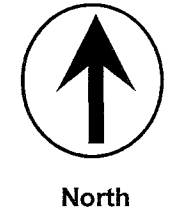
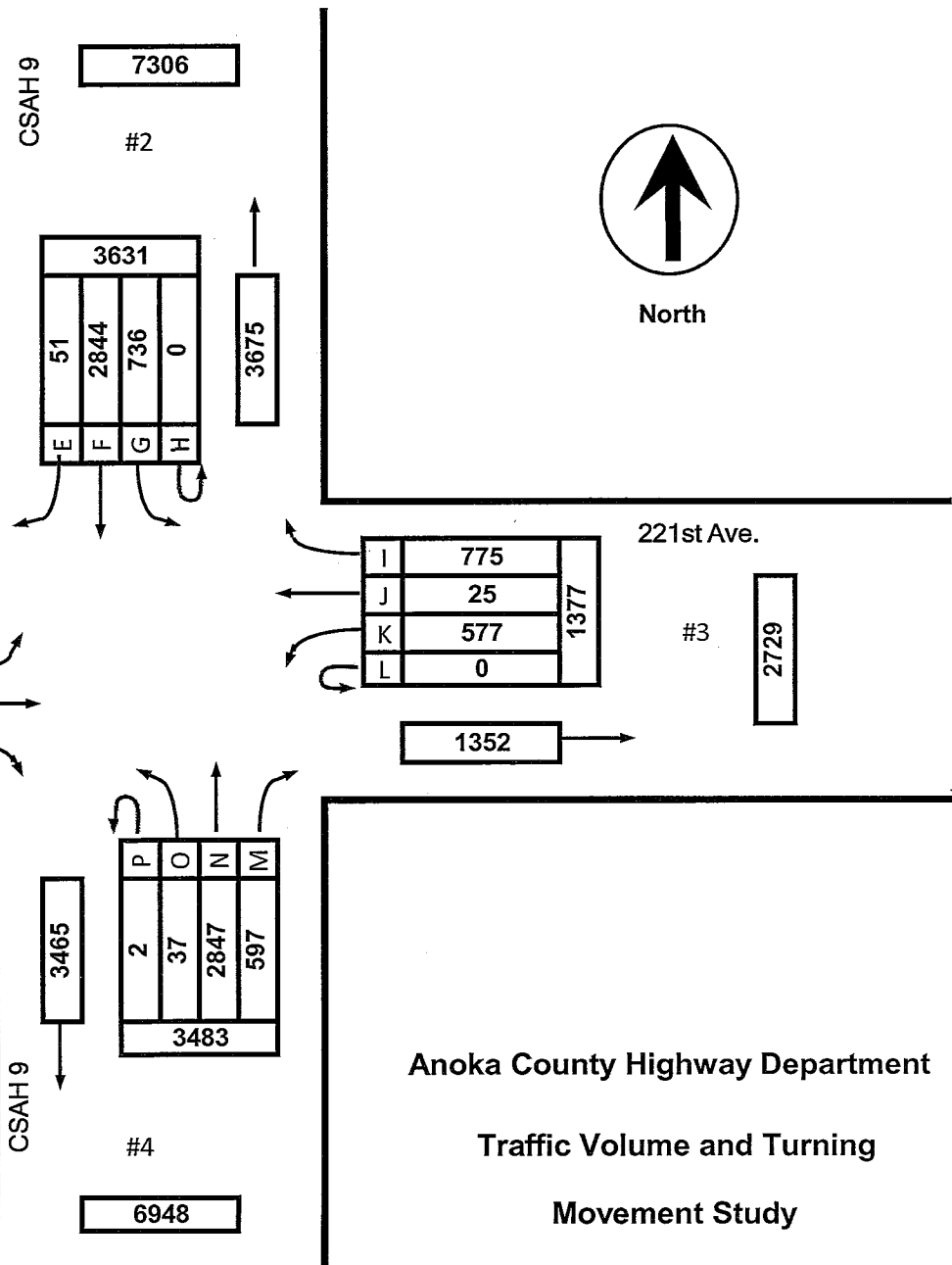


Date : 11/15/18

Count Number : TMC 1845

Location : CSAH 9 (Lake George blvd.)
@ 221st Ave.

