

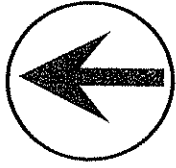
Date : 05/29/12

Count Number : TMC1215

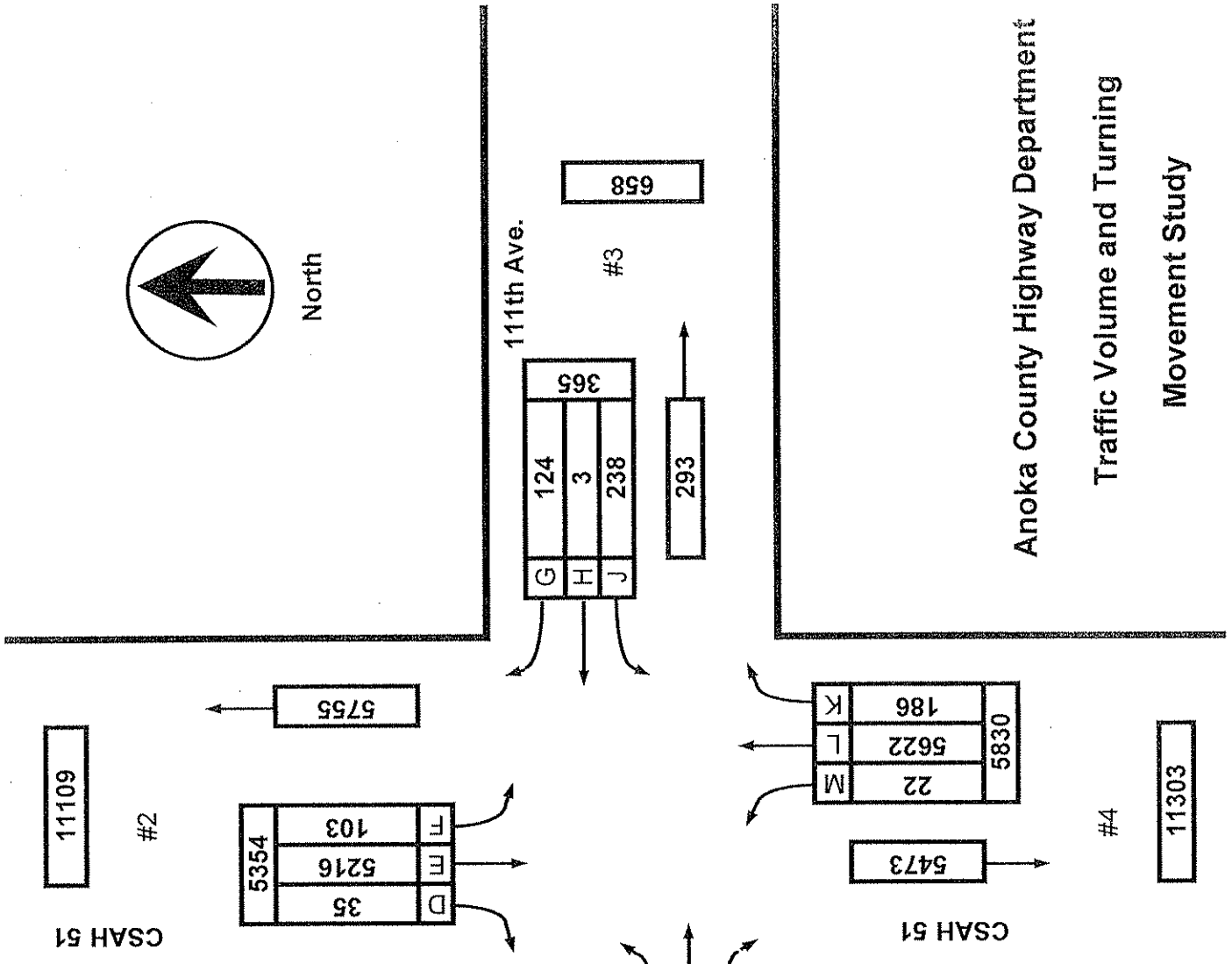
Location : CSAH 51 (University Ave.)

