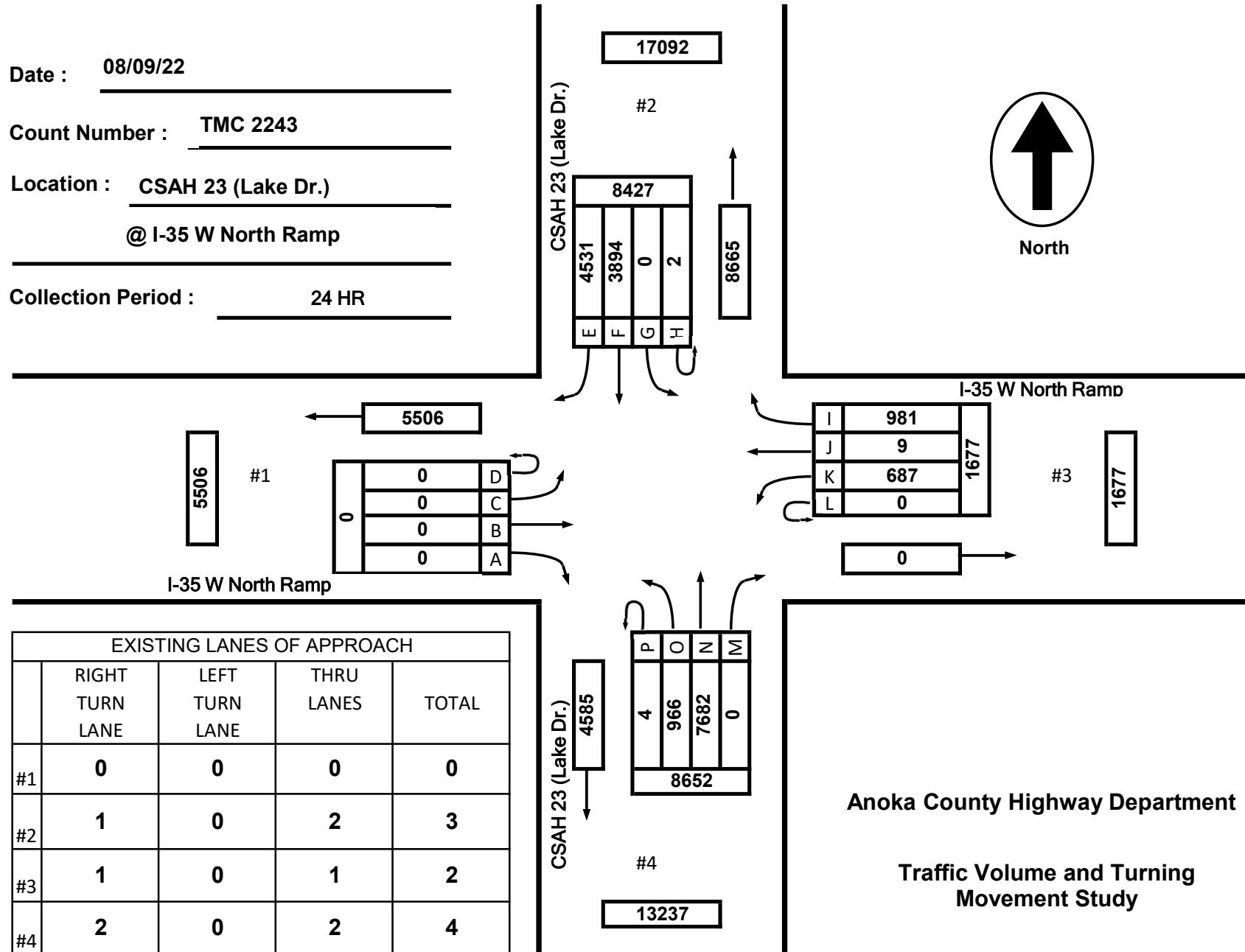


Date : 08/09/22

Count Number : TMC 2243

Location : CSAH 23 (Lake Dr.)  
@ I-35 W North Ramp

Collection Period : 24 HR



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

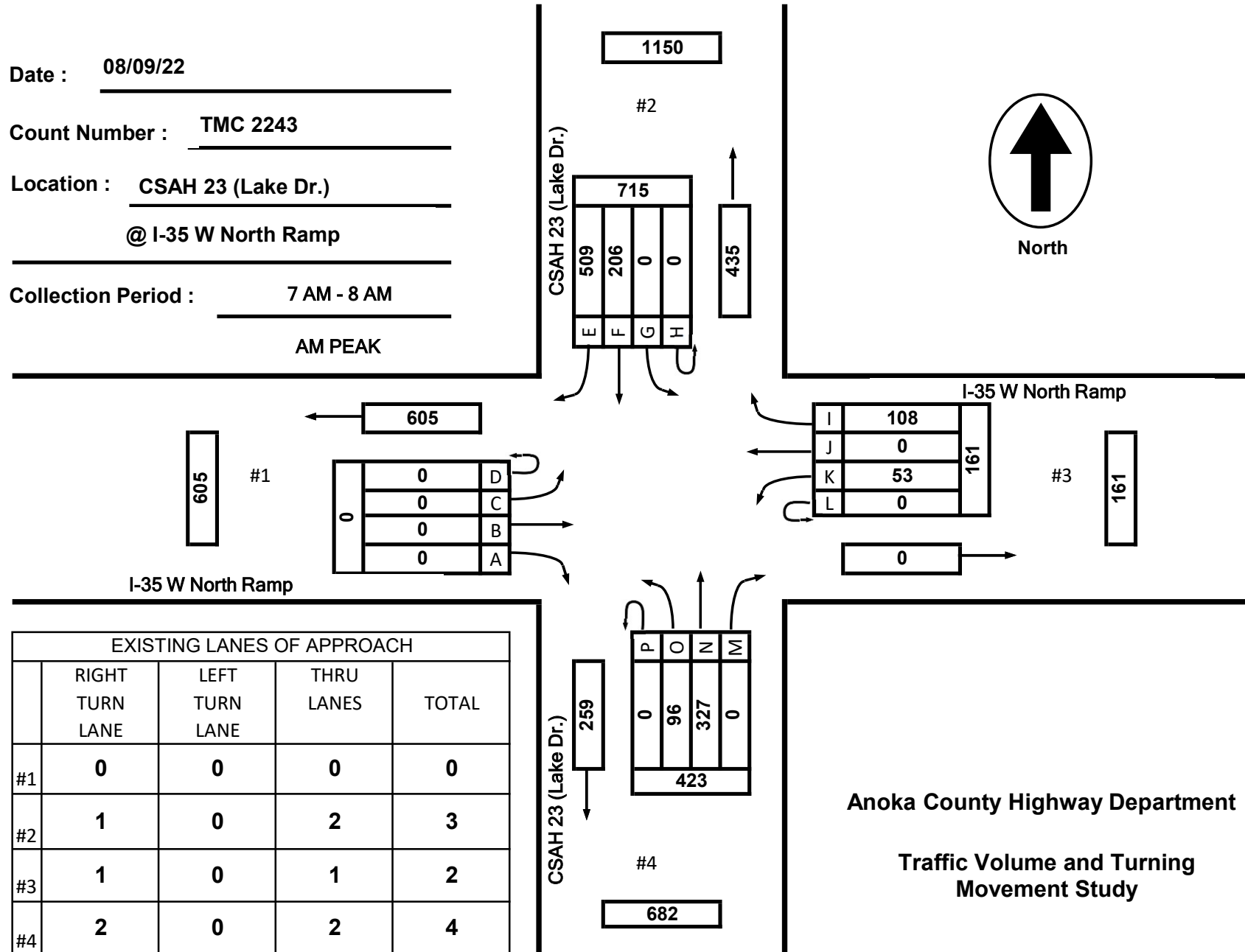
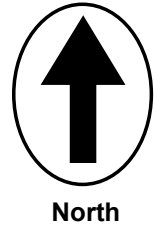
Anoka County Highway Department  
 Traffic Volume and Turning Movement Study

