

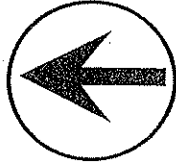
Date : 07/26/10

Count Number : TMC1027

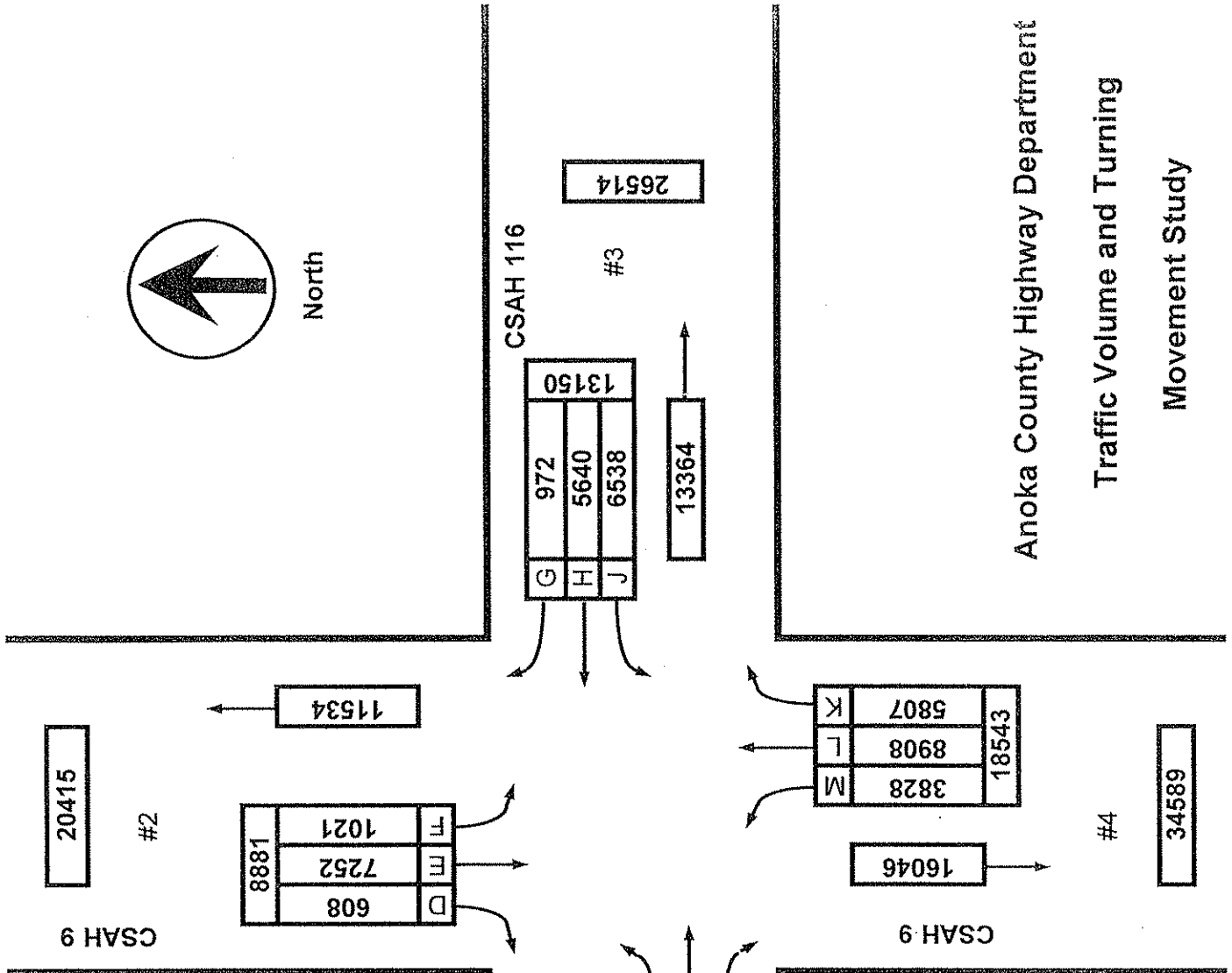
Location : CSAH 116 (Bunker Lake Blvd.)