Collection Period : 24 Hours



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

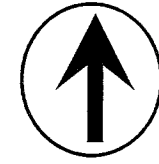
Date : 11/15/18

Count Number : TMC 1845

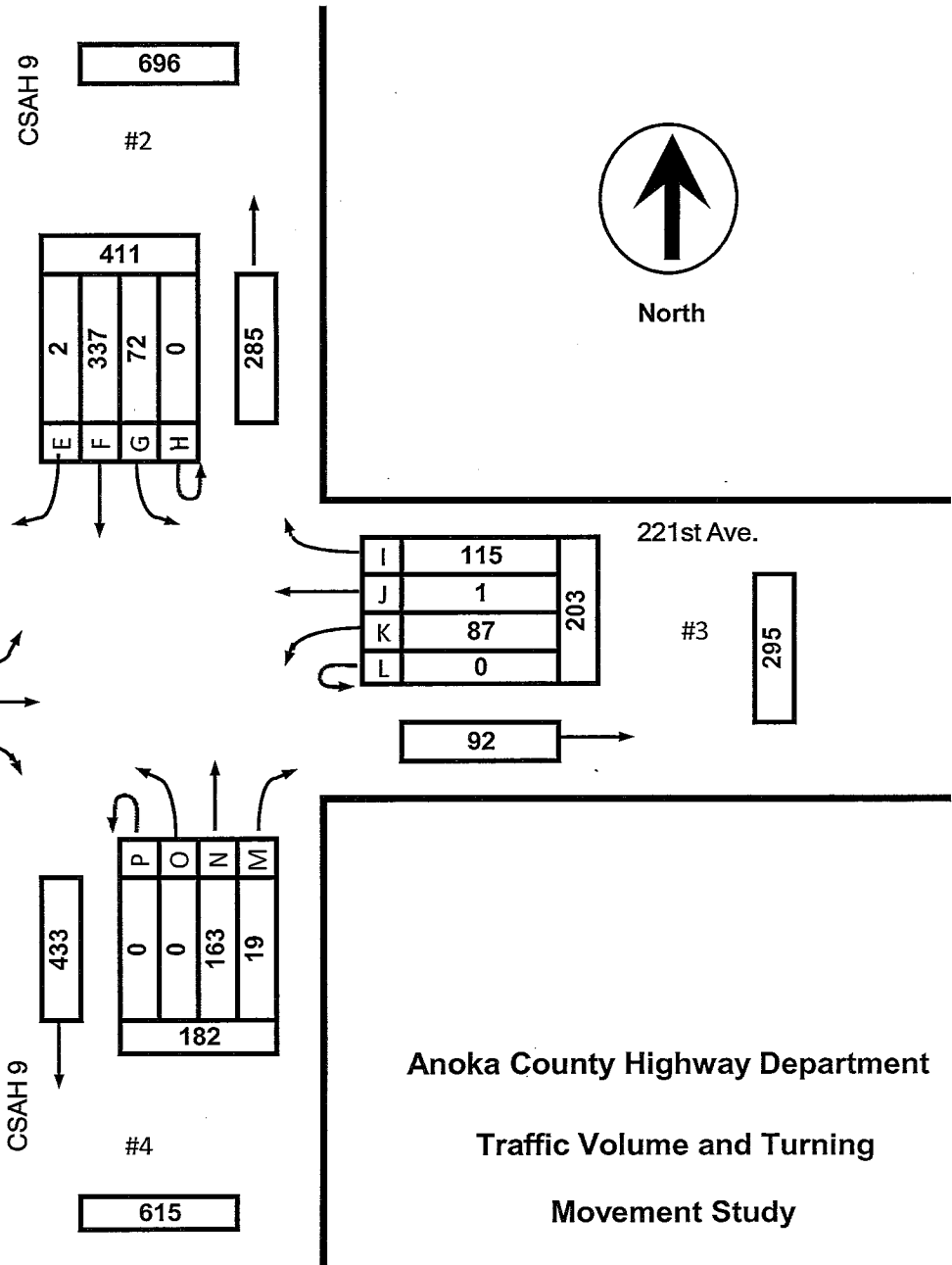
Location : CSAH 9 (Lake George
@ 221st Ave.

Collection Period : 6:45 - 7:45 AM

AM PEAK



North



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

Anoka County Highway Department
Traffic Volume and Turning
Movement Study

Date : 11/15/18

Count Number : TMC 1845

Location : CSAH 9 (Lake George blvd.)

@ 221st Ave.

Collection Period : 12:45 - 1:45 PM

MID PEAK

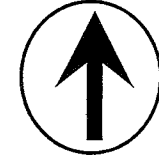
CSAH 9

325

#2

143			
3	113	27	0
E	F	G	H

182



North

14

#1

221st Ave.

8		0	D
		3	C
		0	B
		5	A

6

I	28	57
J	2	
K	27	
L	0	

221st Ave.