Date : 08/09/22

Count Number : TMC 2243

Location : CSAH 23 (Lake Dr.)  
@ I-35 W North Ramp

Collection Period : 7 AM - 8 AM  
AM PEAK



Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

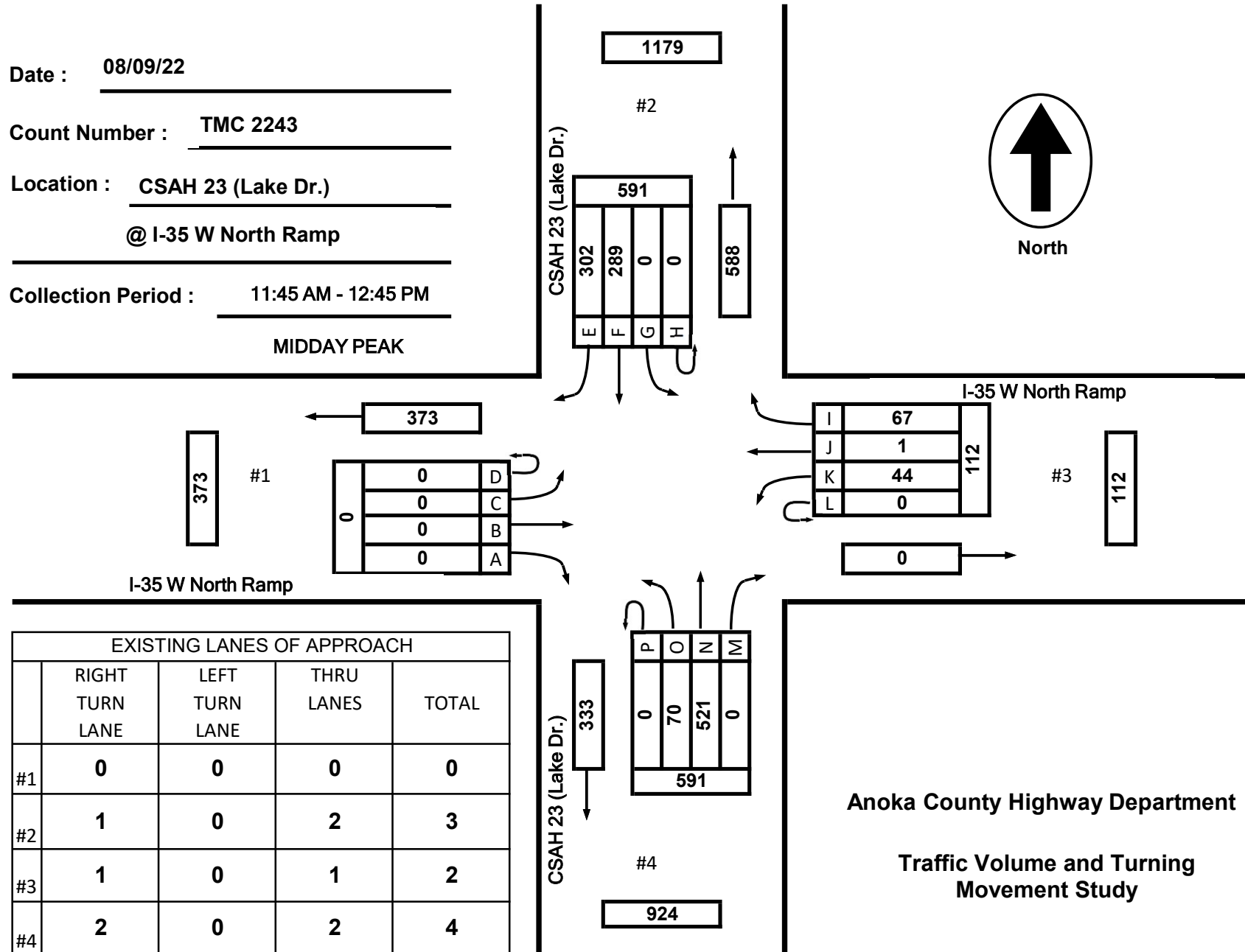
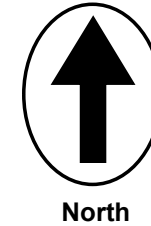
Date : 08/09/22

Count Number : TMC 2243

Location : CSAH 23 (Lake Dr.)  
@ I-35 W North Ramp

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	0	0	0
#2	1	0	2	3
#3	1	0	1	2
#4	2	0	2	4

