

Date : 04/18/23

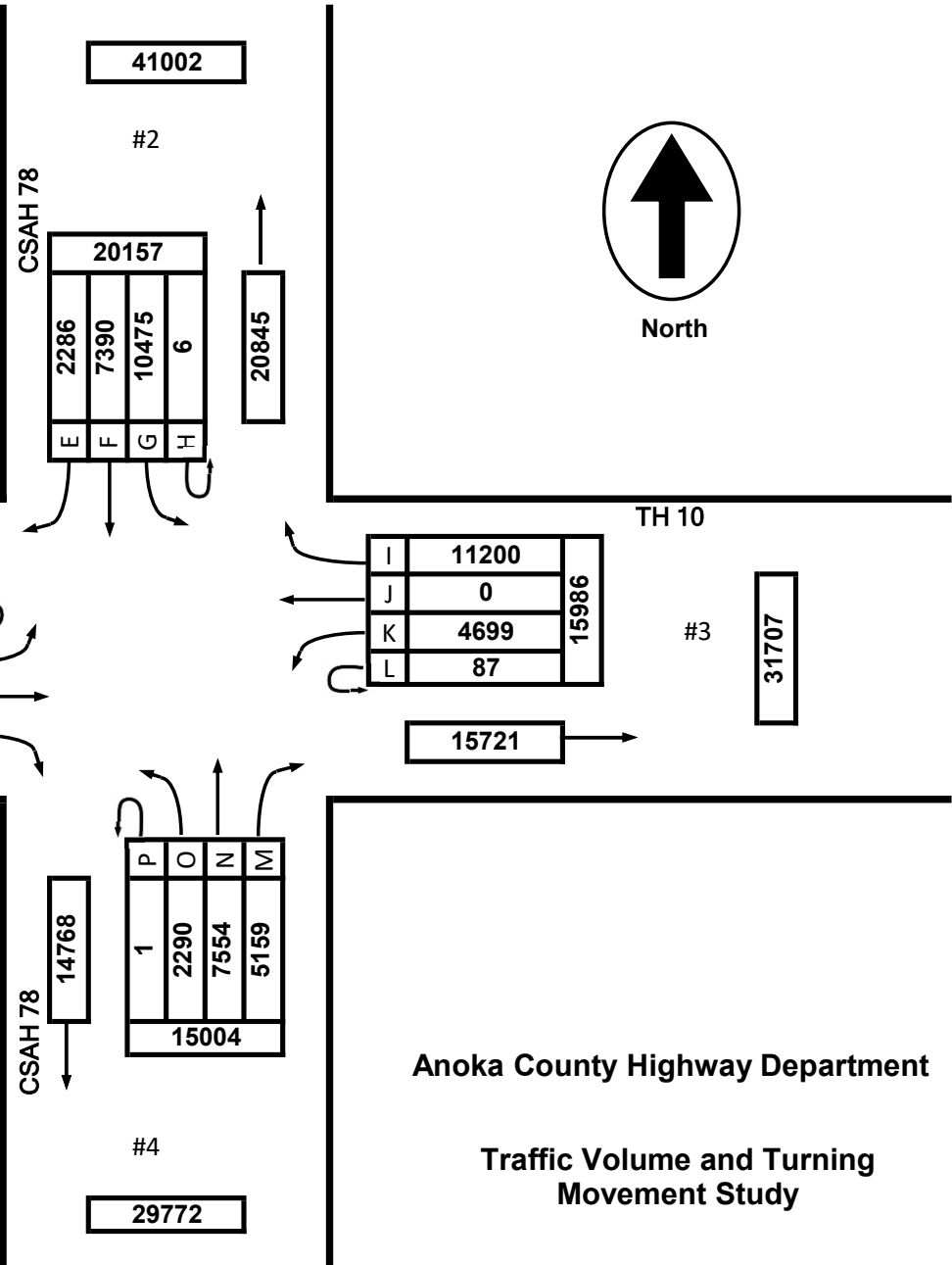
Count Number : TMC 2303

Location : CSAH 78
@ TH 10

Collection Period : 24 HR



North



15	D
2085	C
0	B
2678	A

I	11200	15986
J	0	
K	4699	
L	87	

P	O	N	M
1	2290	7554	5159
15004			

EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	2	0	3
#2	1	2	3	6
#3	2	2	0	4
#4	1	2	3	6

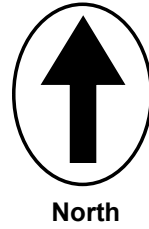
Anoka County Highway Department
 Traffic Volume and Turning Movement Study

Date : 04/18/23

Count Number : TMC 2303

Location : CSAH 78
@ TH 10

Collection Period : 7 AM - 8 AM
AM PEAK



North

646

#1

TH 10

293

353	1	D
	131	C
	0	B
	221	A

3183

#2

CSAH 78

2203			
136	787	1280	0
E	F	G	H

980

I	495	872
J	0	
K	375	
L	2	

TH 10

#3

2634

1762

CSAH 78

1383

P	O	N	M
0	156	354	480
990			

#4

2373

EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	2	0	3
#2	1	2	3	6
#3	2	2	0	4
#4	1	2	3	6

Anoka County Highway Department

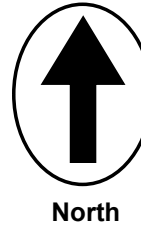
Traffic Volume and Turning Movement Study