#3

103

46

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

CSAH 9

145

171			
0	1	151	19
P	O	N	M

#4

316

Anoka County Highway Department

Traffic Volume and Turning

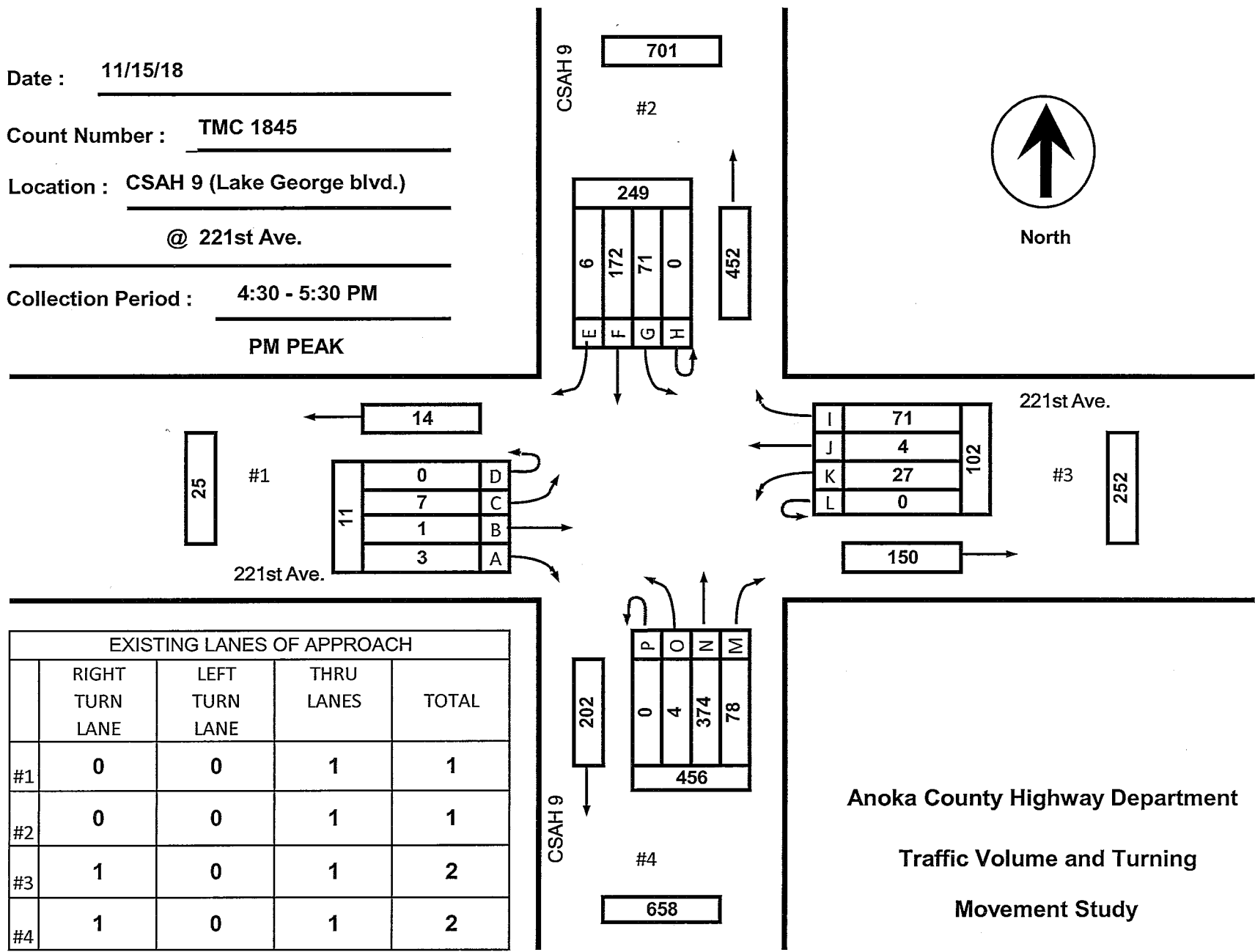
Movement Study

Date : 11/15/18

Count Number : TMC 1845

Location : CSAH 9 (Lake George blvd.)
@ 221st Ave.

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



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Weather: Sunny and Cold
 CountCam 200
 Study Conducted By: Logan

File Name : TMC 1845
 Site Code :
 Start Date : 11/19/2018
 Page No : 1

Groups Printed- Cars + - Trucks

Start Time	CSAH 9 Southbound						221st Ave. Westbound						CSAH 9 Northbound						221st Ave. Eastbound						Exclu. Total	Inclu. Total	Int. Total	
	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				
00:00	0	1	4	0	0	5	0	0	0	1	0	1	0	0	7	1	0	8	0	0	0	0	0	0	0	0	14	14
00:15	0	0	2	0	0	2	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	7	7
00:30	0	1	1	1	0	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	5	5
00:45	0	1	1	0	0	2	0	0	1	1	0	2	0	0	0	1	0	1	0	0	0	1	0	1	0	0	6	6
Total	0	3	8	1	0	12	0	0	1	2	0	3	0	0	12	3	0	15	0	0	1	1	0	2	0	32	32	
01:00	0	2	3	0	0	5	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	6	6
01:15	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	3	3
01:30	0	0	1	0	0	1	0	0	0	2	0	2	0	0	1	3	0	4	0	0	0	0	0	0	0	0	7	7
01:45	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3	0	0	3	0	0	0	0	0	0	0	0	4	4
Total	0	2	5	0	0	7	0	1	0	2	0	3	0	0	6	4	0	10	0	0	0	0	0	0	0	20	20	
02:00	0	1	0	0	0	1	0	2	0	1	0	3	0	0	2	0	0	2	0	0	0	0	0	0	0	0	6	6
02:15	0	0	2	0	0	2	0	0	0	1	0	1	0	0	3	0	0	3	0	0	0	0	0	0	0	0	6	6
02:30	0	2	4	0	0	6	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	7	7	
02:45	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0	2	0	0	0	0	0	0	0	0	3	3
Total	0	3	6	0	0	9	0	2	0	3	0	5	0	0	8	0	0	8	0	0	0	0	0	0	0	22	22	
03:00	0	0	3	0	0	3	0	3	0	0	0	3	0	0	1	0	0	1	0	0	0	0	0	0	0	0	7	7
03:15	0	1	4	0	0	5	0	1	0	0	0	1	0	0	4	0	0	4	0	0	0	0	0	0	0	0	10	10
03:30	0	0	7	0	0	7	0	2	0	0	0	2	0	0	1	2	0	3	0	0	0	0	0	0	0	0	12	12
03:45	0	0	5	0	0	5	0	0	0	1	0	1	0	0	2	0	0	2	0	0	0	0	0	0	0	0	8	8
Total	0	1	19	0	0	20	0	6	0	1	0	7	0	0	8	2	0	10	0	0	0	0	0	0	0	37	37	
04:00	0	0	10	0	0	10	0	4	0	0	0	4	0	0	1	2	0	3	0	0	0	0	0	0	0	0	17	17
04:15	0	1	18	0	0	19	0	6	0	1	0	7	0	0	1	1	0	2	0	0	0	0	0	0	0	0	28	28
04:30	0	1	32	0	0	33	0	4	0	0	0	4	0	0	3	2	0	5	0	0	0	1	0	1	0	43	43	
04:45	0	2	24	0	0	26	0	12	0	1	0	13	0	0	3	2	0	5	0	0	0	1	0	1	0	45	45	
Total	0	4	84	0	0	88	0	26	0	2	0	28	0	0	8	7	0	15	0	0	0	2	0	2	0	133	133	
05:00	0	5	50	0	0	55	0	15	0	2	0	17	0	0	3	0	0	3	0	1	0	0	0	1	0	76	76	
05:15	0	4	46	0	0	50	0	9	0	2	0	11	0	0	3	3	0	6	0	0	0	1	0	1	0	68	68	
05:30	0	9	43	0	0	52	0	10	0	5	0	15	0	0	5	0	0	5	0	0	1	0	0	1	0	73	73	
05:45	0	12	61	0	0	73	0	13	0	2	0	15	0	0	4	1	0	5	0	0	0	0	0	0	0	93	93	
Total	0	30	200	0	0	230	0	47	0	11	0	58	0	0	15	4	0	19	0	1	1	1	0	3	0	310	310	



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 1845
 Site Code :
 Start Date : 11/19/2018
 Page No : 3