@ 111th Ave./111th Lane

Collection Period : 6:00 AM - 7:00 PM



North



#1

92
60
32
A
B
C
19
4
9

111th Lane

#2

11109
5354
D
35
E
5216
F
103
G
5755

#3

124
G
3
H
238
J
365

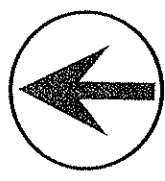
#4

11303
5473
M
22
L
5622
K
186
5830

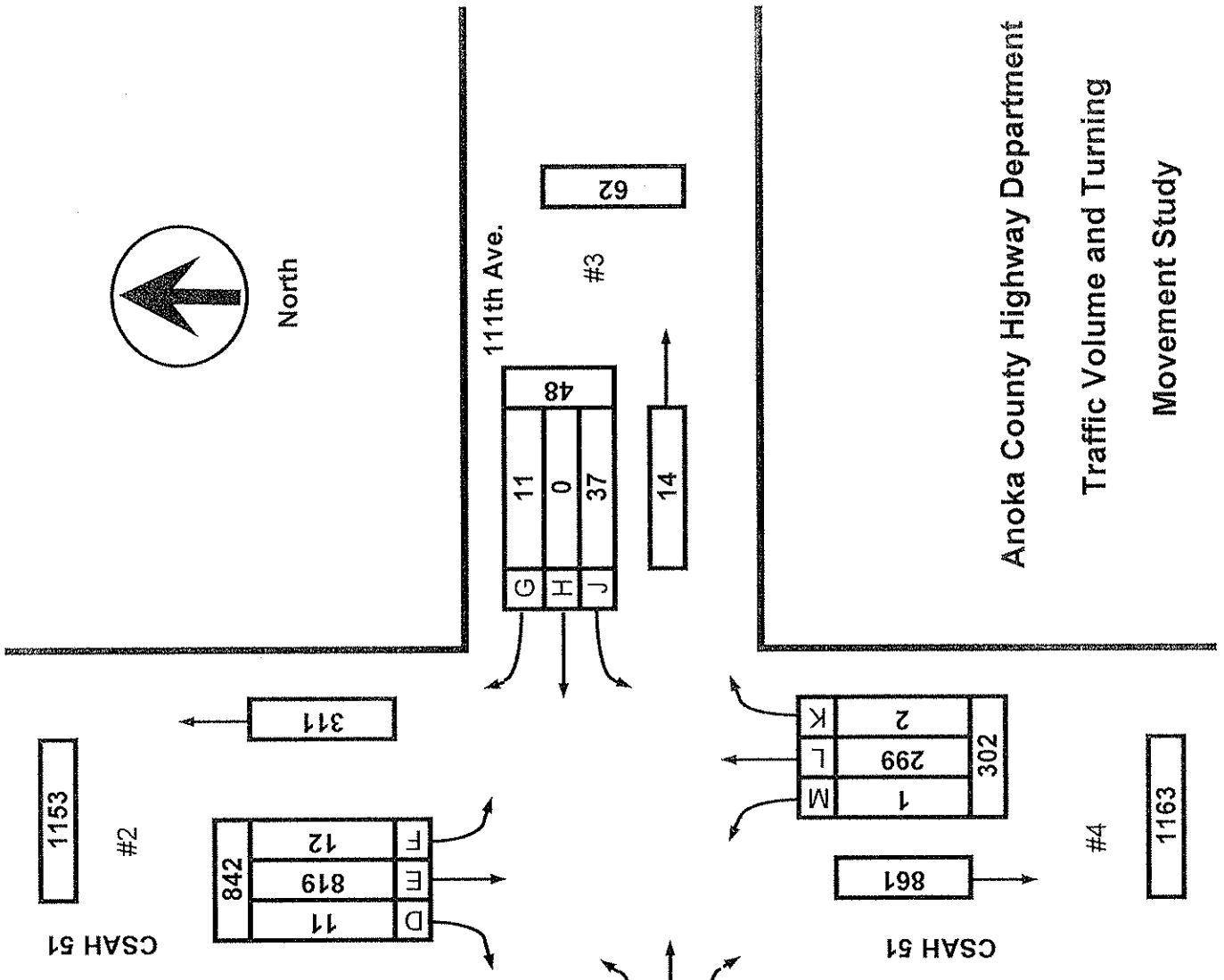
	EXISTING LANES OF APPROACH			TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	0	0	1	1
#2	0	0	2	2
#3	0	0	1	1
#4	0	0	2	2

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 05/29/12
 Count Number : TMC1215
 Location : CSAH 51 (University Ave.)
 @ 111th Ave./111th Lane
 Collection Period : AM PEAK
 Hour : 6:45 AM - 7:45 AM



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date : 05/22/12

Count Number : TMC1215

Location : CSAH 51 (University Ave.)

@ 111th Ave./111th Lane

Collection Period : PM PEAK

Hour : 4:30 PM - 5:30 PM



North

1533

#2

CSAH 51

D	1
TH	406
F	14
T	421

1112

111th Ave.