@ CSAH 9 (Round Lake Blvd.)

Collection Period : 6:00AM - 10:00PM



North



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

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

Date : 07/27/10

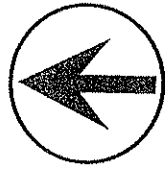
Count Number : TMC1027

Location : CSAH 116 (Bunker Lake Blvd.)

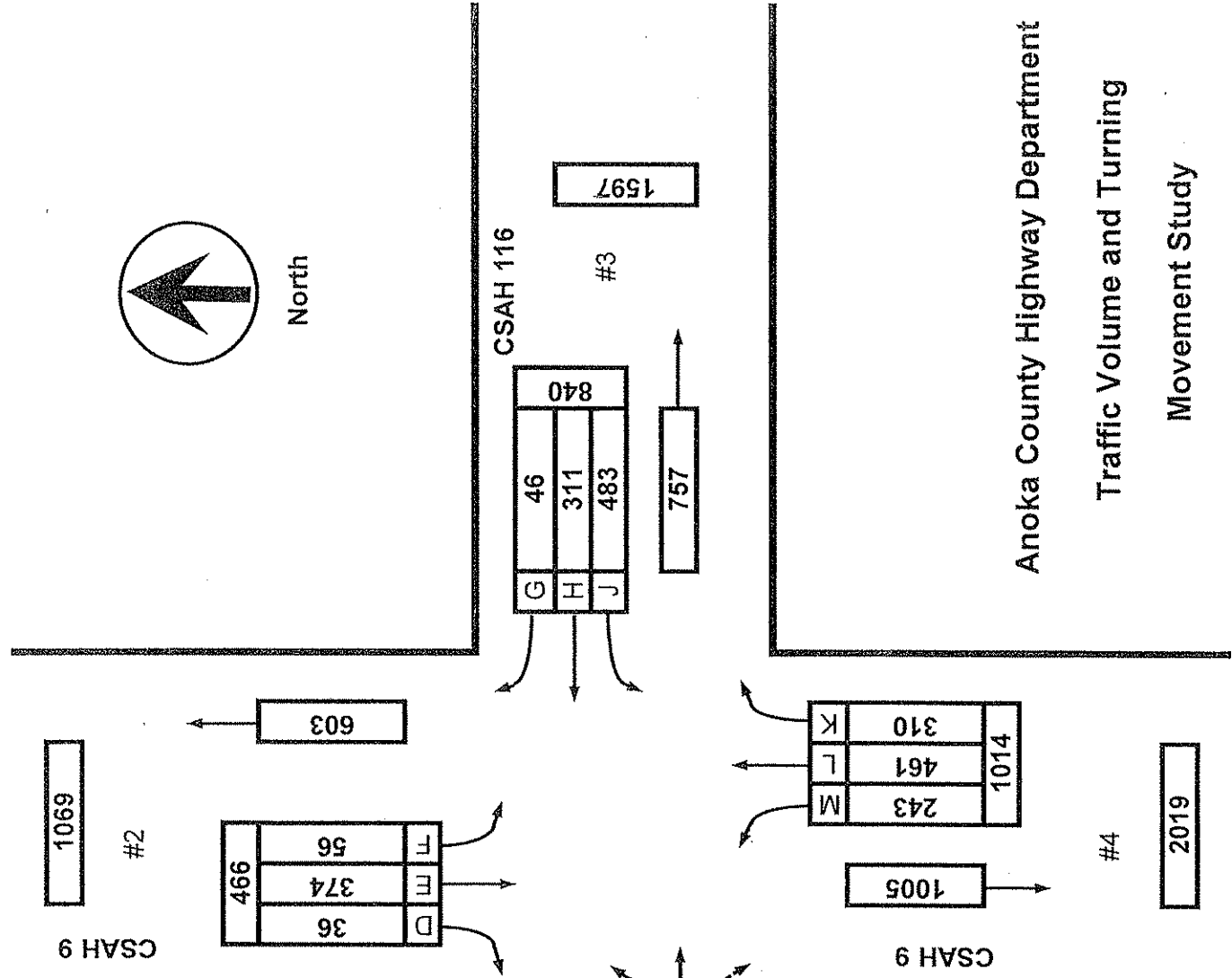
@ CSAH 9 (Round Lake Blvd.)