Anoka County Highway Department

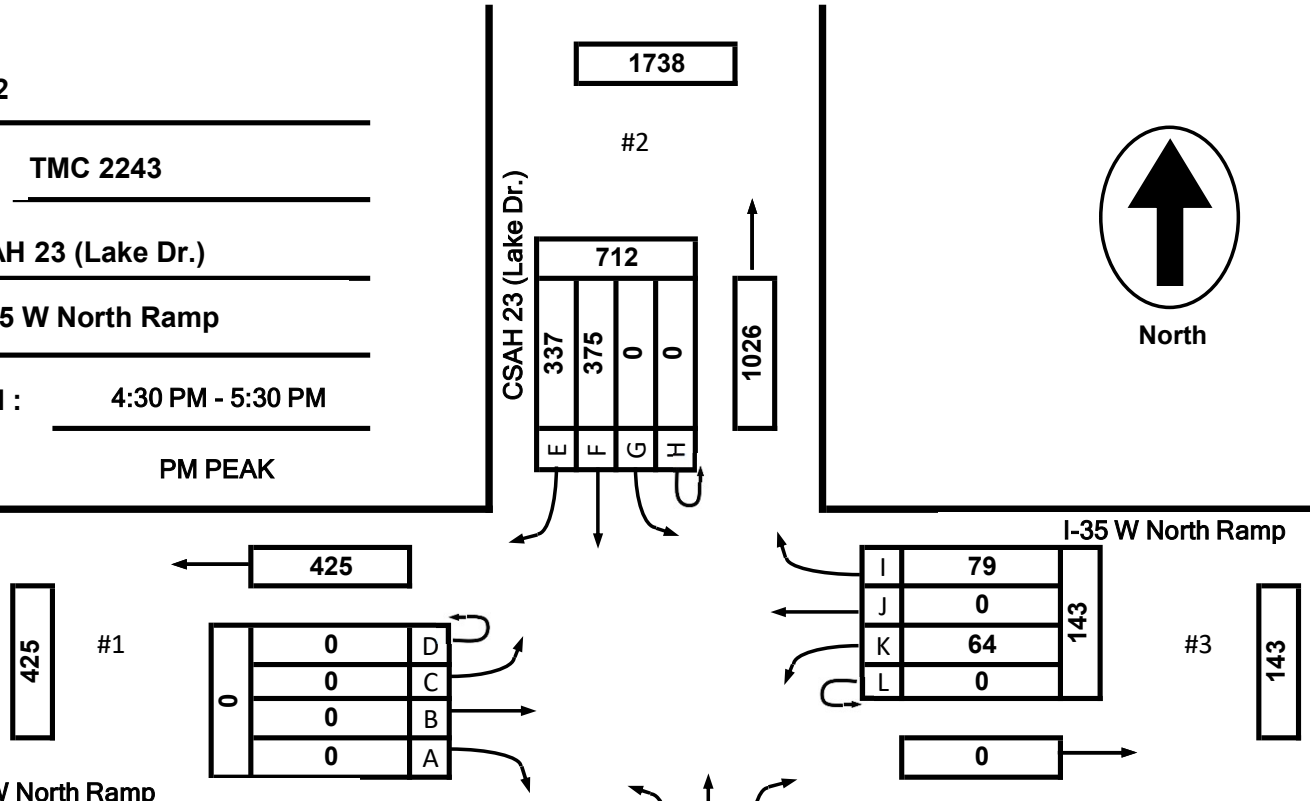
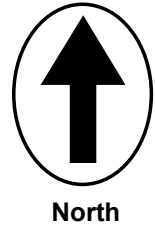
Traffic Volume and Turning Movement Study

Date : 08/09/22

Count Number : TMC 2243

Location : CSAH 23 (Lake Dr.)  
@ I-35 W North Ramp

Collection Period : 4:30 PM - 5:30 PM  
**PM PEAK**



I-35 W North Ramp

I-35 W North Ramp

CSAH 23 (Lake Dr.)

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

Anoka County Highway Department

Traffic Volume and Turning Movement Study

1474



# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC 2243-t  
 Site Code :  
 Start Date : 08/09/2022  
 Page No : 1

Weather: Warm & Sunny  
 CountCAM 3  
 Study Conducted by: Kevin

Groups Printed- Cars + - Trucks

Start Time	CSAH 23 (Lake Dr) Southbound						I-35 W North Ramp Westbound						CSAH 23 (Lake Dr) Northbound						I-35 W North Ramp 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	89	28	0	0	0	117	10	0	2	0	0	12	0	56	8	0	0	64	0	0	0	0	0	0	0	0	193	193
06:15	101	36	0	0	0	137	15	0	11	0	0	26	0	43	12	0	0	55	0	0	0	0	0	0	0	0	218	218
06:30	108	35	0	0	0	143	21	0	13	0	0	34	0	64	22	0	0	86	0	0	0	0	0	0	0	0	263	263
06:45	116	50	0	0	0	166	32	0	12	0	0	44	0	76	26	0	0	102	0	0	0	0	0	0	0	0	312	312
<b>Total</b>	<b>414</b>	<b>149</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>563</b>	<b>78</b>	<b>0</b>	<b>38</b>	<b>0</b>	<b>0</b>	<b>116</b>	<b>0</b>	<b>239</b>	<b>68</b>	<b>0</b>	<b>0</b>	<b>307</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>986</b>	<b>986</b>
07:00	119	40	0	0	0	159	22	0	12	0	0	34	0	74	20	0	0	94	0	0	0	0	0	0	0	0	287	287
07:15	149	46	0	0	0	195	25	0	14	0	0	39	0	84	27	0	0	111	0	0	0	0	0	0	0	0	345	345
07:30	120	55	0	0	0	175	31	0	10	0	0	41	0	71	33	0	0	104	0	0	0	0	0	0	0	0	320	320
07:45	121	65	0	0	0	186	30	0	17	0	2	47	0	98	16	0	0	114	0	0	0	0	0	0	0	2	347	349
<b>Total</b>	<b>509</b>	<b>206</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>715</b>	<b>108</b>	<b>0</b>	<b>53</b>	<b>0</b>	<b>2</b>	<b>161</b>	<b>0</b>	<b>327</b>	<b>96</b>	<b>0</b>	<b>0</b>	<b>423</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1299</b>	<b>1301</b>
08:00	119	47	0	0	0	166	12	0	12	0	1	24	0	66	19	1	0	86	0	0	0	0	0	0	0	1	276	277
08:15	100	50	0	0	0	150	16	0	20	0	1	36	0	90	21	0	0	111	0	0	0	0	0	0	0	1	297	298
08:30	106	44	0	0	0	150	16	0	13	0	1	29	0	95	24	0	0	119	0	0	0	0	0	0	0	1	298	299
08:45	76	50	0	0	0	126	16	0	14	0	2	30	0	98	17	0	0	115	0	0	0	0	0	0	0	2	271	273
<b>Total</b>	<b>401</b>	<b>191</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>592</b>	<b>60</b>	<b>0</b>	<b>59</b>	<b>0</b>	<b>5</b>	<b>119</b>	<b>0</b>	<b>349</b>	<b>81</b>	<b>1</b>	<b>0</b>	<b>431</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1142</b>	<b>1147</b>
09:00	96	53	0	0	0	149	12	0	15	0	1	27	0	91	21	0	0	112	0	0	0	0	0	0	0	1	288	289
09:15	78	61	0	0	0	139	13	0	11	0	1	24	0	80	13	0	0	93	0	0	0	0	0	0	0	1	256	257
09:30	71	47	0	0	0	118	9	0	10	0	2	19	0	82	14	0	0	96	0	0	0	0	0	0	0	2	233	235
09:45	66	51	0	0	0	117	12	0	8	0	1	20	0	97	9	0	0	106	0	0	0	0	0	0	0	1	243	244
<b>Total</b>	<b>311</b>	<b>212</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>523</b>	<b>46</b>	<b>0</b>	<b>44</b>	<b>0</b>	<b>5</b>	<b>90</b>	<b>0</b>	<b>350</b>	<b>57</b>	<b>0</b>	<b>0</b>	<b>407</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1020</b>	<b>1025</b>
10:00	61	45	0	0	0	106	17	0	7	0	0	24	0	114	15	0	0	129	0	0	0	0	0	0	0	0	259	259
10:15	66	51	0	0	0	117	15	0	13	0	2	28	0	106	17	1	0	124	0	0	0	0	0	0	0	2	269	271
10:30	70	41	0	0	0	111	15	0	10	0	3	25	0	107	20	0	0	127	0	0	0	0	0	0	0	3	263	266
10:45	60	72	0	0	0	132	21	0	11	0	0	32	0	112	7	0	0	119	0	0	0	0	0	0	0	0	283	283
<b>Total</b>	<b>257</b>	<b>209</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>466</b>	<b>68</b>	<b>0</b>	<b>41</b>	<b>0</b>	<b>5</b>	<b>109</b>	<b>0</b>	<b>439</b>	<b>59</b>	<b>1</b>	<b>0</b>	<b>499</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1074</b>	<b>1079</b>
11:00	67	64	0	0	0	131	20	1	7	0	3	28	0	105	14	0	0	119	0	0	0	0	0	0	0	3	278	281
11:15	63	67	0	0	0	130	16	0	8	0	1	24	0	132	13	0	0	145	0	0	0	0	0	0	0	1	299	300
11:30	62	81	0	0	0	143	12	1	6	0	4	19	0	134	17	0	0	151	0	0	0	0	0	0	0	4	313	317
11:45	67	73	0	0	0	140	16	0	7	0	1	23	0	130	14	0	0	144	0	0	0	0	0	0	0	1	307	308
<b>Total</b>	<b>259</b>	<b>285</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>544</b>	<b>64</b>	<b>2</b>	<b>28</b>	<b>0</b>	<b>9</b>	<b>94</b>	<b>0</b>	<b>501</b>	<b>58</b>	<b>0</b>	<b>0</b>	<b>559</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>1197</b>	<b>1206</b>



# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC 2243-t  
 Site Code :  
 Start Date : 08/09/2022  
 Page No : 2

Weather: Warm & Sunny  
 CountCAM 3  
 Study Conducted by: Kevin

Groups Printed- Cars + - Trucks

Start Time	CSAH 23 (Lake Dr) Southbound						I-35 W North Ramp Westbound						CSAH 23 (Lake Dr) Northbound						I-35 W North Ramp 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	83	61	0	0	0	144	14	0	10	0	1	24	0	139	23	0	0	162	0	0	0	0	0	0	1	330	331
12:15	74	79	0	0	0	153	13	1	16	0	0	30	0	130	17	0	0	147	0	0	0	0	0	0	0	330	330
12:30	78	76	0	0	0	154	24	0	11	0	0	35	0	122	16	0	0	138	0	0	0	0	0	0	0	327	327
12:45	61	82	0	0	0	143	15	0	11	0	0	26	0	117	13	0	0	130	0	0	0	0	0	0	0	299	299
<b>Total</b>	<b>296</b>	<b>298</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>594</b>	<b>66</b>	<b>1</b>	<b>48</b>	<b>0</b>	<b>1</b>	<b>115</b>	<b>0</b>	<b>508</b>	<b>69</b>	<b>0</b>	<b>0</b>	<b>577</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1286</b>	<b>1287</b>
13:00	69	78	0	0	0	147	18	0	17	0	1	35	0	132	14	0	0	146	0	0	0	0	0	0	1	328	329
13:15	72	53	0	0	0	125	16	1	8	0	1	25	0	106	8	0	0	114	0	0	0	0	0	0	1	264	265
13:30	72	57	0	0	0	129	18	0	10	0	2	28	0	128	17	1	0	146	0	0	0	0	0	0	2	303	305
13:45	67	68	0	1	0	136	22	1	14	0	0	37	0	146	15	0	0	161	0	0	0	0	0	0	0	334	334
<b>Total</b>	<b>280</b>	<b>256</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>537</b>	<b>74</b>	<b>2</b>	<b>49</b>	<b>0</b>	<b>4</b>	<b>125</b>	<b>0</b>	<b>512</b>	<b>54</b>	<b>1</b>	<b>0</b>	<b>567</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>1229</b>	<b>1233</b>
14:00	83	72	0	0	0	155	17	1	9	0	1	27	0	153	14	0	0	167	0	0	0	0	0	0	1	349	350
14:15	76	77	0	0	0	153	21	0	13	0	0	34	0	132	7	0	0	139	0	0	0	0	0	0	0	326	326
14:30	91	72	0	0	0	163	21	0	12	0	2	33	0	174	11	0	0	185	0	0	0	0	0	0	2	381	383
14:45	84	77	0	0	0	161	16	0	11	0	1	27	0	172	12	0	0	184	0	0	0	0	0	0	1	372	373
<b>Total</b>	<b>334</b>	<b>298</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>632</b>	<b>75</b>	<b>1</b>	<b>45</b>	<b>0</b>	<b>4</b>	<b>121</b>	<b>0</b>	<b>631</b>	<b>44</b>	<b>0</b>	<b>0</b>	<b>675</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>1428</b>	<b>1432</b>
15:00	70	93	0	0	0	163	19	0	13	0	0	32	0	156	16	0	0	172	0	0	0	0	0	0	0	367	367
15:15	66	61	0	0	0	127	18	0	10	0	0	28	0	205	20	0	0	225	0	0	0	0	0	0	0	380	380
15:30	95	96	0	0	0	191	19	0	9	0	0	28	0	180	35	0	0	215	0	0	0	0	0	0	0	434	434
15:45	82	88	0	0	0	170	17	0	21	0	0	38	0	228	15	0	0	243	0	0	0	0	0	0	0	451	451
<b>Total</b>	<b>313</b>	<b>338</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>651</b>	<b>73</b>	<b>0</b>	<b>53</b>	<b>0</b>	<b>0</b>	<b>126</b>	<b>0</b>	<b>769</b>	<b>86</b>	<b>0</b>	<b>0</b>	<b>855</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1632</b>	<b>1632</b>
16:00	100	88	0	0	0	188	14	0	11	0	1	25	0	211	19	0	0	230	0	0	0	0	0	0	1	443	444
16:15	83	71	0	0	0	154	18	1	13	0	0	32	0	221	6	0	0	227	0	0	0	0	0	0	0	413	413
16:30	97	95	0	0	0	192	24	0	16	0	0	40	0	270	26	0	0	296	0	0	0	0	0	0	0	528	528
16:45	67	96	0	0	0	163	22	0	17	0	0	39	0	233	23	0	0	256	0	0	0	0	0	0	0	458	458
<b>Total</b>	<b>347</b>	<b>350</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>697</b>	<b>78</b>	<b>1</b>	<b>57</b>	<b>0</b>	<b>1</b>	<b>136</b>	<b>0</b>	<b>935</b>	<b>74</b>	<b>0</b>	<b>0</b>	<b>1009</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1842</b>	<b>1843</b>
17:00	102	97	0	0	0	199	20	0	12	0	1	32	0	218	14	0	0	232	0	0	0	0	0	0	1	463	464
17:15	71	87	0	0	0	158	13	0	19	0	0	32	0	226	25	0	0	251	0	0	0	0	0	0	0	441	441
17:30	71	91	0	0	0	162	21	0	16	0	0	37	0	244	28	0	0	272	0	0	0	0	0	0	0	471	471
17:45	63	99	0	0	0	162	11	0	19	0	1	30	0	196	25	0	0	221	0	0	0	0	0	0	1	413	414
<b>Total</b>	<b>307</b>	<b>374</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>681</b>	<b>65</b>	<b>0</b>	<b>66</b>	<b>0</b>	<b>2</b>	<b>131</b>	<b>0</b>	<b>884</b>	<b>92</b>	<b>0</b>	<b>0</b>	<b>976</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1788</b>	<b>1790</b>
18:00	61	95	0	0	0	156	16	0	7	0	0	23	0	150	18	0	0	168	0	0	0	0	0	0	0	347	347
18:15	58	75	0	1	0	134	13	0	11	0	0	24	0	149	13	0	0	162	0	0	0	0	0	0	0	320	320
18:30	33	70	0	0	0	103	13	0	16	0	2	29	0	143	8	0	0	151	0	0	0	0	0	0	2	283	285



# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC 2243-t  
 Site Code :  
 Start Date : 08/09/2022  
 Page No : 3

Weather: Warm & Sunny  
 CountCAM 3  
 Study Conducted by: Kevin

Groups Printed- Cars + - Trucks

Start Time	CSAH 23 (Lake Dr) Southbound						I-35 W North Ramp Westbound						CSAH 23 (Lake Dr) Northbound						I-35 W North Ramp 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	49	58	0	0	0	107	11	0	10	0	0	21	0	93	10	0	0	103	0	0	0	0	0	0	0	0	231	231
Total	201	298	0	1	0	500	53	0	44	0	2	97	0	535	49	0	0	584	0	0	0	0	0	0	0	2	1181	1183
19:00	48	63	0	0	0	111	9	0	0	0	0	9	0	114	16	0	0	130	0	0	0	0	0	0	0	0	250	250
19:15	45	54	0	0	0	99	10	1	7	0	0	18	0	105	13	1	0	119	0	0	0	0	0	0	0	0	236	236
19:30	38	74	0	0	0	112	9	0	12	0	3	21	0	80	14	0	0	94	0	0	0	0	0	0	0	3	227	230
19:45	37	47	0	0	0	84	11	1	7	0	0	19	0	100	7	0	0	107	0	0	0	0	0	0	0	0	210	210
Total	168	238	0	0	0	406	39	2	26	0	3	67	0	399	50	1	0	450	0	0	0	0	0	0	0	3	923	926
20:00	34	56	0	0	0	90	9	0	11	0	0	20	0	89	9	0	1	98	0	0	0	0	0	0	0	1	208	209
20:15	37	47	0	0	0	84	10	0	7	0	0	17	0	91	3	0	0	94	0	0	0	0	0	0	0	0	195	195
20:30	37	44	0	0	0	81	8	0	9	0	0	17	0	55	10	0	0	65	0	0	0	0	0	0	0	0	163	163
20:45	25	45	0	0	0	70	7	0	9	0	1	16	0	69	7	0	0	76	0	0	0	0	0	0	0	1	162	163
Total	133	192	0	0	0	325	34	0	36	0	1	70	0	304	29	0	1	333	0	0	0	0	0	0	0	2	728	730
21:00	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Grand Total	4531	3894	0	2	0	8427	981	9	687	0	44	1677	0	7682	966	4	1	8652	0	0	0	0	0	0	0	45	18756	18801
Apprch %	53.8	46.2	0	0			58.5	0.5	41	0			0	88.8	11.2	0			0	0	0	0						
Total %	24.2	20.8	0	0		44.9	5.2	0	3.7	0		8.9	0	41	5.2	0		46.1	0	0	0	0			0.2	99.8		
Cars +	4063	3799	0	2		7864	965	9	595	0		1613	0	7190	885	4		8080	0	0	0	0			0	0	17557	
% Cars +	89.7	97.6	0	100	0	93.3	98.4	100	86.6	0	100	93.7	0	93.6	91.6	100	100	93.4	0	0	0	0			0	0	93.4	
Trucks	468	95	0	0		563	16	0	92	0		108	0	492	81	0		573	0	0	0	0			0	0	1244	
% Trucks	10.3	2.4	0	0	0	6.7	1.6	0	13.4	0	0	6.3	0	6.4	8.4	0	0	6.6	0	0	0	0			0	0	6.6	

Start Time	CSAH 23 (Lake Dr) Southbound						I-35 W North Ramp Westbound						CSAH 23 (Lake Dr) Northbound						I-35 W North Ramp Eastbound						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				
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																												
Peak Hour for Entire Intersection Begins at 07:00																												
07:00	119	40	0	0		159	22	0	12	0		34	0	74	20	0		94	0	0	0	0			0	0	287	
07:15	<b>149</b>	46	0	0		<b>195</b>	25	0	14	0		39	0	84	27	0		111	0	0	0	0			0	0	345	
07:30	120	55	0	0		175	<b>31</b>	0	10	0		41	0	71	<b>33</b>	0		104	0	0	0	0			0	0	320	
07:45	121	<b>65</b>	0	0		186	30	0	<b>17</b>	0		<b>47</b>	0	<b>98</b>	16	0		<b>114</b>	0	0	0	0			0	0	<b>347</b>	
Total Volume	509	206	0	0		715	108	0	53	0		161	0	327	96	0		423	0	0	0	0			0	0	1299	
% App. Total	71.2	28.8	0	0			67.1	0	32.9	0			0	77.3	22.7	0			0	0	0	0						
PHF	.854	.792	.000	.000		.917	.871	.000	.779	.000		.856	.000	.834	.727	.000		.928	.000	.000	.000	.000			.000	.000	.936	







# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC 2243-t  
 Site Code :  
 Start Date : 08/09/2022  
 Page No : 1

Weather: Warm & Sunny  
 CountCAM 3  
 Study Conducted by: Kevin

Groups Printed- Trucks

Start Time	CSAH 23 (Lake Dr) Southbound					I-35 W North Ramp Westbound					CSAH 23 (Lake Dr) Northbound					I-35 W North Ramp 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	10	2	0	0	12	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	14
06:15	14	2	0	0	16	1	0	1	0	2	0	6	1	0	7	0	0	0	0	0	25
06:30	15	3	0	0	18	0	0	1	0	1	0	6	2	0	8	0	0	0	0	0	27
06:45	18	5	0	0	23	2	0	2	0	4	0	4	5	0	9	0	0	0	0	0	36
Total	57	12	0	0	69	3	0	4	0	7	0	17	9	0	26	0	0	0	0	0	102
07:00	13	2	0	0	15	0	0	1	0	1	0	5	4	0	9	0	0	0	0	0	25
07:15	12	1	0	0	13	0	0	0	0	0	0	10	1	0	11	0	0	0	0	0	24
07:30	9	0	0	0	9	0	0	0	0	0	0	14	1	0	15	0	0	0	0	0	24
07:45	21	4	0	0	25	0	0	2	0	2	0	12	3	0	15	0	0	0	0	0	42
Total	55	7	0	0	62	0	0	3	0	3	0	41	9	0	50	0	0	0	0	0	115
08:00	17	5	0	0	22	0	0	3	0	3	0	7	0	0	7	0	0	0	0	0	32
08:15	10	1	0	0	11	1	0	2	0	3	0	8	5	0	13	0	0	0	0	0	27
08:30	14	2	0	0	16	0	0	4	0	4	0	8	2	0	10	0	0	0	0	0	30
08:45	8	2	0	0	10	0	0	3	0	3	0	11	2	0	13	0	0	0	0	0	26
Total	49	10	0	0	59	1	0	12	0	13	0	34	9	0	43	0	0	0	0	0	115
09:00	15	2	0	0	17	0	0	2	0	2	0	15	3	0	18	0	0	0	0	0	37
09:15	11	1	0	0	12	0	0	2	0	2	0	10	2	0	12	0	0	0	0	0	26
09:30	10	1	0	0	11	1	0	4	0	5	0	13	2	0	15	0	0	0	0	0	31
09:45	10	3	0	0	13	0	0	0	0	0	0	14	1	0	15	0	0	0	0	0	28
Total	46	7	0	0	53	1	0	8	0	9	0	52	8	0	60	0	0	0	0	0	122
10:00	10	5	0	0	15	0	0	3	0	3	0	12	0	0	12	0	0	0	0	0	30
10:15	7	4	0	0	11	0	0	3	0	3	0	15	5	0	20	0	0	0	0	0	34
10:30	9	1	0	0	10	0	0	4	0	4	0	17	1	0	18	0	0	0	0	0	32
10:45	12	1	0	0	13	0	0	1	0	1	0	7	1	0	8	0	0	0	0	0	22
Total	38	11	0	0	49	0	0	11	0	11	0	51	7	0	58	0	0	0	0	0	118
11:00	8	0	0	0	8	1	0	2	0	3	0	9	0	0	9	0	0	0	0	0	20
11:15	5	1	0	0	6	1	0	3	0	4	0	13	0	0	13	0	0	0	0	0	23
11:30	12	6	0	0	18	0	0	1	0	1	0	15	1	0	16	0	0	0	0	0	35
11:45	9	4	0	0	13	0	0	1	0	1	0	9	3	0	12	0	0	0	0	0	26
Total	34	11	0	0	45	2	0	7	0	9	0	46	4	0	50	0	0	0	0	0	104
12:00	13	3	0	0	16	0	0	3	0	3	0	14	5	0	19	0	0	0	0	0	38
12:15	15	4	0	0	19	1	0	2	0	3	0	9	1	0	10	0	0	0	0	0	32
12:30	8	0	0	0	8	0	0	1	0	1	0	10	1	0	11	0	0	0	0	0	20
12:45	8	1	0	0	9	0	0	1	0	1	0	12	0	0	12	0	0	0	0	0	22
Total	44	8	0	0	52	1	0	7	0	8	0	45	7	0	52	0	0	0	0	0	112
13:00	10	2	0	0	12	2	0	4	0	6	0	13	0	0	13	0	0	0	0	0	31
13:15	11	1	0	0	12	0	0	2	0	2	0	11	1	0	12	0	0	0	0	0	26
13:30	11	3	0	0	14	0	0	3	0	3	0	12	1	0	13	0	0	0	0	0	30
13:45	10	1	0	0	11	1	0	2	0	3	0	8	1	0	9	0	0	0	0	0	23
Total	42	7	0	0	49	3	0	11	0	14	0	44	3	0	47	0	0	0	0	0	110
14:00	8	2	0	0	10	0	0	2	0	2	0	12	1	0	13	0	0	0	0	0	25
14:15	4	1	0	0	5	1	0	3	0	4	0	11	1	0	12	0	0	0	0	0	21
14:30	9	1	0	0	10	0	0	1	0	1	0	6	2	0	8	0	0	0	0	0	19
14:45	7	3	0	0	10	1	0	1	0	2	0	12	2	0	14	0	0	0	0	0	26
Total	28	7	0	0	35	2	0	7	0	9	0	41	6	0	47	0	0	0	0	0	91
15:00	2	1	0	0	3	0	0	5	0	5	0	14	1	0	15	0	0	0	0	0	23



# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC 2243-t  
 Site Code :  
 Start Date : 08/09/2022  
 Page No : 2

