

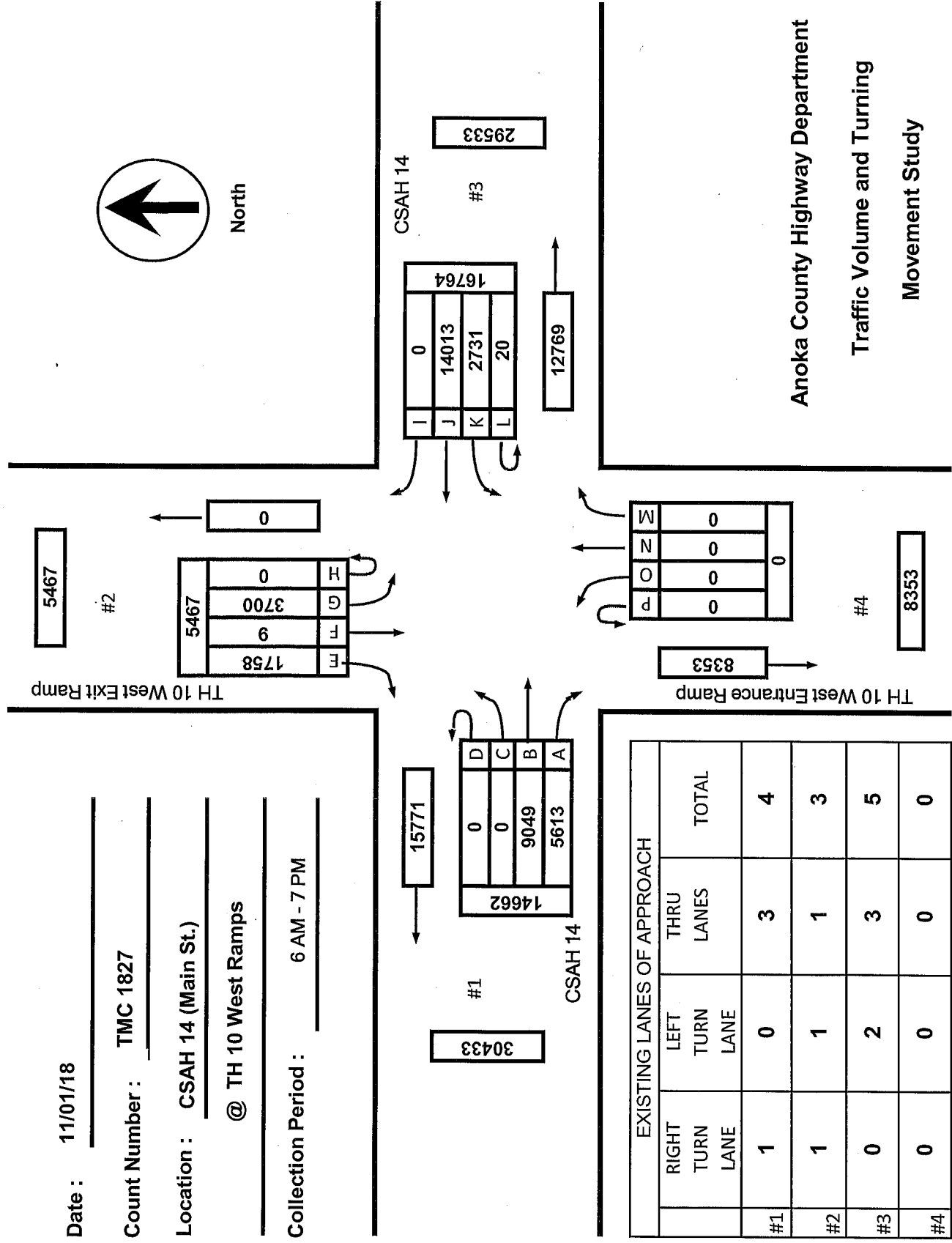
Date : 11/01/18

Count Number : TMC 1827

Location : CSAH 14 (Main St.)