#1

4

A	1
B	0
C	2
TOTAL	3

111th Lane

1

#3

G	17
H	0
J	13
TOTAL	30

56

89

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

CSAH 51

420

#4

M	0
L	1093
K	42
TOTAL	1135

1555

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 : TMC1215
 Site Code : 12150202
 Start Date : 05/22/2012
 Page No : 1

Weather: Warm, Sunny
 Counter: DB-400
 study conducted by: Andrea/Sam

Groups Printed- Unshifted

Start Time	CSAH 51 Southbound					111th Ave. Westbound					CSAH 51 Northbound					111th Lane Eastbound					Exclu. Total	Inclu. Total	Int. Total	
	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total				
06:00	0	126	0	0	126	9	0	1	0	10	0	14	0	0	14	0	0	0	0	0	0	0	150	150
06:15	0	145	1	4	146	10	0	0	0	10	0	39	0	2	39	0	0	0	0	0	0	6	195	201
06:30	2	183	1	4	186	6	0	1	0	7	0	34	2	0	36	1	0	0	0	1	4	230	234	
06:45	1	176	5	6	182	10	0	2	0	12	0	59	0	6	59	0	0	3	1	3	13	256	269	
Total	3	630	7	14	640	35	0	4	0	39	0	146	2	8	148	1	0	3	1	4	23	831	854	
07:00	4	222	1	4	227	4	0	6	2	10	0	97	0	9	97	0	0	0	0	0	15	334	349	
07:15	2	185	2	8	189	12	0	0	0	12	1	96	2	6	99	0	0	2	0	2	14	302	316	
07:30	5	236	3	6	244	11	0	3	0	14	0	47	0	0	47	1	0	0	0	1	6	306	312	
07:45	1	159	1	3	161	3	0	3	0	6	1	43	1	4	45	0	0	0	0	0	7	212	219	
Total	12	802	7	21	821	30	0	12	2	42	2	283	3	19	288	1	0	2	0	3	42	1154	1196	
08:00	3	128	2	4	133	5	0	2	0	7	0	40	0	3	40	1	0	0	0	1	7	181	188	
08:15	3	138	0	7	141	4	0	1	1	5	0	56	1	15	57	0	0	1	0	1	23	204	227	
08:30	3	128	6	15	137	4	0	0	0	4	1	38	4	10	43	0	0	0	0	0	25	184	209	
08:45	2	97	1	10	100	5	0	1	0	6	1	38	3	7	42	1	0	0	0	1	17	149	166	
Total	11	491	9	36	511	18	0	4	1	22	2	172	8	35	182	2	0	1	0	3	72	718	790	
09:00	1	88	3	5	92	8	0	1	1	9	0	38	2	1	40	0	0	1	0	1	7	142	149	
09:15	1	89	1	4	91	11	0	1	0	12	0	46	0	7	46	0	1	0	1	1	12	150	162	
09:30	5	91	0	3	96	4	0	4	0	8	0	34	6	2	40	0	0	0	0	0	5	144	149	
09:45	2	58	0	1	60	3	0	2	0	5	0	54	0	2	54	0	0	0	0	0	3	119	122	
Total	9	326	4	13	339	26	0	8	1	34	0	172	8	12	180	0	1	1	1	2	27	555	582	
10:00	0	79	0	1	79	5	0	1	0	6	0	52	5	10	57	0	0	0	0	0	11	142	153	
10:15	0	74	0	3	74	6	0	0	0	6	0	57	3	4	60	0	0	0	0	0	7	140	147	
10:30	3	59	0	2	62	1	0	3	0	4	1	52	5	2	58	0	0	0	0	0	4	124	128	
10:45	1	82	0	4	83	2	0	4	1	6	0	51	3	2	54	0	0	0	0	0	7	143	150	
Total	4	294	0	10	298	14	0	8	1	22	1	212	16	18	229	0	0	0	0	0	29	549	578	
11:00	1	65	0	3	66	4	0	3	1	7	0	64	3	6	67	0	1	1	1	2	11	142	153	
11:15	1	59	0	2	60	0	0	0	0	0	0	58	2	5	60	0	0	0	0	0	7	120	127	
11:30	0	73	0	4	73	3	0	0	0	3	0	50	2	7	52	0	0	0	0	0	9	128	137	
11:45	2	60	0	2	62	9	0	2	1	11	0	67	0	4	67	0	0	0	0	0	7	140	147	
Total	4	257	0	11	261	16	0	5	2	21	0	239	7	20	246	0	1	1	1	2	34	530	564	
12:00	2	56	0	2	58	6	1	1	0	8	0	97	2	5	99	0	1	0	0	1	7	166	173	
12:15	1	75	0	8	76	5	0	0	0	5	1	73	2	8	76	0	0	2	0	2	16	159	175	
12:30	1	80	0	8	81	4	0	0	0	4	2	70	3	8	75	0	0	2	0	2	16	162	178	
12:45	2	82	1	5	85	2	0	1	0	3	1	77	3	6	81	0	0	1	0	1	11	170	181	
Total	6	293	1	23	300	17	1	2	0	20	4	317	10	27	331	0	1	5	0	6	50	657	707	
13:00	2	74	0	4	76	6	0	3	1	9	0	72	4	4	76	1	0	0	0	1	9	162	171	
13:15	1	72	0	3	73	4	0	3	0	7	0	74	4	5	78	0	0	0	0	0	8	158	166	
13:30	0	78	0	5	78	0	0	3	0	3	0	65	4	4	69	0	0	0	0	0	9	150	159	
13:45	0	72	0	5	72	4	1	3	0	8	0	95	3	9	98	0	0	3	0	3	14	181	195	
Total	3	296	0	17	299	14	1	12	1	27	0	306	15	22	321	1	0	3	0	4	40	651	691	
14:00	5	49	1	4	55	1	0	1	0	2	1	95	3	17	99	0	0	0	0	0	21	156	177	
14:15	1	75	0	6	76	9	0	4	0	13	0	128	3	11	131	1	0	0	0	1	17	221	238	
14:30	4	131	0	22	135	1	0	1	0	2	0	121	4	6	125	0	0	0	0	0	28	262	290	
14:45	5	89	0	4	94	2	0	2	0	4	1	135	5	9	141	0	0	0	0	0	13	239	252	
Total	15	344	1	36	360	13	0	8	0	21	2	479	15	43	496	1	0	0	0	1	79	878	957	
15:00	3	79	0	7	82	3	0	3	0	6	3	140	5	8	148	0	0	0	0	0	15	236	251	
15:15	2	119	2	10	123	5	0	4	0	9	5	178	7	15	190	0	0	0	0	0	25	322	347	
15:30	5	107	2	6	114	3	0	4	0	7	1	174	8	13	183	0	0	0	0	0	19	304	323	
15:45	0	92	1	5	93	5	0	4	1	9	0	166	5	4	171	1	0	1	0	2	10	275	285	
Total	10	397	5	28	412	16	0	15	1	31	9	658	25	40	692	1	0	1	0	2	69	1137	1206	
16:00	3	89	0	2	92	2	0	4	0	6	0	207	9	9	216	0	0	0	0	0	11	314	325	
16:15	3	109	0	5	112	5	1	9	0	15	0	258	6	4	264	0	0	0	0	0	9	391	400	
16:30	4	101	0	4	105	4	0	2	0	6	0	264	4	6	268	0	0	0	0	0	10	379	389	
16:45	2	99	0	3	101	5	0	5	0	10	0	257	11	4	268	1	0	1	0	2	7	381	388	
Total	12	398	0	14	410	16	1	20	0	37	0	986	30	23	1016	1	0	1	0	2	37	1465	1502	
17:00	7	92	1	1	100	2	0	7	0	9	0	316	12	3	328	0	0	0	0	0	4	437	441	
17:15	1	114	0	2	115	2	0	3	0	5	0	256	15	1	271	1	0	0	0	1	3	392	395	
17:30	4	91	0	2	95	5	0	2	0	7	0	245	6	2	251	0	0	0	0	0	4	353	357	
17:45	1	103	0	2	104	3	0	4	0	7	1	226	2	2	229	0	1	1	0	2	4	342	346	
Total	13	400	1	7	414	12	0	16	0	28	1	1043	35	8	1079	1	1	1	0	3	15	1524	1539	