Date : 04/18/23

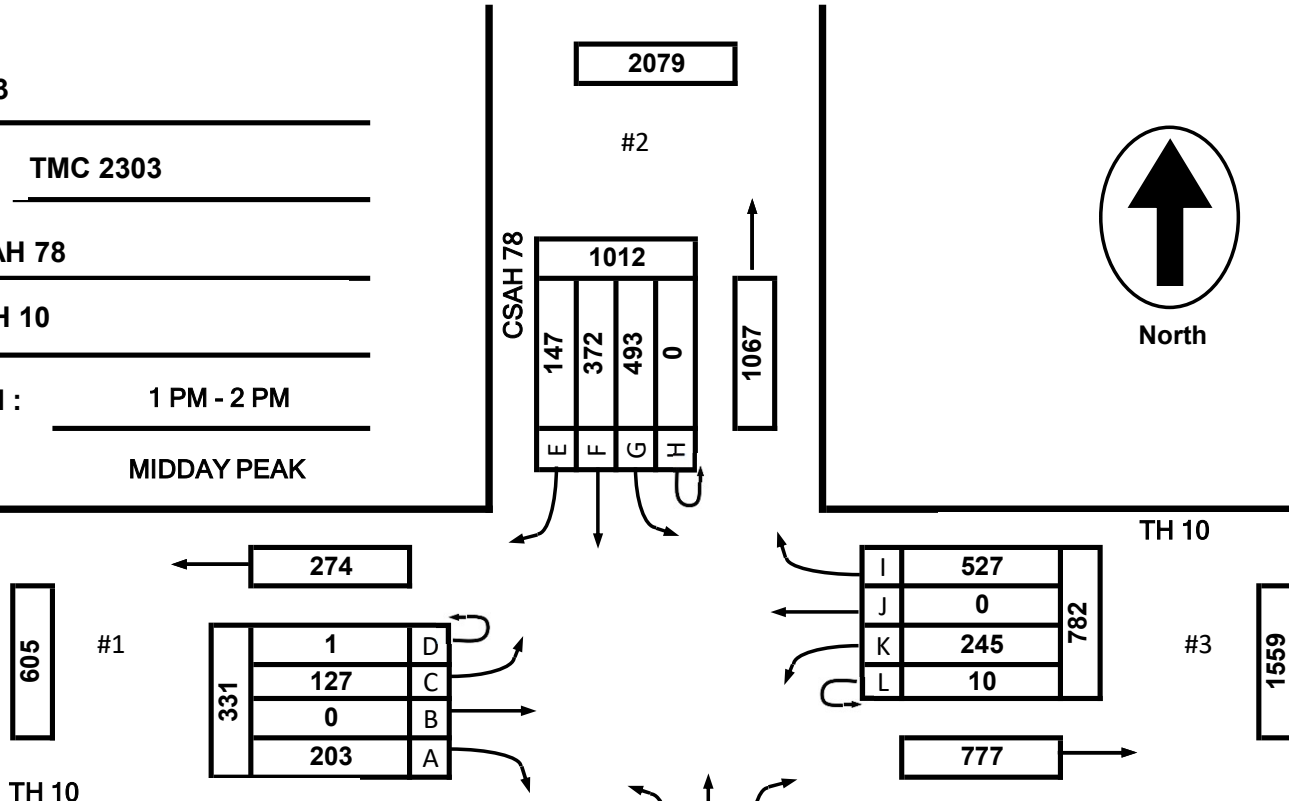
Count Number : TMC 2303

Location : CSAH 78
@ TH 10

Collection Period : 1 PM - 2 PM
MIDDAY PEAK



North



TH 10

TH 10

CSAH 78

EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	2	0	3
#2	1	2	3	6
#3	2	2	0	4
#4	1	2	3	6

Anoka County Highway Department

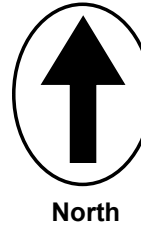
Traffic Volume and Turning Movement Study

Date : 04/18/23

Count Number : TMC 2303

Location : CSAH 78
@ TH 10

Collection Period : 4 PM - 5 PM
PM PEAK



North

686
#1

TH 10

377	0	D
	161	C
	0	B
	216	A

309

CSAH 78	1378			
	157	582	639	0
	E	F	G	H
	2316			

3694

#2

I	1434	1965
J	0	
K	523	
L	8	

TH 10

#3

2980

1015

CSAH 78	P	O	N	M
	0	152	721	368
	1241			
	2562			

1321

#4

2562

EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	2	0	3
#2	1	2	3	6
#3	2	2	0	4
#4	1	2	3	6

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 2303
 Site Code :
 Start Date : 04/18/2023
 Page No : 1

CountCAM 3+
 Study Conducted By: Spack Solutions

Groups Printed- Cars +

Start Time	CSAH 78 (Hanson Blvd) Southbound						TH 10 Westbound						CSAH 78 (Hanson Blvd) Northbound						TH 10 Eastbound						Exclu. Total	Inclu. Total	Int. Total
	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total			
00:00	0	7	4	2	0	13	0	9	0	35	0	44	0	1	6	8	0	15	0	3	0	6	0	9	0	81	81
00:15	2	7	9	2	0	20	0	10	0	24	0	34	0	1	14	9	0	24	0	1	0	4	0	5	0	83	83
00:30	0	6	13	4	0	23	0	12	0	18	0	30	0	2	6	4	0	12	0	1	0	1	0	2	0	67	67
00:45	0	4	7	4	0	15	0	10	0	12	0	22	0	4	5	1	0	10	0	2	0	2	0	4	0	51	51
Total	2	24	33	12	0	71	0	41	0	89	0	130	0	8	31	22	0	61	0	7	0	13	0	20	0	282	282
01:00	0	7	9	0	0	16	0	6	0	20	0	26	0	5	7	5	0	17	0	2	0	2	0	4	0	63	63
01:15	0	12	7	2	0	21	0	10	0	13	0	23	0	1	6	3	0	10	0	2	0	3	0	5	0	59	59
01:30	1	6	4	4	0	15	0	7	0	13	0	20	0	0	1	2	0	3	0	1	0	4	0	5	0	43	43
01:45	0	2	4	1	0	7	0	9	0	9	0	18	0	3	6	4	0	13	0	1	0	0	0	1	0	39	39
Total	1	27	24	7	0	59	0	32	0	55	0	87	0	9	20	14	0	43	0	6	0	9	0	15	0	204	204
02:00	0	9	9	1	0	19	0	7	0	11	0	18	0	0	8	2	0	10	0	3	0	4	0	7	0	54	54
02:15	0	10	3	3	0	16	1	5	0	12	0	18	0	2	11	4	0	17	0	1	0	3	0	4	0	55	55
02:30	0	8	4	1	0	13	0	2	0	9	0	11	0	0	3	3	0	6	0	0	0	0	0	0	0	30	30
02:45	0	13	3	1	0	17	0	3	0	6	0	9	0	2	4	1	0	7	0	0	0	5	0	5	0	38	38
Total	0	40	19	6	0	65	1	17	0	38	0	56	0	4	26	10	0	40	0	4	0	12	0	16	0	177	177
03:00	0	11	5	1	0	17	0	1	0	9	0	10	0	0	5	9	0	14	0	1	0	0	0	1	0	42	42
03:15	0	14	4	3	0	21	0	5	0	18	0	23	0	1	2	6	0	9	0	1	0	3	0	4	0	57	57
03:30	0	31	3	2	0	36	0	2	0	4	0	6	0	4	4	8	0	16	0	0	0	2	0	2	0	60	60
03:45	0	31	2	2	0	35	0	3	0	6	0	9	0	6	7	7	0	20	0	1	0	2	0	3	0	67	67
Total	0	87	14	8	0	109	0	11	0	37	0	48	0	11	18	30	0	59	0	3	0	7	0	10	0	226	226
04:00	0	39	6	3	0	48	0	5	0	15	0	20	0	3	9	8	0	20	0	3	0	1	0	4	0	92	92
04:15	0	44	10	8	0	62	0	2	0	10	0	12	0	3	13	13	0	29	0	2	0	3	0	5	0	108	108
04:30	0	70	6	4	0	80	0	4	0	9	0	13	0	8	11	22	0	41	0	3	0	4	0	7	0	141	141
04:45	0	67	20	6	0	93	0	6	0	25	0	31	0	6	9	27	0	42	0	4	0	7	0	11	0	177	177
Total	0	220	42	21	0	283	0	17	0	59	0	76	0	20	42	70	0	132	0	12	0	15	0	27	0	518	518
05:00	0	85	18	10	0	113	0	3	0	17	0	20	0	3	17	38	0	58	0	8	0	7	0	15	0	206	206
05:15	0	125	13	6	0	144	0	10	0	27	0	37	0	4	23	38	0	65	0	2	0	14	0	16	0	262	262
05:30	0	209	26	18	0	253	0	8	0	38	0	46	0	15	27	55	0	97	0	4	0	15	0	19	0	415	415
05:45	0	199	40	12	0	251	0	10	0	40	0	50	0	20	26	62	0	108	0	18	0	15	0	33	0	442	442
Total	0	618	97	46	0	761	0	31	0	122	0	153	0	42	93	193	0	328	0	32	0	51	0	83	0	1325	1325



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2303
 Site Code :
 Start Date : 04/18/2023
 Page No : 2

