

Date : 02/28/23

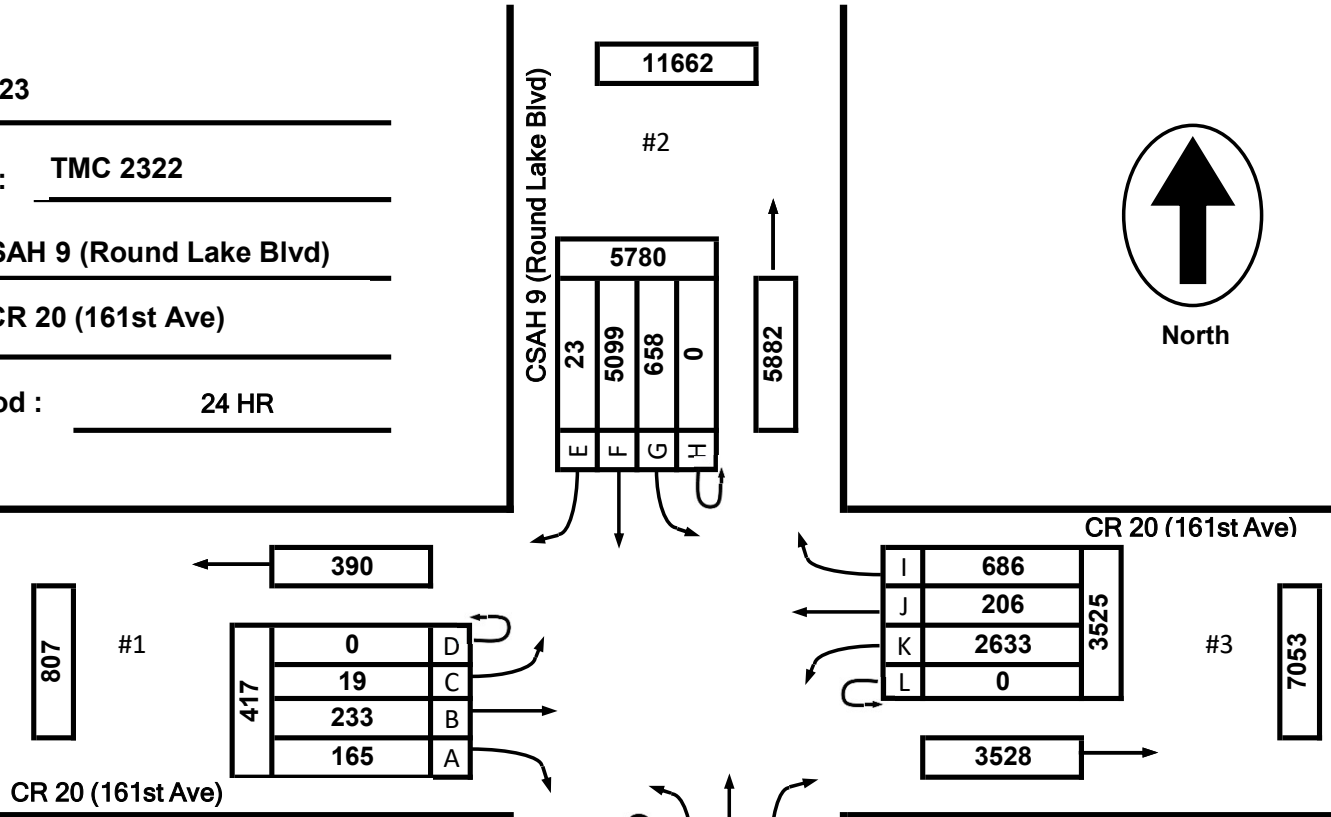
Count Number : TMC 2322

Location : CSAH 9 (Round Lake Blvd)
@ CR 20 (161st Ave)

Collection Period : 24 HR



North



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

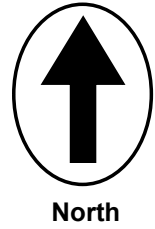
Anoka County Highway Department
 Traffic Volume and Turning Movement Study

Date : 02/28/23

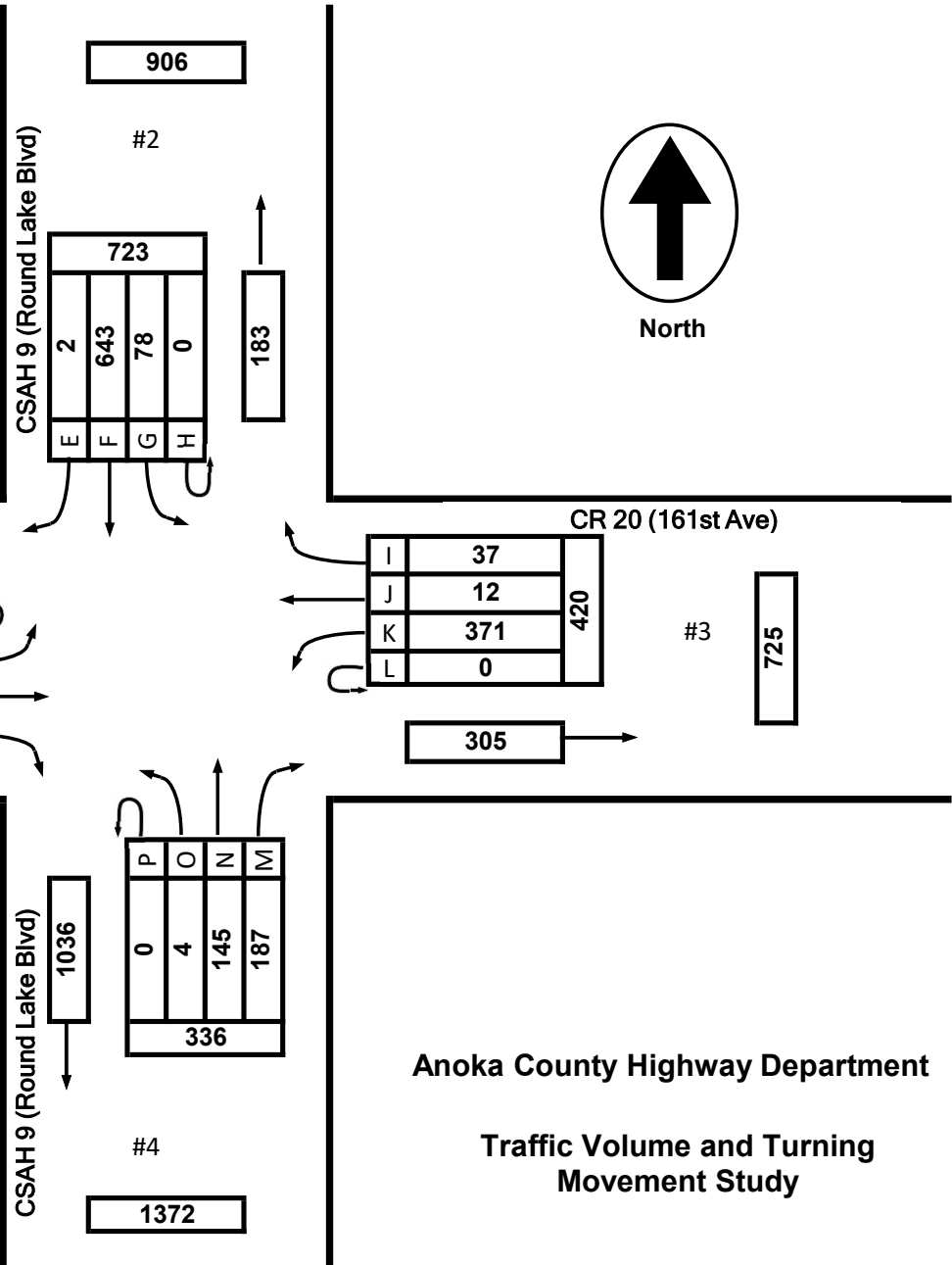
Count Number : TMC 2322

Location : CSAH 9 (Round Lake Blvd)
@ CR 20 (161st Ave)