@ TH 10 West Ramps

Collection Period : 6 AM - 7 PM



Date : 11/01/18

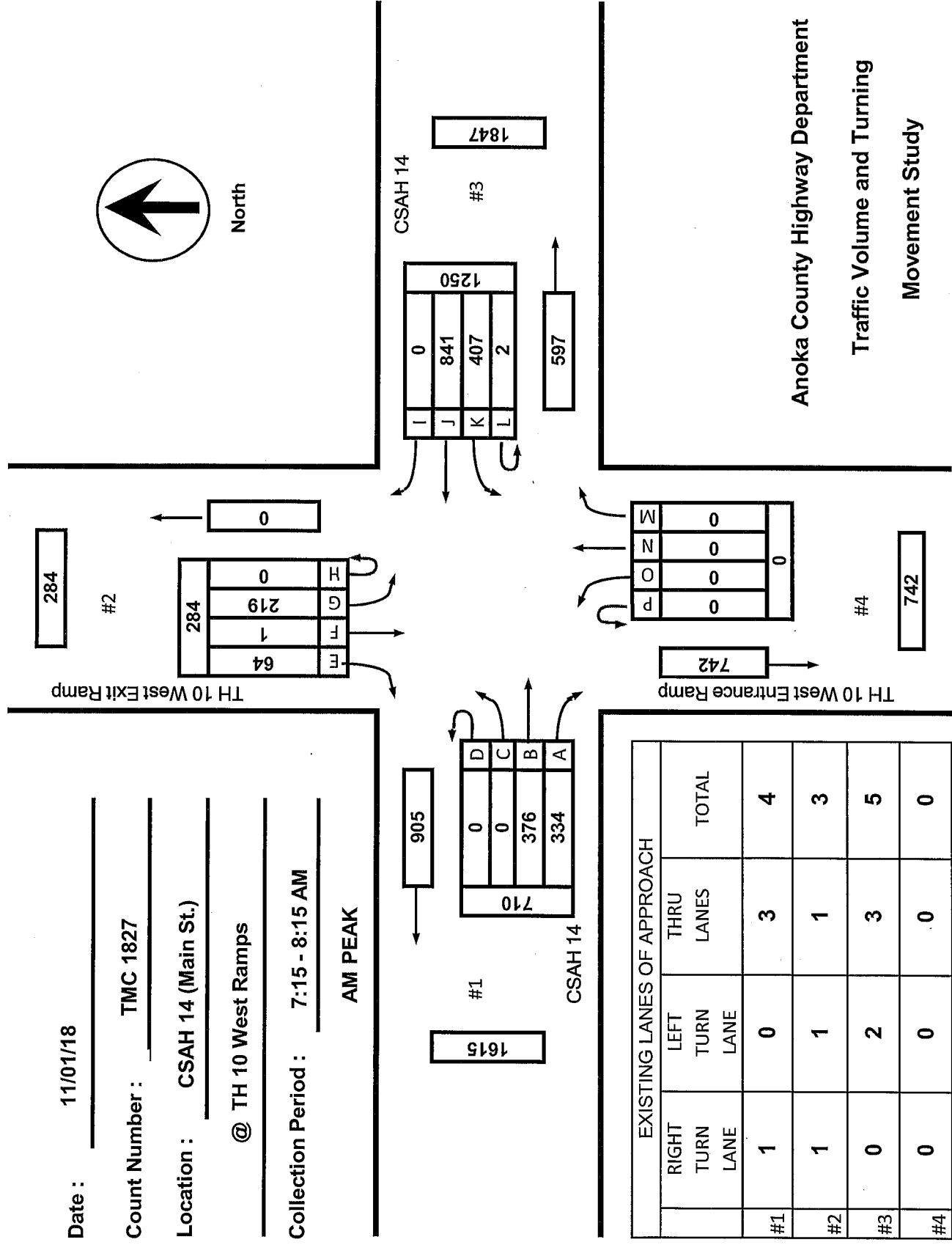
Count Number : TMC 1827

Location : CSAH 14 (Main St.)

@ TH 10 West Ramps

Collection Period : 7:15 - 8:15 AM

AM PEAK



EXISTING LANES OF APPROACH			
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES
#1	1	0	3
#2	1	1	1
#3	0	2	3
#4	0	0	0
TOTAL			4
TOTAL			3
TOTAL			5
TOTAL			0

MID PEAK

EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	0	3	4
#2	1	1	1	3
#3	0	2	3	5
#4	0	0	0	0

Date : 11/01/18

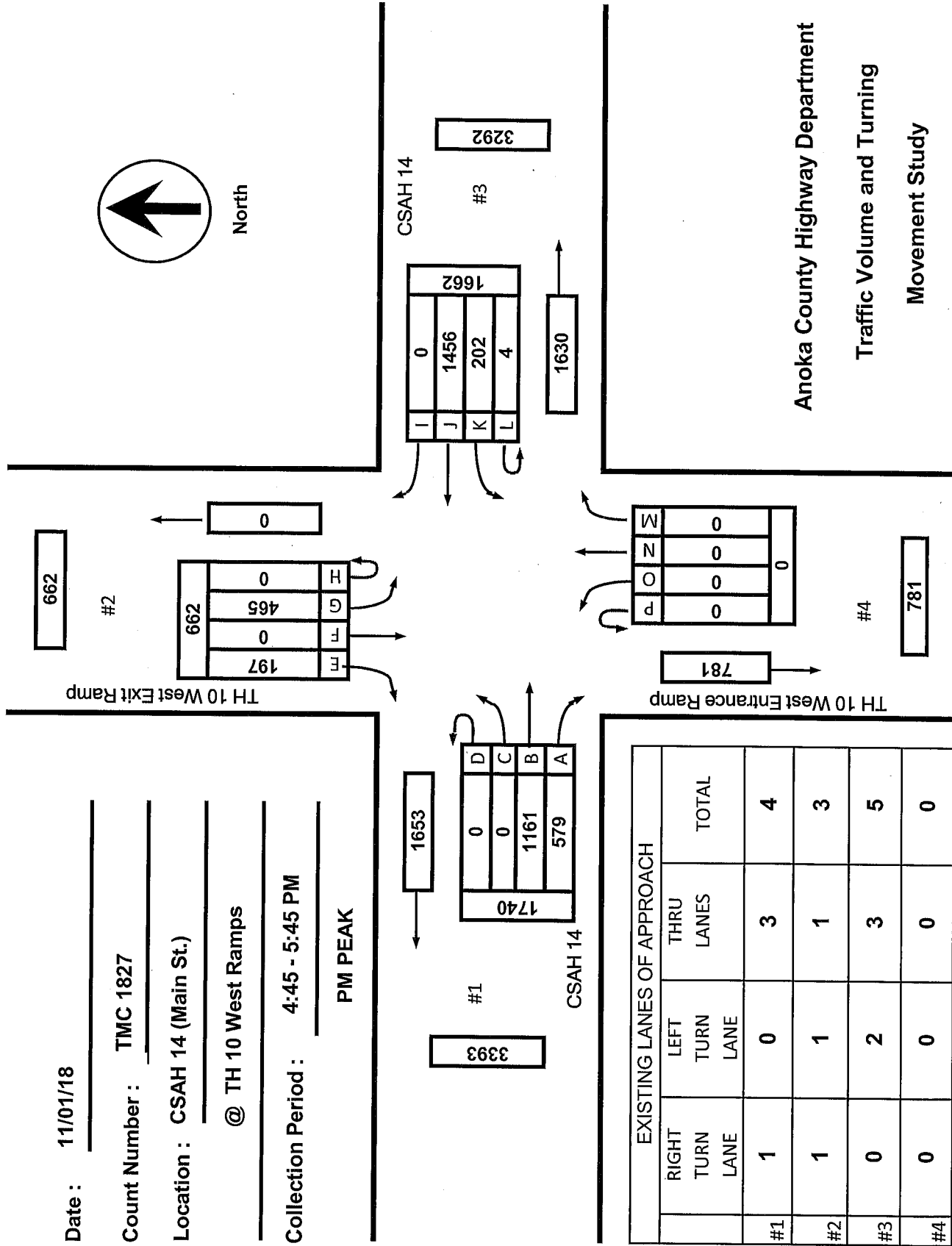
Count Number : TMC 1827

Location : CSAH 14 (Main St.)

