Thursday, February 27, 2025

Time	Southbound CSAH 9						Westbound CSAH 22						Northbound CSAH 9						Eastbound CSAH 22						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	8	67	3	0	78	0	14	26	1	0	41	0	7	20	2	0	29	0	7	42	22	0	71	219
8:15 AM	0	10	60	3	0	73	0	5	26	2	0	33	0	9	16	3	0	28	0	7	44	21	0	72	206
8:30 AM	0	14	62	3	0	79	0	5	32	6	0	43	0	18	27	12	0	57	0	5	40	9	0	54	233
8:45 AM	0	15	63	0	0	78	0	10	27	5	0	42	0	14	20	7	0	41	0	2	43	23	0	68	229
Hourly Total	0	47	252	9	0	308	0	34	111	14	0	159	0	48	83	24	0	155	0	21	169	75	0	265	887
9:00 AM	0	8	57	2	0	67	0	17	40	15	0	72	0	7	20	6	0	33	0	2	45	15	0	62	234
9:15 AM	0	7	60	0	0	67	0	15	24	4	0	43	0	10	22	4	0	36	0	7	25	5	0	37	183
9:30 AM	0	11	47	0	0	58	0	16	22	8	0	46	0	13	32	6	0	51	0	5	17	9	0	31	186
9:45 AM	0	8	39	1	0	48	0	15	25	3	0	43	0	12	28	4	0	44	0	4	30	9	0	43	178
Hourly Total	0	34	203	3	0	240	0	63	111	30	0	204	0	42	102	20	0	164	0	18	117	38	0	173	781
10:00 AM	0	6	47	2	2	55	0	9	34	1	0	44	0	23	23	4	0	50	0	1	31	5	1	37	186
10:15 AM	0	5	47	5	0	57	0	12	37	4	0	53	0	16	33	9	2	58	0	5	20	13	0	38	206
10:30 AM	0	11	52	2	0	65	0	7	36	5	0	48	0	9	37	9	0	55	0	5	23	9	0	37	205
10:45 AM	0	4	43	5	0	52	0	7	20	9	0	36	0	9	26	9	0	44	0	3	29	20	0	52	184
Hourly Total	0	26	189	14	2	229	0	35	127	19	0	181	0	57	119	31	2	207	0	14	103	47	1	164	781
11:00 AM	0	9	40	2	0	51	0	13	23	5	0	41	0	14	34	8	0	56	0	7	25	9	0	41	189
11:15 AM	0	10	40	3	0	53	0	11	28	4	0	43	0	13	34	12	0	59	0	4	29	14	0	47	202
11:30 AM	0	4	36	2	0	42	0	7	25	12	0	44	0	15	45	11	0	71	0	8	25	6	0	39	196
11:45 AM	0	11	55	0	0	66	0	7	22	3	0	32	0	15	35	5	0	55	0	2	25	10	0	37	190
Hourly Total	0	34	171	7	0	212	0	38	98	24	0	160	0	57	148	36	0	241	0	21	104	39	0	164	777
12:00 PM	0	4	39	2	1	45	0	11	18	3	1	32	0	21	53	8	1	82	0	4	19	14	1	37	196
12:15 PM	0	8	41	2	0	51	0	10	38	9	0	57	0	24	48	8	0	80	0	11	31	12	0	54	242
12:30 PM	0	6	46	3	0	55	0	5	30	9	0	44	0	23	31	5	0	59	0	1	30	15	0	46	204
12:45 PM	0	11	35	2	0	48	0	11	30	6	0	47	0	13	47	7	0	67	0	9	32	15	0	56	218
Hourly Total	0	29	161	9	1	199	0	37	116	27	1	180	0	81	179	28	1	288	0	25	112	56	1	193	860
1:00 PM	0	5	29	5	0	39	0	9	30	6	0	45	0	16	40	7	0	63	0	7	20	9	0	36	183
1:15 PM	0	7	32	1	0	40	0	4	33	3	0	40	0	20	49	10	0	79	0	4	23	12	0	39	198
1:30 PM	0	9	38	1	0	48	0	7	29	7	0	43	0	22	49	15	0	86	0	6	25	7	0	38	215
1:45 PM	0	8	29	4	0	41	0	8	38	8	0	54	0	28	53	10	0	91	0	3	28	22	0	53	239
Hourly Total	0	29	128	11	0	168	0	28	130	24	0	182	0	86	191	42	0	319	0	20	96	50	0	166	835
2:00 PM	0	12	29	4	0	45	0	5	29	3	0	37	0	20	54	9	0	83	0	4	21	13	0	38	203
2:15 PM	0	12	24	1	0	37	0	3	29	6	0	38	0	13	56	13	0	82	0	6	28	22	0	56	213
2:30 PM	0	10	40	5	0	55	0	7	46	11	0	64	0	39	48	10	0	97	0	5	4	15	0	24	240
2:45 PM	0	14	43	8	0	65	0	10	35	10	0	55	0	33	76	16	0	125	0	7	46	17	0	70	315
Hourly Total	0	48	136	18	0	202	0	25	139	30	0	194	0	105	234	48	0	387	0	22	99	67	0	188	971
3:00 PM	0	8	51	1	0	60	0	2	35	15	0	52	0	20	69	19	0	108	0	11	47	14	0	72	292
3:15 PM	0	6	52	3	0	61	0	7	62	16	0	85	0	26	86	16	0	128	0	8	46	14	0	68	342
3:30 PM	0	12	41	1	0	54	0	14	50	17	0	81	0	37	94	17	0	148	0	7	36	18	0	61	344
3:45 PM	0	16	44	6	0	66	0	14	73	16	0	103	0	28	98	14	0	140	0	9	50	25	0	84	393
Hourly Total	0	42	188	11	0	241	0	37	220	64	0	321	0	111	347	66	0	524	0	35	179	71	0	285	1371