Collection Period : AM PEAK

Hour : 11:00 AM-12:00 PM



North



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

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

1069

#2

CSAH 9

466	D	36
374	E	374
56	F	56

603

CSAH 116

#1

1225

635	A	148
391	B	391
96	C	96

590

CSAH 116

#3

46	G	46
311	H	311
483	J	483

840

1597

757

243	M	243
461	L	461
310	K	310

1005

CSAH 9

#4

2019

Date : 07/26/10

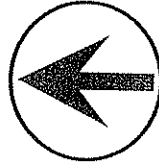
Count Number : TMC1027

Location : CSAH 116 (Bunker Lake Blvd.)

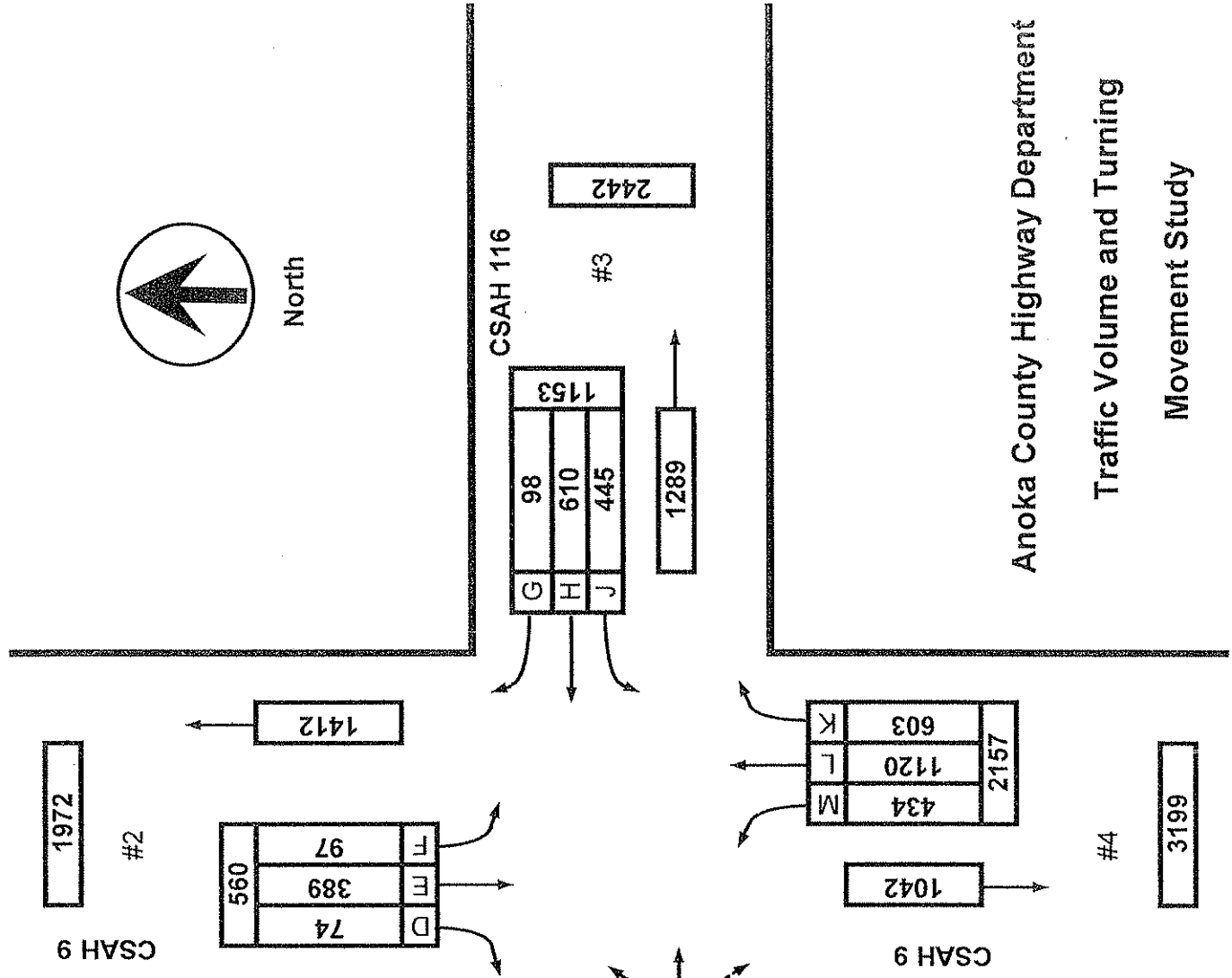
@ CSAH 9 (Round Lake Blvd.)