Collection Period : 7 AM - 8 AM
AM PEAK



North



EXISTING LANES OF APPROACH

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

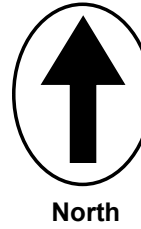
Anoka County Highway Department
 Traffic Volume and Turning Movement Study

Date : 02/28/23

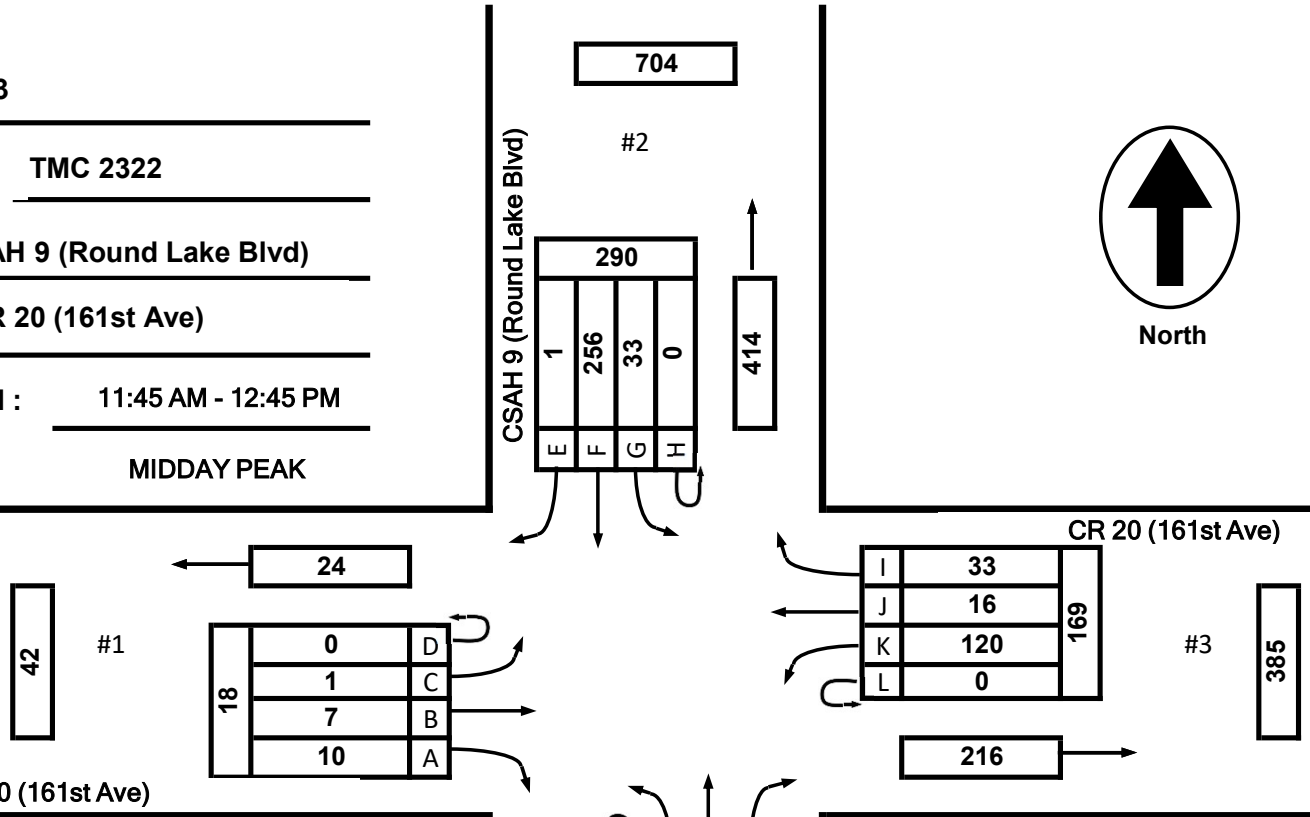
Count Number : TMC 2322

Location : CSAH 9 (Round Lake Blvd)
@ CR 20 (161st Ave)

Collection Period : 11:45 AM - 12:45 PM
MIDDAY PEAK



North



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

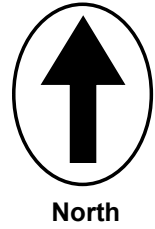
Anoka County Highway Department
Traffic Volume and Turning Movement Study

Date : 02/28/23

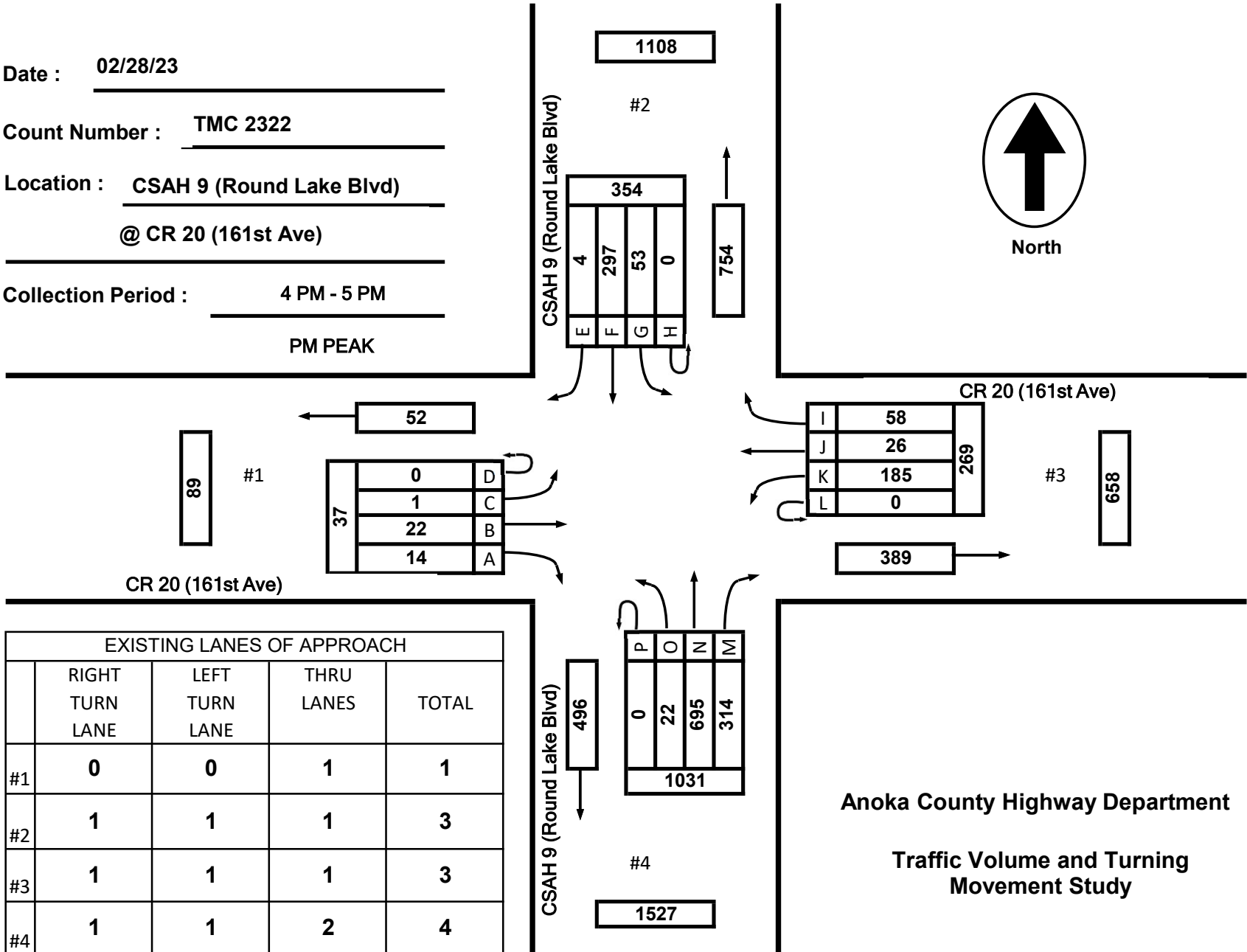
Count Number : TMC 2322

Location : CSAH 9 (Round Lake Blvd)
@ CR 20 (161st Ave)