Weather: Sunny and Cold
 CountCam 200
 Study Conducted By: Logan

Groups Printed- Cars +/- Trucks

Start Time	CSAH 9 Southbound						221st Ave. Westbound						CSAH 9 Northbound						221st Ave. 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			
12:45	0	7	32	0	0	39	0	8	1	7	0	16	0	0	44	4	0	48	0	1	0	1	0	2	0	105	105
Total	0	24	125	3	0	152	0	24	3	31	0	58	0	4	128	23	0	155	0	2	1	2	0	5	0	370	370
13:00	0	5	34	0	0	39	0	5	0	10	0	15	0	1	40	4	0	45	0	1	0	0	0	1	0	100	100
13:15	0	4	23	1	0	28	0	7	1	4	0	12	0	0	30	6	1	36	0	0	0	1	0	1	1	77	78
13:30	0	11	24	2	0	37	0	7	0	7	0	14	0	0	37	5	0	42	0	1	0	3	0	4	0	97	97
13:45	0	3	41	0	0	44	0	8	0	8	0	16	0	0	35	5	0	40	0	1	1	1	0	3	0	103	103
Total	0	23	122	3	0	148	0	27	1	29	0	57	0	1	142	20	1	163	0	3	1	5	0	9	1	377	378
14:00	0	6	30	2	0	38	0	6	0	15	0	21	0	0	45	8	0	53	0	1	0	1	0	2	0	114	114
14:15	0	12	55	2	0	69	0	9	0	15	0	24	0	2	41	6	1	49	0	2	0	0	0	2	1	144	145
14:30	0	40	72	3	0	115	0	10	0	15	0	25	0	0	48	11	0	59	0	3	1	0	0	4	0	203	203
14:45	0	14	43	1	0	58	0	6	1	14	0	21	0	2	46	13	0	61	0	2	1	1	0	4	0	144	144
Total	0	72	200	8	0	280	0	31	1	59	0	91	0	4	180	38	1	222	0	8	2	2	0	12	1	605	606
15:00	0	9	37	1	0	47	0	7	1	12	0	20	0	1	75	19	0	95	0	0	0	0	0	0	0	162	162
15:15	0	10	42	0	0	52	0	5	0	12	0	17	0	1	83	24	0	108	0	1	0	0	0	1	0	178	178
15:30	0	17	28	2	0	47	0	6	1	18	0	25	0	1	86	23	0	110	0	3	1	0	0	4	0	186	186
15:45	0	11	55	4	0	70	0	5	0	23	0	28	0	1	66	18	0	85	0	3	0	1	0	4	0	187	187
Total	0	47	162	7	0	216	0	23	2	65	0	90	0	4	310	84	0	398	0	7	1	1	0	9	0	713	713
16:00	0	16	40	1	0	57	0	9	1	24	0	34	0	0	88	20	0	108	0	0	0	1	0	1	0	200	200
16:15	0	11	31	3	0	45	0	5	1	20	0	26	0	2	87	24	0	113	0	1	0	0	0	1	0	185	185
16:30	0	19	40	2	0	61	0	7	3	15	0	25	0	0	102	19	0	121	0	1	0	2	0	3	0	210	210
16:45	0	11	37	2	0	50	0	8	1	17	0	26	0	0	102	22	0	124	0	3	0	0	0	3	0	203	203
Total	0	57	148	8	0	213	0	29	6	76	0	111	0	2	379	85	0	466	0	5	0	3	0	8	0	798	798
17:00	0	25	53	1	0	79	0	7	0	16	0	23	0	0	98	16	0	114	0	1	0	1	0	2	0	218	218
17:15	0	16	42	1	0	59	0	5	0	23	0	28	0	4	72	21	0	97	0	2	1	0	0	3	0	187	187
17:30	0	12	35	1	0	48	0	3	0	15	0	18	0	1	95	17	0	113	0	0	0	1	0	1	0	180	180
17:45	0	5	41	1	0	47	0	9	0	26	0	35	0	1	82	21	0	104	0	0	1	0	0	1	0	187	187
Total	0	58	171	4	0	233	0	24	0	80	0	104	0	6	347	75	0	428	0	3	2	2	0	7	0	772	772
18:00	0	12	39	1	0	52	0	7	0	17	0	24	0	1	64	14	0	79	0	1	0	0	0	1	0	156	156
18:15	0	9	35	0	0	44	0	6	0	14	0	20	0	2	49	17	0	68	0	0	0	0	0	0	0	132	132
18:30	0	9	32	2	0	43	0	10	1	15	0	26	0	2	61	7	0	70	0	1	0	0	0	1	0	140	140
18:45	0	9	29	1	0	39	0	3	1	9	0	13	0	1	50	20	0	71	0	0	0	1	0	1	0	124	124
Total	0	39	135	4	0	178	0	26	2	55	0	83	0	6	224	58	0	288	0	2	0	1	0	3	0	552	552



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Weather: Sunny and Cold
 CountCam 200
 Study Conducted By: Logan