Collection Period : PM PEAK

Hour : 4:15-5:15 PM



North



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

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

1972

#2

CSAH 9

560			
74	D		
389	E		
97	F		

1412

CSAH 116

#1

2109

991			
208	A		
589	B		
194	C		

1118

CSAH 116

#3

98	G		
610	H		
445	J		
1153			

1289

2442

434	M		
1120	L		
603	K		
2157			

1042

CSAH 9

#4

3199

# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC1027  
 Site Code : 10270202  
 Start Date : 07/26/2010  
 Page No : 1

Weather: Warm/Sunny  
 Counter: DB-400  
 Counted by: Andy/Brett

Groups Printed- Unshifted - Bank 1

Start Time	CSAH 9 (Round Lake Blvd.) Southbound					CSAH 116 (Bunker Lake Blvd.) Westbound					CSAH 9 (Round Lake Blvd.) Northbound					CSAH 116 (Bunker Lake Blvd.) Eastbound					Excl. 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	3	174	3	3	180	45	33	1	6	79	2	20	13	0	35	8	41	31	1	80	10	374	384
06:15	9	214	3	6	226	64	55	2	5	121	5	29	35	7	69	8	53	34	1	95	19	511	530
06:30	7	260	13	8	280	93	71	2	5	166	5	24	44	2	73	14	60	44	5	118	20	637	657
06:45	6	217	9	1	232	99	78	7	7	184	11	30	27	9	68	8	84	65	8	157	25	641	666
Total	25	665	28	18	918	301	237	12	23	550	23	103	119	18	245	38	238	174	15	450	74	2163	2237
07:00	10	239	10	3	259	76	63	1	3	140	10	44	39	10	93	20	83	61	5	164	21	656	677
07:15	13	241	9	6	263	87	76	3	6	166	10	47	41	4	98	8	97	54	2	159	18	686	704
07:30	17	243	10	9	270	80	97	12	15	189	11	61	48	8	120	12	92	52	9	156	41	735	776
07:45	32	186	19	9	237	66	106	8	9	200	16	44	44	10	104	14	105	30	20	149	48	690	738
Total	72	909	48	27	1029	329	342	24	33	695	47	196	172	32	415	54	377	197	36	628	128	2767	2895
08:00	14	141	4	4	159	99	75	4	12	178	12	42	38	6	92	23	90	27	8	140	30	569	599
08:15	18	158	4	7	180	84	81	10	11	175	15	42	45	2	102	20	94	44	3	158	23	615	638
08:30	16	119	8	4	143	87	76	9	9	172	20	53	47	10	120	17	76	41	9	134	32	569	601
08:45	5	131	5	5	141	87	86	15	9	188	25	47	36	4	108	12	99	26	4	137	22	574	596
Total	53	549	21	20	623	357	318	38	41	713	72	184	166	22	422	72	359	138	24	569	107	2327	2434
09:00	6	125	5	0	136	80	42	9	13	131	20	45	44	6	109	14	114	25	13	153	32	529	561
09:15	16	100	7	8	123	131	90	13	8	234	41	69	49	10	159	20	68	22	4	110	30	626	656
09:30	15	91	12	3	118	76	64	18	6	158	33	47	38	4	118	20	98	27	3	145	16	539	555
09:45	21	120	4	3	145	116	86	3	3	205	50	84	55	12	189	14	82	30	5	126	23	665	688
Total	58	436	28	14	522	403	282	43	30	728	144	245	186	32	575	68	362	104	25	534	101	2359	2460
10:00	16	88	7	5	111	95	89	14	7	199	33	66	42	7	141	21	101	40	3	162	22	613	635
10:15	14	106	6	5	126	77	57	12	4	146	40	87	43	6	170	24	80	30	5	134	20	576	596
10:30	21	76	7	5	104	106	67	12	11	185	36	78	55	8	169	25	76	34	4	135	28	593	621
10:45	19	112	6	1	137	120	75	10	28	205	43	112	55	11	210	33	99	29	9	161	49	713	762