Collection Period : 4 PM - 5 PM
PM PEAK



North



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

Anoka County Highway Department
 Traffic Volume and Turning Movement Study



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2322-t

Site Code :

Start Date : 02/28/2023

Page No : 1

Weather: Cold and Cloudy
 CountCam2
 Study Conducted By: Kevin

Groups Printed- Cars + - Trucks

Start Time	CSAH 9 (Round Lake Blvd) Southbound						CR 20 (161st Ave) Westbound						CSAH 9 (Round Lake Blvd) Northbound						161st Ave NW Eastbound						Exclu. Total	Inclu. Total	Int. Total	
	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total				
00:00	0	2	0	0	0	2	2	0	2	0	0	4	4	5	0	0	0	9	0	0	0	0	0	0	0	0	15	15
00:15	0	2	0	0	0	2	0	1	1	0	0	2	2	7	0	0	0	9	0	0	0	0	0	0	0	0	13	13
00:30	0	1	1	0	0	2	1	0	0	0	0	1	2	2	1	0	0	5	1	0	0	0	0	1	0	9	9	
00:45	0	1	0	0	0	1	2	0	0	0	0	2	2	7	0	0	0	9	0	0	0	0	0	0	0	12	12	
Total	0	6	1	0	0	7	5	1	3	0	0	9	10	21	1	0	0	32	1	0	0	0	0	1	0	49	49	
01:00	0	0	1	0	0	1	0	0	0	0	0	0	1	7	0	0	0	8	0	0	0	0	0	0	0	9	9	
01:15	0	2	0	0	0	2	0	0	1	0	0	1	2	4	0	0	0	6	0	0	0	0	0	0	0	9	9	
01:30	0	3	0	0	0	3	0	0	2	0	0	2	3	2	0	0	0	5	0	0	0	0	0	0	0	10	10	
01:45	0	0	1	0	0	1	0	0	1	0	0	1	0	5	0	0	0	5	0	0	0	0	0	0	0	7	7	
Total	0	5	2	0	0	7	0	0	4	0	0	4	6	18	0	0	0	24	0	0	0	0	0	0	0	35	35	
02:00	0	1	0	0	0	1	0	0	1	0	0	1	0	4	0	0	0	4	0	0	0	0	0	0	0	6	6	
02:15	0	5	0	0	0	5	0	0	1	0	0	1	2	3	0	0	0	5	0	0	0	0	0	0	0	11	11	
02:30	0	6	0	0	0	6	0	0	0	0	0	0	3	8	0	0	0	11	0	0	0	0	0	0	0	17	17	
02:45	0	5	0	0	0	5	0	0	2	0	0	2	5	9	0	0	0	14	0	0	0	0	0	0	0	21	21	
Total	0	17	0	0	0	17	0	0	4	0	0	4	10	24	0	0	0	34	0	0	0	0	0	0	0	55	55	
03:00	0	9	2	0	0	11	1	0	2	0	0	3	2	2	0	0	0	4	0	0	0	0	0	0	0	18	18	
03:15	0	11	0	0	0	11	1	0	2	0	0	3	0	4	0	0	0	4	1	0	0	0	0	1	0	19	19	
03:30	0	10	1	0	0	11	0	0	4	0	0	4	1	1	0	0	0	2	0	0	0	0	0	0	0	17	17	
03:45	0	9	1	0	0	10	0	0	8	0	0	8	1	2	0	0	0	3	0	0	0	0	0	0	0	21	21	
Total	0	39	4	0	0	43	2	0	16	0	0	18	4	9	0	0	0	13	1	0	0	0	0	1	0	75	75	
04:00	0	16	0	0	0	16	0	0	9	0	0	9	4	1	0	0	0	5	0	0	0	0	0	0	0	30	30	
04:15	0	35	2	0	0	37	0	0	6	0	0	6	1	1	0	0	0	2	1	0	0	0	0	1	0	46	46	
04:30	0	38	1	0	0	39	0	0	19	0	0	19	1	2	0	0	0	3	1	0	0	0	0	1	0	62	62	
04:45	0	36	2	0	0	38	0	0	17	0	0	17	4	0	1	0	0	5	0	0	0	0	0	0	0	60	60	
Total	0	125	5	0	0	130	0	0	51	0	0	51	10	4	1	0	0	15	2	0	0	0	0	2	0	198	198	
05:00	0	69	2	0	0	71	1	0	8	0	0	9	1	9	1	0	0	11	0	1	0	0	0	1	0	92	92	
05:15	0	102	0	0	0	102	0	0	27	0	0	27	12	4	0	0	0	16	0	3	0	0	0	3	0	148	148	
05:30	0	99	2	0	0	101	2	0	40	0	0	42	8	9	0	0	0	17	1	1	0	0	0	2	0	162	162	
05:45	0	94	4	0	0	98	1	1	31	0	0	33	9	5	1	0	0	15	3	3	0	0	0	6	0	152	152	
Total	0	364	8	0	0	372	4	1	106	0	0	111	30	27	2	0	0	59	4	8	0	0	0	12	0	554	554	
06:00	1	128	3	0	0	132	0	0	48	0	0	48	9	8	2	0	0	19	6	3	0	0	0	9	0	208	208	
06:15	0	139	10	0	0	149	4	0	54	0	0	58	18	13	0	0	0	31	5	5	0	0	0	10	0	248	248	
06:30	0	156	12	0	0	168	11	2	83	0	0	96	22	23	0	0	0	45	3	5	1	0	0	9	0	318	318	
06:45	1	136	16	0	0	153	2	1	89	0	0	92	35	28	0	0	0	63	7	13	1	0	0	21	0	329	329	
Total	2	559	41	0	0	602	17	3	274	0	0	294	84	72	2	0	0	158	21	26	2	0	0	49	0	1103	1103	
07:00	0	189	26	0	0	215	13	2	85	0	0	100	29	37	1	0	0	67	6	10	0	0	0	16	0	398	398	
07:15	1	169	20	0	0	190	9	3	93	0	0	105	71	35	1	0	0	107	5	11	0	0	0	16	0	418	418	
07:30	0	149	16	0	0	165	13	6	104	0	0	123	52	45	2	0	0	99	4	6	0	0	0	10	0	397	397	
07:45	1	144	14	0	0	159	8	3	72	0	0	83	37	31	3	0	0	71	3	7	1	0	0	11	0	324	324	
Total	2	651	76	0	0	729	43	14	354	0	0	411	189	148	7	0	0	344	18	34	1	0	0	53	0	1537	1537	
08:00	1	106	17	0	0	124	7	8	55	0	0	70	36	22	3	0	0	61	2	6	0	0	0	8	0	263	263	
08:15	1	105	11	0	0	117	12	4	59	0	0	75	39	21	2	0	0	62	2	3	0	0	0	5	0	259	259	
08:30	0	96	8	0	0	104	5	1	36	0	0	42	32	37	0	0	0	69	6	4	1	0	0	11	0	226	226	