@ TH 10 West Ramps

Collection Period : 4:45 - 5:45 PM

PM PEAK



Anoka County Highway Department
Traffic Volume and Turning
Movement Study

EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#1	1	0	3	4
#2	1	1	1	3
#3	0	2	3	5
#4	0	0	0	0



File Name : TMC 1827
Site Code :
Start Date : 11/01/2018
Page No : 1

Groups Printed- Cars + - Trucks																																																	
TH 10 West Ramp Southbound															CSAH 14 Westbound										TH 10 West Ramp Northbound															CSAH 14 Eastbound									
Start Time	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	Exch. Total	Inclu. Total	Int. Total																						
06:00	0	25	0	10	0	35	0	69	82	0	0	151	0	0	0	0	0	0	0	0	0	20	56	0	76	0	262	262																					
06:15	0	30	0	10	0	40	0	95	82	0	0	177	0	0	0	0	0	0	0	0	0	43	61	0	104	0	321	321																					
06:30	0	43	0	11	0	54	0	114	151	0	0	265	0	0	0	0	0	0	0	0	0	48	70	0	118	0	437	437																					
06:45	0	51	0	8	0	59	0	105	151	0	0	256	0	0	0	0	0	0	0	0	0	69	68	0	137	0	452	452																					
Total	0	149	0	39	0	188	0	383	466	0	0	849	0	0	0	0	0	0	0	0	0	180	255	0	435	0	1472	1472																					
07:00	0	63	0	5	0	68	0	109	181	0	0	290	0	0	0	0	0	0	0	0	0	78	73	0	151	0	509	509																					
07:15	0	58	1	14	0	73	1	103	169	0	0	273	0	0	0	0	0	0	0	0	0	77	98	0	175	0	521	521																					
07:30	0	53	0	16	0	69	0	116	229	0	0	345	0	0	0	0	0	0	0	0	0	89	90	0	179	0	593	593																					
07:45	0	53	0	14	1	67	1	98	218	0	0	317	0	0	0	0	0	0	0	0	0	127	73	0	200	1	584	585																					
Total	0	227	1	49	1	277	2	426	797	0	0	1225	0	0	0	0	0	0	0	0	0	371	334	0	705	1	2207	2208																					
08:00	0	55	0	20	0	75	0	90	225	0	0	315	0	0	0	0	0	1	0	0	0	83	73	0	156	1	546	547																					
08:15	0	63	0	19	0	82	0	90	148	0	0	238	0	0	0	0	0	0	0	0	0	70	78	0	148	0	468	468																					
08:30	0	39	0	20	0	59	0	53	182	0	0	235	0	0	0	0	0	0	0	0	0	65	68	0	133	0	427	427																					
08:45	0	52	0	30	1	82	0	85	194	0	0	279	0	0	0	0	0	1	0	0	0	78	81	0	159	2	520	522																					
Total	0	209	0	89	1	298	0	318	749	0	0	1067	0	0	0	0	0	2	0	0	0	296	300	0	596	3	1961	1964																					
09:00	0	53	0	25	1	78	0	72	195	0	0	267	0	0	0	0	0	0	0	0	0	98	89	0	187	1	532	533																					
09:15	0	49	0	35	0	84	1	68	190	0	0	259	0	0	0	0	0	0	0	0	0	99	95	0	194	0	537	537																					
09:30	0	48	1	40	0	89	0	54	223	0	0	277	0	0	0	0	0	0	0	0	0	103	93	0	196	0	562	562																					
09:45	0	54	1	41	0	96	1	49	231	0	0	281	0	0	0	0	0	0	0	0	0	92	78	0	170	0	547	547																					
Total	0	204	2	141	1	347	2	243	839	0	0	1084	0	0	0	0	0	0	0	0	0	392	355	0	747	1	2178	2179																					
10:00	0	78	0	39	0	117	0	38	254	0	0	292	0	0	0	0	0	0	0	0	0	117	81	0	198	0	607	607																					
10:15	0	45	0	36	0	81	0	30	237	0	0	267	0	0	0	0	0	0	0	0	0	119	98	0	217	0	565	565																					
10:30	0	41	0	37	0	78	0	48	264	0	0	312	0	0	0	0	0	0	0	0	0	145	85	1	230	1	620	621																					
10:45	0	56	0	38	0	94	1	26	243	0	0	270	0	0	0	0	0	0	0	0	0	156	120	0	276	0	640	640																					
Total	0	220	0	150	0	370	1	142	998	0	0	1141	0	0	0	0	0	0	0	0	0	537	384	1	921	1	2432	2433																					
11:00	0	45	0	39	0	84	0	38	263	0	0	301	0	0	0	0	0	0	0	0	0	134	117	0	251	0	636	636																					
11:15	0	70	0	47	0	117	1	26	272	0	0	299	0	0	0	0	0	0	0	0	0	162	125	0	287	0	703	703																					
11:30	0	58	0	26	0	84	1	31	273	0	0	305	0	0	0	0	0	0	0	0	0	167	105	0	272	0	661	661																					
11:45	0	56	0	45	0	101	0	38	289	0	0	327	0	0	0	0	0	0	0	0	0	186	100	0	286	0	714	714																					
Total	0	229	0	157	0	386	2	133	1097	0	0	1232	0	0	0	0	0	0	0	0	0	649	447	0	1096	0	2714	2714																					