File Name : TMC 1845
 Site Code :
 Start Date : 11/19/2018
 Page No : 4

Groups Printed- Cars + - Trucks

Start Time	CSAH 9 Southbound						221st Ave. Westbound						CSAH 9 Northbound						221st Ave. 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					
19:00	0	7	19	0	0	26	0	8	0	12	0	20	0	1	45	9	0	55	0	0	0	0	0	0	0	0	0	101	101
19:15	0	7	14	0	0	21	0	2	0	10	0	12	0	0	40	12	0	52	0	0	0	1	0	1	0	1	0	86	86
19:30	0	8	12	0	0	20	0	2	0	7	0	9	0	0	29	5	0	34	0	0	0	0	0	0	0	0	0	63	63
19:45	0	2	15	0	0	17	0	2	0	11	0	13	0	0	47	9	0	56	0	0	0	0	0	0	0	0	0	86	86
Total	0	24	60	0	0	84	0	14	0	40	0	54	0	1	161	35	0	197	0	0	0	1	0	1	0	1	0	336	336
20:00	0	8	10	0	0	18	0	3	0	7	0	10	0	0	36	7	0	43	0	1	0	0	0	1	0	1	0	72	72
20:15	0	1	13	0	0	14	0	4	0	1	0	5	0	0	42	5	0	47	0	1	0	0	0	1	0	1	0	67	67
20:30	0	10	17	0	0	27	0	2	0	4	0	6	0	1	34	5	0	40	0	0	0	0	0	0	0	0	0	73	73
20:45	0	5	14	1	0	20	0	3	0	4	0	7	0	1	20	3	0	24	0	0	0	0	0	0	0	0	0	51	51
Total	0	24	54	1	0	79	0	12	0	16	0	28	0	2	132	20	0	154	0	2	0	0	0	2	0	2	0	263	263
21:00	0	12	18	1	0	31	0	4	0	4	0	8	0	0	37	6	0	43	0	0	0	0	0	0	0	0	0	82	82
21:15	0	4	22	0	0	26	0	3	0	1	0	4	0	0	39	9	0	48	0	1	0	0	0	1	0	1	0	79	79
21:30	0	6	13	0	0	19	0	3	1	6	0	10	2	2	30	4	0	38	0	0	0	0	1	0	1	0	1	67	68
21:45	0	3	13	1	0	17	0	2	0	5	0	7	0	0	19	8	0	27	0	0	1	0	0	1	0	1	0	52	52
Total	0	25	66	2	0	93	0	12	1	16	0	29	2	2	125	27	0	156	0	1	1	0	1	2	1	1	0	280	281
22:00	0	5	9	2	0	16	0	2	1	1	0	4	0	1	19	4	0	24	0	1	0	0	0	1	0	1	0	45	45
22:15	0	6	7	0	0	13	0	0	3	4	0	7	0	0	11	1	0	12	0	1	0	0	0	1	0	1	0	33	33
22:30	0	2	2	1	0	5	0	1	0	6	0	7	0	0	17	2	0	19	0	0	0	0	0	0	0	0	0	31	31
22:45	0	3	2	0	0	5	0	1	0	6	0	7	0	0	18	2	0	20	0	0	0	0	0	0	0	0	0	32	32
Total	0	16	20	3	0	39	0	4	4	17	0	25	0	1	65	9	0	75	0	2	0	0	0	2	0	2	0	141	141
23:00	0	0	2	0	0	2	0	0	0	2	0	2	0	0	8	3	0	11	0	0	0	0	0	0	0	0	0	15	15
23:15	0	0	2	0	0	2	0	0	0	2	0	2	0	0	11	0	0	11	0	0	0	0	0	0	0	0	0	15	15
23:30	0	0	3	0	0	3	0	0	0	1	0	1	0	0	5	2	0	7	0	0	0	0	0	0	0	0	0	11	11
23:45	0	1	3	0	0	4	0	0	0	1	0	1	0	0	6	2	0	8	0	0	1	0	0	1	0	1	0	14	14
Total	0	1	10	0	0	11	0	0	0	6	0	6	0	0	30	7	0	37	0	0	1	0	0	1	0	1	0	55	55
Grand Total	0	736	2844	51	0	3631	0	577	25	775	0	1377	2	37	2847	597	2	3483	0	53	19	42	1	114	3	8605	8608		
Apprch %	0	20.3	78.3	1.4			0	41.9	1.8	56.3			0.1	1.1	81.7	17.1			0	46.5	16.7	36.8							
Total %	0	8.6	33.1	0.6		42.2	0	6.7	0.3	9		16	0	0.4	33.1	6.9		40.5	0	0.6	0.2	0.5		1.3	0	100			
Cars +	0	708	2785	49		3542	0	563	21	741		1325	1	35	2791	584		3413	0	47	17	41		105	0	0	8385		
% Cars +	0	96.2	97.9	96.1	0	97.5	0	97.6	84	95.6	0	96.2	50	94.6	98	97.8	100	97.9	0	88.7	89.5	97.6	0	91.3	0	0	97.4		
Trucks	0	28	59	2		89	0	14	4	34		52	1	2	56	13		72	0	6	2	1		10	0	0	223		
% Trucks	0	3.8	2.1	3.9	0	2.5	0	2.4	16	4.4	0	3.8	50	5.4	2	2.2	0	2.1	0	11.3	10.5	2.4	100	8.7	0	0	2.6		



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Weather: Sunny and Cold
 CountCam 200
 Study Conducted By: Logan

File Name : TMC 1845
 Site Code :
 Start Date : 11/19/2018
 Page No : 5

Start Time	CSAH 9 Southbound					221st Ave. Westbound					CSAH 9 Northbound					221st Ave. 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 06:45																					
06:45	0	17	81	0	98	0	12	0	19	31	0	0	31	4	35	0	0	1	4	5	169
07:00	0	15	77	1	93	0	19	0	23	42	0	0	32	4	36	0	2	0	2	4	175
07:15	0	14	79	1	94	0	23	1	44	68	0	0	55	8	63	0	5	0	2	7	232
07:30	0	26	100	0	126	0	33	0	29	62	0	0	45	3	48	0	0	0	1	1	237
Total Volume	0	72	337	2	411	0	87	1	115	203	0	0	163	19	182	0	7	1	9	17	813
% App. Total	0	17.5	82	0.5		0	42.9	0.5	56.7		0	0	89.6	10.4		0	41.2	5.9	52.9		
PHF	.000	.692	.843	.500	.815	.000	.659	.250	.653	.746	.000	.000	.741	.594	.722	.000	.350	.250	.563	.607	.858
Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45																					
12:45	0	7	32	0	39	0	8	1	7	16	0	0	44	4	48	0	1	0	1	2	105
13:00	0	5	34	0	39	0	5	0	10	15	0	1	40	4	45	0	1	0	0	1	100
13:15	0	4	23	1	28	0	7	1	4	12	0	0	30	6	36	0	0	0	1	1	77
13:30	0	11	24	2	37	0	7	0	7	14	0	0	37	5	42	0	1	0	3	4	97
Total Volume	0	27	113	3	143	0	27	2	28	57	0	1	151	19	171	0	3	0	5	8	379
% App. Total	0	18.9	79	2.1		0	47.4	3.5	49.1		0	0.6	88.3	11.1		0	37.5	0	62.5		
PHF	.000	.614	.831	.375	.917	.000	.844	.500	.700	.891	.000	.250	.858	.792	.891	.000	.750	.000	.417	.500	.902
Peak Hour Analysis From 14:00 to 23:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	0	19	40	2	61	0	7	3	15	25	0	0	102	19	121	0	1	0	2	3	210
16:45	0	11	37	2	50	0	8	1	17	26	0	0	102	22	124	0	3	0	0	3	203
17:00	0	25	53	1	79	0	7	0	16	23	0	0	98	16	114	0	1	0	1	2	218
17:15	0	16	42	1	59	0	5	0	23	28	0	4	72	21	97	0	2	1	0	3	187
Total Volume	0	71	172	6	249	0	27	4	71	102	0	4	374	78	456	0	7	1	3	11	818
% App. Total	0	28.5	69.1	2.4		0	26.5	3.9	69.6		0	0.9	82	17.1		0	63.6	9.1	27.3		
PHF	.000	.710	.811	.750	.788	.000	.844	.333	.772	.911	.000	.250	.917	.886	.919	.000	.583	.250	.375	.917	.938