CountCAM 3+
 Study Conducted By: Spack Solutions

Groups Printed- Cars +

Start Time	CSAH 78 (Hanson Blvd) Southbound						TH 10 Westbound						CSAH 78 (Hanson Blvd) Northbound						TH 10 Eastbound						Exclu. Total	Inclu. Total	Int. Total
	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total			
06:00	0	173	48	22	0	243	0	19	0	48	1	67	0	21	34	52	0	107	0	14	0	18	0	32	1	449	450
06:15	0	270	70	22	0	362	1	26	0	72	0	99	0	29	49	82	0	160	0	18	0	23	0	41	0	662	662
06:30	0	309	82	32	0	423	1	31	0	88	0	120	0	23	63	111	0	197	0	23	0	18	3	41	3	781	784
06:45	0	297	104	28	0	429	0	65	0	110	2	175	0	31	64	80	0	175	0	24	0	37	0	61	2	840	842
Total	0	1049	304	104	0	1457	2	141	0	318	3	461	0	104	210	325	0	639	0	79	0	96	3	175	6	2732	2738
07:00	0	306	166	28	0	500	0	81	0	102	0	183	0	29	59	110	0	198	0	24	0	42	0	66	0	947	947
07:15	0	328	202	23	0	553	0	107	0	127	0	234	0	35	115	127	0	277	1	26	0	76	2	103	2	1167	1169
07:30	0	341	201	44	0	586	2	94	0	108	2	204	0	47	97	138	0	282	0	40	0	48	0	88	2	1160	1162
07:45	0	305	218	41	0	564	0	93	0	158	0	251	0	45	83	105	0	233	0	41	0	55	1	96	1	1144	1145
Total	0	1280	787	136	0	2203	2	375	0	495	2	872	0	156	354	480	0	990	1	131	0	221	3	353	5	4418	4423
08:00	0	232	141	25	0	398	0	67	0	131	0	198	0	20	102	74	0	196	0	35	0	39	0	74	0	866	866
08:15	0	262	117	38	0	417	2	61	0	107	0	170	0	19	83	100	0	202	0	43	0	35	0	78	0	867	867
08:30	0	253	113	32	0	398	1	58	0	122	0	181	0	27	59	81	0	167	2	21	0	36	1	59	1	805	806
08:45	0	196	117	29	0	342	1	48	0	108	0	157	0	33	89	83	0	205	0	21	0	49	0	70	0	774	774
Total	0	943	488	124	0	1555	4	234	0	468	0	706	0	99	333	338	0	770	2	120	0	159	1	281	1	3312	3313
09:00	0	192	99	27	0	318	1	49	0	109	0	159	0	34	99	79	0	212	0	25	0	35	1	60	1	749	750
09:15	0	184	112	30	0	326	2	47	0	96	1	145	0	33	97	69	0	199	0	30	0	39	0	69	1	739	740
09:30	1	178	108	42	0	329	2	54	0	92	0	148	0	37	87	90	0	214	1	17	0	28	0	46	0	737	737
09:45	0	140	103	40	0	283	2	57	0	102	0	161	0	26	71	58	0	155	0	29	0	46	1	75	1	674	675
Total	1	694	422	139	0	1256	7	207	0	399	1	613	0	130	354	296	0	780	1	101	0	148	2	250	3	2899	2902
10:00	0	113	89	28	0	230	1	26	0	90	0	117	0	24	82	65	0	171	0	28	0	38	0	66	0	584	584
10:15	0	123	99	34	0	256	4	54	0	76	1	134	0	28	70	49	0	147	0	25	0	29	0	54	1	591	592
10:30	0	128	98	28	0	254	2	54	0	105	0	161	0	33	76	72	0	181	1	31	0	23	0	55	0	651	651
10:45	0	121	111	37	0	269	2	40	0	117	0	159	0	34	92	62	0	188	0	29	0	42	0	71	0	687	687
Total	0	485	397	127	0	1009	9	174	0	388	1	571	0	119	320	248	0	687	1	113	0	132	0	246	1	2513	2514
11:00	0	103	91	35	0	229	1	42	0	116	1	159	0	32	109	70	0	211	0	21	0	28	0	49	1	648	649
11:15	0	129	100	36	0	265	0	44	0	102	0	146	0	49	113	45	0	207	0	26	0	33	0	59	0	677	677
11:30	0	125	95	47	0	267	1	39	0	122	2	162	0	41	99	71	0	211	0	30	0	39	0	69	2	709	711
11:45	1	115	108	40	0	264	4	47	0	99	0	150	0	36	128	59	0	223	0	36	0	19	0	55	0	692	692
Total	1	472	394	158	0	1025	6	172	0	439	3	617	0	158	449	245	0	852	0	113	0	119	0	232	3	2726	2729
12:00	0	131	102	31	0	264	2	63	0	127	1	192	0	33	118	46	0	197	3	48	0	35	1	86	2	739	741



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2303
 Site Code :
 Start Date : 04/18/2023
 Page No : 3

CountCAM 3+
 Study Conducted By: Spack Solutions

Groups Printed- Cars +

Start Time	CSAH 78 (Hanson Blvd) Southbound						TH 10 Westbound						CSAH 78 (Hanson Blvd) Northbound						TH 10 Eastbound						Exclu. Total	Inclu. Total	Int. Total
	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total			
12:15	0	98	90	50	0	238	0	46	0	123	0	169	0	29	105	49	0	183	0	34	0	27	0	61	0	651	651
12:30	0	143	100	33	0	276	0	58	0	140	0	198	0	28	122	75	0	225	0	29	0	39	1	68	1	767	768
12:45	0	98	102	44	0	244	2	54	0	122	0	178	0	44	102	49	0	195	0	26	0	45	0	71	0	688	688
Total	0	470	394	158	0	1022	4	221	0	512	1	737	0	134	447	219	0	800	3	137	0	146	2	286	3	2845	2848
13:00	0	130	82	45	0	257	6	44	0	130	1	180	0	33	106	64	0	203	0	39	0	47	0	86	1	726	727
13:15	0	134	85	42	0	261	2	58	0	130	0	190	0	39	105	66	0	210	0	34	0	48	0	82	0	743	743
13:30	0	118	81	28	0	227	1	70	0	122	1	193	1	28	88	71	0	188	0	31	0	44	1	75	2	683	685
13:45	0	111	124	32	0	267	1	73	0	145	2	219	0	26	114	73	0	213	1	23	0	64	0	88	2	787	789
Total	0	493	372	147	0	1012	10	245	0	527	4	782	1	126	413	274	0	814	1	127	0	203	1	331	5	2939	2944
14:00	0	119	163	41	0	323	0	73	0	139	0	212	0	40	135	74	0	249	0	36	0	57	1	93	1	877	878
14:15	0	137	102	32	0	271	0	73	0	197	0	270	0	49	150	75	0	274	0	35	0	49	0	84	0	899	899
14:30	0	130	114	51	0	295	2	87	0	240	0	329	0	57	174	94	0	325	0	40	0	53	3	93	3	1042	1045
14:45	0	110	136	30	0	276	3	113	0	258	0	374	0	56	180	75	0	311	0	35	0	62	4	97	4	1058	1062
Total	0	496	515	154	0	1165	5	346	0	834	0	1185	0	202	639	318	0	1159	0	146	0	221	8	367	8	3876	3884
15:00	0	121	132	30	0	283	3	114	0	261	0	378	0	45	170	113	0	328	0	39	0	48	4	87	4	1076	1080
15:15	0	176	150	46	0	372	2	125	0	313	5	440	0	58	168	119	0	345	0	46	0	64	10	110	15	1267	1282
15:30	0	135	142	41	0	318	0	112	0	284	0	396	0	52	180	111	0	343	0	47	0	40	1	87	1	1144	1145
15:45	0	140	147	45	0	332	2	131	0	361	2	494	0	39	148	104	0	291	1	39	0	45	0	85	2	1202	1204
Total	0	572	571	162	0	1305	7	482	0	1219	7	1708	0	194	666	447	0	1307	1	171	0	197	15	369	22	4689	4711
16:00	0	162	145	30	0	337	1	143	0	327	4	471	0	37	162	93	0	292	0	46	0	64	7	110	11	1210	1221
16:15	0	176	139	34	0	349	3	124	0	324	3	451	0	36	198	99	0	333	0	27	0	69	0	96	3	1229	1232
16:30	0	163	131	56	0	350	2	129	0	389	0	520	0	47	173	99	0	319	0	34	0	37	2	71	2	1260	1262
16:45	0	138	167	37	0	342	2	127	0	394	1	523	0	32	188	77	0	297	0	54	0	46	0	100	1	1262	1263
Total	0	639	582	157	0	1378	8	523	0	1434	8	1965	0	152	721	368	0	1241	0	161	0	216	9	377	17	4961	4978
17:00	0	139	153	34	0	326	1	114	0	321	0	436	0	35	206	117	0	358	0	41	0	44	2	85	2	1205	1207
17:15	0	133	133	37	0	303	4	94	0	357	0	455	0	25	195	76	0	296	1	47	0	57	2	105	2	1159	1161
17:30	0	142	141	34	0	317	2	118	0	288	0	408	0	38	163	83	1	284	0	36	0	43	6	79	7	1088	1095
17:45	0	103	131	30	0	264	1	71	0	237	3	309	0	28	150	69	0	247	0	40	0	59	2	99	5	919	924
Total	0	517	558	135	0	1210	8	397	0	1203	3	1608	0	126	714	345	1	1185	1	164	0	203	12	368	16	4371	4387
18:00	0	127	141	38	0	306	1	91	0	200	4	292	0	39	150	70	0	259	0	38	0	34	0	72	4	929	933
18:15	0	126	123	39	0	288	1	89	0	222	2	312	0	46	162	69	0	277	0	35	0	40	2	75	4	952	956