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC1215
 Site Code : 12150202
 Start Date : 05/22/2012
 Page No : 2

Weather: Warm, Sunny
 Counter: DB-400
 study conducted by: Andrea/Sam

Groups Printed- Unshifted

Start Time	CSAH 51 Southbound					111th Ave. Westbound					CSAH 51 Northbound					111th Lane Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total			
18:00	0	96	0	0	96	5	0	5	0	10	0	254	4	4	258	0	0	0	0	0	4	364	368
18:15	1	102	0	1	103	2	0	4	0	6	1	200	5	4	206	0	0	0	0	0	5	315	320
18:30	0	90	0	2	90	4	0	1	0	5	0	155	3	0	158	0	0	0	0	0	2	253	255
Grand Total	103	5216	35	233	5354	238	3	124	9	365	22	5622	186	283	5830	9	4	19	3	32	528	11581	12109
Apprch %	1.9	97.4	0.7			65.2	0.8	34			0.4	96.4	3.2			28.1	12.5	59.4					
Total %	0.9	45	0.3		46.2	2.1	0	1.1		3.2	0.2	48.5	1.6		50.3	0.1	0	0.2		0.3	4.4	95.6	

Start Time	CSAH 51 Southbound					111th Ave. Westbound					CSAH 51 Northbound					111th Lane Eastbound					Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total					
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45																					
06:45	1	176	5	182	10	0	2	12	0	59	0	59	0	0	0	3	3	256			
07:00	4	222	1	227	4	0	6	10	0	97	0	97	0	0	0	0	0	334			
07:15	2	185	2	189	12	0	0	12	1	96	2	99	0	0	2	2	302				
07:30	5	236	3	244	11	0	3	14	0	47	0	47	1	0	0	1	306				
Total Volume	12	819	11	842	37	0	11	48	1	299	2	302	1	0	5	6	1198				
% App. Total	1.4	97.3	1.3		77.1	0	22.9		0.3	99	0.7		16.7	0	83.3						
PHF	.600	.868	.550	.863	.771	.000	.458	.857	.250	.771	.250	.763	.250	.000	.417	.500	.897				