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Weather: Sunny and Cold
 CountCam 200
 Study Conducted By: Logan

File Name : TMC 1845
 Site Code :
 Start Date : 11/19/2018
 Page No : 1

Groups Printed- Trucks

Start Time	CSAH 9 Southbound					221st Ave. Westbound					CSAH 9 Northbound					221st Ave. 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45	0	4	3	0	7	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	8
Total	0	4	4	0	8	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	9
06:00	0	4	3	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
06:15	0	2	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
06:30	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
06:45	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2
Total	0	6	8	0	14	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	15
07:00	0	0	0	0	0	0	1	0	4	5	0	0	2	0	2	0	0	0	0	0	0	7
07:15	0	0	1	0	1	0	3	1	1	5	0	0	1	0	1	0	1	0	0	1	0	8
07:30	0	1	1	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	4
07:45	0	2	2	0	4	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	6
Total	0	3	4	0	7	0	4	1	5	10	0	0	5	1	6	0	1	0	1	2	0	25
08:00	0	1	1	0	2	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0	0	4
08:15	0	1	1	0	2	0	0	0	1	1	0	0	1	1	2	0	1	0	0	1	0	6
08:30	0	2	1	0	3	0	0	1	0	1	0	0	1	1	2	0	0	0	0	0	0	6
08:45	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	3
Total	0	5	3	0	8	0	0	1	2	3	0	0	4	2	6	0	1	1	0	2	0	19
09:00	0	0	1	0	1	0	1	0	13	14	0	0	1	0	1	0	0	0	0	0	0	16



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Weather: Sunny and Cold
 CountCam 200
 Study Conducted By: Logan

File Name : TMC 1845
 Site Code :
 Start Date : 11/19/2018
 Page No : 3

Groups Printed- Trucks

Start Time	CSAH 9 Southbound					221st Ave. Westbound					CSAH 9 Northbound					221st Ave. 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		
19:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
19:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
20:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
20:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	1	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	3
21:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
21:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
21:30	0	0	0	0	0	0	1	1	1	3	1	1	1	1	4	0	0	0	0	0	0	7
21:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	1	1	1	3	1	1	2	1	5	0	0	0	0	0	0	9
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
23:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	28	59	2	89	0	14	4	34	52	1	2	56	13	72	0	6	2	1	9	222	
Apprch %	0	31.5	66.3	2.2		0	26.9	7.7	65.4		1.4	2.8	77.8	18.1		0	66.7	22.2	11.1			
Total %	0	12.6	26.6	0.9	40.1	0	6.3	1.8	15.3	23.4	0.5	0.9	25.2	5.9	32.4	0	2.7	0.9	0.5	4.1		

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 1845

Study Date: 11/29/2018

Page No: 1

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 9

Number of Lanes : 1

Total Approach Volume: 3,483

Southbound: CSAH 9

Number of Lanes : 1

Total Approach Volume: 3,631

Minor Street Approaches

Eastbound: 221st Ave.

Number of Lanes : 1

Total Approach Volume: 114

Westbound: 221st Ave.

Number of Lanes : 1

Total Approach Volume: 1,377

Warrant Summary (Rural Values Apply)

- Warrant 1 - Eight Hour Vehicular Volumes.....Not Satisfied**
- Warrant 1A - Minimum Vehicular Volume.....Not Satisfied**
Required volumes reached for 4 hours, 8 are needed
 - Warrant 1B - Interruption of Continuous Traffic.....Not Satisfied**
Required volumes reached for 5 hours, 8 are needed
 - Warrant 1C - Combination of Warrants.....Not Satisfied**
Required 1A volumes reached for 6 hours, 8 are needed
Required 1B volumes reached for 7 hours, 8 are needed
- Warrant 2 - Four Hour Volumes.....Satisfied**
Number of hours (5) volumes exceed minimum \geq 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 1845**

Study Date: **11/29/2018**

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

Only 4 hours meet minimums.
Warrant is NOT met.

Site Data Required

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

Volume Requirements

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

Veh/Hr Minor = **105**

Time	Major Road CSAH 9				Total	Minor Road 221st Ave.		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
15:30 - 16:30	416	+	219	=	635	10	113	Yes
17:15 - 18:15	393	+	206	=	599	6	105	Yes
07:00 - 08:00	181	+	382	=	563	15	191	Yes
06:00 - 07:00	73	+	440	=	513	13	105	Yes
16:30 - 17:30	456	+	249	=	705	11	102	No
16:45 - 17:45	448	+	236	=	684	9	95	No
17:00 - 18:00	428	+	233	=	661	7	104	No
15:15 - 16:15	411	+	226	=	637	10	104	No
15:00 - 16:00	398	+	216	=	614	9	90	No
14:30 - 15:30	323	+	272	=	595	9	83	No
14:45 - 15:45	374	+	204	=	578	9	83	No
14:15 - 15:15	264	+	289	=	553	10	90	No
14:00 - 15:00	222	+	280	=	502	12	91	No
13:45 - 14:45	201	+	266	=	467	11	86	No
05:45 - 06:45	43	+	415	=	458	8	89	No
18:15 - 19:15	264	+	152	=	416	2	79	No
18:30 - 19:30	248	+	129	=	377	3	71	No
13:30 - 14:30	184	+	188	=	372	11	75	No
05:30 - 06:30	33	+	336	=	369	5	83	No
08:00 - 09:00	94	+	231	=	325	5	75	No
08:15 - 09:15	113	+	206	=	319	7	78	No
18:45 - 19:45	212	+	106	=	318	2	54	No
13:15 - 14:15	171	+	147	=	318	10	63	No
12:45 - 13:45	171	+	143	=	314	8	57	No
13:00 - 14:00	163	+	148	=	311	9	57	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: **TMC 1845**

Study Date: **11/29/2018**

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

Only 5 hours meet minimums.
Warrant is NOT met.