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2303
 Site Code :
 Start Date : 04/18/2023
 Page No : 4

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 Study Conducted By: Spack Solutions

Groups Printed- Cars +

Start Time	CSAH 78 (Hanson Blvd) Southbound						TH 10 Westbound						CSAH 78 (Hanson Blvd) Northbound						TH 10 Eastbound						Exclu. Total	Inclu. Total	Int. Total
	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total	UTrn	Left	Thru	Right	Peds	App. Total			
18:30	0	110	91	33	0	234	2	82	0	187	2	271	0	35	122	75	0	232	1	33	0	45	0	79	2	816	818
18:45	0	98	124	34	0	256	1	57	0	172	7	230	0	37	115	67	0	219	1	37	0	31	1	69	8	774	782
Total	0	461	479	144	0	1084	5	319	0	781	15	1105	0	157	549	281	0	987	2	143	0	150	3	295	18	3471	3489
19:00	0	88	71	32	0	191	2	59	0	154	1	215	0	22	128	52	0	202	0	37	0	32	0	69	1	677	678
19:15	0	74	86	30	0	190	1	59	0	152	2	212	0	26	108	52	0	186	1	29	0	33	0	63	2	651	653
19:30	0	70	72	27	0	169	1	52	0	117	2	170	0	28	95	66	0	189	0	25	0	24	0	49	2	577	579
19:45	0	83	70	24	0	177	1	49	0	135	3	185	0	21	89	44	0	154	0	28	0	26	0	54	3	570	573
Total	0	315	299	113	0	727	5	219	0	558	8	782	0	97	420	214	0	731	1	119	0	115	0	235	8	2475	2483
20:00	0	66	81	30	0	177	1	44	0	129	2	174	0	25	108	34	0	167	0	26	0	19	0	45	2	563	565
20:15	0	69	81	30	0	180	1	51	0	133	0	185	0	36	62	36	0	134	1	21	0	23	0	45	0	544	544
20:30	0	54	52	24	0	130	0	37	0	111	2	148	0	31	98	57	0	186	0	15	0	28	0	43	2	507	509
20:45	0	49	62	16	0	127	1	38	0	117	0	156	0	31	78	44	0	153	0	19	0	25	0	44	0	480	480
Total	0	238	276	100	0	614	3	170	0	490	4	663	0	123	346	171	0	640	1	81	0	95	0	177	4	2094	2098
21:00	0	45	46	19	0	110	0	30	0	98	0	128	0	18	60	35	0	113	0	11	0	33	0	44	0	395	395
21:15	0	46	45	11	0	102	0	47	0	97	0	144	0	20	61	35	0	116	0	13	0	11	0	24	0	386	386
21:30	0	40	39	14	0	93	0	35	0	90	0	125	0	8	41	27	1	76	0	5	0	13	0	18	1	312	313
21:45	0	28	34	15	0	77	0	28	0	54	0	82	0	14	48	27	0	89	0	12	0	12	0	24	0	272	272
Total	0	159	164	59	0	382	0	140	0	339	0	479	0	60	210	124	1	394	0	41	0	69	0	110	1	1365	1366
22:00	0	29	23	10	0	62	1	23	0	65	0	89	0	7	32	27	0	66	0	15	0	8	0	23	0	240	240
22:15	0	32	26	14	0	72	0	36	0	63	0	99	0	9	23	18	0	50	0	11	0	12	0	23	0	244	244
22:30	1	24	27	15	0	67	0	24	0	54	0	78	0	12	26	27	0	65	0	10	0	11	0	21	0	231	231
22:45	0	23	14	7	0	44	0	22	0	51	0	73	0	13	27	22	0	62	0	6	0	12	0	18	0	197	197
Total	1	108	90	46	0	245	1	105	0	233	0	339	0	41	108	94	0	243	0	42	0	43	0	85	0	912	912
23:00	0	13	26	4	0	43	0	25	0	43	0	68	0	5	25	15	0	45	0	8	0	16	0	24	0	180	180
23:15	0	26	15	11	0	52	0	19	0	50	0	69	0	5	14	7	0	26	0	9	0	8	0	17	0	164	164
23:30	0	22	16	5	0	43	0	20	0	37	0	57	0	4	16	6	0	26	0	11	0	7	0	18	0	144	144
23:45	0	7	12	3	0	22	0	16	0	33	0	49	0	4	16	5	0	25	0	4	0	7	0	11	0	107	107
Total	0	68	69	23	0	160	0	80	0	163	0	243	0	18	71	33	0	122	0	32	0	38	0	70	0	595	595
Grand Total	6	10475	7390	2286	0	20157	87	4699	0	11200	60	15986	1	2290	7554	5159	2	15004	15	2085	0	2678	59	4778	121	55925	56046
Apprch %	0	52	36.7	11.3			0.5	29.4	0	70.1			0	15.3	50.3	34.4			0.3	43.6	0	56					
Total %	0	18.7	13.2	4.1		36	0.2	8.4	0	20		28.6	0	4.1	13.5	9.2		26.8	0	3.7	0	4.8		8.5	0.2	99.8	



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2303
 Site Code :
 Start Date : 04/18/2023
 Page No : 5