TMC 2509 - CSAH 9 @ CSAH 22
Oak Grove MN
Thursday, February 27, 2025

Time	Southbound CSAH 9						Westbound CSAH 22						Northbound CSAH 9						Eastbound CSAH 22						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	38	0	0	45	0	17	92	22	0	131	0	55	92	16	0	163	0	10	55	24	0	89	428
4:15 PM	0	11	46	2	0	59	0	21	56	14	0	91	0	48	92	21	0	161	0	14	77	9	0	100	411
4:30 PM	0	8	38	9	0	55	0	8	55	18	0	81	0	40	76	20	0	136	0	14	68	22	0	104	376
4:45 PM	0	11	54	3	0	68	0	9	59	10	0	78	0	26	102	17	0	145	0	13	49	29	0	91	382
Hourly Total	0	37	176	14	0	227	0	55	262	64	0	381	0	169	362	74	0	605	0	51	249	84	0	384	1597
5:00 PM	0	9	51	1	0	61	0	11	70	8	0	89	0	51	92	20	0	163	0	6	46	23	0	75	388
5:15 PM	0	7	26	3	0	36	0	11	62	13	0	86	0	27	89	16	0	132	0	5	49	16	0	70	324
5:30 PM	0	8	41	2	0	51	0	13	41	9	0	63	0	27	106	8	0	141	0	12	45	13	0	70	325
5:45 PM	0	11	46	4	0	61	0	12	45	7	0	64	0	31	75	13	0	119	0	7	38	13	0	58	302
Hourly Total	0	35	164	10	0	209	0	47	218	37	0	302	0	136	362	57	0	555	0	30	178	65	0	273	1339
6:00 PM	0	11	45	2	0	58	0	7	40	9	0	56	0	27	79	12	0	118	0	8	38	14	0	60	292
6:15 PM	0	11	31	6	0	48	0	7	25	8	0	40	0	27	54	13	0	94	0	9	26	12	0	47	229
6:30 PM	0	3	30	1	0	34	0	6	31	7	0	44	0	27	67	9	0	103	0	4	24	6	0	34	215
6:45 PM	0	8	24	1	0	33	0	11	21	10	0	42	0	13	54	17	0	84	0	2	24	10	0	36	195
Hourly Total	0	33	130	10	0	173	0	31	117	34	0	182	0	94	254	51	0	399	0	23	112	42	0	177	931
7:00 PM	0	11	21	2	0	34	0	7	20	7	0	34	0	16	42	9	0	67	0	4	24	8	0	36	171
7:15 PM	0	6	18	0	0	24	0	3	22	8	0	33	0	13	52	8	0	73	0	3	20	6	0	29	159
7:30 PM	0	2	20	3	0	25	0	3	29	7	0	39	0	14	45	11	0	70	0	2	8	9	0	19	153
7:45 PM	0	3	14	0	0	17	0	4	22	6	0	32	0	15	39	6	0	60	0	3	17	7	0	27	136
Hourly Total	0	22	73	5	0	100	0	17	93	28	0	138	0	58	178	34	0	270	0	12	69	30	0	111	619
8:00 PM	0	5	18	0	0	23	0	7	10	8	0	25	0	15	35	4	0	54	0	2	14	3	0	19	121
8:15 PM	0	2	11	1	0	14	0	9	13	5	0	27	0	19	42	10	0	71	0	5	10	3	0	18	130
8:30 PM	0	4	15	1	0	20	0	1	19	3	0	23	0	9	43	7	0	59	0	7	14	3	0	24	126
8:45 PM	0	4	22	1	0	27	0	2	12	5	0	19	0	11	31	9	0	51	0	1	11	3	0	15	112
Hourly Total	0	15	66	3	0	84	0	19	54	21	0	94	0	54	151	30	0	235	0	15	49	12	0	76	489
9:00 PM	0	4	14	0	0	18	0	5	13	5	0	23	0	11	29	13	0	53	0	4	13	5	0	22	116
9:15 PM	0	4	8	0	0	12	0	6	17	0	0	23	0	6	30	3	0	39	0	4	7	4	0	15	89
9:30 PM	0	2	10	1	0	13	0	2	12	2	0	16	0	8	32	5	0	45	0	4	9	1	0	14	88
9:45 PM	0	1	6	1	0	8	0	2	5	2	0	9	0	8	35	2	0	45	0	2	8	1	0	11	73
Hourly Total	0	11	38	2	0	51	0	15	47	9	0	71	0	33	126	23	0	182	0	14	37	11	0	62	366
10:00 PM	0	5	8	0	0	13	0	1	11	2	0	14	0	4	19	0	0	23	0	3	7	2	0	12	62
10:15 PM	0	2	5	0	0	7	0	0	6	0	0	6	0	4	23	4	0	31	0	2	7	2	0	11	55
10:30 PM	0	0	3	0	0	3	0	1	2	1	0	4	0	5	11	1	0	17	0	2	7	1	0	10	34
10:45 PM	0	0	1	0	0	1	0	1	5	0	0	6	0	2	13	2	0	17	0	0	5	2	0	7	31
Hourly Total	0	7	17	0	0	24	0	3	24	3	0	30	0	15	66	7	0	88	0	7	26	7	0	40	182
11:00 PM	0	1	7	0	0	8	0	0	4	1	0	5	0	4	7	1	0	12	0	1	1	0	0	2	27
11:15 PM	0	0	4	0	0	4	0	0	5	0	0	5	0	1	11	5	0	17	0	0	3	2	0	5	31
11:30 PM	0	0	1	0	0	1	0	2	2	1	0	5	0	4	5	1	0	10	0	0	3	1	0	4	20
11:45 PM	0	0	0	0	0	0	0	0	4	0	0	4	0	3	7	0	0	10	0	1	2	0	0	3	17
Hourly Total	0	1	12	0	0	13	0	2	15	2	0	19	0	12	30	7	0	49	0	2	9	3	0	14	95
DAILY TOTAL	0	603	3239	162	3	4004	0	674	2316	468	1	3458	0	1277	3143	627	3	5047	0	355	2159	877	2	3391	15900
Cars	0	573	3200	151	3	3924	0	667	2209	452	1	3328	0	1263	3119	619	3	5001	0	345	2054	867	2	3266	15519
Heavy Vehicles	0	30	39	11	0	80	0	7	107	16	0	130	0	14	24	8	0	46	0	10	105	10	0	125	381
Heavy Vehicle %	0.00%	4.98%	1.20%	6.79%	0.00%	2.00%	0.00%	1.04%	4.62%	3.42%	0.00%	3.76%	0.00%	1.10%	0.76%	1.28%	0.00%	0.91%	0.00%	2.82%	4.86%	1.14%	0.00%	3.69%	2.40%