Site Data Required

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

Volume Requirements

Rural Factor of 70 % applied
 Veh/Hr Major = **525**
 Veh/Hr Minor = **53**

Time	Major Road CSAH 9				Total	Minor Road 221st Ave.		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:15 - 17:15	472	+	235	=	707	9	100	Yes
15:15 - 16:15	411	+	226	=	637	10	104	Yes
17:15 - 18:15	393	+	206	=	599	6	105	Yes
14:15 - 15:15	264	+	289	=	553	10	90	Yes
06:15 - 07:15	98	+	429	=	527	16	121	Yes
06:00 - 07:00	73	+	440	=	513	13	105	No
07:15 - 08:15	156	+	354	=	510	11	174	No
14:00 - 15:00	222	+	280	=	502	12	91	No
13:45 - 14:45	201	+	266	=	467	11	86	No
05:45 - 06:45	43	+	415	=	458	8	89	No
07:30 - 08:30	115	+	313	=	428	5	121	No
18:15 - 19:15	264	+	152	=	416	2	79	No
18:30 - 19:30	248	+	129	=	377	3	71	No
13:30 - 14:30	184	+	188	=	372	11	75	No
05:30 - 06:30	33	+	336	=	369	5	83	No
07:45 - 08:45	93	+	249	=	342	6	77	No
08:00 - 09:00	94	+	231	=	325	5	75	No
08:15 - 09:15	113	+	206	=	319	7	78	No
18:45 - 19:45	212	+	106	=	318	2	54	No
13:15 - 14:15	171	+	147	=	318	10	63	No
12:45 - 13:45	171	+	143	=	314	8	57	No
13:00 - 14:00	163	+	148	=	311	9	57	No
12:15 - 13:15	161	+	150	=	311	5	62	No
08:30 - 09:30	116	+	193	=	309	7	78	No
12:00 - 13:00	155	+	152	=	307	5	58	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: **TMC 1845**

Study Date: **11/29/2018**

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

Only 6 hours meet 1A minimums.
Only 7 hours meet 1B minimums.
Warrant is NOT met.

Site Data Required

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

Volume Requirements

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

Veh/Hr Minor = **84 42**

Major Road

CSAH 9

Minor Road

221st Ave.

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
16:00 - 17:00	466	+	213	=	679	8	111	Yes
17:00 - 18:00	428	+	233	=	661	7	104	Yes
15:00 - 16:00	398	+	216	=	614	9	90	Yes
06:45 - 07:45	182	+	411	=	593	17	203	Yes
13:45 - 14:45	201	+	266	=	467	11	86	Yes
05:45 - 06:45	43	+	415	=	458	8	89	Yes
14:45 - 15:45	374	+	204	=	578	9	83	No
18:00 - 19:00	288	+	178	=	466	3	83	No
18:15 - 19:15	264	+	152	=	416	2	79	No
18:30 - 19:30	248	+	129	=	377	3	71	No
13:30 - 14:30	184	+	188	=	372	11	75	No
05:30 - 06:30	33	+	336	=	369	5	83	No

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
16:45 - 17:45	448	+	236	=	684	9	95	Yes
15:45 - 16:45	427	+	233	=	660	9	113	Yes
06:45 - 07:45	182	+	411	=	593	17	203	Yes
14:45 - 15:45	374	+	204	=	578	9	83	Yes
17:45 - 18:45	321	+	186	=	507	3	105	Yes
13:45 - 14:45	201	+	266	=	467	11	86	Yes
05:45 - 06:45	43	+	415	=	458	8	89	Yes
13:30 - 14:30	184	+	188	=	372	11	75	No
05:30 - 06:30	33	+	336	=	369	5	83	No
07:45 - 08:45	93	+	249	=	342	6	77	No
08:00 - 09:00	94	+	231	=	325	5	75	No
08:15 - 09:15	113	+	206	=	319	7	78	No

ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: **TMC 1845**

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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.

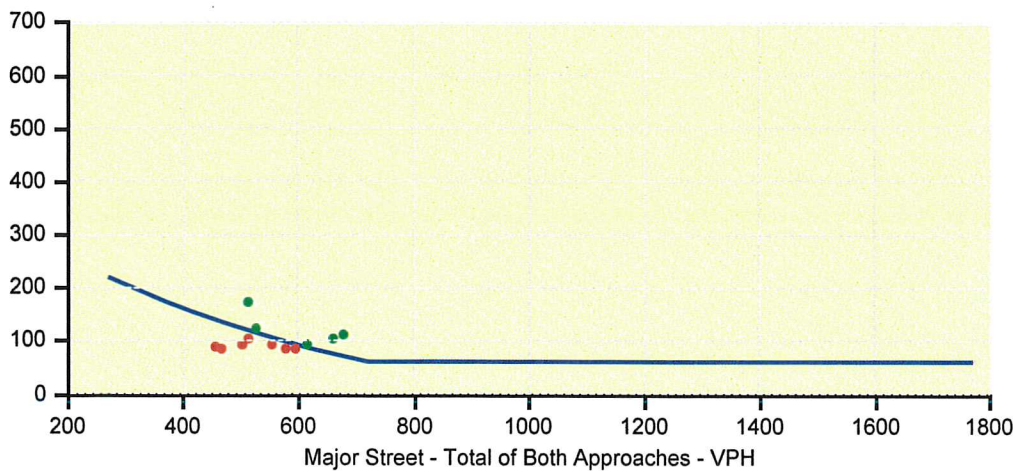
Summary

5 hours meet minimums.
Warrant IS met.