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2322-t

Site Code :

Start Date : 02/28/2023

Page No : 2

Weather: Cold and Cloudy

CountCam2

Study Conducted By: Kevin

Groups Printed- Cars + - Trucks

Start Time	CSAH 9 (Round Lake Blvd) Southbound						CR 20 (161st Ave) Westbound						CSAH 9 (Round Lake Blvd) Northbound						161st Ave NW Eastbound						Exclu. Total	Inclu. Total	Int. Total
	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total			
08:45	0	91	10	0	0	101	11	1	37	0	0	49	25	30	2	0	0	57	5	1	0	0	0	6	0	213	213
Total	2	398	46	0	0	446	35	14	187	0	0	236	132	110	7	0	0	249	15	14	1	0	0	30	0	961	961
09:00	0	76	9	0	0	85	7	3	41	0	0	51	39	29	0	0	0	68	5	3	2	0	0	10	0	214	214
09:15	0	93	7	0	0	100	7	3	69	0	0	79	33	45	3	0	0	81	3	4	0	0	0	7	0	267	267
09:30	0	87	8	0	0	95	6	0	39	0	0	45	20	38	0	0	0	58	1	3	1	0	0	5	0	203	203
09:45	0	87	8	0	0	95	3	1	32	0	0	36	27	39	0	0	0	66	3	1	0	0	0	4	0	201	201
Total	0	343	32	0	0	375	23	7	181	0	0	211	119	151	3	0	0	273	12	11	3	0	0	26	0	885	885
10:00	0	84	6	0	0	90	7	0	36	0	0	43	12	31	2	0	0	45	1	3	0	0	0	4	0	182	182
10:15	0	67	8	0	0	75	6	2	25	0	0	33	13	46	1	0	0	60	3	6	0	0	0	9	0	177	177
10:30	0	73	6	0	0	79	10	0	46	0	0	56	23	51	3	0	0	77	2	1	1	0	0	4	0	216	216
10:45	0	82	4	0	0	86	6	2	31	0	0	39	32	48	1	0	0	81	2	2	0	0	0	4	0	210	210
Total	0	306	24	0	0	330	29	4	138	0	0	171	80	176	7	0	0	263	8	12	1	0	0	21	0	785	785
11:00	0	77	6	0	0	83	12	3	30	0	0	45	29	52	1	0	0	82	2	3	0	0	0	5	0	215	215
11:15	0	68	9	0	0	77	12	1	25	0	0	38	31	56	2	0	0	89	3	3	0	0	0	6	0	210	210
11:30	0	79	9	0	0	88	7	3	33	0	0	43	34	67	0	0	0	101	3	3	0	0	0	6	0	238	238
11:45	0	60	3	0	0	63	10	2	30	0	0	42	19	86	3	0	0	108	1	1	0	0	0	2	0	215	215
Total	0	284	27	0	0	311	41	9	118	0	0	168	113	261	6	0	0	380	9	10	0	0	0	19	0	878	878
12:00	0	68	12	0	0	80	8	0	28	0	0	36	25	65	2	0	0	92	2	3	0	0	0	5	0	213	213
12:15	0	64	3	0	0	67	9	0	31	0	0	40	36	78	2	0	0	116	3	2	0	0	0	5	0	228	228
12:30	0	77	3	0	0	80	8	1	31	0	0	40	26	58	4	0	0	88	1	1	0	0	0	2	0	210	210
12:45	0	61	6	0	0	67	9	1	24	0	0	34	31	78	0	0	0	109	3	4	0	0	0	7	0	217	217
Total	0	270	24	0	0	294	34	2	114	0	0	150	118	279	8	0	0	405	9	10	0	0	0	19	0	868	868
13:00	1	58	11	0	0	70	13	1	26	0	0	40	25	61	3	0	0	89	1	0	1	0	0	2	0	201	201
13:15	0	74	8	0	0	82	9	3	31	0	0	43	36	79	0	0	0	115	4	1	0	0	0	5	0	245	245
13:30	0	62	7	0	0	69	7	1	30	0	0	38	31	88	4	0	0	123	2	2	0	0	0	4	0	234	234
13:45	0	64	7	0	0	71	8	2	29	0	0	39	41	94	1	0	0	136	2	1	1	0	0	4	0	250	250
Total	1	258	33	0	0	292	37	7	116	0	0	160	133	322	8	0	0	463	9	4	2	0	0	15	0	930	930
14:00	1	66	12	0	0	79	8	6	28	0	0	42	46	79	1	0	0	126	1	2	0	0	0	3	0	250	250
14:15	0	64	7	0	0	71	10	7	33	0	0	50	58	119	1	0	0	178	5	2	0	0	0	7	0	306	306
14:30	2	64	10	0	0	76	24	14	46	0	0	84	56	107	8	0	0	171	1	5	1	0	0	7	0	338	338
14:45	0	67	15	0	0	82	15	2	52	0	0	69	59	134	3	0	0	196	0	5	1	0	0	6	0	353	353
Total	3	261	44	0	0	308	57	29	159	0	0	245	219	439	13	0	0	671	7	14	2	0	0	23	0	1247	1247
15:00	0	59	18	0	0	77	15	2	27	0	0	44	49	133	4	0	0	186	2	0	0	0	0	2	0	309	309
15:15	1	65	11	0	0	77	19	4	34	0	0	57	90	140	3	0	0	233	2	1	1	0	0	4	0	371	371
15:30	1	61	16	0	0	78	9	8	32	0	0	49	71	164	4	0	0	239	2	4	1	0	0	7	0	373	373
15:45	0	50	12	0	0	62	17	6	44	0	0	67	77	163	5	0	0	245	3	7	0	0	0	10	0	384	384
Total	2	235	57	0	0	294	60	20	137	0	0	217	287	600	16	0	0	903	9	12	2	0	0	23	0	1437	1437
16:00	4	76	12	0	0	92	16	6	44	0	0	66	74	156	6	0	0	236	3	8	0	0	0	11	0	405	405
16:15	0	79	11	0	0	90	13	6	54	0	0	73	64	197	3	0	0	264	4	5	0	0	0	9	0	436	436
16:30	0	76	18	0	0	94	18	6	55	0	0	79	92	154	5	0	0	251	1	6	1	0	0	8	0	432	432
16:45	0	66	12	0	0	78	11	8	32	0	0	51	84	188	8	0	0	280	6	3	0	0	0	9	0	418	418
Total	4	297	53	0	0	354	58	26	185	0	0	269	314	695	22	0	0	1031	14	22	1	0	0	37	0	1691	1691
17:00	0	63	21	0	0	84	16	5	49	0	0	70	65	158	7	0	0	230	3	5	0	0	0	8	0	392	392
17:15	0	76	9	0	0	85	22	11	39	0	0	72	73	138	6	0	0	217	1	5	2	0	0	8	0	382	382
17:30	0	54	14	0	0	68	9	6	48	0	0	63	67	149	6	0	0	222	3	7	0	0	0	10	0	363	363



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2322-t
 Site Code :
 Start Date : 02/28/2023
 Page No : 3