Oak Grove MN
Thursday, February 27, 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	<i>Vehcle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehcle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehcle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehcle Approach Total</i>	
7:00 AM	0	14	96	0	0	110	0	20	47	4	0	71	0	18	26	3	0	47	0	3	52	19	0	74	302
7:15 AM	0	19	110	4	0	133	0	13	39	6	0	58	0	17	14	3	0	34	0	4	61	18	0	83	308
7:30 AM	0	15	84	4	0	103	0	23	51	4	0	78	0	13	33	9	0	55	0	2	65	22	0	89	325
7:45 AM	0	18	84	6	0	108	0	19	37	3	0	59	0	19	23	4	0	46	0	4	60	19	0	83	296
Peak Hour Total	0	66	374	14	0	454	0	75	174	17	0	266	0	67	96	19	0	182	0	13	238	78	0	329	1231
Peak Hour Heavy Vehicles	0	4	7	2	0	13	0	0	14	1	0	15	0	2	1	1	0	4	0	0	11	2	0	13	45
Peak Hour Heavy Vehicles % PHF	0.00%	6.06%	1.87%	14.29%	0.00%	2.86%	0.00%	0.00%	8.05%	5.88%	0.00%	5.64%	0.00%	2.99%	1.04%	5.26%	0.00%	2.20%	0.00%	0.00%	4.62%	2.56%	0.00%	3.95%	3.66%
	0.000	0.868	0.850	0.583	0.000	0.853	0.000	0.815	0.853	0.708	0.000	0.853	0.000	0.882	0.727	0.528	0.000	0.827	0.000	0.813	0.915	0.886	0.000	0.924	0.947

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Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehcle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehcle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehcle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehcle Approach Total</i>	
12:00 PM	0	4	39	2	1	45	0	11	18	3	1	32	0	21	53	8	1	82	0	4	19	14	1	37	196
12:15 PM	0	8	41	2	0	51	0	10	38	9	0	57	0	24	48	8	0	80	0	11	31	12	0	54	242
12:30 PM	0	6	46	3	0	55	0	5	30	9	0	44	0	23	31	5	0	59	0	1	30	15	0	46	204
12:45 PM	0	11	35	2	0	48	0	11	30	6	0	47	0	13	47	7	0	67	0	9	32	15	0	56	218
Peak Hour Total	0	29	161	9	1	199	0	37	116	27	1	180	0	81	179	28	1	288	0	25	112	56	1	193	860
Peak Hour Heavy Vehicles	0	1	1	1	0	3	0	1	7	4	0	12	0	0	0	0	0	0	0	1	6	1	0	8	23
Peak Hour Heavy Vehicles %	0.00%	3.45%	0.62%	11.11%	0.00%	1.51%	0.00%	2.70%	6.03%	14.81%	0.00%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.00%	5.36%	1.79%	0.00%	4.15%	2.67%
PHF	0.000	0.659	0.875	0.750	0.250	0.905	0.000	0.841	0.763	0.750	0.250	0.789	0.000	0.844	0.844	0.875	0.250	0.878	0.000	0.568	0.875	0.933	0.250	0.862	0.888

