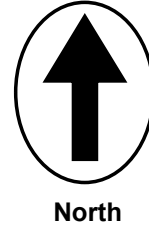


Date : 08/09/22

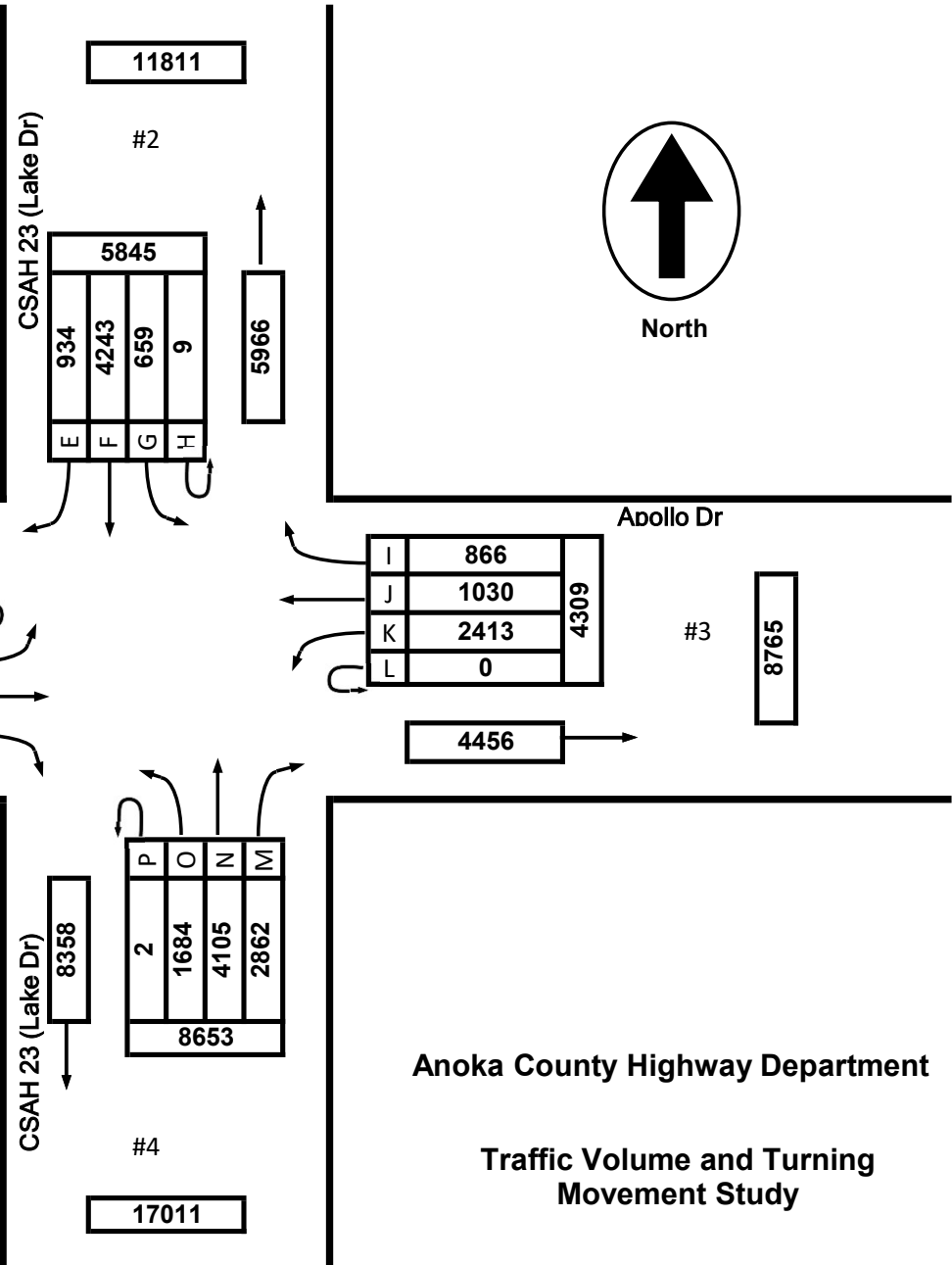
Count Number : TMC 2244

Location : CSAH 23 (Lake Dr)
@ Apollo Dr

Collection Period : 24 HR



North



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

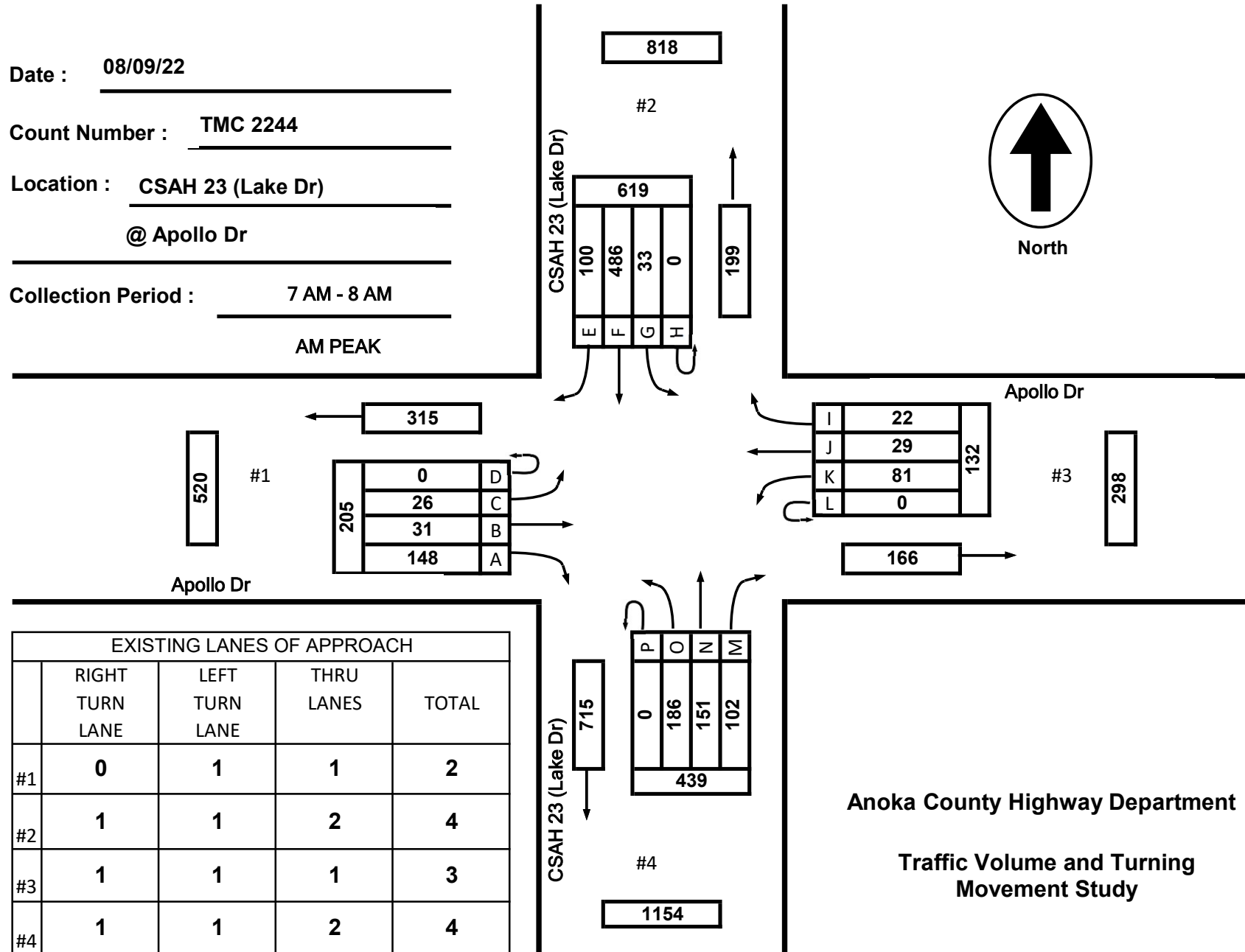
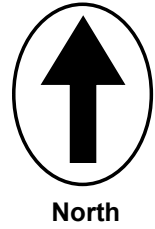
Anoka County Highway Department
 Traffic Volume and Turning Movement Study