Start Time	CSAH 51 Southbound					111th Ave. Westbound					CSAH 51 Northbound					111th Lane Eastbound					Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total					
Peak Hour Analysis From 12:00 to 18:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	4	101	0	105	4	0	2	6	0	264	4	268	0	0	0	0	379				
16:45	2	99	0	101	5	0	5	10	0	257	11	268	1	0	1	2	381				
17:00	7	92	1	100	2	0	7	9	0	316	12	328	0	0	0	0	437				
17:15	1	114	0	115	2	0	3	5	0	256	15	271	1	0	0	1	392				
Total Volume	14	406	1	421	13	0	17	30	0	1093	42	1135	2	0	1	3	1589				
% App. Total	3.3	96.4	0.2		43.3	0	56.7		0	96.3	3.7		66.7	0	33.3						
PHF	.500	.890	.250	.915	.650	.000	.607	.750	.000	.865	.700	.865	.500	.000	.250	.375	.909				



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC1215B
 Site Code : 12150202
 Start Date : 05/22/2012
 Page No : 1

Weather: Warm, Sunny
 Counter: DB-400
 study conducted by: Andrea/Sam

Groups Printed- Unshifted

Start Time	CSAH 51 Southbound					None Westbound					CSAH 51 Northbound					110th Lane Eastbound					Exclu. Total	Inclu. Total	Int. Total							
	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total										
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	0	0	2	0	2	0	3	3	0	3	3	
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	0	3	3	0	3	3	0	3	3	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	0	2	2	0	2	2	0	
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	1	0	1	1	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	3	0	3	3	0	3	3	0	3	
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	1	0	1	1	0	
08:15	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	1	1	0	2	2	2	4	0	2	4	0	
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	1	0	1	1	0	
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	3	1	3	0	2	4	6	0	2	4	6	0	
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
09:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	1	1	0	
09:45	0	0	0	0	0	0	0	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	1	0	0	0	1	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	1	0	1	1	0	
10:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	1	1	0	
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	2	2	0	2	2	0	2	2	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	1	0	1	1	0	1	
11:15	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	2	1	2	0	2	3	5	0	2	3	5	0	
11:30	0	0	0	0	0	0	0	0	0	0	2	0	0	1	2	0	0	1	0	1	0	1	1	3	4	0	1	3	4	
11:45	0	0	0	0	0	0	0	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	3	0	0	2	3	0	0	4	1	4	0	3	7	10	0	3	7	10	0	
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	0	2	2	0	2	2	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2	0	2	2	0	2	2	0	2	2
13:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	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	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	2	0	2	0	2	0	4	4	0	4	4	0	
14:15	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	0	2	0	4	4	0	4	4	0	
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2	0	2	2	0	2	2	0	2	
14:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	2	2	0	2	2	0	2	2	
Total	0	0	1	0	1	0	0	0	0	0	4	0	0	0	4	0	0	7	0	7	0	7	0	12	12	0	12	12	0	
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	1	0	1	1	0	1	
15:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	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	1	0	0	0	1	0	0	1	0	1	0	1	1	0	2	2	0	2	2	0
16:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	0	2	0	3	3	0	3	3	0	
16:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	0	2	0	3	3	0	3	3	0	
Total	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	4	0	4	0	4	0	7	7	0	7	7	0	
17:00	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	1	0	1	0	1	0	3	3	0	3	3	0	
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	1	0	1	1	0	1	
17:45	0	0	0	0	0	0	0	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	2	0	0	0	2	0	0	2	0	2	0	2	0	4	4	0	4	4	0	4



**ANOKA COUNTY HIGHWAY
PC-WARRANTS
TRAFFIC SIGNAL WARRANT ANALYSIS**

Study Name : TMC1215
Study Date : 06/08/12
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 51

Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: 5,830

Southbound: CSAH 51

Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: 5,354

Minor Street Approaches

Eastbound: 111th Lane

Number of Lanes: 2

Total Approach Volume: 32

Westbound: 111th Ave.

Number of Lanes: 2

Total Approach Volume: 365

Warrant Summary (Rural values apply.)