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

	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
Time	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	
3:45 PM	0	16	44	6	0	66	0	14	73	16	0	103	0	28	98	14	0	140	0	9	50	25	0	84	393
4:00 PM	0	7	38	0	0	45	0	17	92	22	0	131	0	55	92	16	0	163	0	10	55	24	0	89	428
4:15 PM	0	11	46	2	0	59	0	21	56	14	0	91	0	48	92	21	0	161	0	14	77	9	0	100	411
4:30 PM	0	8	38	9	0	55	0	8	55	18	0	81	0	40	76	20	0	136	0	14	68	22	0	104	376
Peak Hour Total	0	42	166	17	0	225	0	60	276	70	0	406	0	171	358	71	0	600	0	47	250	80	0	377	1608
Peak Hour Heavy Vehicles	0	0	2	1	0	3	0	3	18	0	0	21	0	2	5	1	0	8	0	1	15	0	0	16	48
Peak Hour Heavy Vehicles %	0.00%	0.00%	1.20%	5.88%	0.00%	1.33%	0.00%	5.00%	6.52%	0.00%	0.00%	5.17%	0.00%	1.17%	1.40%	1.41%	0.00%	1.33%	0.00%	2.13%	6.00%	0.00%	0.00%	4.24%	2.99%
PHF	0.000	0.656	0.902	0.472	0.000	0.852	0.000	0.714	0.750	0.795	0.000	0.775	0.000	0.777	0.913	0.845	0.000	0.920	0.000	0.839	0.812	0.800	0.000	0.906	0.939

Total Vehicles On Leg			7970		
Vehicles Entering Intersection 4004			Vehicles Exiting Intersection 3966		
Southbound					
Cars	151	3200	573	0	3
Heavy	11	39	30	0	0
Total	162	3239	603	0	3

Total Vehicles on Leg 7146	Vehicles Entering Intersectio n 3391	Eastbound	Cars	Heavy	Total
			2	0	2
			0	0	0
	Vehicles Exiting Intersectio n 3755		345	10	355
			2054	105	2159
			867	10	877

Daily Volume

Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 3458	Total Vehicles on Leg
452	16	468		Vehicles Exiting Intersection 3389	
2209	107	2316			6847
667	7	674			
0	0	0			
1	0	1			

					
Cars	3	0	1263	3119	619
Heavy	0	0	14	24	8
Total	3	0	1277	3143	627

Northbound	
Vehicles Entering Intersection	5047
Vehicles Exiting Intersection	4790
Total Vehicles On Leg	9837

TMC 2509 - CSAH 9 @ CSAH 22
Oak Grove MN
Thursday, February 27, 2025

Time	Southbound Heavy CSAH 9						Westbound Heavy CSAH 22						Northbound Heavy CSAH 9						Eastbound Heavy CSAH 22						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	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	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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
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	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	
3:00 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	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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	
Hourly 'Heavy	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	
5:00 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	
5:15 AM	0	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
5:30 AM	0	0	1	0	0	1	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	
5:45 AM	0	0	2	1	0	3	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5	
Hourly 'Heavy	0	1	5	1	0	7	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	11	
6:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	1	4	
6:15 AM	0	0	1	0	0	1	0	0	4	0	0	4	0	0	0	0	0	0	0	0	3	0	0	3	8	
6:30 AM	0	1	1	1	0	3	0	0	4	0	0	4	0	1	1	0	0	0	2	0	4	1	0	5	14	
6:45 AM	0	2	1	0	0	3	0	0	2	1	0	3	0	1	0	0	0	0	1	0	2	1	0	3	10	
Hourly 'Heavy	0	4	3	1	0	8	0	0	10	1	0	11	0	3	2	0	0	0	5	0	1	9	2	0	12	36
7:00 AM	0	1	1	0	0	2	0	0	7	1	0	8	0	0	0	0	0	0	0	0	1	0	0	1	11	
7:15 AM	0	1	1	1	0	3	0	0	0	0	0	0	0	1	0	0	0	0	1	0	3	1	0	4	8	
7:30 AM	0	0	4	0	0	4	0	0	4	0	0	4	0	1	0	1	0	0	2	0	0	3	1	0	4	14
7:45 AM	0	2	1	1	0	4	0	0	3	0	0	3	0	0	1	0	0	0	1	0	4	0	0	4	12	
Hourly 'Heavy	0	4	7	2	0	13	0	0	14	1	0	15	0	2	1	1	0	0	4	0	0	11	2	0	13	45