CountCAM 3+
 Study Conducted By: Spack Solutions

Start Time	CSAH 78 (Hanson Blvd) Southbound					TH 10 Westbound					CSAH 78 (Hanson Blvd) Northbound					TH 10 Eastbound					Int. Total
	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	
Peak Hour Analysis From 00:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	306	166	28	500	0	81	0	102	183	0	29	59	110	198	0	24	0	42	66	947
07:15	0	328	202	23	553	0	107	0	127	234	0	35	115	127	277	1	26	0	76	103	1167
07:30	0	341	201	44	586	2	94	0	108	204	0	47	97	138	282	0	40	0	48	88	1160
07:45	0	305	218	41	564	0	93	0	158	251	0	45	83	105	233	0	41	0	55	96	1144
Total Volume	0	1280	787	136	2203	2	375	0	495	872	0	156	354	480	990	1	131	0	221	353	4418
% App. Total	0	58.1	35.7	6.2		0.2	43	0	56.8		0	15.8	35.8	48.5		0.3	37.1	0	62.6		
PHF	.000	.938	.903	.773	.940	.250	.876	.000	.783	.869	.000	.830	.770	.870	.878	.250	.799	.000	.727	.857	.946
Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 13:00																					
13:00	0	130	82	45	257	6	44	0	130	180	0	33	106	64	203	0	39	0	47	86	726
13:15	0	134	85	42	261	2	58	0	130	190	0	39	105	66	210	0	34	0	48	82	743
13:30	0	118	81	28	227	1	70	0	122	193	1	28	88	71	188	0	31	0	44	75	683
13:45	0	111	124	32	267	1	73	0	145	219	0	26	114	73	213	1	23	0	64	88	787
Total Volume	0	493	372	147	1012	10	245	0	527	782	1	126	413	274	814	1	127	0	203	331	2939
% App. Total	0	48.7	36.8	14.5		1.3	31.3	0	67.4		0.1	15.5	50.7	33.7		0.3	38.4	0	61.3		
PHF	.000	.920	.750	.817	.948	.417	.839	.000	.909	.893	.250	.808	.906	.938	.955	.250	.814	.000	.793	.940	.934
Peak Hour Analysis From 14:00 to 23:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	162	145	30	337	1	143	0	327	471	0	37	162	93	292	0	46	0	64	110	1210
16:15	0	176	139	34	349	3	124	0	324	451	0	36	198	99	333	0	27	0	69	96	1229
16:30	0	163	131	56	350	2	129	0	389	520	0	47	173	99	319	0	34	0	37	71	1260
16:45	0	138	167	37	342	2	127	0	394	523	0	32	188	77	297	0	54	0	46	100	1262
Total Volume	0	639	582	157	1378	8	523	0	1434	1965	0	152	721	368	1241	0	161	0	216	377	4961
% App. Total	0	46.4	42.2	11.4		0.4	26.6	0	73		0	12.2	58.1	29.7		0	42.7	0	57.3		
PHF	.000	.908	.871	.701	.984	.667	.914	.000	.910	.939	.000	.809	.910	.929	.932	.000	.745	.000	.783	.857	.983



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2303
 Site Code :
 Start Date : 04/18/2023
 Page No : 1

CountCAM 3+
 Study Conducted By: Spack Solutions

Groups Printed- Cars + - Trucks

Start Time	CSAH 78 (Hanson Blvd) Southbound					TH 10 Westbound					CSAH 78 (Hanson Blvd) Northbound					TH 10 Eastbound					Int. Total
	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	
00:00	0	7	4	2	13	0	9	0	35	44	0	1	6	9	16	0	3	0	6	9	82
00:15	2	7	9	2	20	0	10	0	25	35	0	1	14	11	26	0	1	0	4	5	86
00:30	0	7	13	4	24	0	13	0	18	31	0	2	6	4	12	0	1	0	1	2	69
00:45	0	4	7	4	15	0	10	0	13	23	0	4	5	1	10	0	2	0	2	4	52
Total	2	25	33	12	72	0	42	0	91	133	0	8	31	25	64	0	7	0	13	20	289
01:00	0	7	9	0	16	0	6	0	21	27	0	5	7	6	18	0	2	0	2	4	65
01:15	0	12	7	2	21	0	10	0	13	23	0	1	6	3	10	0	2	0	3	5	59
01:30	1	6	4	5	16	0	7	0	14	21	0	0	1	2	3	0	1	0	4	5	45
01:45	0	2	4	1	7	0	9	0	10	19	0	3	6	5	14	0	1	0	0	1	41
Total	1	27	24	8	60	0	32	0	58	90	0	9	20	16	45	0	6	0	9	15	210
02:00	0	10	9	2	21	0	7	0	12	19	0	0	8	2	10	0	3	0	4	7	57
02:15	0	10	3	3	16	1	5	0	15	21	0	2	11	4	17	0	1	0	3	4	58
02:30	0	8	5	1	14	0	2	0	10	12	0	0	3	3	6	0	0	0	0	0	32
02:45	0	15	3	1	19	0	3	0	6	9	0	2	4	1	7	0	0	0	5	5	40
Total	0	43	20	7	70	1	17	0	43	61	0	4	26	10	40	0	4	0	12	16	187
03:00	0	12	5	1	18	0	1	0	9	10	0	0	5	9	14	0	1	0	0	1	43
03:15	0	15	4	3	22	0	5	0	18	23	0	1	2	6	9	0	1	0	3	4	58
03:30	0	31	3	2	36	0	3	0	5	8	0	4	4	8	16	0	0	0	2	2	62
03:45	0	33	2	2	37	0	3	0	6	9	0	6	7	7	20	0	1	0	2	3	69
Total	0	91	14	8	113	0	12	0	38	50	0	11	18	30	59	0	3	0	7	10	232
04:00	0	40	6	3	49	0	5	0	18	23	0	3	9	9	21	0	4	0	1	5	98
04:15	0	45	10	8	63	0	3	0	10	13	0	3	13	13	29	0	2	0	4	6	111
04:30	0	70	6	4	80	0	5	0	11	16	0	8	11	23	42	0	3	0	4	7	145
04:45	0	68	21	6	95	0	6	0	25	31	0	6	9	27	42	0	4	0	9	13	181
Total	0	223	43	21	287	0	19	0	64	83	0	20	42	72	134	0	13	0	18	31	535
05:00	0	86	18	10	114	0	3	0	20	23	0	3	17	39	59	0	8	0	7	15	211
05:15	0	126	13	6	145	0	11	0	27	38	0	4	23	38	65	0	2	0	14	16	264
05:30	0	210	26	18	254	0	9	0	40	49	0	15	27	55	97	0	4	0	16	20	420
05:45	0	204	40	12	256	0	10	0	40	50	0	20	26	62	108	0	18	0	15	33	447
Total	0	626	97	46	769	0	33	0	127	160	0	42	93	194	329	0	32	0	52	84	1342
06:00	0	174	49	22	245	0	21	0	52	73	0	21	35	52	108	0	15	0	18	33	459
06:15	0	273	71	22	366	1	29	0	73	103	0	29	53	82	164	0	19	0	24	43	676
06:30	0	315	86	34	435	1	33	0	93	127	0	25	65	112	202	0	23	0	18	41	805
06:45	0	305	111	30	446	0	67	0	118	185	0	31	65	80	176	0	25	0	37	62	869
Total	0	1067	317	108	1492	2	150	0	336	488	0	106	218	326	650	0	82	0	97	179	2809
07:00	0	308	171	29	508	0	83	0	106	189	0	29	60	114	203	0	24	0	42	66	966
07:15	0	333	213	24	570	0	109	0	135	244	0	36	127	132	295	1	26	0	79	106	1215
07:30	0	344	205	44	593	2	94	0	112	208	0	49	101	140	290	0	42	0	50	92	1183
07:45	0	313	224	45	582	0	96	0	165	261	0	47	91	107	245	0	42	0	56	98	1186
Total	0	1298	813	142	2253	2	382	0	518	902	0	161	379	493	1033	1	134	0	227	362	4550
08:00	0	238	151	26	415	0	71	0	140	211	0	23	111	77	211	0	40	0	41	81	918
08:15	0	269	118	41	428	2	62	0	115	179	0	21	86	107	214	0	47	0	37	84	905
08:30	0	258	116	37	411	1	61	0	129	191	0	28	63	85	176	2	22	0	37	61	839
08:45	0	204	118	29	351	2	48	0	111	161	0	34	95	84	213	0	21	0	50	71	796
Total	0	969	503	133	1605	5	242	0	495	742	0	106	355	353	814	2	130	0	165	297	3458



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2303
 Site Code :
 Start Date : 04/18/2023
 Page No : 2