Date : 08/09/22

Count Number : TMC 2244

Location : CSAH 23 (Lake Dr)
@ Apollo Dr

Collection Period : 7 AM - 8 AM
AM PEAK



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

Anoka County Highway Department
 Traffic Volume and Turning Movement Study

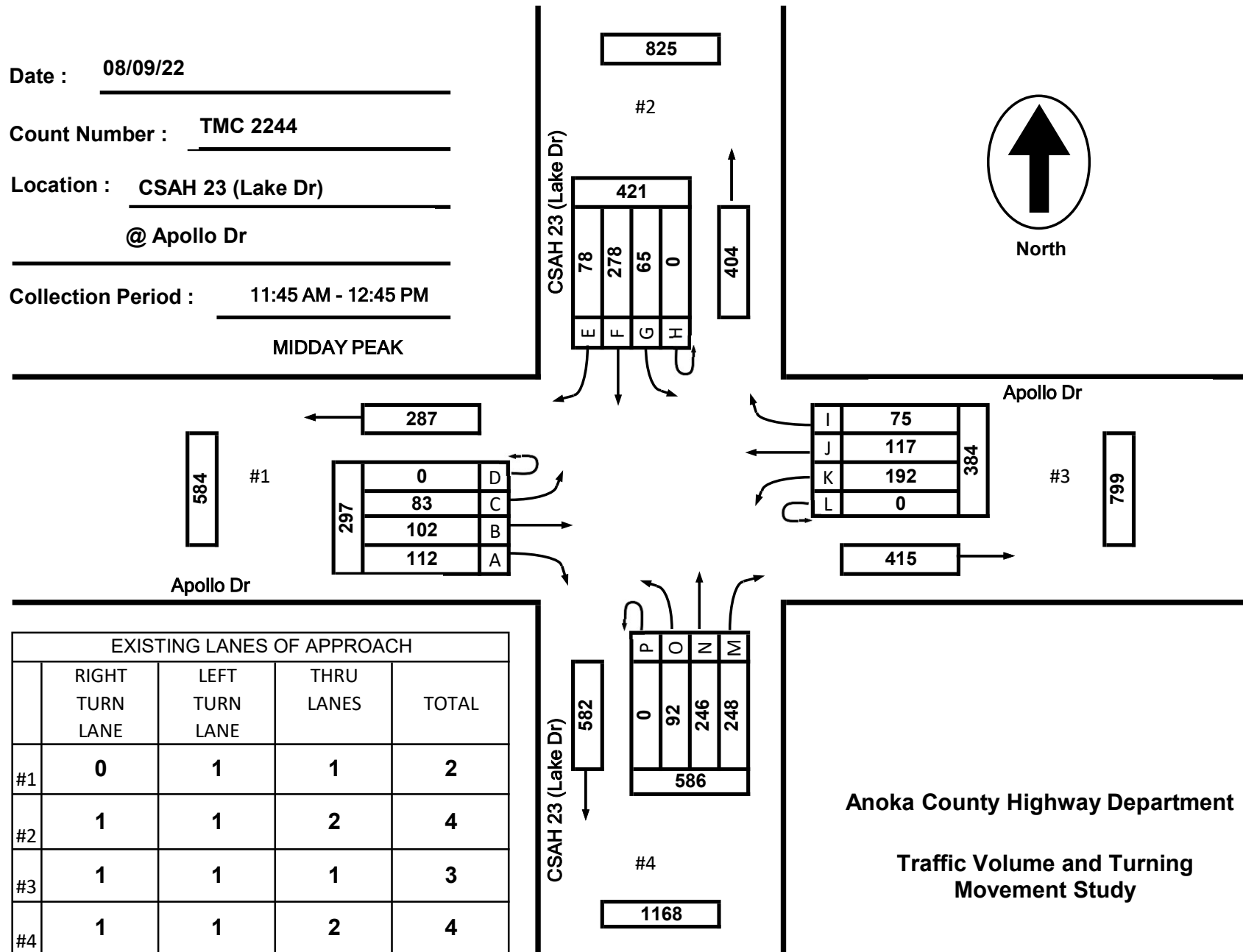
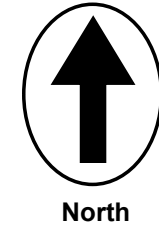
Date : 08/09/22