TMC 2509 - CSAH 9 @ CSAH 22
Oak Grove MN
Thursday, February 27, 2025

Time	Southbound Heavy CSAH 9						Westbound Heavy CSAH 22						Northbound Heavy CSAH 9						Eastbound Heavy CSAH 22						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'		
8:00 AM	0	1	0	0	0	1	0	0	3	0	0	3	0	0	1	0	0	0	1	0	1	5	0	0	6	11
8:15 AM	0	1	1	0	0	2	0	0	2	0	0	2	0	1	1	0	0	0	2	0	2	4	0	0	6	12
8:30 AM	0	2	1	0	0	3	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	3	0	0	3	8
8:45 AM	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	4	0	0	4	7
Hourly 'Heavy	0	5	3	0	0	8	0	0	6	1	0	7	0	1	2	1	0	4	0	3	16	0	0	19	38	
9:00 AM	0	1	0	0	0	1	0	0	5	4	0	9	0	0	0	0	0	0	0	0	2	0	0	2	12	
9:15 AM	0	0	2	0	0	2	0	0	1	0	0	1	0	0	0	1	0	1	0	0	4	0	0	4	8	
9:30 AM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	1	1	0	2	0	0	2	0	0	2	8	
9:45 AM	0	1	0	0	0	1	0	0	5	0	0	5	0	0	1	0	0	1	0	0	1	0	0	1	8	
Hourly 'Heavy	0	2	2	0	0	4	0	0	15	4	0	19	0	0	2	2	0	4	0	0	9	0	0	9	36	
10:00 AM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	1	0	0	1	0	0	1	1	0	0	2	7
10:15 AM	0	1	1	1	0	3	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5
10:30 AM	0	2	3	1	0	6	0	0	2	1	0	3	0	0	2	1	0	3	0	0	2	0	0	0	2	14
10:45 AM	0	0	1	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	3
Hourly 'Heavy	0	3	5	2	0	10	0	1	7	2	0	10	0	0	3	1	0	4	0	0	4	1	0	5	29	
11:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	3	0	0	3	4	
11:15 AM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	4	7	
11:30 AM	0	0	3	0	0	3	0	0	5	0	0	5	0	2	2	0	0	4	0	0	0	0	0	0	0	12
11:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3	
Hourly 'Heavy	0	4	3	0	0	7	0	0	6	0	0	6	0	2	2	0	0	4	0	2	7	0	0	9	26	
12:00 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	3	
12:15 PM	0	1	0	0	0	1	0	1	2	0	0	3	0	0	0	0	0	0	0	0	5	0	0	5	9	
12:30 PM	0	0	0	0	0	0	0	0	3	3	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6	
12:45 PM	0	0	1	0	0	1	0	0	2	1	0	3	0	0	0	0	0	0	0	0	1	0	0	1	5	
Hourly 'Heavy	0	1	1	1	0	3	0	1	7	4	0	12	0	0	0	0	0	0	0	1	6	1	0	8	23	
1:00 PM	0	1	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	1	1	0	0	2	4	
1:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	2	
1:30 PM	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	1	0	1	0	0	1	0	0	1	4	
1:45 PM	0	0	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	0	0	1	1	0	2	5	
Hourly 'Heavy	0	2	0	0	0	2	0	1	4	1	0	6	0	0	1	1	0	2	0	1	3	1	0	5	15	
2:00 PM	0	1	0	0	0	1	0	0	1	0	0	1	0	0	1	1	0	2	0	0	2	0	0	2	6	
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4	
2:30 PM	0	2	2	0	0	4	0	0	5	0	0	5	0	0	0	0	0	0	0	0	2	0	0	2	11	
2:45 PM	0	1	0	1	0	2	0	0	1	0	0	1	0	2	1	0	0	3	0	0	0	0	0	0	6	
Hourly 'Heavy	0	4	2	1	0	7	0	0	7	0	0	7	0	2	2	1	0	5	0	0	8	0	0	8	27	
3:00 PM	0	0	1	0	0	1	0	0	1	1	0	2	0	0	0	0	0	0	0	0	3	1	0	4	7	
3:15 PM	0	0	1	1	0	2	0	0	3	1	0	4	0	1	1	0	0	2	0	0	1	0	0	1	9	
3:30 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	1	1	1	0	3	6	
3:45 PM	0	0	0	1	0	1	0	3	4	0	0	7	0	0	1	0	0	1	0	0	3	0	0	3	12	
Hourly 'Heavy	0	0	2	2	0	4	0	3	11	2	0	16	0	1	2	0	0	3	0	1	8	2	0	11	34	

TMC 2509 - CSAH 9 @ CSAH 22
Oak Grove MN
Thursday, February 27, 2025

Time	Southbound Heavy CSAH 9						Westbound Heavy CSAH 22						Northbound Heavy CSAH 9						Eastbound Heavy CSAH 22						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	0	0	0	0	0	0	5	0	0	5	0	0	1	0	0	0	1	0	0	3	0	0	3	9
4:15 PM	0	0	1	0	0	1	0	0	4	0	0	4	0	0	2	1	0	0	3	0	1	5	0	0	6	14
4:30 PM	0	0	1	0	0	1	0	0	5	0	0	5	0	2	1	0	0	3	0	0	4	0	0	4	13	
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	4	0	0	4	5
Hourly 'Heavy'	0	0	2	0	0	2	0	0	15	0	0	15	0	2	4	1	0	7	0	1	16	0	0	17	41	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	
5:15 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	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	0	0	2	3	
5:45 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'	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	4	1	0	5	6	
6:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	
6:15 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	
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	0	0	1	3	
6:45 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	
Hourly 'Heavy'	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	0	0	3	0	0	3	6	
7:00 PM	0	0	1	1	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	
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'	0	0	1	1	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	
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	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
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'	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	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'	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	
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'	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'	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	30	39	11	0	80	0	7	107	16	0	130	0	14	24	8	0	46	0	10	105	10	0	125	381	