CountCAM 3+
 Study Conducted By: Spack Solutions

Groups Printed- Cars + - Trucks

Start Time	CSAH 78 (Hanson Blvd) Southbound					TH 10 Westbound					CSAH 78 (Hanson Blvd) Northbound					TH 10 Eastbound					Int. Total
	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	
09:00	0	197	105	29	331	1	51	0	117	169	0	36	103	81	220	0	25	0	35	60	780
09:15	0	191	114	31	336	2	50	0	104	156	0	33	107	72	212	0	31	0	40	71	775
09:30	1	183	109	43	336	2	56	0	102	160	0	40	95	92	227	1	20	0	28	49	772
09:45	0	143	105	43	291	3	61	0	111	175	0	27	72	60	159	0	32	0	47	79	704
Total	1	714	433	146	1294	8	218	0	434	660	0	136	377	305	818	1	108	0	150	259	3031
10:00	0	122	92	30	244	1	27	0	92	120	0	24	82	67	173	0	30	0	39	69	606
10:15	0	131	101	36	268	4	55	0	79	138	0	28	71	50	149	0	25	0	29	54	609
10:30	0	136	99	28	263	2	56	0	116	174	0	33	81	79	193	1	35	0	23	59	689
10:45	0	132	115	42	289	2	42	0	124	168	0	36	92	66	194	0	30	0	42	72	723
Total	0	521	407	136	1064	9	180	0	411	600	0	121	326	262	709	1	120	0	133	254	2627
11:00	0	112	94	35	241	1	42	0	116	159	0	32	110	76	218	0	21	0	29	50	668
11:15	0	135	102	38	275	0	45	0	104	149	0	52	116	46	214	0	26	0	33	59	697
11:30	0	129	97	50	276	1	39	0	133	173	0	42	104	73	219	0	31	0	40	71	739
11:45	1	119	110	44	274	4	48	0	102	154	0	38	128	62	228	0	40	0	20	60	716
Total	1	495	403	167	1066	6	174	0	455	635	0	164	458	257	879	0	118	0	122	240	2820
12:00	0	138	105	32	275	2	64	0	130	196	0	33	120	47	200	3	48	0	35	86	757
12:15	0	100	91	51	242	0	47	0	128	175	0	30	108	51	189	0	37	0	28	65	671
12:30	0	147	102	35	284	0	58	0	148	206	0	29	127	76	232	0	29	0	40	69	791
12:45	0	102	108	47	257	2	54	0	127	183	0	44	104	49	197	0	28	0	45	73	710
Total	0	487	406	165	1058	4	223	0	533	760	0	136	459	223	818	3	142	0	148	293	2929
13:00	0	134	85	49	268	6	45	0	132	183	0	35	112	65	212	0	41	0	49	90	753
13:15	0	140	87	44	271	2	59	0	136	197	0	40	106	67	213	0	39	0	49	88	769
13:30	0	126	87	29	242	1	71	0	127	199	1	28	88	73	190	0	33	0	44	77	708
13:45	0	121	135	33	289	1	74	0	146	221	0	26	121	74	221	1	27	0	69	97	828
Total	0	521	394	155	1070	10	249	0	541	800	1	129	427	279	836	1	140	0	211	352	3058
14:00	0	124	181	42	347	0	75	0	141	216	0	44	143	75	262	0	40	0	59	99	924
14:15	0	145	105	33	283	0	73	0	202	275	0	51	154	77	282	0	37	0	50	87	927
14:30	0	136	116	52	304	2	90	0	246	338	0	59	184	100	343	0	43	0	53	96	1081
14:45	0	112	143	31	286	4	118	0	264	386	0	58	181	75	314	0	35	0	64	99	1085
Total	0	517	545	158	1220	6	356	0	853	1215	0	212	662	327	1201	0	155	0	226	381	4017
15:00	0	124	137	31	292	3	115	0	267	385	0	46	176	117	339	0	39	0	49	88	1104
15:15	0	181	157	46	384	2	125	0	319	446	0	59	174	122	355	0	49	0	66	115	1300
15:30	0	140	147	41	328	0	114	0	292	406	0	52	181	113	346	0	47	0	40	87	1167
15:45	0	146	151	46	343	2	133	0	365	500	0	40	153	106	299	1	39	0	45	85	1227
Total	0	591	592	164	1347	7	487	0	1243	1737	0	197	684	458	1339	1	174	0	200	375	4798
16:00	0	167	147	31	345	1	143	0	329	473	0	37	166	93	296	0	47	0	64	111	1225
16:15	0	180	139	34	353	3	125	0	328	456	0	37	205	100	342	0	28	0	69	97	1248
16:30	0	165	132	57	354	2	131	0	396	529	0	47	175	100	322	0	34	0	38	72	1277
16:45	0	143	173	37	353	2	129	0	395	526	0	32	189	77	298	0	54	0	46	100	1277
Total	0	655	591	159	1405	8	528	0	1448	1984	0	153	735	370	1258	0	163	0	217	380	5027
17:00	0	140	155	35	330	1	114	0	323	438	0	35	208	117	360	0	41	0	45	86	1214
17:15	0	135	134	38	307	4	95	0	363	462	0	25	195	77	297	1	48	0	58	107	1173
17:30	0	143	141	34	318	2	118	0	290	410	0	38	165	84	287	0	39	0	43	82	1097
17:45	0	103	131	30	264	1	71	0	245	317	0	28	152	71	251	0	41	0	59	100	932
Total	0	521	561	137	1219	8	398	0	1221	1627	0	126	720	349	1195	1	169	0	205	375	4416
18:00	0	129	141	38	308	1	94	0	204	299	0	39	151	71	261	0	38	0	34	72	940
18:15	0	126	123	39	288	1	90	0	226	317	0	46	163	71	280	0	35	0	40	75	960



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2303
 Site Code :
 Start Date : 04/18/2023
 Page No : 3