Count Number : TMC 2244

Location : CSAH 23 (Lake Dr)
@ Apollo Dr

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

MIDDAY PEAK



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

Anoka County Highway Department
 Traffic Volume and Turning Movement Study

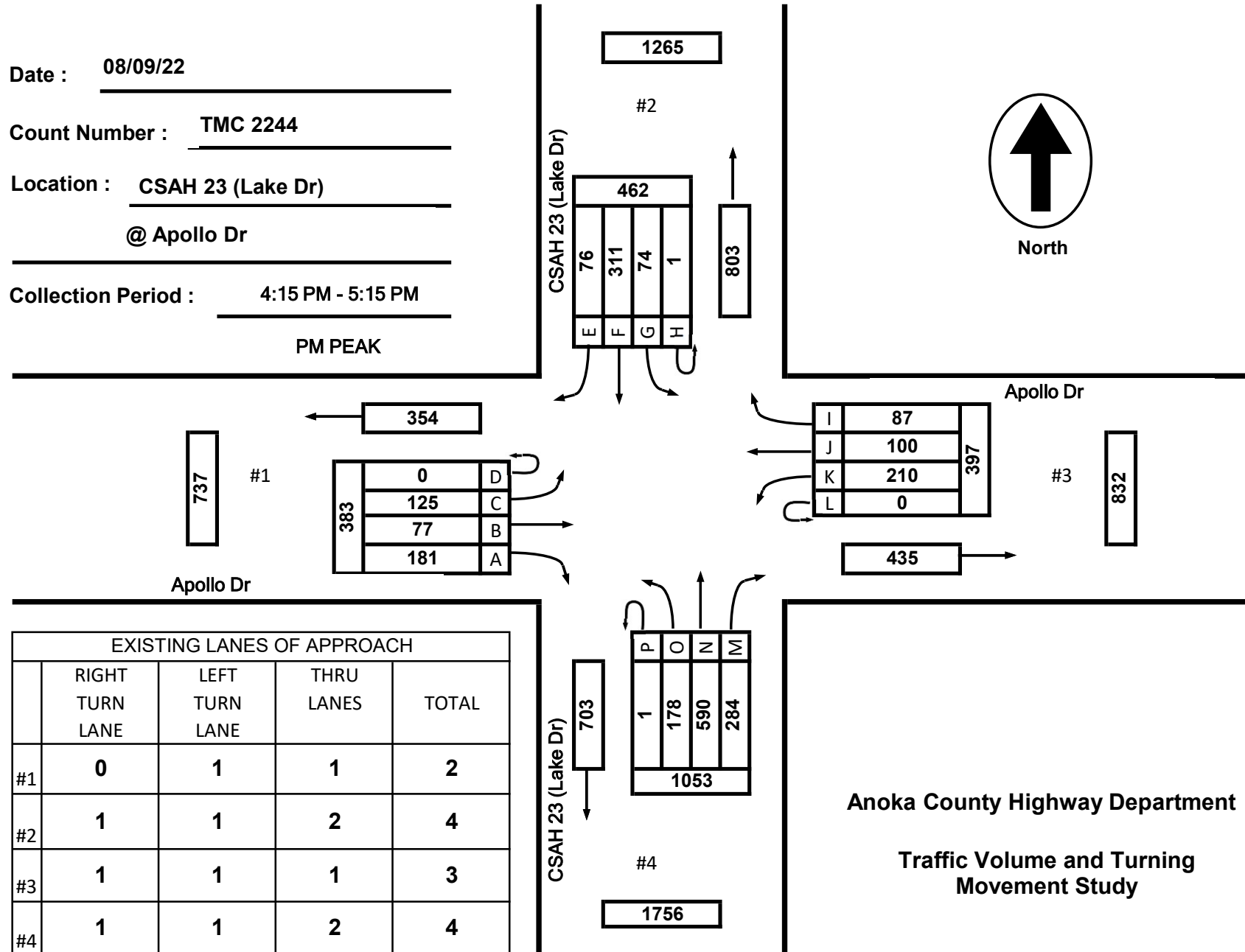
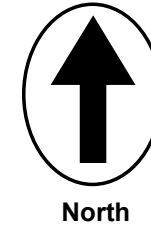
Date : 08/09/22

Count Number : TMC 2244

Location : CSAH 23 (Lake Dr)
@ Apollo Dr

Collection Period : 4:15 PM - 5:15 PM

PM PEAK



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 2244-t
 Site Code :
 Start Date : 08/09/2022
 Page No : 1

Weather: Warm & Sunny
 CountCAM 2
 Study Conducted by Kevin

Groups Printed- Cars + - Trucks

Start Time	CSAH 23 (Lake Dr) Southbound						Apollo Dr Westbound						CSAH 23 (Lake Dr) Northbound						Apollo Dr 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			
06:00	18	80	2	0	0	100	2	7	8	0	0	17	14	21	30	0	0	65	29	6	4	0	0	39	0	221	221
06:15	14	95	2	0	0	111	0	2	11	0	0	13	9	24	28	0	0	61	26	3	4	0	0	33	0	218	218
06:30	16	113	6	0	0	135	2	2	9	0	0	13	13	34	38	0	0	85	25	4	10	0	0	39	0	272	272
06:45	22	104	6	0	0	132	5	4	15	0	0	24	21	41	47	0	0	109	43	6	9	0	0	58	0	323	323
Total	70	392	16	0	0	478	9	15	43	0	0	67	57	120	143	0	0	320	123	19	27	0	0	169	0	1034	1034
07:00	18	103	9	0	0	130	6	4	17	0	0	27	17	34	45	0	0	96	42	6	7	0	0	55	0	308	308
07:15	29	144	7	0	0	180	2	9	19	0	0	30	26	27	58	0	0	111	34	10	4	0	0	48	0	369	369
07:30	32	118	8	0	0	158	4	6	25	0	0	35	29	37	38	0	0	104	32	3	8	0	0	43	0	340	340
07:45	21	121	9	0	0	151	10	10	20	0	0	40	30	53	45	0	0	128	40	12	7	0	0	59	0	378	378
Total	100	486	33	0	0	619	22	29	81	0	0	132	102	151	186	0	0	439	148	31	26	0	0	205	0	1395	1395
08:00	11	108	5	0	0	124	2	7	22	0	0	31	19	42	24	0	0	85	36	6	12	0	0	54	0	294	294
08:15	13	104	8	0	0	125	8	5	20	0	0	33	34	39	28	0	0	101	28	6	13	0	0	47	0	306	306
08:30	17	90	13	0	0	120	11	6	27	0	0	44	22	46	39	0	0	107	34	9	11	0	0	54	0	325	325
08:45	12	79	15	0	0	106	7	5	22	0	1	34	43	50	27	0	0	120	25	11	8	0	0	44	1	304	305
Total	53	381	41	0	0	475	28	23	91	0	1	142	118	177	118	0	0	413	123	32	44	0	0	199	1	1229	1230
09:00	10	79	8	0	0	97	5	13	34	0	0	52	31	45	26	0	0	102	37	10	4	0	0	51	0	302	302
09:15	13	73	10	0	0	96	3	3	37	0	0	43	33	39	22	0	0	94	28	15	10	0	0	53	0	286	286
09:30	11	62	8	0	0	81	8	17	18	0	0	43	39	34	18	0	0	91	38	15	11	0	0	64	0	279	279
09:45	15	56	15	0	0	86	11	11	37	0	0	59	47	46	15	0	0	108	24	18	11	0	0	53	0	306	306
Total	49	270	41	0	0	360	27	44	126	0	0	197	150	164	81	0	0	395	127	58	36	0	0	221	0	1173	1173
10:00	13	52	14	0	0	79	11	17	25	0	0	53	55	53	24	0	0	132	25	12	13	0	0	50	0	314	314
10:15	15	51	15	1	0	82	18	20	35	0	1	73	54	42	23	0	0	119	27	21	13	0	0	61	1	335	336
10:30	11	60	14	0	0	85	19	9	31	0	0	59	54	55	26	0	0	135	22	17	10	0	0	49	0	328	328
10:45	14	72	4	0	0	90	16	14	39	0	1	69	56	49	26	0	2	131	21	19	17	0	0	57	3	347	350
Total	53	235	47	1	0	336	64	60	130	0	2	254	219	199	99	0	2	517	95	69	53	0	0	217	4	1324	1328
11:00	6	54	16	0	0	76	17	15	49	0	0	81	59	45	20	0	0	124	27	23	13	0	0	63	0	344	344
11:15	16	54	9	0	0	79	16	21	46	0	0	83	61	65	22	0	0	148	27	20	11	0	0	58	0	368	368
11:30	17	75	17	0	0	109	22	34	49	0	0	105	58	62	22	0	0	142	22	21	12	0	0	55	0	411	411
11:45	18	62	17	0	0	97	15	31	48	0	0	94	57	65	19	0	0	141	27	26	23	0	0	76	0	408	408
Total	57	245	59	0	0	361	70	101	192	0	0	363	235	237	83	0	0	555	103	90	59	0	0	252	0	1531	1531