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2509

Study Date : 03/17/2025

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 9

Number of Lanes : 2+

Total Approach Volume: 5,047

Southbound: CSAH 9

Number of Lanes :2+

Total Approach Volume: 4,004

Minor Street Approaches

Eastbound: CSAH 22

Number of Lanes :2+

Total Approach Volume: 2,514

Westbound: CSAH 22

Number of Lanes :2+

Total Approach Volume: 2,990

Warrant Summary (Rural Values Apply)

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

Warrant 1A - Minimum Vehicular Volume.....Satisfied

Required volumes reached for 12 hours, 8 are needed

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

Required volumes reached for 5 hours, 8 are needed

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

Required 1A volumes reached for 14 hours, 8 are needed

Required 1B volumes reached for 7 hours, 8 are needed

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

Number of hours (6) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (25) 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 2509

Study Date : 03/17/2025

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

12 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 = **2 or more**

Volume Requirements

Rural Factor of 70 % applied
Veh/Hr Major = **420**

Veh/Hr Minor = **140**

Major Road						Minor Road		
CSAH 9						CSAH 22		
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?
15:45 - 16:45	600	+	225	=	825	297	336	Yes
16:45 - 17:45	581	+	216	=	797	225	276	Yes
14:45 - 15:45	509	+	240	=	749	208	215	Yes
17:45 - 18:45	434	+	201	=	635	154	173	Yes
06:45 - 07:45	170	+	457	=	627	218	253	Yes
13:45 - 14:45	353	+	178	=	531	99	165	Yes
07:45 - 08:45	160	+	338	=	498	209	164	Yes
11:45 - 12:45	276	+	217	=	493	123	141	Yes
12:45 - 13:45	295	+	175	=	470	126	153	Yes
05:45 - 06:45	79	+	372	=	451	108	174	Yes
09:45 - 10:45	207	+	225	=	432	119	175	Yes
08:45 - 09:45	161	+	270	=	431	146	171	Yes
11:30 - 12:30	288	+	204	=	492	125	138	No
11:15 - 12:15	267	+	206	=	473	116	129	No
11:00 - 12:00	241	+	212	=	453	125	136	No
10:45 - 11:45	230	+	198	=	428	130	134	No
18:45 - 19:45	294	+	116	=	410	87	116	No
05:30 - 06:30	53	+	352	=	405	89	144	No
19:00 - 20:00	270	+	100	=	370	81	110	No
05:15 - 06:15	41	+	313	=	354	77	121	No
19:15 - 20:15	257	+	89	=	346	69	100	No
19:30 - 20:30	255	+	79	=	334	61	97	No
20:00 - 21:00	235	+	84	=	319	64	73	No
19:45 - 20:45	244	+	74	=	318	72	85	No
20:15 - 21:15	234		79		313	65	74	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2509

Study Date : 03/17/2025

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

Only 5 one hour periods meet minimums.
Warrant is NOT met.

Site Data Required

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

Volume Requirements

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

Veh/Hr Minor = **70**

Major Road						Minor Road		
CSAH 9						CSAH 22		
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?
15:30 - 16:30	612	+	224	=	836	258	337	Yes
16:30 - 17:30	576	+	220	=	796	250	285	Yes
14:30 - 15:30	458	+	241	=	699	174	204	Yes
17:30 - 18:30	472	+	218	=	690	183	190	Yes
07:00 - 08:00	182	+	454	=	636	251	249	Yes
14:15 - 15:15	412	+	217	=	629	154	167	No
06:45 - 07:45	170	+	457	=	627	218	253	No
06:30 - 07:30	151	+	450	=	601	191	239	No
14:00 - 15:00	387	+	202	=	589	121	164	No
06:15 - 07:15	133	+	430	=	563	152	236	No
13:45 - 14:45	353	+	178	=	531	99	165	No
06:00 - 07:00	106	+	410	=	516	119	200	No
13:30 - 14:30	342	+	171	=	513	121	148	No
13:15 - 14:15	339	+	174	=	513	114	153	No
11:45 - 12:45	276	+	217	=	493	123	141	No
11:30 - 12:30	288	+	204	=	492	125	138	No
13:00 - 14:00	319	+	168	=	487	116	158	No
12:00 - 13:00	288	+	199	=	487	137	153	No
11:15 - 12:15	267	+	206	=	473	116	129	No
12:45 - 13:45	295	+	175	=	470	126	153	No
08:00 - 09:00	155	+	308	=	463	190	145	No
12:15 - 13:15	269	+	193	=	462	141	163	No
08:30 - 09:30	167	+	291	=	458	169	170	No
08:15 - 09:15	159	+	297	=	456	188	162	No
11:00 - 12:00	241		212		453	125	136	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2509

Study Date : 03/17/2025

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

14 hours meet 1A minimums.
Only 7 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 = **2 or more**

Volume Requirements

Rural Factor of 70% applied
Warrant 1A 1B
Veh/Hr Major = **336 504**
Veh/Hr Minor = **112 56**