Weather: Cold and Cloudy
 CountCam2
 Study Conducted By: Kevin

Groups Printed- Cars + - Trucks

Start Time	CSAH 9 (Round Lake Blvd) Southbound						CR 20 (161st Ave) Westbound						CSAH 9 (Round Lake Blvd) Northbound						161st Ave NW Eastbound						Exclu. Total	Inclu. Total	Int. Total
	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total			
17:45	0	49	8	0	0	57	15	7	46	0	0	68	59	138	4	0	0	201	3	3	0	0	0	6	0	332	332
Total	0	242	52	0	0	294	62	29	182	0	0	273	264	583	23	0	0	870	10	20	2	0	0	32	0	1469	1469
18:00	1	53	9	0	0	63	10	5	37	0	0	52	58	100	7	0	0	165	4	3	1	0	0	8	0	288	288
18:15	0	49	14	0	0	63	5	1	36	0	0	42	62	122	4	0	0	188	0	5	0	0	0	5	0	298	298
18:30	0	56	13	0	0	69	16	2	29	0	0	47	36	110	4	0	0	150	1	3	0	0	0	4	0	270	270
18:45	3	25	12	0	0	40	14	0	24	0	0	38	35	81	0	0	0	116	1	5	0	0	0	6	0	200	200
Total	4	183	48	0	0	235	45	8	126	0	0	179	191	413	15	0	0	619	6	16	1	0	0	23	0	1056	1056
19:00	0	29	4	0	0	33	11	4	18	0	0	33	34	88	4	0	0	126	1	4	0	0	0	5	0	197	197
19:15	0	19	4	0	0	23	8	3	9	0	0	20	35	77	3	1	0	116	2	2	0	0	0	4	0	163	163
19:30	0	21	15	0	0	36	6	2	18	0	0	26	23	47	2	0	0	72	0	0	1	0	0	1	0	135	135
19:45	0	22	13	0	0	35	11	3	14	0	0	28	32	57	1	0	0	90	0	2	0	0	0	2	0	155	155
Total	0	91	36	0	0	127	36	12	59	0	0	107	124	269	10	1	0	404	3	8	1	0	0	12	0	650	650
20:00	0	16	6	0	0	22	12	2	15	0	0	29	22	62	1	0	0	85	0	3	0	0	0	3	0	139	139
20:15	0	17	5	0	0	22	21	5	29	0	0	55	28	70	1	0	0	99	0	0	0	0	0	0	0	176	176
20:30	0	16	4	0	0	20	10	4	19	0	0	33	21	39	1	0	0	61	1	0	0	0	0	1	0	115	115
20:45	0	20	8	0	0	28	11	1	14	0	0	26	19	41	4	0	0	64	2	2	0	0	0	4	0	122	122
Total	0	69	23	0	0	92	54	12	77	0	0	143	90	212	7	0	0	309	3	5	0	0	0	8	0	552	552
21:00	0	17	4	0	0	21	8	0	6	0	0	14	14	52	0	0	0	66	2	2	0	0	0	4	0	105	105
21:15	0	18	6	0	0	24	10	2	6	0	0	18	20	56	2	0	0	78	0	3	0	0	0	3	0	123	123
21:30	1	10	4	0	0	15	3	2	10	0	0	15	16	22	0	0	0	38	0	1	0	0	0	1	0	69	69
21:45	0	6	4	0	0	10	5	0	5	0	0	10	11	34	1	0	0	46	0	0	0	0	0	0	0	66	66
Total	1	51	18	0	0	70	26	4	27	0	0	57	61	164	3	0	0	228	2	6	0	0	0	8	0	363	363
22:00	0	14	3	0	0	17	8	1	5	0	0	14	6	36	0	0	0	42	0	0	0	0	0	0	0	73	73
22:15	1	4	1	0	0	6	4	1	2	0	0	7	7	33	0	0	0	40	1	1	0	0	0	2	0	55	55
22:30	0	3	0	0	0	3	3	0	2	0	0	5	6	21	0	0	0	27	0	0	0	0	0	0	0	35	35
22:45	0	7	0	0	0	7	1	0	3	0	0	4	9	21	0	0	0	30	0	0	0	0	0	0	0	41	41
Total	1	28	4	0	0	33	16	2	12	0	0	30	28	111	0	0	0	139	1	1	0	0	0	2	0	204	204
23:00	0	5	0	0	0	5	0	0	3	0	0	3	4	19	0	0	0	23	0	0	0	0	0	0	0	31	31
23:15	0	4	0	0	0	4	2	0	0	0	0	2	8	14	0	0	0	22	0	0	0	0	0	0	0	28	28
23:30	1	6	0	0	0	7	0	1	0	0	0	1	4	22	0	0	0	26	1	0	0	0	0	1	0	35	35
23:45	0	2	0	0	0	2	0	1	0	0	0	1	5	14	0	0	0	19	0	0	0	0	0	0	0	22	22
Total	1	17	0	0	0	18	2	2	3	0	0	7	21	69	0	0	0	90	1	0	0	0	0	1	0	116	116
Grand Total	23	5099	658	0	0	5780	686	206	2633	0	0	3525	2637	5177	161	1	0	7976	165	233	19	0	0	417	0	17698	17698
Apprch %	0.4	88.2	11.4	0			19.5	5.8	74.7	0			33.1	64.9	2	0			39.6	55.9	4.6	0					
Total %	0.1	28.8	3.7	0		32.7	3.9	1.2	14.9	0		19.9	14.9	29.3	0.9	0		45.1	0.9	1.3	0.1	0		2.4	0	100	
Cars +	21	4990	622	0		5633	651	196	2578	0		3425	2570	5079	158	1		7808	159	222	14	0		395	0	0	17261
% Cars +	91.3	97.9	94.5	0		97.5	94.9	95.1	97.9	0		97.2	97.5	98.1	98.1	100		97.9	96.4	95.3	73.7	0		94.7	0	0	97.5
Trucks	2	109	36	0		147	35	10	55	0		100	67	98	3	0		168	6	11	5	0		22	0	0	437
% Trucks	8.7	2.1	5.5	0		2.5	5.1	4.9	2.1	0		2.8	2.5	1.9	1.9	0		2.1	3.6	4.7	26.3	0		5.3	0	0	2.5



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2322-t
 Site Code :
 Start Date : 02/28/2023
 Page No : 4

Weather: Cold and Cloudy
 CountCam2
 Study Conducted By: Kevin

Start Time	CSAH 9 (Round Lake Blvd) Southbound					CR 20 (161st Ave) Westbound					CSAH 9 (Round Lake Blvd) Northbound					161st Ave NW Eastbound					Int. Total
	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	
Peak Hour Analysis From 00:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45																					
06:45	1	136	16	0	153	2	1	89	0	92	35	28	0	0	63	7	13	1	0	21	329
07:00	0	189	26	0	215	13	2	85	0	100	29	37	1	0	67	6	10	0	0	16	398
07:15	1	169	20	0	190	9	3	93	0	105	71	35	1	0	107	5	11	0	0	16	418
07:30	0	149	16	0	165	13	6	104	0	123	52	45	2	0	99	4	6	0	0	10	397
Total Volume	2	643	78	0	723	37	12	371	0	420	187	145	4	0	336	22	40	1	0	63	1542
% App. Total	0.3	88.9	10.8	0		8.8	2.9	88.3	0		55.7	43.2	1.2	0		34.9	63.5	1.6	0		
PHF	.500	.851	.750	.000	.841	.712	.500	.892	.000	.854	.658	.806	.500	.000	.785	.786	.769	.250	.000	.750	.922

Peak Hour Analysis From 10:00 to 14:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 13:30																					
13:30	0	62	7	0	69	7	1	30	0	38	31	88	4	0	123	2	2	0	0	4	234
13:45	0	64	7	0	71	8	2	29	0	39	41	94	1	0	136	2	1	1	0	4	250
14:00	1	66	12	0	79	8	6	28	0	42	46	79	1	0	126	1	2	0	0	3	250
14:15	0	64	7	0	71	10	7	33	0	50	58	119	1	0	178	5	2	0	0	7	306
Total Volume	1	256	33	0	290	33	16	120	0	169	176	380	7	0	563	10	7	1	0	18	1040
% App. Total	0.3	88.3	11.4	0		19.5	9.5	71	0		31.3	67.5	1.2	0		55.6	38.9	5.6	0		
PHF	.250	.970	.688	.000	.918	.825	.571	.909	.000	.845	.759	.798	.438	.000	.791	.500	.875	.250	.000	.643	.850