CountCAM 3+
 Study Conducted By: Spack Solutions

Groups Printed- Cars + - Trucks

Start Time	CSAH 78 (Hanson Blvd) Southbound					TH 10 Westbound					CSAH 78 (Hanson Blvd) Northbound					TH 10 Eastbound					Int. Total
	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	
18:30	0	110	91	34	235	2	84	0	191	277	0	35	123	76	234	1	33	0	45	79	825
18:45	0	101	125	35	261	1	57	0	177	235	0	38	115	67	220	1	37	0	31	69	785
Total	0	466	480	146	1092	5	325	0	798	1128	0	158	552	285	995	2	143	0	150	295	3510
19:00	0	88	71	32	191	2	60	0	155	217	0	24	128	54	206	0	37	0	32	69	683
19:15	0	74	87	30	191	1	60	0	154	215	0	26	108	52	186	1	29	0	34	64	656
19:30	0	70	72	27	169	1	52	0	120	173	0	28	95	67	190	0	25	0	24	49	581
19:45	0	84	70	25	179	1	49	0	136	186	0	21	89	44	154	0	28	0	26	54	573
Total	0	316	300	114	730	5	221	0	565	791	0	99	420	217	736	1	119	0	116	236	2493
20:00	0	67	81	30	178	1	44	0	131	176	0	25	108	34	167	0	26	0	19	45	566
20:15	0	69	81	30	180	1	51	0	134	186	0	36	62	36	134	1	21	0	23	45	545
20:30	0	54	52	24	130	0	37	0	113	150	0	31	98	57	186	0	15	0	28	43	509
20:45	0	50	62	16	128	1	38	0	117	156	0	31	78	44	153	0	19	0	25	44	481
Total	0	240	276	100	616	3	170	0	495	668	0	123	346	171	640	1	81	0	95	177	2101
21:00	0	47	46	19	112	0	30	0	98	128	0	18	60	35	113	0	11	0	33	44	397
21:15	0	46	46	11	103	0	47	0	98	145	0	20	61	35	116	0	13	0	11	24	388
21:30	0	40	39	14	93	0	35	0	90	125	0	8	41	28	77	0	5	0	13	18	313
21:45	0	30	34	15	79	0	28	0	55	83	0	14	48	27	89	0	13	0	12	25	276
Total	0	163	165	59	387	0	140	0	341	481	0	60	210	125	395	0	42	0	69	111	1374
22:00	0	31	24	10	65	1	23	0	66	90	0	7	32	28	67	0	15	0	8	23	245
22:15	0	33	26	14	73	0	36	0	63	99	0	9	23	21	53	0	12	0	12	24	249
22:30	1	30	27	15	73	0	24	0	55	79	0	12	26	28	66	0	10	0	11	21	239
22:45	0	24	14	7	45	0	22	0	53	75	0	13	27	22	62	0	6	0	12	18	200
Total	1	118	91	46	256	1	105	0	237	343	0	41	108	99	248	0	43	0	43	86	933
23:00	0	14	26	4	44	0	26	0	43	69	0	5	25	16	46	0	8	0	16	24	183
23:15	0	28	16	11	55	0	19	0	51	70	0	5	14	7	26	0	9	0	9	18	169
23:30	0	25	16	5	46	0	21	0	37	58	0	4	16	6	26	0	11	0	7	18	148
23:45	0	8	12	3	23	0	16	0	34	50	0	4	16	5	25	0	4	0	7	11	109
Total	0	75	70	23	168	0	82	0	165	247	0	18	71	34	123	0	32	0	39	71	609
Grand Total	6	10769	7578	2360	20713	90	4785	0	11510	16385	1	2340	7737	5280	15358	15	2160	0	2724	4899	57355
Apprch %	0	52	36.6	11.4		0.5	29.2	0	70.2		0	15.2	50.4	34.4		0.3	44.1	0	55.6		
Total %	0	18.8	13.2	4.1	36.1	0.2	8.3	0	20.1	28.6	0	4.1	13.5	9.2	26.8	0	3.8	0	4.7	8.5	
Cars +	6	10475	7390	2286	20157	87	4699	0	11200	15986	1	2290	7554	5159	15004	15	2085	0	2678	4778	55925
% Cars +	100	97.3	97.5	96.9	97.3	96.7	98.2	0	97.3	97.6	100	97.9	97.6	97.7	97.7	100	96.5	0	98.3	97.5	97.5
Trucks	0	294	188	74	556	3	86	0	310	399	0	50	183	121	354	0	75	0	46	121	1430
% Trucks	0	2.7	2.5	3.1	2.7	3.3	1.8	0	2.7	2.4	0	2.1	2.4	2.3	2.3	0	3.5	0	1.7	2.5	2.5



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2303
 Site Code :
 Start Date : 04/18/2023
 Page No : 4

CountCAM 3+
 Study Conducted By: Spack Solutions

Start Time	CSAH 78 (Hanson Blvd) Southbound					TH 10 Westbound					CSAH 78 (Hanson Blvd) Northbound					TH 10 Eastbound					Int. Total
	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	
Peak Hour Analysis From 00:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	308	171	29	508	0	83	0	106	189	0	29	60	114	203	0	24	0	42	66	966
07:15	0	333	213	24	570	0	109	0	135	244	0	36	127	132	295	1	26	0	79	106	1215
07:30	0	344	205	44	593	2	94	0	112	208	0	49	101	140	290	0	42	0	50	92	1183
07:45	0	313	224	45	582	0	96	0	165	261	0	47	91	107	245	0	42	0	56	98	1186
Total Volume	0	1298	813	142	2253	2	382	0	518	902	0	161	379	493	1033	1	134	0	227	362	4550
% App. Total	0	57.6	36.1	6.3		0.2	42.4	0	57.4		0	15.6	36.7	47.7		0.3	37	0	62.7		
PHF	.000	.943	.907	.789	.950	.250	.876	.000	.785	.864	.000	.821	.746	.880	.875	.250	.798	.000	.718	.854	.936

Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 13:00																					
13:00	0	134	85	49	268	6	45	0	132	183	0	35	112	65	212	0	41	0	49	90	753
13:15	0	140	87	44	271	2	59	0	136	197	0	40	106	67	213	0	39	0	49	88	769
13:30	0	126	87	29	242	1	71	0	127	199	1	28	88	73	190	0	33	0	44	77	708
13:45	0	121	135	33	289	1	74	0	146	221	0	26	121	74	221	1	27	0	69	97	828
Total Volume	0	521	394	155	1070	10	249	0	541	800	1	129	427	279	836	1	140	0	211	352	3058
% App. Total	0	48.7	36.8	14.5		1.2	31.1	0	67.6		0.1	15.4	51.1	33.4		0.3	39.8	0	59.9		
PHF	.000	.930	.730	.791	.926	.417	.841	.000	.926	.905	.250	.806	.882	.943	.946	.250	.854	.000	.764	.907	.923

Peak Hour Analysis From 14:00 to 23:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	167	147	31	345	1	143	0	329	473	0	37	166	93	296	0	47	0	64	111	1225
16:15	0	180	139	34	353	3	125	0	328	456	0	37	205	100	342	0	28	0	69	97	1248
16:30	0	165	132	57	354	2	131	0	396	529	0	47	175	100	322	0	34	0	38	72	1277
16:45	0	143	173	37	353	2	129	0	395	526	0	32	189	77	298	0	54	0	46	100	1277
Total Volume	0	655	591	159	1405	8	528	0	1448	1984	0	153	735	370	1258	0	163	0	217	380	5027
% App. Total	0	46.6	42.1	11.3		0.4	26.6	0	73		0	12.2	58.4	29.4		0	42.9	0	57.1		
PHF	.000	.910	.854	.697	.992	.667	.923	.000	.914	.938	.000	.814	.896	.925	.920	.000	.755	.000	.786	.856	.984

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2303

Study Date : 08/03/2023

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 78 (Hanson Blvd)

Number of Lanes : 2+

Total Approach Volume: 15,358

Southbound: CSAH 78 (Hanson Blvd)

Number of Lanes :2+

Total Approach Volume: 20,713

Minor Street Approaches

Eastbound: TH 10

Number of Lanes :2+

Total Approach Volume: 4,899

Westbound: TH 10

Number of Lanes :2+

Total Approach Volume: 16,385

Warrant Summary (Urban Values Apply)

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

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

Required volumes reached for 17 hours, 8 are needed

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

Required volumes reached for 16 hours, 8 are needed

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

Required 1A volumes reached for 18 hours, 8 are needed

Required 1B volumes reached for 17 hours, 8 are needed

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

Number of hours (17) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (70) 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 2303

Study Date : 08/03/2023

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

17 one hour periods meet minimums.
Warrant IS met.

Site Data Required

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

Volume Requirements

Veh/Hr Major = **600**

Veh/Hr Minor = **200**

Time	Major Road					Minor Road			Met?
	Major NB	+	Major SB	=	Total	Minor EB	Minor WB		
	CSAH 78 (Hanson Blvd)					TH 10			
07:15 - 08:15	1041	+	2160	=	3201	377	924	Yes	
16:15 - 17:15	1322	+	1390	=	2712	355	1949	Yes	
15:15 - 16:15	1296	+	1400	=	2696	398	1825	Yes	
06:15 - 07:15	745	+	1755	=	2500	212	604	Yes	
14:15 - 15:15	1278	+	1165	=	2443	370	1384	Yes	
08:15 - 09:15	823	+	1521	=	2344	276	700	Yes	
17:15 - 18:15	1096	+	1197	=	2293	361	1488	Yes	
13:15 - 14:15	886	+	1149	=	2035	361	833	Yes	
09:15 - 10:15	771	+	1207	=	1978	268	611	Yes	
11:15 - 12:15	861	+	1100	=	1961	276	672	Yes	
18:15 - 19:15	940	+	975	=	1915	292	1046	Yes	
12:15 - 13:15	830	+	1051	=	1881	297	747	Yes	
10:15 - 11:15	754	+	1061	=	1815	235	639	Yes	
19:15 - 20:15	697	+	717	=	1414	212	750	Yes	
05:15 - 06:15	378	+	900	=	1278	102	210	Yes	
20:15 - 21:15	586	+	550	=	1136	176	620	Yes	
21:15 - 22:15	349	+	340	=	689	90	443	Yes	
05:00 - 06:00	329	+	769	=	1098	84	160	No	
04:45 - 05:45	263	+	608	=	871	64	141	No	
04:30 - 05:30	208	+	434	=	642	51	108	No	
04:15 - 05:15	172	+	352	=	524	41	83	No	
22:15 - 23:15	227	+	235	=	462	87	322	No	
04:00 - 05:00	134	+	287	=	421	31	83	No	
22:30 - 23:30	200	+	217	=	417	81	293	No	
22:45 - 23:45	160		190		350	78	272	No	

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2303

Study Date : 08/03/2023

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

16 one hour periods meet minimums.
Warrant IS met.