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2244-t
 Site Code :
 Start Date : 08/09/2022
 Page No : 2

Weather: Warm & Sunny
 CountCAM 2
 Study Conducted by Kevin

Groups Printed- Cars + - Trucks

Start Time	CSAH 23 (Lake Dr) Southbound						Apollo Dr Westbound						CSAH 23 (Lake Dr) Northbound						Apollo Dr 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			
12:00	16	80	19	0	0	115	14	37	34	0	1	85	62	73	26	0	0	161	31	26	16	0	0	73	1	434	435
12:15	22	63	19	0	0	104	22	28	53	0	0	103	62	55	21	0	0	138	34	26	22	0	0	82	0	427	427
12:30	22	73	10	0	0	105	24	21	57	0	0	102	67	53	26	0	0	146	20	24	22	0	0	66	0	419	419
12:45	19	56	21	0	0	96	18	25	60	0	1	103	61	46	10	0	1	117	22	23	22	0	0	67	2	383	385
Total	79	272	69	0	0	420	78	111	204	0	2	393	252	227	83	0	1	562	107	99	82	0	0	288	3	1663	1666
13:00	12	59	15	1	0	87	20	24	64	0	0	108	68	64	22	0	0	154	24	17	17	0	0	58	0	407	407
13:15	16	58	10	0	0	84	26	26	47	0	1	99	49	58	21	0	0	128	20	14	17	0	0	51	1	362	363
13:30	16	63	10	0	0	89	18	16	51	0	0	85	50	74	20	0	0	144	22	20	19	0	0	61	0	379	379
13:45	15	59	14	0	0	88	11	17	50	0	0	78	60	79	29	0	1	168	21	15	21	0	0	57	1	391	392
Total	59	239	49	1	0	348	75	83	212	0	1	370	227	275	92	0	1	594	87	66	74	0	0	227	2	1539	1541
14:00	8	59	11	0	0	78	13	18	65	0	0	96	66	76	30	0	0	172	33	15	17	0	0	65	0	411	411
14:15	15	59	17	0	0	91	17	21	59	0	0	97	55	63	31	0	0	149	34	21	26	0	0	81	0	418	418
14:30	14	82	7	0	0	103	21	21	47	0	0	89	74	78	36	0	0	188	28	19	15	0	0	62	0	442	442
14:45	9	57	8	1	0	75	22	13	46	0	0	81	53	107	29	0	0	189	52	9	21	0	0	82	0	427	427
Total	46	257	43	1	0	347	73	73	217	0	0	363	248	324	126	0	0	698	147	64	79	0	0	290	0	1698	1698
15:00	14	61	15	0	0	90	15	17	63	0	0	95	51	83	31	0	0	165	39	19	24	0	0	82	0	432	432
15:15	21	66	6	0	0	93	19	15	35	0	0	69	65	119	40	0	0	224	24	17	21	0	0	62	0	448	448
15:30	15	88	14	0	0	117	23	13	61	0	0	97	58	106	30	0	1	194	41	17	36	0	0	94	1	502	503
15:45	23	70	9	2	0	104	31	23	49	0	0	103	73	123	40	0	0	236	42	20	21	0	0	83	0	526	526
Total	73	285	44	2	0	404	88	68	208	0	0	364	247	431	141	0	1	819	146	73	102	0	0	321	1	1908	1909
16:00	24	86	12	0	0	122	24	23	45	0	0	92	50	139	30	0	1	219	46	27	42	0	0	115	1	548	549
16:15	19	77	13	0	0	109	17	23	45	0	0	85	70	141	42	0	0	253	33	28	28	0	0	89	0	536	536
16:30	12	88	17	1	0	118	20	24	48	0	0	92	81	171	41	0	0	293	53	17	40	0	0	110	0	613	613
16:45	26	67	22	0	0	115	25	34	57	0	0	116	58	137	46	0	0	241	35	14	28	0	0	77	0	549	549
Total	81	318	64	1	0	464	86	104	195	0	0	385	259	588	159	0	1	1006	167	86	138	0	0	391	1	2246	2247
17:00	19	79	22	0	0	120	25	19	60	0	0	104	75	141	49	1	0	266	60	18	29	0	0	107	0	597	597
17:15	12	80	6	0	0	98	18	32	52	0	0	102	64	130	31	0	0	225	25	19	23	0	0	67	0	492	492
17:30	18	69	18	0	0	105	28	24	55	0	0	107	88	140	44	0	0	272	31	19	11	0	0	61	0	545	545
17:45	13	76	15	0	0	104	29	22	69	0	0	120	47	113	33	0	0	193	15	19	21	0	0	55	0	472	472
Total	62	304	61	0	0	427	100	97	236	0	0	433	274	524	157	1	0	956	131	75	84	0	0	290	0	2106	2106
18:00	21	64	2	0	0	87	23	27	55	0	0	105	55	93	27	0	2	175	37	17	24	0	0	78	2	445	447
18:15	12	73	7	0	0	92	13	24	41	0	0	78	47	94	17	1	2	159	21	16	20	0	0	57	2	386	388
18:30	14	54	11	0	0	79	13	28	36	0	0	77	55	80	24	0	0	159	13	20	17	0	0	50	0	365	365



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2244-t
 Site Code :
 Start Date : 08/09/2022
 Page No : 3