Peak Hour Analysis From 14:30 to 23:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	4	76	12	0	92	16	6	44	0	66	74	156	6	0	236	3	8	0	0	11	405
16:15	0	79	11	0	90	13	6	54	0	73	64	197	3	0	264	4	5	0	0	9	436
16:30	0	76	18	0	94	18	6	55	0	79	92	154	5	0	251	1	6	1	0	8	432
16:45	0	66	12	0	78	11	8	32	0	51	84	188	8	0	280	6	3	0	0	9	418
Total Volume	4	297	53	0	354	58	26	185	0	269	314	695	22	0	1031	14	22	1	0	37	1691
% App. Total	1.1	83.9	15	0		21.6	9.7	68.8	0		30.5	67.4	2.1	0		37.8	59.5	2.7	0		
PHF	.250	.940	.736	.000	.941	.806	.813	.841	.000	.851	.853	.882	.688	.000	.921	.583	.688	.250	.000	.841	.970



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2322-t
 Site Code :
 Start Date : 02/28/2023
 Page No : 1

Weather: Cold and Cloudy
 CountCam2
 Study Conducted By: Kevin

Groups Printed- Trucks

Start Time	CSAH 9 (Round Lake Blvd) Southbound					CR 20 (161st Ave) Westbound					CSAH 9 (Round Lake Blvd) Northbound					161st Ave NW Eastbound					Int. Total	
	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total		
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:15	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
00:30	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
01:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
01:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45	0	2	0	0	2	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	0	6
Total	0	3	0	0	3	0	0	1	0	1	2	2	0	0	4	0	0	0	0	0	0	8
03:00	0	1	1	0	2	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	4
03:15	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	1	0	2	2	0	1	0	3	1	0	0	0	1	0	0	0	0	0	0	6
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
04:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
05:00	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3
05:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30	0	3	0	0	3	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	5
05:45	0	2	0	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	4
Total	0	7	0	0	7	0	0	1	0	1	1	4	0	0	5	0	0	0	0	0	0	13



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2322-t
 Site Code :
 Start Date : 02/28/2023
 Page No : 2

Weather: Cold and Cloudy
 CountCam2
 Study Conducted By: Kevin

Groups Printed- Trucks

Start Time	CSAH 9 (Round Lake Blvd) Southbound					CR 20 (161st Ave) Westbound					CSAH 9 (Round Lake Blvd) Northbound					161st Ave NW Eastbound					Int. Total	
	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total		
06:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
06:15	0	5	0	0	5	0	0	0	0	0	3	1	0	0	4	0	0	0	0	0	0	9
06:30	0	3	1	0	4	1	1	1	0	3	1	1	0	0	2	0	0	1	0	1	0	10
06:45	0	2	3	0	5	0	1	1	0	2	1	3	0	0	4	0	0	0	0	0	0	11
Total	0	12	4	0	16	1	2	2	0	5	5	5	0	0	10	0	0	1	0	1	1	32
07:00	0	4	1	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	6
07:15	0	3	0	0	3	1	0	1	0	2	3	3	0	0	6	0	0	0	0	0	0	11
07:30	0	2	0	0	2	2	3	2	0	7	2	4	1	0	7	0	0	0	0	0	0	16
07:45	0	7	1	0	8	0	0	2	0	2	0	1	0	0	1	1	0	0	0	0	1	12
Total	0	16	2	0	18	3	3	5	0	11	5	9	1	0	15	1	0	0	0	0	1	45
08:00	0	4	3	0	7	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	0	10
08:15	0	2	1	0	3	2	1	1	0	4	1	1	0	0	2	0	0	0	0	0	0	9
08:30	0	3	2	0	5	0	0	0	0	0	1	3	0	0	4	0	0	1	0	1	0	10
08:45	0	1	0	0	1	1	0	1	0	2	1	1	0	0	2	0	0	0	0	0	0	5
Total	0	10	6	0	16	3	1	2	0	6	5	6	0	0	11	0	0	1	0	1	1	34
09:00	0	1	1	0	2	0	0	2	0	2	5	2	0	0	7	0	1	1	0	2	0	13
09:15	0	2	0	0	2	0	0	0	0	0	2	2	0	0	4	0	1	0	0	1	0	7
09:30	0	2	0	0	2	1	0	4	0	5	0	2	0	0	2	0	0	0	0	0	0	9
09:45	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	5
Total	0	7	1	0	8	1	0	6	0	7	7	8	0	0	15	1	2	1	0	4	4	34
10:00	0	0	0	0	0	1	0	2	0	3	2	1	0	0	3	0	0	0	0	0	0	6
10:15	0	3	1	0	4	1	0	0	0	1	1	1	0	0	2	0	1	0	0	1	0	8
10:30	0	1	0	0	1	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	0	4
10:45	0	1	1	0	2	0	1	2	0	3	2	2	0	0	4	0	0	0	0	0	0	9
Total	0	5	2	0	7	2	1	5	0	8	6	5	0	0	11	0	1	0	0	1	1	27
11:00	0	2	0	0	2	1	0	3	0	4	0	6	0	0	6	0	1	0	0	1	0	13
11:15	0	3	0	0	3	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	7
11:30	0	3	0	0	3	0	0	1	0	1	3	2	0	0	5	1	0	0	0	1	0	10
11:45	0	1	0	0	1	0	0	1	0	1	2	3	0	0	5	0	0	0	0	0	0	7
Total	0	9	0	0	9	2	0	5	0	7	5	14	0	0	19	1	1	0	0	2	2	37
12:00	0	1	0	0	1	0	0	0	0	0	2	1	0	0	3	0	1	0	0	1	0	5
12:15	0	3	0	0	3	2	0	1	0	3	3	3	0	0	6	0	0	0	0	0	0	12
12:30	0	1	0	0	1	0	0	2	0	2	2	1	0	0	3	0	0	0	0	0	0	6



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2322-t
 Site Code :
 Start Date : 02/28/2023
 Page No : 3