File Name : TMC 1827
Site Code :
Start Date : 11/01/2018
Page No : 2

Groups Printed- Cars + - Trucks																																															
TH 10 West Ramp Southbound														CSAH 14 Westbound														TH 10 West Ramp Northbound										CSAH 14 Eastbound									
Start Time	UTm	Left	Thru	Right	Peds	App. Total	UTm	Left	Thru	Right	Peds	App. Total	UTm	Left	Thru	Right	Peds	App. Total	UTm	Left	Thru	Right	Peds	App. Total	Each. Total	Inclu. Total	Int. Total																				
12:00	0	52	0	43	0	95	1	24	317	0	0	342	0	0	0	0	0	0	0	0	0	208	120	0	328	0	765	765																			
12:15	0	61	0	47	0	108	0	36	283	0	0	319	0	0	0	0	0	0	0	0	192	102	0	294	0	721	721																				
12:30	0	46	0	53	2	99	0	31	349	0	0	380	0	0	0	0	0	0	0	0	208	114	0	322	2	801	803																				
12:45	0	61	0	38	0	99	0	51	314	0	0	365	0	0	0	0	0	1	0	0	216	161	0	377	1	841	842																				
Total	0	220	0	181	2	401	1	142	1263	0	0	1406	0	0	0	0	0	1	0	0	824	497	0	1321	3	3128	3131																				
13:00	0	56	0	31	0	87	0	33	299	0	0	332	0	0	0	0	0	0	0	0	216	116	0	332	0	751	751																				
13:15	0	45	0	30	0	75	1	35	300	0	0	336	0	0	0	0	0	0	0	0	195	110	0	305	0	716	716																				
13:30	0	63	0	38	0	101	0	38	308	0	0	346	0	0	0	0	0	0	0	0	186	117	0	303	0	750	750																				
13:45	0	71	0	41	0	112	0	28	286	0	0	314	0	0	0	0	0	1	0	0	194	131	0	325	1	751	752																				
Total	0	235	0	140	0	375	1	134	1193	0	0	1328	0	0	0	0	0	1	0	0	791	474	0	1265	1	2968	2969																				
14:00	0	63	0	34	1	97	0	34	266	0	0	300	0	0	0	0	0	0	0	0	201	111	0	312	1	709	710																				
14:15	0	101	0	41	1	142	1	36	264	0	0	301	0	0	0	0	0	1	0	0	209	123	0	332	2	775	777																				
14:30	0	66	0	38	0	104	1	36	312	0	0	349	0	0	0	0	0	0	0	0	227	125	0	352	0	805	805																				
14:45	0	78	0	34	0	112	1	36	329	0	0	366	0	0	0	0	0	0	0	0	218	137	0	355	0	833	833																				
Total	0	308	0	147	2	455	3	142	1171	0	0	1316	0	0	0	0	0	1	0	0	855	496	0	1351	3	3122	3125																				
15:00	0	58	0	40	0	98	0	27	328	0	0	355	0	0	0	0	0	0	0	0	220	117	0	337	0	790	790																				
15:15	0	86	0	53	0	139	0	33	332	0	0	365	0	0	0	0	0	0	0	0	273	138	0	411	0	915	915																				
15:30	0	97	1	43	0	141	1	36	318	0	0	355	0	0	0	0	0	0	0	0	221	142	0	363	0	859	859																				
15:45	0	121	1	44	0	166	0	51	285	0	0	336	0	0	0	0	0	1	0	0	256	140	0	396	1	898	899																				
Total	0	362	2	180	0	544	1	147	1263	0	0	1411	0	0	0	0	0	1	0	0	970	537	0	1507	1	3462	3463																				
16:00	0	111	0	34	0	145	1	36	336	0	0	373	0	0	0	0	0	0	0	0	255	115	0	370	0	888	888																				
16:15	0	130	2	39	0	171	0	35	298	0	0	333	0	0	0	0	0	0	0	0	289	152	0	441	0	945	945																				
16:30	0	144	0	37	0	181	0	31	322	0	0	353	0	0	0	0	0	0	0	0	262	106	0	368	0	902	902																				
16:45	0	136	0	55	0	191	0	49	353	0	0	402	0	0	0	0	0	0	0	0	285	150	0	435	0	1028	1028																				
Total	0	521	2	165	0	688	1	151	1309	0	0	1461	0	0	0	0	0	0	0	0	1091	523	0	1614	0	3763	3763																				
17:00	0	108	0	57	0	165	1	49	364	0	0	414	0	0	0	0	0	0	0	0	290	141	0	431	0	1010	1010																				
17:15	0	104	0	37	0	141	1	55	385	0	0	441	0	0	0	0	2	0	0	0	305	173	0	478	2	1060	1062																				
17:30	0	117	0	48	0	165	2	49	354	0	0	405	0	0	0	0	0	1	0	0	281	115	0	396	1	966	967																				
17:45	0	128	1	35	0	164	0	47	384	0	0	431	0	0	0	0	2	0	0	0	289	107	0	396	2	991	993																				
Total	0	457	1	177	0	635	4	200	1487	0	0	1691	0	0	0	0	5	0	0	0	1165	536	0	1701	5	4027	4032																				
18:00	0	96	0	33	0	129	2	51	356	0	0	409	0	0	0	0	0	0	0	0	245	122	0	367	0	905	905																				
18:15	0	112	0	48	0	160	0	36	377	0	0	413	0	0	0	0	0	0	0	0	205	132	0	337	0	910	910																				
18:30	0	72	0	30	0	102	0	44	328	0	0	372	0	0	0	0	0	0	0	0	244	117	0	361	0	835	835																				
18:45	0	79	1	32	0	112	0	39	320	0	0	359	0	0	0	0	0	0	0	0	234	104	0	338	0	809	809																				
Total	0	359	1	143	0	503	2	170	1381	0	0	1553	0	0	0	0	0	0	0	0	928	475	0	1403	0	3459	3459																				