Weather: Warm & Sunny
 CountCAM 2
 Study Conducted by Kevin

Groups Printed- Cars + - Trucks

Start Time	CSAH 23 (Lake Dr) Southbound						Apollo Dr Westbound						CSAH 23 (Lake Dr) Northbound						Apollo Dr 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			
18:45	20	45	11	0	0	76	16	21	41	0	0	78	33	53	21	0	0	107	20	17	17	0	0	54	0	315	315
Total	67	236	31	0	0	334	65	100	173	0	0	338	190	320	89	1	4	600	91	70	78	0	0	239	4	1511	1515
19:00	13	42	7	1	0	63	8	22	51	0	0	81	38	66	19	0	0	123	18	16	17	0	0	51	0	318	318
19:15	12	54	5	0	0	71	16	19	29	0	1	64	50	48	21	0	1	119	16	16	9	0	0	41	2	295	297
19:30	6	49	13	1	0	69	6	15	57	0	2	78	35	42	10	0	0	87	9	12	13	0	1	34	3	268	271
19:45	12	34	14	1	0	61	6	8	28	0	0	42	45	51	16	0	0	112	19	11	14	0	0	44	0	259	259
Total	43	179	39	3	0	264	36	64	165	0	3	265	168	207	66	0	1	441	62	55	53	0	1	170	5	1140	1145
20:00	16	36	10	0	3	62	13	21	43	0	0	77	33	42	19	0	0	94	10	12	23	0	0	45	3	278	281
20:15	13	30	3	0	0	46	11	5	39	0	0	55	32	50	19	0	0	101	16	12	13	0	0	41	0	243	243
20:30	3	44	5	0	0	52	5	14	30	0	0	49	29	27	9	0	0	65	7	14	7	0	0	28	0	194	194
20:45	9	33	4	0	0	46	16	18	28	0	0	62	19	41	14	0	0	74	10	10	8	0	0	28	0	210	210
Total	41	143	22	0	3	206	45	58	140	0	0	243	113	160	61	0	0	334	43	48	51	0	0	142	3	925	928
21:00	1	1	0	0	0	2	0	0	0	0	0	0	3	1	0	0	0	4	0	0	0	0	0	0	0	6	6
Grand Total	934	4243	659	9	3	5845	866	1030	2413	0	9	4309	2862	4105	1684	2	11	8653	1700	935	986	0	1	3621	24	22428	22452
Apprch %	16	72.6	11.3	0.2			20.1	23.9	56	0			33.1	47.4	19.5	0			46.9	25.8	27.2	0					
Total %	4.2	18.9	2.9	0		26.1	3.9	4.6	10.8	0		19.2	12.8	18.3	7.5	0		38.6	7.6	4.2	4.4	0		16.1	0.1	99.9	
Cars +	903	3883	655	8		5452	859	1026	2384	0		4278	2833	3791	1535	2		8172	1514	930	960	0		3405	0	0	21307
% Cars +	96.7	91.5	99.4	88.9	100	93.2	99.2	99.6	98.8	0	100	99.1	99	92.4	91.2	100	100	94.3	89.1	99.5	97.4	0	100	94	0	0	94.9
Trucks	31	360	4	1		396	7	4	29	0		40	29	314	149	0		492	186	5	26	0		217	0	0	1145
% Trucks	3.3	8.5	0.6	11.1	0	6.8	0.8	0.4	1.2	0	0	0.9	1	7.6	8.8	0	0	5.7	10.9	0.5	2.6	0	0	6	0	0	5.1

Start Time	CSAH 23 (Lake Dr) Southbound					Apollo Dr Westbound					CSAH 23 (Lake Dr) Northbound					Apollo Dr 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 06:00 to 09:45 - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 07:00																								
07:00	18	103	9	0	130	6	4	17	0	27	17	34	45	0	96	42	6	7	0	55				308
07:15	29	144	7	0	180	2	9	19	0	30	26	27	58	0	111	34	10	4	0	48				369
07:30	32	118	8	0	158	4	6	25	0	35	29	37	38	0	104	32	3	8	0	43				340
07:45	21	121	9	0	151	10	10	20	0	40	30	53	45	0	128	40	12	7	0	59				378
Total Volume	100	486	33	0	619	22	29	81	0	132	102	151	186	0	439	148	31	26	0	205				1395
% App. Total	16.2	78.5	5.3	0		16.7	22	61.4	0		23.2	34.4	42.4	0		72.2	15.1	12.7	0					
PHF	.781	.844	.917	.000	.860	.550	.725	.810	.000	.825	.850	.712	.802	.000	.857	.881	.646	.813	.000	.869				.923



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Weather: Warm & Sunny
 CountCAM 2
 Study Conducted by Kevin

File Name : TMC 2244-t
 Site Code :
 Start Date : 08/09/2022
 Page No : 4

Start Time	CSAH 23 (Lake Dr) Southbound					Apollo Dr Westbound					CSAH 23 (Lake Dr) Northbound					Apollo Dr 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 10:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45																					
11:45	18	62	17	0	97	15	31	48	0	94	57	65	19	0	141	27	26	23	0	76	408
12:00	16	80	19	0	115	14	37	34	0	85	62	73	26	0	161	31	26	16	0	73	434
12:15	22	63	19	0	104	22	28	53	0	103	62	55	21	0	138	34	26	22	0	82	427
12:30	22	73	10	0	105	24	21	57	0	102	67	53	26	0	146	20	24	22	0	66	419
Total Volume	78	278	65	0	421	75	117	192	0	384	248	246	92	0	586	112	102	83	0	297	1688
% App. Total	18.5	66	15.4	0		19.5	30.5	50	0		42.3	42	15.7	0		37.7	34.3	27.9	0		
PHF	.886	.869	.855	.000	.915	.781	.791	.842	.000	.932	.925	.842	.885	.000	.910	.824	.981	.902	.000	.905	.972

Peak Hour Analysis From 14:00 to 21:00 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	19	77	13	0	109	17	23	45	0	85	70	141	42	0	253	33	28	28	0	89	536
16:30	12	88	17	1	118	20	24	48	0	92	81	171	41	0	293	53	17	40	0	110	613
16:45	26	67	22	0	115	25	34	57	0	116	58	137	46	0	241	35	14	28	0	77	549
17:00	19	79	22	0	120	25	19	60	0	104	75	141	49	1	266	60	18	29	0	107	597
Total Volume	76	311	74	1	462	87	100	210	0	397	284	590	178	1	1053	181	77	125	0	383	2295
% App. Total	16.5	67.3	16	0.2		21.9	25.2	52.9	0		27	56	16.9	0.1		47.3	20.1	32.6	0		
PHF	.731	.884	.841	.250	.963	.870	.735	.875	.000	.856	.877	.863	.908	.250	.898	.754	.688	.781	.000	.870	.936