Weather: Cold and Cloudy
 CountCam2
 Study Conducted By: Kevin

Groups Printed- Trucks

Start Time	CSAH 9 (Round Lake Blvd) Southbound					CR 20 (161st Ave) Westbound					CSAH 9 (Round Lake Blvd) Northbound					161st Ave NW Eastbound					Int. Total
	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	
12:45	0	4	0	0	4	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	8
Total	0	9	0	0	9	2	0	3	0	5	9	7	0	0	16	0	1	0	0	1	31
13:00	0	0	2	0	2	1	0	1	0	2	1	0	0	0	1	0	0	0	0	0	5
13:15	0	2	0	0	2	1	1	0	0	2	1	2	0	0	3	0	0	0	0	0	7
13:30	0	1	1	0	2	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	5
13:45	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
Total	0	5	3	0	8	3	1	2	0	6	4	2	0	0	6	0	0	0	0	0	20
14:00	0	0	0	0	0	1	0	1	0	2	2	3	0	0	5	0	0	0	0	0	7
14:15	0	1	1	0	2	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	6
14:30	1	1	0	0	2	1	0	1	0	2	0	1	0	0	1	0	1	0	0	1	6
14:45	0	2	0	0	2	2	0	3	0	5	1	1	0	0	2	0	1	1	0	2	11
Total	1	4	1	0	6	4	0	6	0	10	3	8	0	0	11	0	2	1	0	3	30
15:00	0	1	0	0	1	1	0	0	0	1	0	2	0	0	2	1	0	0	0	1	5
15:15	0	2	1	0	3	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	6
15:30	0	1	1	0	2	2	0	1	0	3	2	0	0	0	2	0	0	0	0	0	7
15:45	0	0	0	0	0	1	0	3	0	4	3	6	1	0	10	0	0	0	0	0	14
Total	0	4	2	0	6	6	0	4	0	10	5	9	1	0	15	1	0	0	0	1	32
16:00	1	4	0	0	5	0	0	3	0	3	0	3	1	0	4	0	1	0	0	1	13
16:15	0	1	1	0	2	1	0	2	0	3	0	2	0	0	2	0	0	0	0	0	7
16:30	0	2	2	0	4	1	0	3	0	4	1	4	0	0	5	0	0	1	0	1	14
16:45	0	1	2	0	3	0	0	0	0	0	2	0	0	0	2	1	1	0	0	2	7
Total	1	8	5	0	14	2	0	8	0	10	3	9	1	0	13	1	2	1	0	4	41
17:00	0	1	5	0	6	2	0	2	0	4	0	1	0	0	1	0	1	0	0	1	12
17:15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
17:30	0	1	0	0	1	0	1	0	0	1	1	0	0	0	1	1	1	0	0	2	5
17:45	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Total	0	2	6	0	8	2	1	2	0	5	3	2	0	0	5	1	2	0	0	3	21
18:00	0	0	0	0	0	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	5
18:15	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	7



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2322-t
 Site Code :
 Start Date : 02/28/2023
 Page No : 4

Weather: Cold and Cloudy
 CountCam2
 Study Conducted By: Kevin

Groups Printed- Trucks

Start Time	CSAH 9 (Round Lake Blvd) Southbound					CR 20 (161st Ave) Westbound					CSAH 9 (Round Lake Blvd) Northbound					161st Ave NW Eastbound					Int. Total
	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	
19:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
19:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:30	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
20:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:15	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
20:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
21:00	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
21:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:30	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	4	1	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	6
22:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
22:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
23:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
23:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	2	109	36	0	147	35	10	55	0	100	67	98	3	0	168	6	11	5	0	22	437
Apprch %	1.4	74.1	24.5	0		35	10	55	0		39.9	58.3	1.8	0		27.3	50	22.7	0		
Total %	0.5	24.9	8.2	0	33.6	8	2.3	12.6	0	22.9	15.3	22.4	0.7	0	38.4	1.4	2.5	1.1	0	5	

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name:

Study Date : 04/13/2023

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 9 (Round Lake Blvd)

Number of Lanes : 1

Total Approach Volume: 7,976

Southbound: CSAH 9 (Round Lake Blvd)

Number of Lanes : 1

Total Approach Volume: 5,780

Minor Street Approaches

Eastbound: CR 20 (161st Ave)

Number of Lanes : 1

Total Approach Volume: 417

Westbound: CR 20 (161st Ave)

Number of Lanes : 1

Total Approach Volume: 3,525

Warrant Summary (Rural Values Apply)

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

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

Required volumes reached for 16 hours, 8 are needed

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

Required volumes reached for 14 hours, 8 are needed

Warrant 1C - Combination of Warrants.....Satisfied

Required 1A volumes reached for 16 hours, 8 are needed

Required 1B volumes reached for 15 hours, 8 are needed

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

Number of hours (15) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (49) 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:

Study Date : 04/13/2023

Warrant 1A - Minimum Volumes

Description

Intended for sites where the volume of intersecting traffic is the principal reason for consideration of a signal installation.

Summary

16 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
Number of Major Lanes = **1**
Number of Minor Lanes = **1**

Volume Requirements

Rural Factor of 70 % applied
Veh/Hr Major = **350**

Veh/Hr Minor = **105**

Time	Major Road				Total	Minor Road		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
	CSAH 9 (Round Lake Blvd)					CR 20 (161st Ave)		
16:00 - 17:00	1031	+	354	=	1385	37	269	Yes
15:00 - 16:00	903	+	294	=	1197	23	217	Yes
17:00 - 18:00	870	+	294	=	1164	32	273	Yes
07:00 - 08:00	344	+	729	=	1073	53	411	Yes
14:00 - 15:00	671	+	308	=	979	23	245	Yes
18:00 - 19:00	619	+	235	=	854	23	179	Yes
06:00 - 07:00	158	+	602	=	760	49	294	Yes
13:00 - 14:00	463	+	292	=	755	15	160	Yes
12:00 - 13:00	405	+	294	=	699	19	150	Yes
08:00 - 09:00	249	+	446	=	695	30	236	Yes
11:00 - 12:00	380	+	311	=	691	19	168	Yes
09:00 - 10:00	273	+	375	=	648	26	211	Yes
10:00 - 11:00	263	+	330	=	593	21	171	Yes
19:00 - 20:00	404	+	127	=	531	12	107	Yes
05:00 - 06:00	59	+	372	=	431	12	111	Yes
20:00 - 21:00	309	+	92	=	401	8	143	Yes
04:45 - 05:45	49	+	312	=	361	6	95	No
21:00 - 22:00	228	+	70	=	298	8	57	No
04:30 - 05:30	35	+	250	=	285	5	72	No
21:15 - 22:15	204	+	66	=	270	4	57	No
21:30 - 22:30	166	+	48	=	214	3	46	No
04:15 - 05:15	21	+	185	=	206	3	51	No
21:45 - 22:45	155	+	36	=	191	2	36	No
22:00 - 23:00	139	+	33	=	172	2	30	No
04:00 - 05:00	15		130		145	2	51	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name:

Study Date : 04/13/2023

Warrant 1B - Interruption of Continuous Traffic

Description

Intended for sites where the volume of the major street is so heavy that traffic on the minor street suffers excessive delay or hazard.

Summary

14 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
Number of Major Lanes = **1**
Number of Minor Lanes = **1**

Volume Requirements

Rural Factor of 70 % applied
Veh/Hr Major = **525**

Veh/Hr Minor = **52**

Time	Major Road				Total	Minor Road		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
	CSAH 9 (Round Lake Blvd)					CR 20 (161st Ave)		
16:30 - 17:30	978	+	341	=	1319	33	272	Yes
15:30 - 16:30	984	+	322	=	1306	37	255	Yes
14:30 - 15:30	786	+	312	=	1098	19	254	Yes
17:30 - 18:30	776	+	251	=	1027	29	225	Yes
06:30 - 07:30	282	+	726	=	1008	62	393	Yes
07:30 - 08:30	293	+	565	=	858	34	351	Yes
13:30 - 14:30	563	+	290	=	853	18	169	Yes
11:30 - 12:30	417	+	298	=	715	18	161	Yes
12:30 - 13:30	401	+	299	=	700	16	157	Yes
18:30 - 19:30	508	+	165	=	673	19	138	Yes
08:30 - 09:30	275	+	390	=	665	34	221	Yes
10:30 - 11:30	329	+	325	=	654	19	178	Yes
09:30 - 10:30	229	+	355	=	584	22	157	Yes
05:30 - 06:30	82	+	480	=	562	27	181	Yes
05:15 - 06:15	67	+	433	=	500	20	150	No
19:30 - 20:30	346	+	115	=	461	6	138	No
19:45 - 20:45	335	+	99	=	434	6	145	No
05:00 - 06:00	59	+	372	=	431	12	111	No
20:00 - 21:00	309	+	92	=	401	8	143	No
20:15 - 21:15	290	+	91	=	381	9	128	No
20:30 - 21:30	269	+	93	=	362	12	91	No
04:45 - 05:45	49	+	312	=	361	6	95	No
20:45 - 21:45	246	+	88	=	334	12	73	No
21:00 - 22:00	228	+	70	=	298	8	57	No
04:30 - 05:30	35		250		285	5	72	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name:

Study Date : 04/13/2023

Warrant 1C Combination of Warrants

Description

Intended for sites where the traffic volumes don't meet individual warrants but where Warrants 1A and 1B are both met to 80% of their stated values.