File Name : TMC 1827
Site Code :
Start Date : 11/01/2018
Page No : 3

Groups Printed- Cars + - Trucks																											
TH 10 West Ramp Southbound							TH 10 West Ramp Northbound							CSAH 14 Westbound							CSAH 14 Eastbound						
	UTm	Left	Thru	Right	Peds	App. Total	UTm	Left	Thru	Right	Peds	App. Total	UTm	Left	Thru	Right	Peds	App. Total	UTm	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Grand Total	0	3700	9	1758	7	5467	20	2731	14013	0	0	16764	0	0	0	0	11	0	0	9049	5613	1	14662	19	36893	36912	
Approch %	0	67.7	0.2	32.2			0.1	16.3	83.6	0			0	0	0	0			0	61.7	38.3						
Total %	0	10	0	4.8		14.8	0.1	7.4	38	0		45.4	0	0	0	0		0	0	24.5	15.2		39.7	0.1	99.9		
Cars +	0	3547	9	1712		5275	20	2676	13711	0		16407	0	0	0	0		11	0	8834	5421		14256	0	0	35949	
% Cars +	0	95.9	100	97.4	100	96.4	100	98	97.8	0	0	97.9	0	0	0	0	100	100	0	97.6	96.6	100	97.2	0	0	97.4	
Trucks	0	153	0	46		199	0	55	302	0		357	0	0	0	0		0	0	215	192		407	0	0	963	
% Trucks	0	4.1	0	2.6	0	3.6	0	2	2.2	0	0	2.1	0	0	0	0	0	0	0	2.4	3.4	0	2.8	0	0	2.6	
TH 10 West Ramp Southbound							TH 10 West Ramp Northbound							CSAH 14 Westbound							CSAH 14 Eastbound						
Start Time	UTm	Left	Thru	Right	Peds	App. Total	UTm	Left	Thru	Right	Peds	App. Total	UTm	Left	Thru	Right	Peds	App. Total	UTm	Left	Thru	Right	Peds	App. Total	Int. Total		
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																											
Peak Hour for Entire Intersection Begins at 07:15																											
07:15	0	58	1	14		73	1	103	169	0		273	0	0	0	0		0	0	0	0		77	98	175	521	
07:30	0	53	0	16		69	0	116	229	0		345	0	0	0	0		0	0	0	0		89	90	179	593	
07:45	0	53	0	14		67	1	98	218	0		317	0	0	0	0		0	0	0	0		127	73	200	584	
08:00	0	55	0	20		75	0	90	225	0		315	0	0	0	0		0	0	0	0		83	73	156	546	
Total Volume	0	219	1	64		284	2	407	841	0		1250	0	0	0	0		0	0	376	334		710		2244		
% App. Total	0	77.1	0.4	22.5			0.2	32.6	67.3	0			0	0	0	0		0	0	0	0		53	47			
PHF	.000	.944	.250	.800		.947	.500	.877	.918	.000		.906	.000	.000	.000	.000		.000	.000	.740	.852		.888		.946		
Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1																											
Peak Hour for Entire Intersection Begins at 12:00																											
12:00	0	52	0	43		95	1	24	317	0		342	0	0	0	0		0	0	0	0		208	120	328	765	
12:15	0	61	0	47		108	0	36	283	0		319	0	0	0	0		0	0	0	0		192	102	294	721	
12:30	0	46	0	53		99	0	31	349	0		380	0	0	0	0		0	0	0	0		208	114	322	801	
12:45	0	61	0	38		99	0	51	314	0		365	0	0	0	0		0	0	0	0		216	161	377	841	
Total Volume	0	220	0	181		401	1	142	1263	0		1406	0	0	0	0		0	0	824	497		1321		3128		
% App. Total	0	54.9	0	45.1			0.1	10.1	89.8	0			0	0	0	0		0	0	0	0		62.4	37.6			
PHF	.000	.902	.000	.854		.928	.250	.696	.905	.000		.925	.000	.000	.000	.000		.000	.000	.954	.772		.876		.930		



File Name : T.MC 1827
Site Code :
Start Date : 11/01/2018
Page No : 4

	TH 10 West Ramp Southbound						CSAH 14 Westbound						TH 10 West Ramp Northbound						CSAH 14 Eastbound					
Start Time	UTM	Left	Thru	Right	App. Total		UTM	Left	Thru	Right	App. Total		UTM	Left	Thru	Right	App. Total		UTM	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 16:45																								
16:45	0	136	0	55	191		0	49	353	0	402		0	0	0	0	0	0	0	0	285	150	435	1028
17:00	0	108	0	57	165		1	49	364	0	414		0	0	0	0	0	0	0	0	290	141	431	1010
17:15	0	104	0	37	141		1	55	385	0	441		0	0	0	0	0	0	0	0	305	173	478	1060
17:30	0	117	0	48	165		2	49	354	0	405		0	0	0	0	0	0	0	0	281	115	396	966
Total Volume	0	465	0	197	662		4	202	1456	0	1662		0	0	0	0	0	0	0	0	1161	579	1740	4064
% App. Total	0	70.2	0	29.8			0.2	12.2	87.6	0			0	0	0	0	0	0	0	0	66.7	33.3		
PHF	.000	.855	.000	.864	.866		.500	.918	.945	.000	.942		.000	.000	.000	.000	.000	.000	.000	.000	.952	.837	.910	.958



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Weather: Sunny and Cool
 CountCAM 200
 Study Conducted By: Andrea