Site Data Required

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

Time	Major Road CSAH 9				Total	Minor Road 221st Ave.		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
16:00 - 17:00	466	+	213	=	679	8	111	Yes
17:00 - 18:00	428	+	233	=	661	7	104	Yes
15:00 - 16:00	398	+	216	=	614	9	90	Yes
06:15 - 07:15	98	+	429	=	527	16	121	Yes
07:15 - 08:15	156	+	354	=	510	11	174	Yes
14:30 - 15:30	323	+	272	=	595	9	83	No
14:45 - 15:45	374	+	204	=	578	9	83	No
14:15 - 15:15	264	+	289	=	553	10	90	No
06:00 - 07:00	73	+	440	=	513	13	105	No
14:00 - 15:00	222	+	280	=	502	12	91	No
13:45 - 14:45	201	+	266	=	467	11	86	No
							83	No



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: **TMC 1845**

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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.

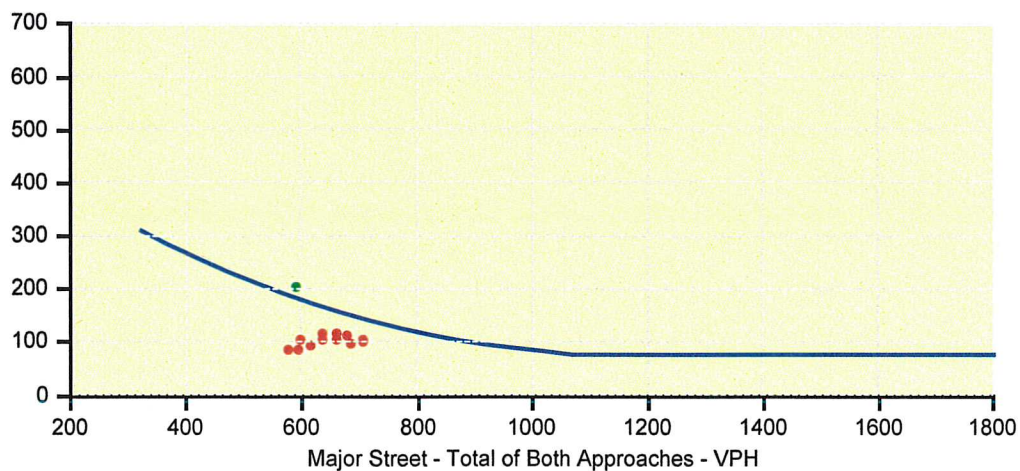
Summary

1 hours meet minimums.
Warrant IS met.

Site Data Required

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

Time	Major Road CSAH 9				Total	Minor Road 221st Ave.		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
06:45 - 07:45	182	+	411	=	593	17	203	Yes
16:15 - 17:15	472	+	235	=	707	9	100	No
16:30 - 17:30	456	+	249	=	705	11	102	No
16:45 - 17:45	448	+	236	=	684	9	95	No
16:00 - 17:00	466	+	213	=	679	8	111	No
17:00 - 18:00	428	+	233	=	661	7	104	No
15:45 - 16:45	427	+	233	=	660	9	113	No
15:15 - 16:15	411	+	226	=	637	10	104	No
15:30 - 16:30	416	+	219	=	635	10	113	No
15:00 - 16:00	398	+	216	=	614	9	90	No
17:15 - 18:15	393	+	206	=	599	6	105	No
							83	No



ANOKA COUNTY HIGHWAY

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 1845

Study Date: 11/29/2018

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Multi-Way Stop Warrants - Summary

Major Street Approaches

Northbound: CSAH 9
 Number of Lanes : 1
 Total Approach Volume: 3,483

Southbound: CSAH 9
 Number of Lanes : 1
 Total Approach Volume: 3,631

Minor Street Approaches

Eastbound: 221st Ave.
 Number of Lanes : 1
 Total Approach Volume: 114

Westbound: 221st Ave.
 Number of Lanes : 1
 Total Approach Volume: 1,377

Warrant Summary (Urban Values Apply)

Criteria A - Interim Measure	Not Evaluated
If traffic signals are justified, stop signs can be installed as an interim measure.	
Criteria B - Crash Experience	Not Satisfied
Number of crashes (-1) is less than minimum required (5).	
Criteria C - Minimum Volumes and Delays	Satisfied
Average Delay Per Vehicle (-01.0) meets or exceeds minimum required (30). Average of 8 highest hours meets or exceeds volume criteria.	
Criteria D - 80% of Volumes, Delays, and Crashes	Not Satisfied
Average Delay Per Vehicle (-01.0) meets or exceeds minimum required (30). Number of crashes (-1) is less than minimum required (4). Average of 8 highest hours meets or exceeds volume criteria.	

Criteria C Volume Summary

Time	Major Total	Major Avg	Minor Total	Minor Avg	Major Crit	Minor Crit	Meets?
06:45 - 07:45	593	560.1	220	162.6	210	140	Yes
07:00 - 08:00	563		206				
07:15 - 08:15	510		185				
06:30 - 07:30	565		182				
06:15 - 07:15	527		137				
07:30 - 08:30	428		126				
15:30 - 16:30	635		123				
15:45 - 16:45	660		122				
16:00 - 17:00	679		119				
06:00 - 07:00	513		118				
15:15 - 16:15	637		114				
16:30 - 17:30	705		113				

Criteria D Volume Summary

Time	Major Total	Major Avg	Minor Total	Minor Avg	Major Crit	Minor Crit	Meets?
06:45 - 07:45	593	560.1	220	162.6	240	160	Yes
07:00 - 08:00	563		206				
07:15 - 08:15	510		185				
06:30 - 07:30	565		182				
06:15 - 07:15	527		137				
07:30 - 08:30	428		126				
15:30 - 16:30	635		123				
15:45 - 16:45	660		122				
16:00 - 17:00	679		119				
06:00 - 07:00	513		118				
15:15 - 16:15	637		114				
16:30 - 17:30	705		113				