Summary

16 hours meet 1A minimums.
15 hours meet 1B minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
Number of Major Lanes = **1**
Number of Minor Lanes = **1**

Volume Requirements

Rural Factor of 70% applied
Warrant 1A 1B
Veh/Hr Major = **280 420**

Veh/Hr Minor = **84 42**

Major Road

CSAH 9 (Round Lake Blvd)

Minor Road

CR 20 (161st Ave)

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
15:45 - 16:45	996	+	338	=	1334	38	285	Yes
16:45 - 17:45	949	+	315	=	1264	35	256	Yes
14:45 - 15:45	854	+	314	=	1168	19	219	Yes
06:45 - 07:45	336	+	723	=	1059	63	420	Yes
17:45 - 18:45	704	+	252	=	956	23	209	Yes
13:45 - 14:45	611	+	297	=	908	21	215	Yes
07:45 - 08:45	263	+	504	=	767	35	270	Yes
12:45 - 13:45	436	+	288	=	724	18	155	Yes
11:45 - 12:45	404	+	290	=	694	14	158	Yes
10:45 - 11:45	353	+	334	=	687	21	165	Yes
05:45 - 06:45	110	+	547	=	657	34	235	Yes
08:45 - 09:45	264	+	381	=	645	28	224	Yes

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
16:00 - 17:00	1031	+	354	=	1385	37	269	Yes
15:00 - 16:00	903	+	294	=	1197	23	217	Yes
17:00 - 18:00	870	+	294	=	1164	32	273	Yes
07:00 - 08:00	344	+	729	=	1073	53	411	Yes
14:00 - 15:00	671	+	308	=	979	23	245	Yes
18:00 - 19:00	619	+	235	=	854	23	179	Yes
06:00 - 07:00	158	+	602	=	760	49	294	Yes
13:00 - 14:00	463	+	292	=	755	15	160	Yes
12:00 - 13:00	405	+	294	=	699	19	150	Yes
08:00 - 09:00	249	+	446	=	695	30	236	Yes
11:00 - 12:00	380	+	311	=	691	19	168	Yes
09:00 - 10:00	273	+	375	=	648	26	211	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name:

Study Date : 04/13/2023

Warrant 2 - Four Hour Volumes

Description

Intended for sites where the volume of intersecting traffic during any four hours of the day is the principal reason for consideration of a signal installation.

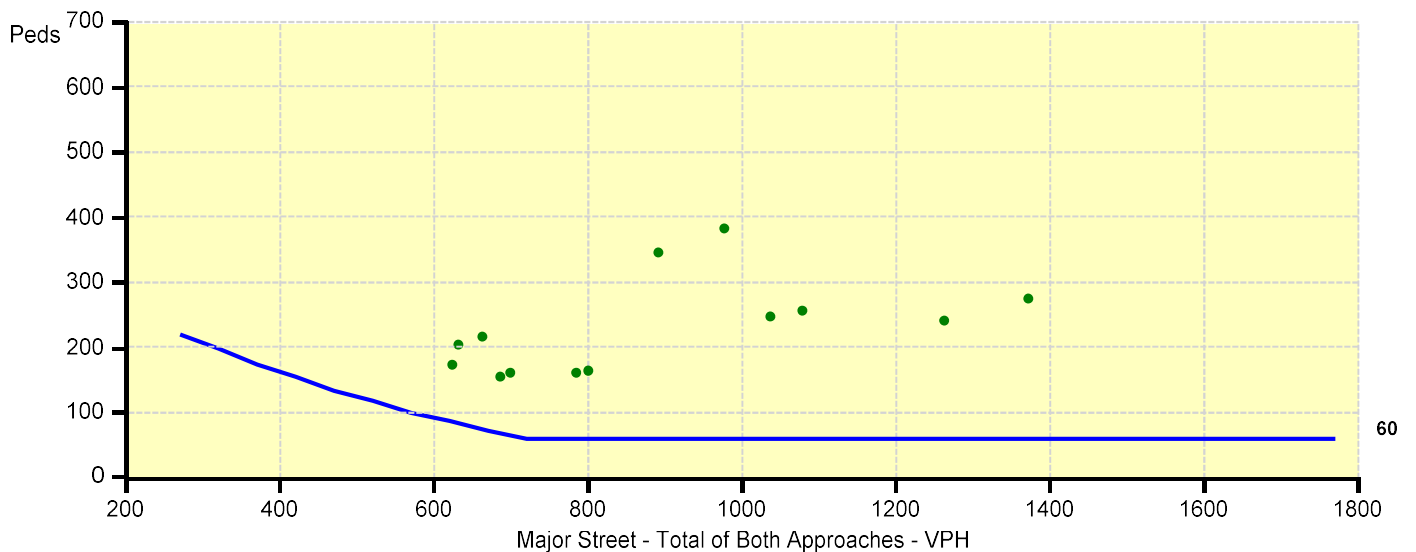
Summary

15 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
 Number of Major Lanes = **1**
 Number of Minor Lanes = **1**

Time	Major Road CSAH 9 (Round Lake Blvd)				Total	Minor Road CR 20 (161st Ave)		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:15 - 17:15	1025	+	346	=	1371	34	273	Yes
15:15 - 16:15	953	+	309	=	1262	32	239	Yes
17:15 - 18:15	805	+	273	=	1078	32	255	Yes
14:15 - 15:15	731	+	306	=	1037	22	247	Yes
07:15 - 08:15	338	+	638	=	976	45	381	Yes
06:15 - 07:15	206	+	685	=	891	56	346	Yes
13:15 - 14:15	500	+	301	=	801	16	162	Yes
18:15 - 19:15	580	+	205	=	785	20	160	Yes
11:15 - 12:15	390	+	308	=	698	19	159	Yes
12:15 - 13:15	402	+	284	=	686	16	154	Yes
08:15 - 09:15	256	+	407	=	663	32	217	Yes
09:15 - 10:15	250	+	380	=	630	20	203	Yes



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name:

Study Date : 04/13/2023

Warrant 3B - Peak Hour Volumes

Description

Intended for sites where the volume of intersecting traffic during one hour of the day is the principal reason for consideration of a signal installation.

Summary

48 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
 Number of Major Lanes = **1**
 Number of Minor Lanes = **1**

Time	Major Road				Total	Minor Road		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
	CSAH 9 (Round Lake Blvd)					CR 20 (161st Ave)		
16:00 - 17:00	1031	+	354	=	1385	37	269	Yes
16:15 - 17:15	1025	+	346	=	1371	34	273	Yes
15:45 - 16:45	996	+	338	=	1334	38	285	Yes
16:30 - 17:30	978	+	341	=	1319	33	272	Yes
15:30 - 16:30	984	+	322	=	1306	37	255	Yes
16:45 - 17:45	949	+	315	=	1264	35	256	Yes
15:15 - 16:15	953	+	309	=	1262	32	239	Yes
15:00 - 16:00	903	+	294	=	1197	23	217	Yes
14:45 - 15:45	854	+	314	=	1168	19	219	Yes
17:00 - 18:00	870	+	294	=	1164	32	273	Yes
14:30 - 15:30	786	+	312	=	1098	19	254	Yes
17:15 - 18:15	805	+	273	=	1078	32	255	Yes