File Name : TMC 1827
 Site Code :
 Start Date : 11/01/2018
 Page No : 1

Groups Printed- Trucks

Start Time	TH 10 West Ramp Southbound					CSAH 14 Westbound					TH 10 West Ramp Northbound					CSAH 14 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	
06:00	0	0	0	0	0	0	2	4	0	6	0	0	0	0	0	0	0	0	2	2	8
06:15	0	3	0	0	3	0	1	4	0	5	0	0	0	0	0	0	0	2	0	2	10
06:30	0	2	0	1	3	0	1	10	0	11	0	0	0	0	0	0	0	3	3	6	20
06:45	0	3	0	3	6	0	3	6	0	9	0	0	0	0	0	0	0	5	7	12	27
Total	0	8	0	4	12	0	7	24	0	31	0	0	0	0	0	0	0	10	12	22	65
07:00	0	8	0	1	9	0	2	9	0	11	0	0	0	0	0	0	0	5	4	9	29
07:15	0	6	0	0	6	0	0	6	0	6	0	0	0	0	0	0	0	7	5	12	24
07:30	0	4	0	1	5	0	0	6	0	6	0	0	0	0	0	0	0	6	7	13	24
07:45	0	3	0	1	4	0	1	8	0	9	0	0	0	0	0	0	0	7	1	8	21
Total	0	21	0	3	24	0	3	29	0	32	0	0	0	0	0	0	0	25	17	42	98
08:00	0	5	0	1	6	0	1	8	0	9	0	0	0	0	0	0	0	6	0	6	21
08:15	0	8	0	2	10	0	0	6	0	6	0	0	0	0	0	0	0	6	3	9	25
08:30	0	4	0	0	4	0	0	10	0	10	0	0	0	0	0	0	0	4	4	8	22
08:45	0	5	0	0	5	0	1	8	0	9	0	0	0	0	0	0	0	8	4	12	26
Total	0	22	0	3	25	0	2	32	0	34	0	0	0	0	0	0	0	24	11	35	94
09:00	0	3	0	0	3	0	1	11	0	12	0	0	0	0	0	0	0	5	2	7	22
09:15	0	1	0	0	1	0	1	12	0	13	0	0	0	0	0	0	0	11	5	16	30
09:30	0	4	0	1	5	0	2	9	0	11	0	0	0	0	0	0	0	6	5	11	27
09:45	0	4	0	3	7	0	0	10	0	10	0	0	0	0	0	0	0	2	5	7	24
Total	0	12	0	4	16	0	4	42	0	46	0	0	0	0	0	0	0	24	17	41	103
10:00	0	4	0	0	4	0	1	5	0	6	0	0	0	0	0	0	0	3	3	6	16
10:15	0	4	0	1	5	0	1	2	0	3	0	0	0	0	0	0	0	2	7	9	17
10:30	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	0	0	3	1	4	8
10:45	0	5	0	1	6	0	0	9	0	9	0	0	0	0	0	0	0	4	3	7	22
Total	0	16	0	2	18	0	2	17	0	19	0	0	0	0	0	0	0	12	14	26	63
11:00	0	2	0	1	3	0	1	7	0	8	0	0	0	0	0	0	0	4	3	7	18
11:15	0	5	0	0	5	0	1	4	0	5	0	0	0	0	0	0	0	4	3	7	17
11:30	0	3	0	1	4	0	1	6	0	7	0	0	0	0	0	0	0	3	6	9	20
11:45	0	4	0	1	5	0	3	13	0	16	0	0	0	0	0	0	0	6	2	8	29
Total	0	14	0	3	17	0	6	30	0	36	0	0	0	0	0	0	0	17	14	31	84
12:00	0	3	0	0	3	0	0	8	0	8	0	0	0	0	0	0	0	5	7	12	23
12:15	0	2	0	0	2	0	2	4	0	6	0	0	0	0	0	0	0	5	7	12	20
12:30	0	1	0	2	3	0	1	1	0	2	0	0	0	0	0	0	0	2	3	5	10
12:45	0	2	0	0	2	0	4	5	0	9	0	0	0	0	0	0	0	4	3	7	18
Total	0	8	0	2	10	0	7	18	0	25	0	0	0	0	0	0	0	16	20	36	71
13:00	0	0	0	1	1	0	1	5	0	6	0	0	0	0	0	0	0	6	4	10	17
13:15	0	6	0	3	9	0	2	5	0	7	0	0	0	0	0	0	0	5	0	5	21
13:30	0	1	0	1	2	0	2	11	0	13	0	0	0	0	0	0	0	5	6	11	26
13:45	0	2	0	1	3	0	0	7	0	7	0	0	0	0	0	0	0	6	2	8	18
Total	0	9	0	6	15	0	5	28	0	33	0	0	0	0	0	0	0	22	12	34	82
14:00	0	5	0	3	8	0	0	3	0	3	0	0	0	0	0	0	0	4	5	9	20
14:15	0	9	0	1	10	0	1	9	0	10	0	0	0	0	0	0	0	4	3	7	27
14:30	0	0	0	2	2	0	5	4	0	9	0	0	0	0	0	0	0	5	6	11	22
14:45	0	3	0	1	4	0	2	4	0	6	0	0	0	0	0	0	0	4	3	7	17
Total	0	17	0	7	24	0	8	20	0	28	0	0	0	0	0	0	0	17	17	34	86
15:00	0	1	0	2	3	0	1	4	0	5	0	0	0	0	0	0	0	3	3	6	14



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Weather: Sunny and Cool
 CountCAM 200
 Study Conducted By: Andrea

File Name : TMC 1827
 Site Code :
 Start Date : 11/01/2018
 Page No : 2

Groups Printed- Trucks

Start Time	TH 10 West Ramp Southbound					CSAH 14 Westbound					TH 10 West Ramp Northbound					CSAH 14 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	
15:15	0	1	0	1	2	0	0	3	0	3	0	0	0	0	0	0	0	4	5	9	14
15:30	0	3	0	2	5	0	0	2	0	2	0	0	0	0	0	0	0	4	3	7	14
15:45	0	1	0	1	2	0	0	7	0	7	0	0	0	0	0	0	0	4	2	6	15
Total	0	6	0	6	12	0	1	16	0	17	0	0	0	0	0	0	0	15	13	28	57
16:00	0	4	0	0	4	0	4	4	0	8	0	0	0	0	0	0	0	5	2	7	19
16:15	0	3	0	0	3	0	2	9	0	11	0	0	0	0	0	0	0	10	8	18	32
16:30	0	0	0	1	1	0	1	7	0	8	0	0	0	0	0	0	0	4	2	6	15
16:45	0	2	0	1	3	0	0	6	0	6	0	0	0	0	0	0	0	3	5	8	17
Total	0	9	0	2	11	0	7	26	0	33	0	0	0	0	0	0	0	22	17	39	83
17:00	0	2	0	0	2	0	1	6	0	7	0	0	0	0	0	0	0	2	5	7	16
17:15	0	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	0	1	7	8	14
17:30	0	0	0	0	0	0	1	5	0	6	0	0	0	0	0	0	0	1	2	3	9
17:45	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	4	4	8	11
Total	0	5	0	0	5	0	2	17	0	19	0	0	0	0	0	0	0	8	18	26	50
18:00	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	5	5	7
18:15	0	5	0	1	6	0	0	2	0	2	0	0	0	0	0	0	0	0	2	2	10
18:30	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3	2	5	6
18:45	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4
Total	0	6	0	4	10	0	1	3	0	4	0	0	0	0	0	0	0	3	10	13	27
Grand Total	0	153	0	46	199	0	55	302	0	357	0	0	0	0	0	0	0	215	192	407	963
Apprch %	0	76.9	0	23.1		0	15.4	84.6	0		0	0	0	0	0	0	0	52.8	47.2		
Total %	0	15.9	0	4.8	20.7	0	5.7	31.4	0	37.1	0	0	0	0	0	0	0	22.3	19.9	42.3	