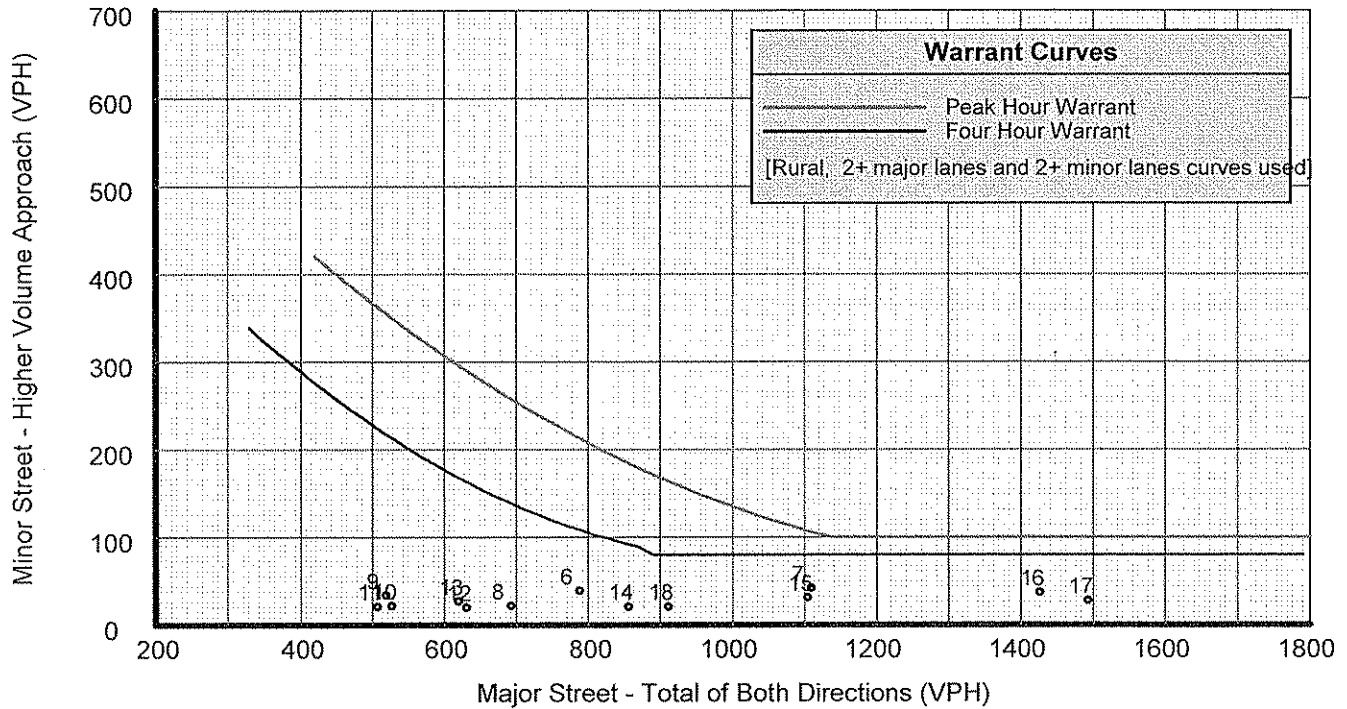
Warrant 1 - Eight Hour Vehicular Volumes	Not Satisfied
Warrant 1A - Minimum Vehicular Volume	Not Satisfied
Required volumes reached for 0 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic	Not Satisfied
Required volumes reached for 0 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants	Not Satisfied
Required volumes reached for 0 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Not Satisfied
Number of hours (0) volumes exceed minimum < minimum required (4).	
Warrant 3 - Peak Hour	Not 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	Not Satisfied
Volumes do not exceed minimums for any 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 : TMC1215
Study Date : 06/08/12
Page No. : 2

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor Vol	Dir	War 1A			War 1B			War 1A&B		
				Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
01:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
02:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
03:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
04:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
05:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
06:00	788	39	WB	420-Yes	140-No	Major	630-Yes	70-No	Major	504-Yes	112-No	Major
07:00	1,109	42	WB	420-Yes	140-No	Major	630-Yes	70-No	Major	504-Yes	112-No	Major
08:00	693	22	WB	420-Yes	140-No	Major	630-Yes	70-No	Major	504-Yes	112-No	Major
09:00	519	34	WB	420-Yes	140-No	Major	630-No	70-No	---	504-Yes	112-No	Major
10:00	527	22	WB	420-Yes	140-No	Major	630-No	70-No	---	504-Yes	112-No	Major
11:00	507	21	WB	420-Yes	140-No	Major	630-No	70-No	---	504-Yes	112-No	Major
12:00	631	20	WB	420-Yes	140-No	Major	630-Yes	70-No	Major	504-Yes	112-No	Major
13:00	620	27	WB	420-Yes	140-No	Major	630-No	70-No	---	504-Yes	112-No	Major
14:00	856	21	WB	420-Yes	140-No	Major	630-Yes	70-No	Major	504-Yes	112-No	Major
15:00	1,104	31	WB	420-Yes	140-No	Major	630-Yes	70-No	Major	504-Yes	112-No	Major
16:00	1,426	37	WB	420-Yes	140-No	Major	630-Yes	70-No	Major	504-Yes	112-No	Major
17:00	1,493	28	WB	420-Yes	140-No	Major	630-Yes	70-No	Major	504-Yes	112-No	Major
18:00	911	21	WB	420-Yes	140-No	Major	630-Yes	70-No	Major	504-Yes	112-No	Major
19:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
20:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
21:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
22:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
23:00	0	0	EB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---