Site Data Required

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

Volume Requirements

Veh/Hr Major = **900**

Veh/Hr Minor = **100**

Time	Major Road					Minor Road			Met?
	Major NB	+	Major SB	=	Total	Minor EB	Minor WB		
	CSAH 78 (Hanson Blvd)					TH 10			
07:00 - 08:00	1033	+	2253	=	3286	362	902	Yes	
15:00 - 16:00	1339	+	1347	=	2686	375	1737	Yes	
16:00 - 17:00	1258	+	1405	=	2663	380	1984	Yes	
14:00 - 15:00	1201	+	1220	=	2421	381	1215	Yes	
08:00 - 09:00	814	+	1605	=	2419	297	742	Yes	
17:00 - 18:00	1195	+	1219	=	2414	375	1627	Yes	
06:00 - 07:00	650	+	1492	=	2142	179	488	Yes	
09:00 - 10:00	818	+	1294	=	2112	259	660	Yes	
18:00 - 19:00	995	+	1092	=	2087	295	1128	Yes	
11:00 - 12:00	879	+	1066	=	1945	240	635	Yes	
13:00 - 14:00	836	+	1070	=	1906	352	800	Yes	
12:00 - 13:00	818	+	1058	=	1876	293	760	Yes	
10:00 - 11:00	709	+	1064	=	1773	254	600	Yes	
19:00 - 20:00	736	+	730	=	1466	236	791	Yes	
20:00 - 21:00	640	+	616	=	1256	177	668	Yes	
05:00 - 06:00	329	+	769	=	1098	84	160	Yes	
04:45 - 05:45	263	+	608	=	871	64	141	No	
21:00 - 22:00	395	+	387	=	782	111	481	No	
21:15 - 22:15	349	+	340	=	689	90	443	No	
04:30 - 05:30	208	+	434	=	642	51	108	No	
21:30 - 22:30	286	+	310	=	596	90	397	No	
21:45 - 22:45	275	+	290	=	565	93	351	No	
04:15 - 05:15	172	+	352	=	524	41	83	No	
22:00 - 23:00	248	+	256	=	504	86	343	No	
22:15 - 23:15	227		235		462	87	322	No	

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2303

Study Date : 08/03/2023

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

18 hours meet 1A minimums.
17 hours meet 1B minimums.
Warrant IS met.

Site Data Required

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

Volume Requirements

Warrant 1A 1B
Veh/Hr Major = **480 720**

Veh/Hr Minor = **160 80**

Major Road CSAH 78 (Hanson Blvd)

Minor Road TH 10

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
07:00 - 08:00	1033	+	2253	=	3286	362	902	Yes
15:00 - 16:00	1339	+	1347	=	2686	375	1737	Yes
16:00 - 17:00	1258	+	1405	=	2663	380	1984	Yes
14:00 - 15:00	1201	+	1220	=	2421	381	1215	Yes
08:00 - 09:00	814	+	1605	=	2419	297	742	Yes
17:00 - 18:00	1195	+	1219	=	2414	375	1627	Yes
06:00 - 07:00	650	+	1492	=	2142	179	488	Yes
09:00 - 10:00	818	+	1294	=	2112	259	660	Yes
18:00 - 19:00	995	+	1092	=	2087	295	1128	Yes
11:00 - 12:00	879	+	1066	=	1945	240	635	Yes
13:00 - 14:00	836	+	1070	=	1906	352	800	Yes
12:00 - 13:00	818	+	1058	=	1876	293	760	Yes

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
06:45 - 07:45	964	+	2117	=	3081	326	826	Yes
07:45 - 08:45	846	+	1836	=	2682	324	842	Yes
15:45 - 16:45	1259	+	1395	=	2654	365	1958	Yes
14:45 - 15:45	1354	+	1290	=	2644	389	1623	Yes
16:45 - 17:45	1242	+	1308	=	2550	375	1836	Yes
13:45 - 14:45	1108	+	1223	=	2331	379	1050	Yes
08:45 - 09:45	872	+	1354	=	2226	251	646	Yes
17:45 - 18:45	1026	+	1095	=	2121	326	1210	Yes
10:45 - 11:45	845	+	1081	=	1926	252	649	Yes
11:45 - 12:45	849	+	1075	=	1924	280	731	Yes
05:45 - 06:45	582	+	1302	=	1884	150	353	Yes
12:45 - 13:45	812	+	1038	=	1850	328	762	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2303

Study Date : 08/03/2023

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

17 one hour periods meet minimums.
Warrant IS met.

Site Data Required

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

Time	Major Road CSAH 78 (Hanson Blvd)					Minor Road TH 10		Met?
	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	
07:15 - 08:15	1041	+	2160	=	3201	377	924	Yes
16:15 - 17:15	1322	+	1390	=	2712	355	1949	Yes
15:15 - 16:15	1296	+	1400	=	2696	398	1825	Yes
06:15 - 07:15	745	+	1755	=	2500	212	604	Yes
14:15 - 15:15	1278	+	1165	=	2443	370	1384	Yes
08:15 - 09:15	823	+	1521	=	2344	276	700	Yes
17:15 - 18:15	1096	+	1197	=	2293	361	1488	Yes
13:15 - 14:15	886	+	1149	=	2035	361	833	Yes
09:15 - 10:15	771	+	1207	=	1978	268	611	Yes
11:15 - 12:15	861	+	1100	=	1961	276	672	Yes
18:15 - 19:15	940	+	975	=	1915	292	1046	Yes
12:15 - 13:15	830		1051		1881	297	747	Yes



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2303

Study Date : 08/03/2023

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

62 one hour periods meet minimums.
Warrant IS met.

Site Data Required

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

Time	Major Road CSAH 78 (Hanson Blvd)				Total	Minor Road TH 10		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
07:00 - 08:00	1033	+	2253	=	3286	362	902	Yes
07:15 - 08:15	1041	+	2160	=	3201	377	924	Yes
06:45 - 07:45	964	+	2117	=	3081	326	826	Yes
07:30 - 08:30	960	+	2018	=	2978	355	859	Yes
06:30 - 07:30	876	+	1959	=	2835	275	745	Yes
16:15 - 17:15	1322	+	1390	=	2712	355	1949	Yes
15:15 - 16:15	1296	+	1400	=	2696	398	1825	Yes
15:00 - 16:00	1339	+	1347	=	2686	375	1737	Yes
07:45 - 08:45	846	+	1836	=	2682	324	842	Yes
16:00 - 17:00	1258	+	1405	=	2663	380	1984	Yes
15:45 - 16:45	1259	+	1395	=	2654	365	1958	Yes
15:30 - 16:30	1283	+	1369	=	2652	380	1835	Yes