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 1827

Study Date: 03/04/2019

Page No: 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 14

Number of Lanes : 2

Total Approach Volume: 14,662

Westbound: CSAH 14

Number of Lanes : 2

Total Approach Volume: 16,764

Minor Street Approaches

Northbound: TH 10 West Entrance Ramp

Number of Lanes : 1

Total Approach Volume: 0

Southbound: TH 10 West Exit Ramp

Number of Lanes : 1

Total Approach Volume: 5,467

Warrant Summary (Rural Values Apply)

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

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

Required volumes reached for 14 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 14 hours, 8 are needed

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

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

Number of hours (14) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

Warrant 3A - Peak Hour Delay.....Not Satisfied

Approach volumes on minor street don't exceed minimums for any hour. Delay data not evaluated.

Warrant 3B - Peak Hour Volumes.....Satisfied

Volumes exceed minimums for at least one hour.

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 1827**

Study Date: **03/04/2019**

Page No: **2**

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

14 hours meet minimums.
Warrant IS met.

Site Data Required

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

Volume Requirements

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

Veh/Hr Minor = **105**

Major Road CSAH 14						Minor Road TH 10 West Entrance Ramp		
Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met?
16:45 - 17:45	1740	+	1662	=	3402	0	662	Yes
17:45 - 18:45	1461	+	1625	=	3086	0	555	Yes
15:45 - 16:45	1575	+	1395	=	2970	0	663	Yes
14:45 - 15:45	1466	+	1441	=	2907	0	490	Yes
12:45 - 13:45	1317	+	1379	=	2696	0	362	Yes
11:45 - 12:45	1230	+	1368	=	2598	0	403	Yes
13:45 - 14:45	1321	+	1264	=	2585	0	455	Yes
10:45 - 11:45	1086	+	1175	=	2261	0	379	Yes
09:45 - 10:45	815	+	1152	=	1967	0	372	Yes
08:45 - 09:45	736	+	1082	=	1818	0	333	Yes
06:45 - 07:45	642	+	1164	=	1806	0	269	Yes
07:45 - 08:45	637	+	1105	=	1742	0	283	Yes
05:45 - 06:45	298	+	593	=	891	0	129	Yes
18:45 - 19:45	338	+	359	=	697	0	112	Yes
05:30 - 06:30	180	+	328	=	508	0	75	No
05:15 - 06:15	76	+	151	=	227	0	35	No
22:30 - 23:30	0	+	0	=	0	0	0	No
22:45 - 23:45	0	+	0	=	0	0	0	No
23:15 - 00:15	0	+	0	=	0	0	0	No
20:00 - 21:00	0	+	0	=	0	0	0	No
23:30 - 00:30	0	+	0	=	0	0	0	No
00:00 - 01:00	0	+	0	=	0	0	0	No
23:00 - 00:00	0	+	0	=	0	0	0	No
23:45 - 00:45	0	+	0	=	0	0	0	No
20:30 - 21:30	0		0		0	0	0	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: **TMC 1827**

Study Date: **03/04/2019**

Page No: **3**

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 hours meet minimums.
Warrant IS met.

Site Data Required

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

Volume Requirements

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

Veh/Hr Minor = **53**

Major Road CSAH 14						Minor Road TH 10 West Entrance Ramp		
Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met?
16:45 - 17:45	1740	+	1662	=	3402	0	662	Yes
17:45 - 18:45	1461	+	1625	=	3086	0	555	Yes
15:45 - 16:45	1575	+	1395	=	2970	0	663	Yes
14:45 - 15:45	1466	+	1441	=	2907	0	490	Yes
12:45 - 13:45	1317	+	1379	=	2696	0	362	Yes
11:45 - 12:45	1230	+	1368	=	2598	0	403	Yes
13:45 - 14:45	1321	+	1264	=	2585	0	455	Yes
10:45 - 11:45	1086	+	1175	=	2261	0	379	Yes
09:45 - 10:45	815	+	1152	=	1967	0	372	Yes
08:45 - 09:45	736	+	1082	=	1818	0	333	Yes
06:45 - 07:45	642	+	1164	=	1806	0	269	Yes
07:45 - 08:45	637	+	1105	=	1742	0	283	Yes
05:45 - 06:45	298	+	593	=	891	0	129	Yes
18:45 - 19:45	338	+	359	=	697	0	112	Yes
05:30 - 06:30	180	+	328	=	508	0	75	No
05:15 - 06:15	76	+	151	=	227	0	35	No
22:30 - 23:30	0	+	0	=	0	0	0	No
22:45 - 23:45	0	+	0	=	0	0	0	No
23:15 - 00:15	0	+	0	=	0	0	0	No
20:00 - 21:00	0	+	0	=	0	0	0	No
23:30 - 00:30	0	+	0	=	0	0	0	No
00:00 - 01:00	0	+	0	=	0	0	0	No
23:00 - 00:00	0	+	0	=	0	0	0	No
23:45 - 00:45	0	+	0	=	0	0	0	No
20:30 - 21:30	0	+	0	=	0	0	0	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: **TMC 1827**