Major Road						Minor Road					
CSAH 9						CSAH 22					
Time	Major NB	+	Major SB	=	Total		Minor EB		Minor WB		Met1A?
16:15 - 17:15	605	+	243	=	848		287		289		Yes
15:15 - 16:15	579	+	226	=	805		221		329		Yes
17:15 - 18:15	510	+	206	=	716		202		231		Yes
14:15 - 15:15	412	+	217	=	629		154		167		Yes
07:15 - 08:15	164	+	422	=	586		245		222		Yes
06:15 - 07:15	133	+	430	=	563		152		236		Yes
13:15 - 14:15	339	+	174	=	513		114		153		Yes
18:15 - 19:15	348	+	149	=	497		117		128		Yes
11:15 - 12:15	267	+	206	=	473		116		129		Yes
12:15 - 13:15	269	+	193	=	462		141		163		Yes
08:15 - 09:15	159	+	297	=	456		188		162		Yes
10:15 - 11:15	213		225		438		117		155		Yes

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
16:15 - 17:15	605	+	243	=	848	287	289	Yes
15:15 - 16:15	579	+	226	=	805	221	329	Yes
17:15 - 18:15	510	+	206	=	716	202	231	Yes
07:00 - 08:00	182	+	454	=	636	251	249	Yes
14:15 - 15:15	412	+	217	=	629	154	167	Yes
06:00 - 07:00	106	+	410	=	516	119	200	Yes
13:15 - 14:15	339	+	174	=	513	114	153	Yes
18:15 - 19:15	348	+	149	=	497	117	128	No
11:45 - 12:45	276	+	217	=	493	123	141	No
11:30 - 12:30	288	+	204	=	492	125	138	No
12:00 - 13:00	288	+	199	=	487	137	153	No
13:00 - 14:00	319		168		487	116	158	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2509

Study Date : 03/17/2025

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.

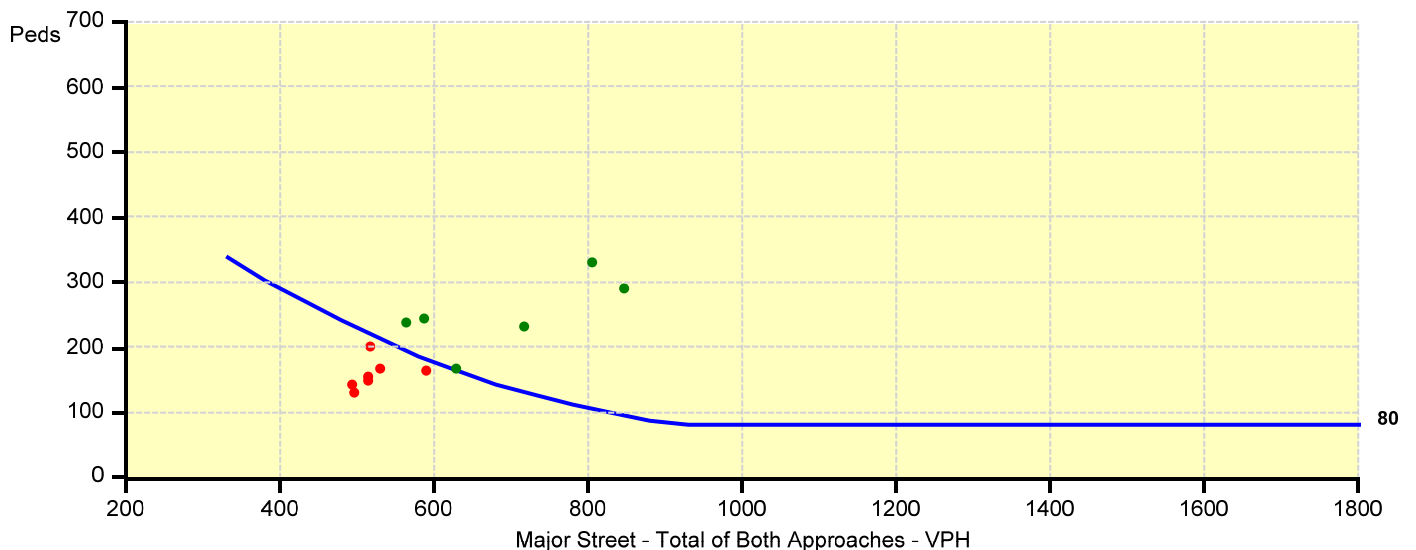
Summary

6 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 = **2 or more**

Major Road CSAH 9						Minor Road CSAH 22		
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?
16:15 - 17:15	605	+	243	=	848	287	289	Yes
15:15 - 16:15	579	+	226	=	805	221	329	Yes
17:15 - 18:15	510	+	206	=	716	202	231	Yes
14:15 - 15:15	412	+	217	=	629	154	167	Yes
07:15 - 08:15	164	+	422	=	586	245	222	Yes
06:15 - 07:15	133	+	430	=	563	152	236	Yes
14:00 - 15:00	387	+	202	=	589	121	164	No
13:45 - 14:45	353	+	178	=	531	99	165	No
06:00 - 07:00	106	+	410	=	516	119	200	No
13:30 - 14:30	342	+	171	=	513	121	148	No
13:15 - 14:15	339	+	174	=	513	114	153	No
18:15 - 19:15	348	+	149	=	497	117	128	No



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2509

Study Date : 03/17/2025

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.