**ANOKA COUNTY HIGHWAY
PC-WARRANTS
TRAFFIC SIGNAL WARRANT ANALYSIS**

Study Name : TMC1215
Study Date : 06/08/12
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Northbound: CSAH 51
Total Approach Volume: 5,830
85% Speed > 40 MPH.

Southbound: CSAH 51
Total Approach Volume: 5,354
85% Speed > 40 MPH.

Minor Street Approaches

Eastbound: 111th Lane
Total Approach Volume: 32

Westbound: 111th Ave.
Total Approach Volume: 365

Warrant Summary

Criteria A - Interim Measure Not Evaluated
If traffic signals are justified, stop signs can be installed as an interim measure.

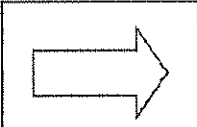
Criteria B - Crash Experience Not Evaluated

Criteria C - Minimum Volumes and Delays Not Satisfied
Delay data not evaluated
Required volumes reached for 0 hours, 8 are needed

Criteria D - 80% of Volumes, Delays, and Crashes Not Evaluated
Delay data not evaluated
Number of crashes (-1) is less than the minimum required (4).
Required volumes reached for 0 hours, 8 are needed

Analysis of 8 Hour Volume Warrants:

Time	Major Total	Minor Total	Crit C			Crit D		
			Major	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
05:30 - 06:30	325	20	210-Yes	140-No	Major	240-Yes	160-No	Major
05:45 - 06:45	547	28	210-Yes	140-No	Major	240-Yes	160-No	Major
06:00 - 07:00	788	43	210-Yes	140-No	Major	240-Yes	160-No	Major
06:15 - 07:15	972	43	210-Yes	140-No	Major	240-Yes	160-No	Major
06:30 - 07:30	1,075	47	210-Yes	140-No	Major	240-Yes	160-No	Major
06:45 - 07:45	1,144	54	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	1,109	45	210-Yes	140-No	Major	240-Yes	160-No	Major
07:15 - 08:15	958	43	210-Yes	140-No	Major	240-Yes	160-No	Major
07:30 - 08:30	868	35	210-Yes	140-No	Major	240-Yes	160-No	Major
07:45 - 08:45	757	24	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	693	25	210-Yes	140-No	Major	240-Yes	160-No	Major
08:15 - 09:15	652	27	210-Yes	140-No	Major	240-Yes	160-No	Major
08:30 - 09:30	591	34	210-Yes	140-No	Major	240-Yes	160-No	Major
08:45 - 09:45	547	38	210-Yes	140-No	Major	240-Yes	160-No	Major
09:00 - 10:00	519	36	210-Yes	140-No	Major	240-Yes	160-No	Major
09:15 - 10:15	523	32	210-Yes	140-No	Major	240-Yes	160-No	Major
09:30 - 10:30	520	25	210-Yes	140-No	Major	240-Yes	160-No	Major
09:45 - 10:45	504	21	210-Yes	140-No	Major	240-Yes	160-No	Major
10:00 - 11:00	527	22	210-Yes	140-No	Major	240-Yes	160-No	Major
10:15 - 11:15	524	25	210-Yes	140-No	Major	240-Yes	160-No	Major
10:30 - 11:30	510	19	210-Yes	140-No	Major	240-Yes	160-No	Major
10:45 - 11:45	515	18	210-Yes	140-No	Major	240-Yes	160-No	Major
11:00 - 12:00	507	23	210-Yes	140-No	Major	240-Yes	160-No	Major
11:15 - 12:15	531	23	210-Yes	140-No	Major	240-Yes	160-No	Major



COUNT LOCATION:

CSAH 51 (University Ave.)

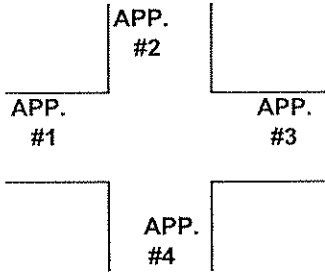
DATE:

05/29/2012

@ 111th Ave./111th Lane

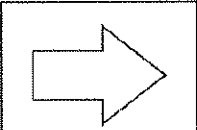
NORTH

APP. #1 = CSAH 51
APP. #2 = 111th Lane
APP. #3 = CSAH 51
APP. #4 = 111th Ave.



- HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT
- A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.
 - B. RV- A HEAVY VEHICLE OPERATED BY A PRIVATE MOTORIST AND INVOLVED IN THE TRANSPORT OF RECREATIONAL EQUIPMENT OR FACILITIES.
 - C. BUSES- A HEAVY VEHICLE INVOLVED IN THE TRANSPORTATION OF GROUPS OF PEOPLE.

TIME	PEDESTRIANS					HEAVY VEHICLES			
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS	
6:00-6:15AM									1
6:15-6:30						2		4	2
6:30-6:45						1		3	3
6:45-7:00						3		10	4
HOURLY TOTAL						HOURLY TOTAL		23	
7:00-7:15			1		1	2		14	5
7:15-7:30						1		10	6
7:30-7:45			1	1	2	1		5	7
7:45-8:00			9		9	4		3	8
HOURLY TOTAL					12	HOURLY TOTAL		40	
8:00-8:15			8	1	9	9		1	9
8:15-8:30			12		12	13		9	10
8:30-8:45			11		11	11		11	11
8:45-9:00				2	2	9		7	12
HOURLY TOTAL					34	HOURLY TOTAL		70	
9:00-9:15						4		3	13
9:15-9:30						11			14
9:30-9:45						5		1	15
9:45-10:00						3			16
HOURLY TOTAL						HOURLY TOTAL		27	
10:00-10:15						11			17
10:15-10:30						7		1	18
10:30-10:45				2	2	3		1	19
10:45-11:00				1	1	7			20
HOURLY TOTAL					3	HOURLY TOTAL		30	
11:00-11:15						9		2	21
11:15-11:30				1	1	7		1	22
11:30-11:45						7		1	23
11:45-12:00				1	1	6		1	24
HOURLY TOTAL					2	HOURLY TOTAL		34	
12:00-12:15						7			25
12:15-12:30						16		1	26
12:30-12:45			1		1	13		1	27
12:45-1:00				1	1	11			28
HOURLY TOTAL					2	HOURLY TOTAL		49	
1:00-1:15			2		2	9			29
1:15-1:30				1	1	7		1	30
1:30-1:45			1	2	3	8		1	31
1:45-2:00		1		1	2	10		4	32
HOURLY TOTAL					8	HOURLY TOTAL		40	
				TOTAL	61		TOTAL	313	



COUNT LOCATION:

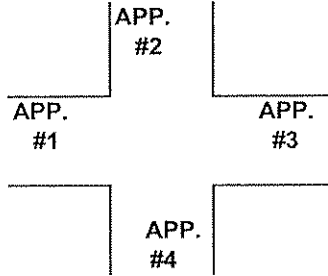
CSAH 51 (University Ave.)

DATE:

05/22/2012

@ 111th Ave./111th Lane

NORTH
APP. #1 = CSAH 51
APP. #2 = 111th Lane
APP. #3 = CSAH 51
APP. #4 = 111th Ave.



- HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT
- A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.
 - B. RV- A HEAVY VEHICLE OPERATED BY A PRIVATE MOTORIST AND INVOLVED IN THE TRANSPORT OF RECREATIONAL EQUIPMENT OR FACILITIES.
 - C. BUSES- A HEAVY VEHICLE INVOLVED IN THE TRANSPORTATION OF GROUPS OF PEOPLE.

TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
2:00-2:15PM				2	2	12		9
2:15-2:30				1	1	9		7
2:30-2:45				3	3	10		17
2:45-3:00				4	4	7		4
HOURLY TOTAL					10	HOURLY TOTAL		75
3:00-3:15			1	3	4	6		8
3:15-3:30			31	3	34	13		12
3:30-3:45			53	1	54	7		12
3:45-4:00				1	1	4		7
HOURLY TOTAL					93	HOURLY TOTAL		69
4:00-4:15			4	1	5	7		4
4:15-4:30				1	1	5		4
4:30-4:45				1	1	2		8
4:45-5:00				3	3	5		1
HOURLY TOTAL					10	HOURLY TOTAL		36
5:00-5:15			1		1	5		1
5:15-5:30		1		1	2			3
5:30-5:45			4	6	10	2		2
5:45-6:00						2		2
HOURLY TOTAL					13	HOURLY TOTAL		17
6:00-6:15						3		1
6:15-6:30				4	4	3	1	2
6:30-6:45			2		2	1		1
6:45-7:00								
HOURLY TOTAL					6	HOURLY TOTAL		12
7:00-7:15								
7:15-7:30								
7:30-7:45								
7:45-8:00								
HOURLY TOTAL						HOURLY TOTAL		
8:00-8:15								
8:15-8:30								
8:30-8:45								
8:45-9:00								
HOURLY TOTAL						HOURLY TOTAL		
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		
TOTAL					193	TOTAL		522

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