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Weather: Warm & Sunny
 CountCAM 2
 Study Conducted by Kevin

File Name : TMC 2244-t
 Site Code :
 Start Date : 08/09/2022
 Page No : 1

Groups Printed- Trucks

Start Time	CSAH 23 (Lake Dr) Southbound					Apollo Dr Westbound					CSAH 23 (Lake Dr) Northbound					Apollo Dr 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	1	8	0	0	9	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	3	13
06:15	0	12	1	0	13	0	0	0	0	0	1	3	3	0	7	6	0	0	0	6	6	26
06:30	0	12	0	0	12	0	0	2	0	2	1	4	1	0	6	7	0	0	0	7	7	27
06:45	3	13	0	0	16	0	0	2	0	2	0	2	4	0	6	6	0	0	0	6	6	30
Total	4	45	1	0	50	0	0	4	0	4	2	10	8	0	20	22	0	0	0	22	96	
07:00	0	10	1	0	11	0	0	1	0	1	0	2	2	0	4	3	0	1	0	4	4	20
07:15	0	11	0	0	11	0	0	0	0	0	2	6	3	0	11	4	1	1	0	6	6	28
07:30	1	4	0	0	5	0	0	1	0	1	0	9	4	0	13	4	0	0	0	4	4	23
07:45	1	16	0	0	17	0	0	0	0	0	1	9	1	0	11	8	0	0	0	8	8	36
Total	2	41	1	0	44	0	0	2	0	2	3	26	10	0	39	19	1	2	0	22	107	
08:00	0	11	0	0	11	0	0	1	0	1	0	5	4	0	9	6	0	0	0	6	6	27
08:15	0	4	0	0	4	1	0	0	0	1	1	7	3	0	11	8	0	0	0	8	8	24
08:30	2	7	0	0	9	0	0	1	0	1	1	6	1	0	8	7	0	1	0	8	8	26
08:45	1	7	0	0	8	0	0	0	0	0	0	10	1	0	11	2	0	0	0	2	2	21
Total	3	29	0	0	32	1	0	2	0	3	2	28	9	0	39	23	0	1	0	24	98	
09:00	0	11	0	0	11	1	0	0	0	1	1	8	5	0	14	4	0	1	0	5	5	31
09:15	0	9	0	0	9	0	0	1	0	1	0	4	7	0	11	2	1	2	0	5	5	26
09:30	0	7	0	0	7	0	0	0	0	0	0	7	6	0	13	4	0	0	0	4	4	24
09:45	1	4	0	0	5	0	0	1	0	1	0	6	6	0	12	9	0	1	0	10	10	28
Total	1	31	0	0	32	1	0	2	0	3	1	25	24	0	50	19	1	4	0	24	109	
10:00	0	6	0	0	6	0	0	2	0	2	1	6	3	0	10	7	0	0	0	7	7	25
10:15	2	4	2	0	8	0	0	0	0	0	2	6	5	0	13	6	0	1	0	7	7	28
10:30	1	4	0	0	5	0	0	2	0	2	2	8	8	0	18	6	0	0	0	6	6	31
10:45	0	6	0	0	6	1	1	0	0	2	0	4	3	0	7	6	1	0	0	7	7	22
Total	3	20	2	0	25	1	1	4	0	6	5	24	19	0	48	25	1	1	0	27	106	
11:00	0	1	0	0	1	1	0	1	0	2	2	3	4	0	9	5	0	0	0	5	5	17
11:15	3	5	0	0	8	0	0	0	0	0	2	8	5	0	15	2	0	0	0	2	2	25
11:30	3	13	0	0	16	1	1	1	0	3	0	8	7	0	15	7	0	1	0	8	8	42
11:45	1	6	0	0	7	0	0	0	0	0	0	3	3	0	6	7	1	3	0	11	11	24
Total	7	25	0	0	32	2	1	2	0	5	4	22	19	0	45	21	1	4	0	26	108	
12:00	2	10	0	0	12	1	0	0	0	1	1	11	4	0	16	6	0	0	0	6	6	35
12:15	1	8	0	0	9	0	0	1	0	1	1	9	2	0	12	6	0	1	0	7	7	29
12:30	3	9	0	0	12	0	0	0	0	0	0	7	3	0	10	1	0	0	0	1	1	23
12:45	0	4	0	0	4	0	0	0	0	0	0	7	3	0	10	4	0	3	0	7	7	21
Total	6	31	0	0	37	1	0	1	0	2	2	34	12	0	48	17	0	4	0	21	108	
13:00	0	8	0	1	9	0	0	1	0	1	1	8	4	0	13	4	0	0	0	4	4	27
13:15	2	10	0	0	12	1	1	0	0	2	1	8	3	0	12	2	0	0	0	2	2	28
13:30	0	10	0	0	10	0	0	2	0	2	0	8	3	0	11	3	0	3	0	6	6	29
13:45	1	4	0	0	5	0	0	1	0	1	0	6	3	0	9	5	0	1	0	6	6	21
Total	3	32	0	1	36	1	1	4	0	6	2	30	13	0	45	14	0	4	0	18	105	
14:00	1	4	0	0	5	0	0	0	0	0	0	8	2	0	10	6	0	0	0	6	6	21
14:15	1	5	0	0	6	0	0	0	0	0	1	10	1	0	12	2	1	1	0	4	4	22
14:30	0	8	0	0	8	0	0	0	0	0	0	4	5	0	9	1	0	0	0	1	1	18
14:45	0	9	0	0	9	0	0	1	0	1	0	9	2	0	11	0	0	0	0	0	0	21
Total	2	26	0	0	28	0	0	1	0	1	1	31	10	0	42	9	1	1	0	11	82	
15:00	0	3	0	0	3	0	0	0	0	0	1	7	0	0	8	1	0	0	0	1	1	12



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 2244-t
 Site Code :
 Start Date : 08/09/2022
 Page No : 2