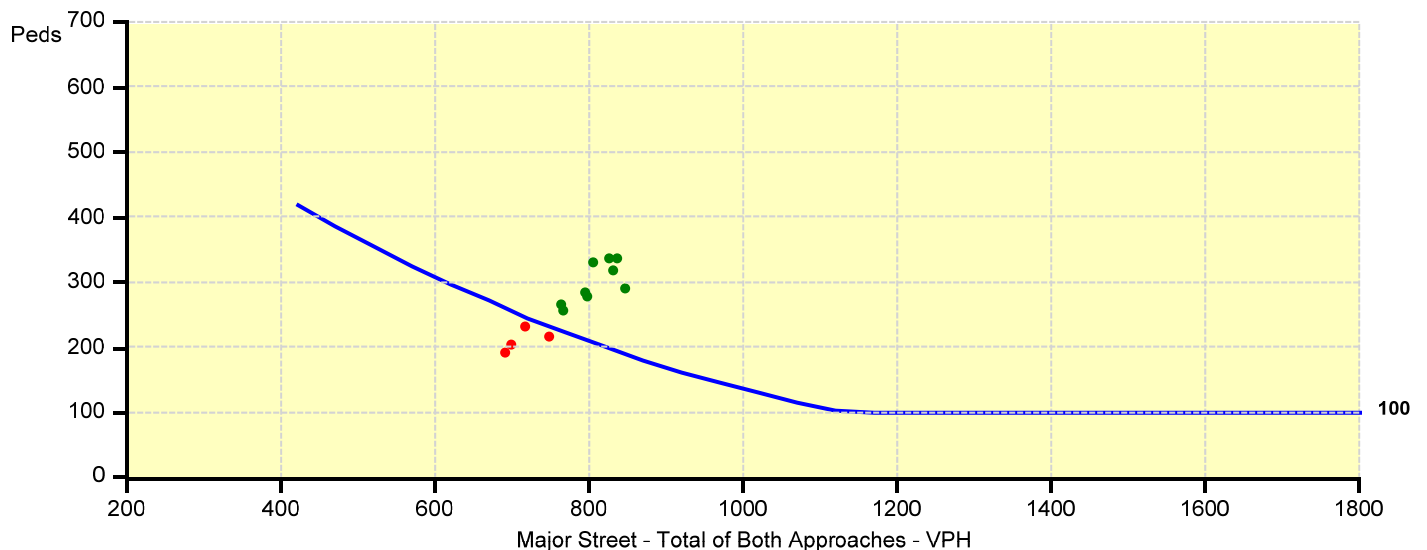
Summary

9 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 = **2 or more**

Major Road CSAH 9						Minor Road CSAH 22		
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?
16:15 - 17:15	605	+	243	=	848	287	289	Yes
15:30 - 16:30	612	+	224	=	836	258	337	Yes
16:00 - 17:00	605	+	227	=	832	300	317	Yes
15:45 - 16:45	600	+	225	=	825	297	336	Yes
15:15 - 16:15	579	+	226	=	805	221	329	Yes
16:45 - 17:45	581	+	216	=	797	225	276	Yes
16:30 - 17:30	576	+	220	=	796	250	285	Yes
15:00 - 16:00	524	+	241	=	765	214	257	Yes
17:00 - 18:00	555	+	209	=	764	208	265	Yes
14:45 - 15:45	509	+	240	=	749	208	215	No
17:15 - 18:15	510	+	206	=	716	202	231	No
14:30 - 15:30	458		241		699	174	204	No



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2509

Study Date : 03/17/2025

Multiway Stop Warrants - Summary

Major Street Approaches

Northbound: CSAH 9

Number of Lanes : 2+

Total Approach Volume: 5,047

Southbound: CSAH 9

Number of Lanes :2+

Total Approach Volume: 4,004

Minor Street Approaches

Eastbound: CSAH 22

Number of Lanes :2+

Total Approach Volume: 2,514

Westbound: CSAH 22

Number of Lanes :2+

Total Approach Volume: 2,991

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..... **Satisfied**
Average of 8 highest hours meets or exceeds volume criteria.

Criteria D - 80% of Volumes, Delays, and Crashes..... **Not Satisfied**
Number of crashes (-1) is less than minimum required (4).
Average of 8 highest hours meets or exceeds volume criteria.

Criteria C Volume Summary

Time	Major Total	Major Avg	Minor Total	Minor Avg	Major Crit	Minor Crit	Meets?
15:45 - 16:45	825	643.1	633	414.6	210	140	Yes
16:45 - 17:45	797		501				
14:45 - 15:45	749		423				
07:00 - 08:00	636		500				
17:45 - 18:45	635		327				
06:00 - 07:00	516		319				
08:15 - 09:15	456		350				
13:45 - 14:45	531		264				
12:00 - 13:00	487		292				
09:45 - 10:45	432		298				
11:00 - 12:00	453		267				
18:45 - 19:45	410		203				

Criteria D Volume Summary

Time	Major Total	Major Avg	Minor Total	Minor Avg	Major Crit	Minor Crit	Meets?
15:45 - 16:45	825	643.1	633	414.6	240	160	Yes
16:45 - 17:45	797		501				
14:45 - 15:45	749		423				
07:00 - 08:00	636		500				
17:45 - 18:45	635		327				
06:00 - 07:00	516		319				
08:15 - 09:15	456		350				
13:45 - 14:45	531		264				
12:00 - 13:00	487		292				
09:45 - 10:45	432		298				
11:00 - 12:00	453		267				
18:45 - 19:45	410		203				