Weather: Warm & Sunny  
 CountCAM 3  
 Study Conducted by: Kevin

Groups Printed- Trucks

Start Time	CSAH 23 (Lake Dr) Southbound					I-35 W North Ramp Westbound					CSAH 23 (Lake Dr) Northbound					I-35 W North Ramp 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	4	0	0	0	4	0	0	1	0	1	0	12	1	0	13	0	0	0	0	0	18
15:30	7	2	0	0	9	0	0	1	0	1	0	8	1	0	9	0	0	0	0	0	19
15:45	10	2	0	0	12	0	0	3	0	3	0	5	1	0	6	0	0	0	0	0	21
Total	23	5	0	0	28	0	0	10	0	10	0	39	4	0	43	0	0	0	0	0	81
16:00	5	1	0	0	6	1	0	3	0	4	0	6	0	0	6	0	0	0	0	0	16
16:15	7	1	0	0	8	1	0	0	0	1	0	5	1	0	6	0	0	0	0	0	15
16:30	3	0	0	0	3	1	0	3	0	4	0	6	1	0	7	0	0	0	0	0	14
16:45	6	0	0	0	6	0	0	0	0	0	0	7	1	0	8	0	0	0	0	0	14
Total	21	2	0	0	23	3	0	6	0	9	0	24	3	0	27	0	0	0	0	0	59
17:00	3	0	0	0	3	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	8
17:15	2	0	0	0	2	0	0	1	0	1	0	8	0	0	8	0	0	0	0	0	11
17:30	5	2	0	0	7	0	0	2	0	2	0	12	2	0	14	0	0	0	0	0	23
17:45	4	3	0	0	7	0	0	1	0	1	0	7	3	0	10	0	0	0	0	0	18
Total	14	5	0	0	19	0	0	4	0	4	0	31	6	0	37	0	0	0	0	0	60
18:00	1	1	0	0	2	0	0	0	0	0	0	3	3	0	6	0	0	0	0	0	8
18:15	2	0	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
18:30	0	1	0	0	1	0	0	2	0	2	0	4	0	0	4	0	0	0	0	0	7
18:45	2	1	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	4
Total	5	3	0	0	8	0	0	2	0	2	0	12	3	0	15	0	0	0	0	0	25
19:00	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
19:15	3	0	0	0	3	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	7
19:30	1	0	0	0	1	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	3
19:45	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Total	8	0	0	0	8	0	0	0	0	0	0	5	3	0	8	0	0	0	0	0	16
20:00	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
20:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
20:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
20:45	3	0	0	0	3	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	8
Total	4	0	0	0	4	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	14
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	468	95	0	0	563	16	0	92	0	108	0	492	81	0	573	0	0	0	0	0	1244
Apprch %	83.1	16.9	0	0		14.8	0	85.2	0		0	85.9	14.1	0		0	0	0	0		
Total %	37.6	7.6	0	0	45.3	1.3	0	7.4	0	8.7	0	39.5	6.5	0	46.1	0	0	0	0	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: 8,652

Southbound: CSAH 23 (Lake Dr)

Number of Lanes : 2+

Total Approach Volume: 8,427

### Minor Street Approaches

Eastbound: I-35 W North Ramp

Number of Lanes : 1

Total Approach Volume: 0

Westbound: I-35 W North Ramp

Number of Lanes : 1

Total Approach Volume: 1,677

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### Warrant Summary (Urban Values Apply)

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

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

Required volumes reached for 1 hours, 8 are needed

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

Required volumes reached for 13 hours, 8 are needed

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

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

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

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

Number of hours (8) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

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

Number of one hour periods (41) 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

Only 1 one hour periods meet minimums.  
Warrant is NOT met.

#### Site Data Required

Rural Settings Apply = **False**  
 Number of Major Lanes = **2 or more**  
 Number of Minor Lanes = **1**

#### Volume Requirements

Veh/Hr Major = **600**

Veh/Hr Minor = **150**

Time	Major Road				Total	Minor EB	Minor Road		Met?
	Major NB	+	Major SB	=			Minor WB		
	CSAH 23 (Lake Dr)						I-35 W North Ramp		
06:30 - 07:30	393	+	663	=	1056	0	151		Yes
16:30 - 17:30	1035	+	712	=	1747	0	143		No
16:15 - 17:15	1011	+	708	=	1719	0	143		No
16:00 - 17:00	1009	+	697	=	1706	0	136		No
15:45 - 16:45	996	+	704	=	1700	0	135		No
16:45 - 17:45	1011	+	682	=	1693	0	140		No
17:00 - 18:00	976	+	681	=	1657	0	131		No
15:30 - 16:30	915	+	703	=	1618	0	123		No
15:15 - 16:15	913	+	676	=	1589	0	119		No
17:15 - 18:15	912	+	638	=	1550	0	122		No
15:00 - 16:00	855	+	651	=	1506	0	126		No
14:45 - 15:45	796	+	642	=	1438	0	115		No
17:30 - 18:30	823	+	614	=	1437	0	114		No
14:30 - 15:30	766	+	614	=	1380	0	120		No
14:15 - 15:15	680	+	640	=	1320	0	126		No
14:00 - 15:00	675	+	632	=	1307	0	121		No
13:45 - 14:45	652	+	607	=	1259	0	131		No
17:45 - 18:45	702	+	555	=	1257	0	106		No
13:30 - 14:30	613	+	573	=	1186	0	126		No
11:30 - 12:30	604	+	580	=	1184	0	96		No
11:45 - 12:45	591	+	591	=	1182	0	112		No
12:00 - 13:00	577	+	594	=	1171	0	115		No
11:15 - 12:15	602	+	557	=	1159	0	90		No
12:15 - 13:15	561	+	597	=	1158	0	126		No
13:15 - 14:15	588		545		1133	0	117		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

13 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 = **1**

#### Volume Requirements

Veh/Hr Major = **900**

Veh/Hr Minor = **75**

Time	Major Road				Total	Minor EB	Minor Road		Met?
	Major NB	+	Major SB	=			Minor WB		
	<b>CSAH 23 (Lake Dr)</b>						<b>I-35 W North Ramp</b>		
16:15 - 17:15	1011	+	708	=	1719	0	143	Yes	
15:15 - 16:15	913	+	676	=	1589	0	119	Yes	
17:15 - 18:15	912	+	638	=	1550	0	122	Yes	
14:15 - 15:15	680	+	640	=	1320	0	126	Yes	
11:15 - 12:15	602	+	557	=	1159	0	90	Yes	
12:15 - 13:15	561	+	597	=	1158	0	126	Yes	
07:15 - 08:15	415	+	722	=	1137	0	151	Yes	
13:15 - 14:15	588	+	545	=	1133	0	117	Yes	
08:15 - 09:15	457	+	575	=	1032	0	122	Yes	
18:15 - 19:15	546	+	455	=	1001	0	83	Yes	
10:15 - 11:15	489	+	491	=	980	0	113	Yes	
06:15 - 07:15	337	+	605	=	942	0	138	Yes	
09:15 - 10:15	424	+	480	=	904	0	87	Yes	
06:00 - 07:00	307	+	563	=	870	0	116	No	
19:15 - 20:15	418	+	385	=	803	0	78	No	
19:30 - 20:30	393	+	370	=	763	0	77	No	
19:45 - 20:45	364	+	339	=	703	0	73	No	
20:00 - 21:00	333	+	325	=	658	0	70	No	
05:45 - 06:45	205	+	397	=	602	0	72	No	
20:15 - 21:15	235	+	236	=	471	0	50	No	
05:30 - 06:30	119	+	254	=	373	0	38	No	
20:30 - 21:30	141	+	152	=	293	0	33	No	
05:15 - 06:15	64	+	117	=	181	0	12	No	
20:45 - 21:45	76	+	71	=	147	0	16	No	
21:00 - 22:00	0		1		1	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