Study Date: **03/04/2019**

Page No: **4**

Warrant 1C Combination of Warrants

Description

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

Summary

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

Volume Requirements

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

Veh/Hr Minor = **84 42**

Major Road

CSAH 14

Minor Road

TH 10 West Entrance Ramp

Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met1A?
16:45 - 17:45	1740	+	1662	=	3402	0	662	Yes
17:45 - 18:45	1461	+	1625	=	3086	0	555	Yes
15:45 - 16:45	1575	+	1395	=	2970	0	663	Yes
14:45 - 15:45	1466	+	1441	=	2907	0	490	Yes
12:45 - 13:45	1317	+	1379	=	2696	0	362	Yes
11:45 - 12:45	1230	+	1368	=	2598	0	403	Yes
13:45 - 14:45	1321	+	1264	=	2585	0	455	Yes
10:45 - 11:45	1086	+	1175	=	2261	0	379	Yes
09:45 - 10:45	815	+	1152	=	1967	0	372	Yes
08:45 - 09:45	736	+	1082	=	1818	0	333	Yes
06:45 - 07:45	642	+	1164	=	1806	0	269	Yes
07:45 - 08:45	637	+	1105	=	1742	0	283	Yes

Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met1B?
16:30 - 17:30	1712	+	1610	=	3322	0	678	Yes
17:30 - 18:30	1496	+	1658	=	3154	0	618	Yes
15:30 - 16:30	1570	+	1397	=	2967	0	623	Yes
14:30 - 15:30	1455	+	1435	=	2890	0	453	Yes
12:30 - 13:30	1336	+	1413	=	2749	0	360	Yes
13:30 - 14:30	1272	+	1261	=	2533	0	452	Yes
11:30 - 12:30	1180	+	1293	=	2473	0	388	Yes
10:30 - 11:30	1044	+	1182	=	2226	0	373	Yes
07:30 - 08:30	683	+	1215	=	1898	0	293	Yes
09:30 - 10:30	781	+	1117	=	1898	0	383	Yes
08:30 - 09:30	673	+	1040	=	1713	0	303	Yes
06:30 - 07:30	581	+	1084	=	1665	0	254	Yes

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: **TMC 1827**

Study Date: **03/04/2019**

Page No: **5**

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.

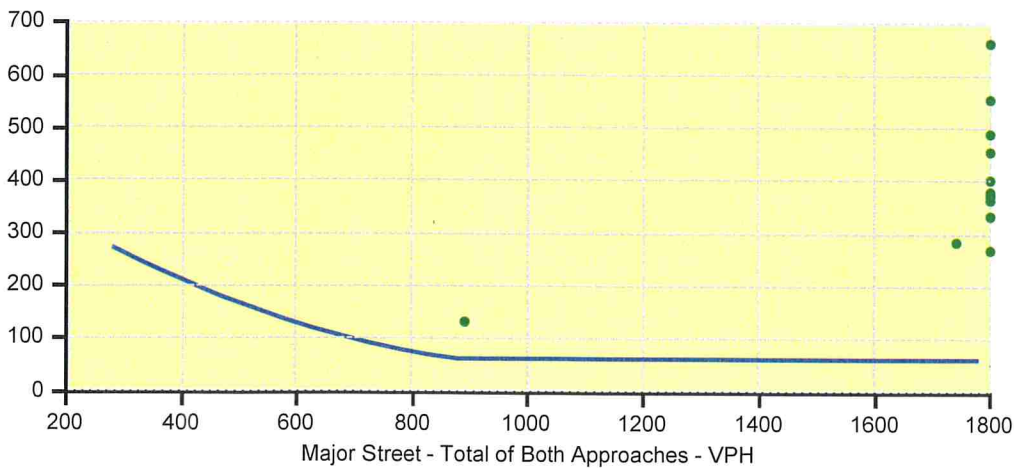
Summary

14 hours meet minimums.
Warrant IS met.

Site Data Required

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

Major Road CSAH 14						Minor Road TH 10 West Entrance Ramp		
Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	Met?
16:45 - 17:45	1740	+	1662	=	3402	0	662	Yes
17:45 - 18:45	1461	+	1625	=	3086	0	555	Yes
15:45 - 16:45	1575	+	1395	=	2970	0	663	Yes
14:45 - 15:45	1466	+	1441	=	2907	0	490	Yes
12:45 - 13:45	1317	+	1379	=	2696	0	362	Yes
11:45 - 12:45	1230	+	1368	=	2598	0	403	Yes
13:45 - 14:45	1321	+	1264	=	2585	0	455	Yes
10:45 - 11:45	1086	+	1175	=	2261	0	379	Yes
09:45 - 10:45	815	+	1152	=	1967	0	372	Yes
08:45 - 09:45	736	+	1082	=	1818	0	333	Yes
06:45 - 07:45	642	+	1164	=	1806	0	269	Yes
							283	Yes



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: **TMC 1827**

Study Date: **03/04/2019**

Page No: **6**

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

51 hours meet minimums.
Warrant IS met.

Site Data Required

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

Major Road CSAH 14						Minor Road TH 10 West Entrance Ramp		Met?
Time	Major EB	+	Major WB	=	Total	Minor NB	Minor SB	
16:45 - 17:45	1740	+	1662	=	3402	0	662	Yes
17:00 - 18:00	1701	+	1691	=	3392	0	635	Yes
17:15 - 18:15	1637	+	1686	=	3323	0	599	Yes
16:30 - 17:30	1712	+	1610	=	3322	0	678	Yes
16:15 - 17:15	1675	+	1502	=	3177	0	708	Yes
17:30 - 18:30	1496	+	1658	=	3154	0	618	Yes
17:45 - 18:45	1461	+	1625	=	3086	0	555	Yes
16:00 - 17:00	1614	+	1461	=	3075	0	688	Yes
15:45 - 16:45	1575	+	1395	=	2970	0	663	Yes
15:15 - 16:15	1540	+	1429	=	2969	0	591	Yes
15:30 - 16:30	1570	+	1397	=	2967	0	623	Yes
							503	Yes