Weather: Warm & Sunny
 CountCAM 2
 Study Conducted by Kevin

Groups Printed- Trucks

Start Time	CSAH 23 (Lake Dr) Southbound					Apollo Dr Westbound					CSAH 23 (Lake Dr) Northbound					Apollo Dr 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		
15:15	0	4	0	0	4	0	1	0	0	1	2	5	7	0	14	0	0	0	0	0	0	19
15:30	0	10	0	0	10	0	0	0	0	0	0	6	2	0	8	1	0	1	0	2	0	20
15:45	0	9	0	0	9	0	0	2	0	2	0	3	0	0	3	2	0	1	0	3	0	17
Total	0	26	0	0	26	0	1	2	0	3	3	21	9	0	33	4	0	2	0	6	0	68
16:00	0	5	0	0	5	0	0	0	0	0	0	8	0	0	8	3	0	1	0	4	0	17
16:15	0	6	0	0	6	0	0	1	0	1	0	4	1	0	5	1	0	0	0	1	0	13
16:30	0	3	0	0	3	0	0	0	0	0	0	6	0	0	6	1	0	1	0	2	0	11
16:45	0	4	0	0	4	0	0	0	0	0	1	2	3	0	6	2	0	0	0	2	0	12
Total	0	18	0	0	18	0	0	1	0	1	1	20	4	0	25	7	0	2	0	9	0	53
17:00	0	4	0	0	4	0	0	0	0	0	0	3	3	0	6	1	0	1	0	2	0	12
17:15	0	2	0	0	2	0	0	0	0	0	0	6	2	0	8	1	0	0	0	1	0	11
17:30	0	4	0	0	4	0	0	1	0	1	0	11	0	0	11	1	0	0	0	1	0	17
17:45	0	5	0	0	5	0	0	1	0	1	1	3	3	0	7	0	0	0	0	0	0	13
Total	0	15	0	0	15	0	0	2	0	2	1	23	8	0	32	3	0	1	0	4	0	53
18:00	0	3	0	0	3	0	0	0	0	0	1	3	1	0	5	0	0	0	0	0	0	8
18:15	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	6
18:30	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	4
18:45	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	5
Total	0	9	0	0	9	0	0	0	0	0	1	11	1	0	13	1	0	0	0	1	0	23
19:00	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	3
19:15	0	4	0	0	4	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	7
19:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
19:45	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	3
Total	0	8	0	0	8	0	0	0	0	0	0	3	2	0	5	1	0	0	0	1	0	14
20:00	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4
20:15	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	2
20:30	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	2
20:45	0	2	0	0	2	0	0	0	0	0	0	3	1	0	4	1	0	0	0	1	0	7
Total	0	4	0	0	4	0	0	2	0	2	1	6	1	0	8	1	0	0	0	1	0	15
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	31	360	4	1	396	7	4	29	0	40	29	314	149	0	492	186	5	26	0	217	0	1145
Apprch %	7.8	90.9	1	0.3		17.5	10	72.5	0		5.9	63.8	30.3	0		85.7	2.3	12	0		0	
Total %	2.7	31.4	0.3	0.1	34.6	0.6	0.3	2.5	0	3.5	2.5	27.4	13	0	43	16.2	0.4	2.3	0	19	0	

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name:

Study Date : 08/09/2022

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 23 (Lake Dr)

Number of Lanes : 2+

Total Approach Volume: 8,653

Southbound: CSAH 23 (Lake Dr)

Number of Lanes :2+

Total Approach Volume: 5,845

Minor Street Approaches

Eastbound: Apollo Dr

Number of Lanes :2+

Total Approach Volume: 3,621

Westbound: Apollo Dr

Number of Lanes :2+

Total Approach Volume: 4,309

Warrant Summary (Rural Values Apply)

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

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

Required volumes reached for 15 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 15 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 (57) 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 : 08/09/2022

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

15 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**

Time	Major Road				Total	Minor Road		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
	CSAH 23 (Lake Dr)					Apollo Dr		
16:00 - 17:00	1006	+	464	=	1470	391	385	Yes
17:00 - 18:00	956	+	427	=	1383	290	433	Yes
15:00 - 16:00	819	+	404	=	1223	321	364	Yes
07:00 - 08:00	439	+	619	=	1058	205	132	Yes
14:00 - 15:00	698	+	347	=	1045	290	363	Yes
12:00 - 13:00	562	+	420	=	982	288	393	Yes
13:00 - 14:00	594	+	348	=	942	227	370	Yes
18:00 - 19:00	600	+	334	=	934	239	338	Yes
11:00 - 12:00	555	+	361	=	916	252	363	Yes
08:00 - 09:00	413	+	475	=	888	199	142	Yes
10:00 - 11:00	517	+	336	=	853	217	254	Yes
06:00 - 07:00	320	+	478	=	798	169	67	Yes
09:00 - 10:00	395	+	360	=	755	221	197	Yes
19:00 - 20:00	441	+	264	=	705	170	265	Yes
20:00 - 21:00	334	+	206	=	540	142	243	Yes
05:45 - 06:45	211	+	346	=	557	111	43	No
05:30 - 06:30	126	+	211	=	337	72	30	No
05:15 - 06:15	65	+	100	=	165	39	17	No
21:00 - 22:00	4	+	2	=	6	0	0	No
00:00 - 01:00	0	+	0	=	0	0	0	No
00:15 - 01:15	0	+	0	=	0	0	0	No
00:30 - 01:30	0	+	0	=	0	0	0	No
00:45 - 01:45	0	+	0	=	0	0	0	No
01:00 - 02:00	0	+	0	=	0	0	0	No
01:15 - 02:15	0		0		0	0	0	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name:

Study Date : 08/09/2022

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 = **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**

Time	Major Road				Total	Minor Road		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
	CSAH 23 (Lake Dr)					Apollo Dr		
16:00 - 17:00	1006	+	464	=	1470	391	385	Yes
17:00 - 18:00	956	+	427	=	1383	290	433	Yes
15:00 - 16:00	819	+	404	=	1223	321	364	Yes
07:00 - 08:00	439	+	619	=	1058	205	132	Yes
14:00 - 15:00	698	+	347	=	1045	290	363	Yes
12:00 - 13:00	562	+	420	=	982	288	393	Yes
13:00 - 14:00	594	+	348	=	942	227	370	Yes
18:00 - 19:00	600	+	334	=	934	239	338	Yes
11:00 - 12:00	555	+	361	=	916	252	363	Yes
08:00 - 09:00	413	+	475	=	888	199	142	Yes
10:00 - 11:00	517	+	336	=	853	217	254	Yes
06:00 - 07:00	320	+	478	=	798	169	67	Yes
09:00 - 10:00	395	+	360	=	755	221	197	Yes
19:00 - 20:00	441	+	264	=	705	170	265	Yes
05:45 - 06:45	211	+	346	=	557	111	43	No
20:00 - 21:00	334	+	206	=	540	142	243	No
20:15 - 21:15	244	+	146	=	390	97	166	No
05:30 - 06:30	126	+	211	=	337	72	30	No
20:30 - 21:30	143	+	100	=	243	56	111	No
05:15 - 06:15	65	+	100	=	165	39	17	No
20:45 - 21:45	78	+	48	=	126	28	62	No
21:00 - 22:00	4	+	2	=	6	0	0	No
04:45 - 05:45	0	+	0	=	0	0	0	No
05:00 - 06:00	0	+	0	=	0	0	0	No
04:15 - 05:15	0		0		0	0	0	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name:

Study Date : 08/09/2022

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

15 hours meet 1A minimums.
15 hours meet 1B 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
Warrant 1A 1B
Veh/Hr Major = **336 504**

Veh/Hr Minor = **112 56**

Major Road CSAH 23 (Lake Dr)

Minor Road Apollo Dr

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
16:00 - 17:00	1006	+	464	=	1470	391	385	Yes
17:00 - 18:00	956	+	427	=	1383	290	433	Yes
15:00 - 16:00	819	+	404	=	1223	321	364	Yes
07:00 - 08:00	439	+	619	=	1058	205	132	Yes
14:00 - 15:00	698	+	347	=	1045	290	363	Yes
12:00 - 13:00	562	+	420	=	982	288	393	Yes
13:00 - 14:00	594	+	348	=	942	227	370	Yes
18:00 - 19:00	600	+	334	=	934	239	338	Yes
11:00 - 12:00	555	+	361	=	916	252	363	Yes
08:00 - 09:00	413	+	475	=	888	199	142	Yes
10:00 - 11:00	517	+	336	=	853	217	254	Yes
06:00 - 07:00	320	+	478	=	798	169	67	Yes

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
15:45 - 16:45	1001	+	453	=	1454	397	372	Yes
16:45 - 17:45	1004	+	438	=	1442	312	429	Yes
14:45 - 15:45	772	+	375	=	1147	320	342	Yes
17:45 - 18:45	686	+	362	=	1048	240	380	Yes
13:45 - 14:45	677	+	360	=	1037	265	360	Yes
06:45 - 07:45	420	+	600	=	1020	204	116	Yes
11:45 - 12:45	586	+	421	=	1007	297	384	Yes
07:45 - 08:45	421	+	520	=	941	214	148	Yes
12:45 - 13:45	543	+	356	=	899	237	395	Yes
10:45 - 11:45	545	+	354	=	899	233	338	Yes
09:45 - 10:45	494	+	332	=	826	213	244	Yes
08:45 - 09:45	407	+	380	=	787	212	172	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name:

Study Date : 08/09/2022

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.

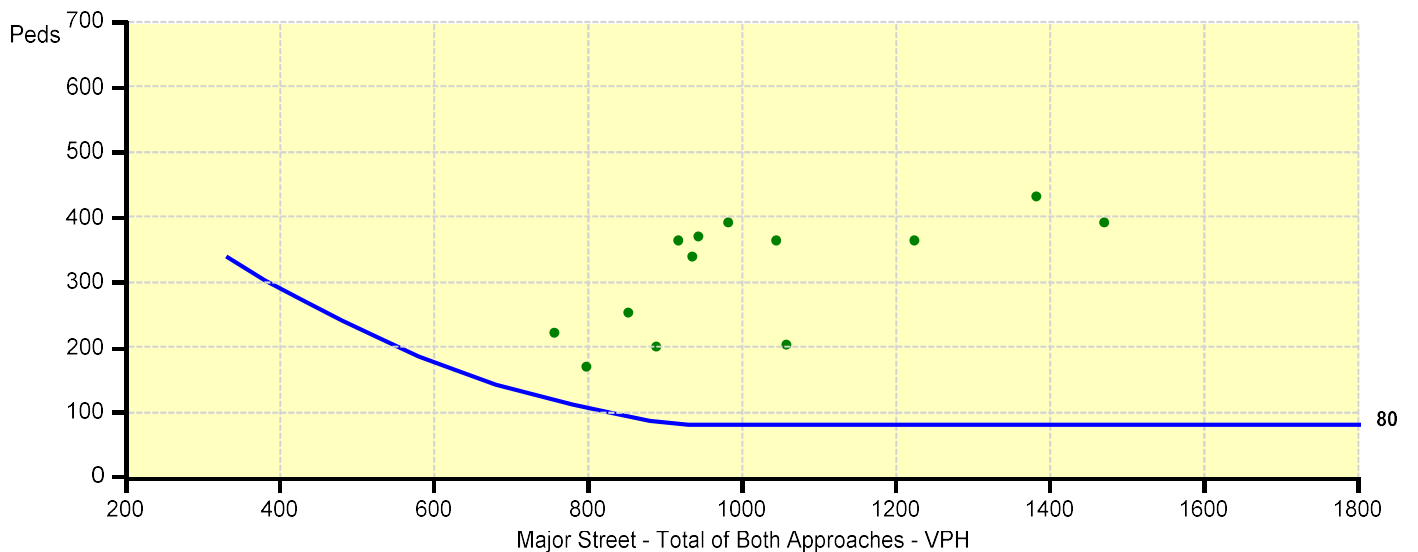
Summary

15 one hour periods meet minimums.
Warrant IS met.

Site Data Required

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

Time	Major Road CSAH 23 (Lake Dr)					Minor Road Apollo Dr		Met?
	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	
16:00 - 17:00	1006	+	464	=	1470	391	385	Yes
17:00 - 18:00	956	+	427	=	1383	290	433	Yes
15:00 - 16:00	819	+	404	=	1223	321	364	Yes
07:00 - 08:00	439	+	619	=	1058	205	132	Yes
14:00 - 15:00	698	+	347	=	1045	290	363	Yes
12:00 - 13:00	562	+	420	=	982	288	393	Yes
13:00 - 14:00	594	+	348	=	942	227	370	Yes
18:00 - 19:00	600	+	334	=	934	239	338	Yes
11:00 - 12:00	555	+	361	=	916	252	363	Yes
08:00 - 09:00	413	+	475	=	888	199	142	Yes
10:00 - 11:00	517	+	336	=	853	217	254	Yes
06:00 - 07:00	320		478		798	169	67	Yes



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name:

Study Date : 08/09/2022

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

49 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**

Time	Major Road CSAH 23 (Lake Dr)					Minor Road Apollo Dr		Met?
	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	
16:15 - 17:15	1053	+	462	=	1515	383	397	Yes
16:30 - 17:30	1025	+	451	=	1476	361	414	Yes
16:00 - 17:00	1006	+	464	=	1470	391	385	Yes
15:45 - 16:45	1001	+	453	=	1454	397	372	Yes
16:45 - 17:45	1004	+	438	=	1442	312	429	Yes
17:00 - 18:00	956	+	427	=	1383	290	433	Yes
15:30 - 16:30	902	+	452	=	1354	381	377	Yes
15:15 - 16:15	873	+	436	=	1309	354	361	Yes
17:15 - 18:15	865	+	394	=	1259	261	434	Yes
15:00 - 16:00	819	+	404	=	1223	321	364	Yes
17:30 - 18:30	799	+	388	=	1187	251	410	Yes
14:45 - 15:45	772		375		1147	320	342	Yes