8 hours meet 1A minimums.  
14 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 = **1**

#### Volume Requirements

Warrant            1A    1B  
Veh/Hr Major = **480** **720**  
  
Veh/Hr Minor = **120** **60**

#### Major Road CSAH 23 (Lake Dr)

#### Minor Road I-35 W North Ramp

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
16:30 - 17:30	1035	+	712	=	1747	0	143	Yes
15:30 - 16:30	915	+	703	=	1618	0	123	Yes
14:30 - 15:30	766	+	614	=	1380	0	120	Yes
13:30 - 14:30	613	+	573	=	1186	0	126	Yes
12:15 - 13:15	561	+	597	=	1158	0	126	Yes
07:15 - 08:15	415	+	722	=	1137	0	151	Yes
08:15 - 09:15	457	+	575	=	1032	0	122	Yes
06:15 - 07:15	337	+	605	=	942	0	138	Yes
17:30 - 18:30	823	+	614	=	1437	0	114	No
17:45 - 18:45	702	+	555	=	1257	0	106	No
11:30 - 12:30	604	+	580	=	1184	0	96	No
11:45 - 12:45	591	+	591	=	1182	0	112	No

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
16:00 - 17:00	1009	+	697	=	1706	0	136	Yes
17:00 - 18:00	976	+	681	=	1657	0	131	Yes
15:00 - 16:00	855	+	651	=	1506	0	126	Yes
14:00 - 15:00	675	+	632	=	1307	0	121	Yes
12:00 - 13:00	577	+	594	=	1171	0	115	Yes
07:00 - 08:00	423	+	715	=	1138	0	161	Yes
13:00 - 14:00	567	+	537	=	1104	0	125	Yes
11:00 - 12:00	559	+	544	=	1103	0	94	Yes
18:00 - 19:00	584	+	500	=	1084	0	97	Yes
08:00 - 09:00	431	+	592	=	1023	0	119	Yes
10:00 - 11:00	499	+	466	=	965	0	109	Yes
09:00 - 10:00	407	+	523	=	930	0	90	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.

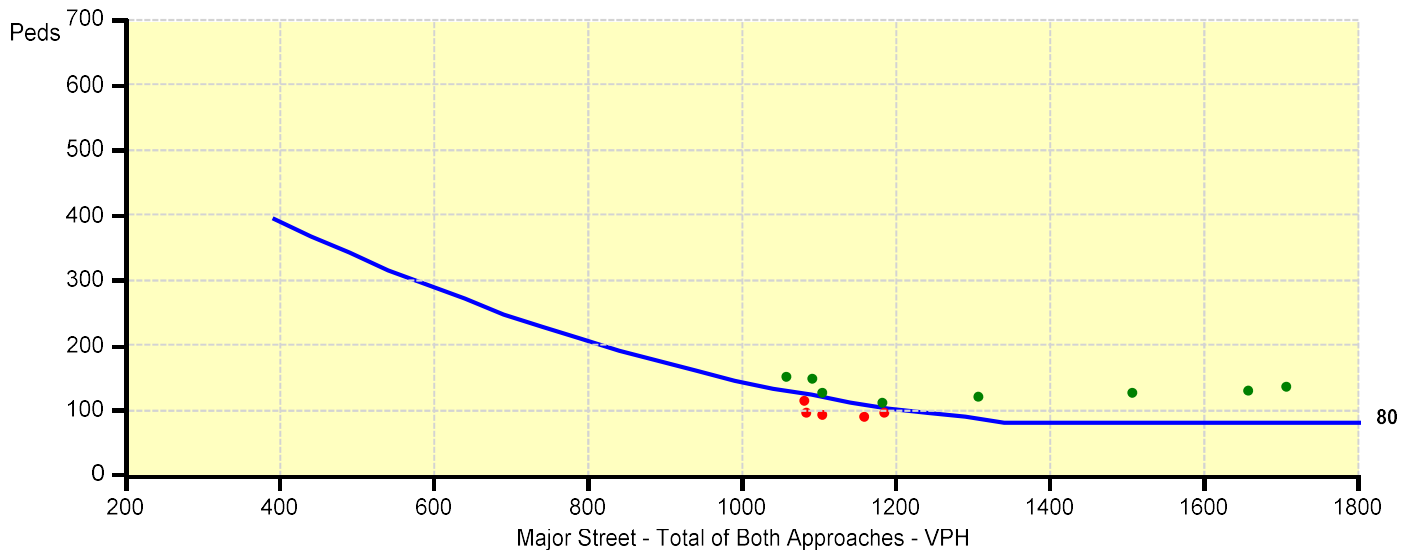
#### Summary

8 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 = **1**

Time	Major Road CSAH 23 (Lake Dr)					Minor Road I-35 W North Ramp		Met?
	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	
16:00 - 17:00	1009	+	697	=	1706	0	136	Yes
17:00 - 18:00	976	+	681	=	1657	0	131	Yes
15:00 - 16:00	855	+	651	=	1506	0	126	Yes
14:00 - 15:00	675	+	632	=	1307	0	121	Yes
11:45 - 12:45	591	+	591	=	1182	0	112	Yes
13:00 - 14:00	567	+	537	=	1104	0	125	Yes
07:30 - 08:30	415	+	677	=	1092	0	148	Yes
06:30 - 07:30	393	+	663	=	1056	0	151	Yes
11:30 - 12:30	604	+	580	=	1184	0	96	No
11:15 - 12:15	602	+	557	=	1159	0	90	No
11:00 - 12:00	559	+	544	=	1103	0	94	No
18:00 - 19:00	584	+	500	=	1084	0	97	No



# 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

7 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 = **1**

Time	Major Road CSAH 23 (Lake Dr)					Minor Road I-35 W North Ramp		Met?
	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	
16:30 - 17:30	1035	+	712	=	1747	0	143	Yes
16:15 - 17:15	1011	+	708	=	1719	0	143	Yes
16:00 - 17:00	1009	+	697	=	1706	0	136	Yes
15:45 - 16:45	996	+	704	=	1700	0	135	Yes
16:45 - 17:45	1011	+	682	=	1693	0	140	Yes
17:00 - 18:00	976	+	681	=	1657	0	131	Yes
15:30 - 16:30	915	+	703	=	1618	0	123	Yes
15:15 - 16:15	913	+	676	=	1589	0	119	No
17:15 - 18:15	912	+	638	=	1550	0	122	No
15:00 - 16:00	855	+	651	=	1506	0	126	No
14:45 - 15:45	796	+	642	=	1438	0	115	No
17:30 - 18:30	823	+	614	=	1437	0	114	No