Total	70	382	26	16	478	399	288	48	50	735	152	343	195	32	690	103	356	133	21	592	119	2495	2614
11:00	14	97	12	4	123	113	69	9	11	191	37	96	68	8	201	21	93	23	16	137	39	652	691
11:15	14	98	3	2	115	104	58	14	6	176	48	109	92	9	249	15	88	41	6	144	23	664	707
11:30	17	84	8	2	109	136	98	6	24	240	70	143	75	6	288	39	125	43	3	207	35	844	879
11:45	11	95	13	4	119	130	86	17	10	233	88	113	75	6	276	21	85	41	3	147	23	775	798
Total	56	374	36	12	466	483	311	46	51	840	243	461	310	29	1014	96	391	148	28	635	120	2955	3075
12:00	20	100	5	5	125	163	92	16	13	271	94	148	90	8	332	20	139	35	3	194	29	922	951
12:15	26	89	7	1	122	136	89	9	7	234	73	123	98	15	294	30	96	37	4	163	27	813	840
12:30	15	128	14	8	157	127	93	13	8	233	68	122	132	9	322	19	116	27	6	162	31	874	905
12:45	15	108	9	7	132	155	83	15	7	253	93	159	81	7	333	48	131	42	4	221	25	939	964
Total	76	425	35	21	536	581	357	53	35	991	328	552	401	39	1281	117	482	141	17	740	112	3548	3660
13:00	16	116	9	5	141	149	100	23	3	272	113	186	109	5	408	17	99	27	8	143	21	964	985
13:15	23	97	12	3	132	132	89	20	10	241	84	198	96	6	378	34	95	47	6	176	25	927	952
13:30	17	74	8	5	99	127	97	17	2	241	88	155	86	7	329	24	113	35	1	172	15	841	856
13:45	35	225	18	6	278	210	157	35	7	402	147	352	199	8	698	52	197	79	10	328	31	1706	1737
Total	91	512	47	19	650	618	443	95	22	1156	432	891	490	26	1813	127	504	188	25	819	92	4438	4530
14:00	25	109	14	3	148	83	83	27	3	193	73	166	129	7	368	27	90	36	5	153	18	862	880
14:15	18	111	11	3	140	89	69	15	3	173	65	134	108	7	307	31	100	46	8	177	21	797	818
14:30	8	125	10	0	143	125	109	11	8	245	49	204	124	8	377	40	143	52	7	235	23	1000	1023
14:45	23	92	22	4	137	98	101	24	12	223	91	220	110	8	421	32	109	34	6	175	30	956	986
Total	74	437	57	10	568	395	362	77	26	834	278	724	471	30	1473	130	442	168	26	740	92	3615	3707
15:00	13	97	8	5	118	92	97	24	9	213	69	224	126	4	419	36	127	30	3	193	21	943	964
15:15	14	96	14	2	124	97	115	24	7	236	76	229	165	3	470	18	125	36	4	179	16	1009	1025
15:30	27	101	11	2	139	152	120	30	2	302	105	249	188	5	542	44	174	40	2	258	11	1241	1252
15:45	22	108	11	4	141	105	116	19	3	240	95	268	119	3	482	40	153	45	1	238	11	1101	1112
Total	76	402	44	13	522	446	448	97	21	991	345	970	598	15	1913	138	579	151	10	868	59	4294	4353
16:00	21	105	12	4	138	126	109	39	3	274	130	258	157	7	545	40	147	30	6	217	20	1174	1194
16:15	19	97	25	1	141	137	171	25	5	333	100	304	155	8	559	47	138	41	1	226	15	1259	1274
16:30	35	104	20	0	159	123	131	30	2	284	111	272	156	6	539	51	157	74	1	282	9	1264	1273
16:45	19	94	14	1	127	81	142	29	1	252	111	279	135	4	525	37	137	50	2	224	8	1128	1136
Total	94	400	71	6	565	467	553	123	11	1143	452	1113	603	25	2168	175	579	195	10	949	52	4825	4877
17:00	24	94	15	0	133	104	166	14	1	284	112	265	157	5	534	59	157	43	2	259	8	1210	1218
17:15</																							

# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC1027  
 Site Code : 10270202  
 Start Date : 07/26/2010  
 Page No : 2

Weather: Warm/Sunny  
 Counter: DB-400  
 Counted by: Andy/Brett

#### Groups Printed- Unshifted - Bank 1

Start Time	CSAH 9 (Round Lake Blvd.) Southbound					CSAH 116 (Bunker Lake Blvd.) Westbound					CSAH 9 (Round Lake Blvd.) Northbound					CSAH 116 (Bunker Lake Blvd.) Eastbound					Excl. Total	Incl. 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			
18:00	20	92	14	2	126	120	106	20	1	246	107	203	121	4	431	36	100	37	1	173	8	976	984
18:15	16	73	17	0	106	121	128	10	2	259	71	205	137	5	413	30	110	18	1	158	8	936	944
18:30	8	96	4	1	108	124	94	18	1	236	67	161	162	3	390	17	71	29	2	117	7	851	858
18:45	5	90	8	0	103	94	71	9	1	174	92	167	107	3	366	23	81	19	2	123	6	766	772
<b>Total</b>	<b>49</b>	<b>351</b>	<b>43</b>	<b>3</b>	<b>443</b>	<b>459</b>	<b>399</b>	<b>57</b>	<b>5</b>	<b>915</b>	<b>337</b>	<b>736</b>	<b>527</b>	<b>15</b>	<b>1600</b>	<b>106</b>	<b>362</b>	<b>103</b>	<b>6</b>	<b>571</b>	<b>29</b>	<b>3529</b>	<b>3558</b>
19:00	15	103	13	1	131	109	77	15	0	201	43	176	104	0	323	24	77	38	0	139	1	794	795
19:15	12	74	6	0	92	101	76	22	2	199	62	127	85	1	274	33	107	30	0	170	3	735	738
19:30	20	69	7	0	96	138	87	16	1	241	49	133	68	1	250	34	77	33	0	144	2	731	733
19:45	13	60	9	0	82	76	58	16	0	150	54	119	87	0	260	33	102	21	1	156	1	648	649
<b>Total</b>	<b>60</b>	<b>306</b>	<b>35</b>	<b>1</b>	<b>401</b>	<b>424</b>	<b>298</b>	<b>69</b>	<b>3</b>	<b>791</b>	<b>208</b>	<b>555</b>	<b>344</b>	<b>2</b>	<b>1107</b>	<b>124</b>	<b>363</b>	<b>122</b>	<b>1</b>	<b>609</b>	<b>7</b>	<b>2908</b>	<b>2915</b>
20:00	16	63	3	0	82	98	67	12	0	177	53	123	100	2	276	25	95	26	0	146	2	681	683
20:15	9	75	7	0	91	61	65	11	1	137	55	135	96	1	286	17	60	20	0	97	2	611	613
20:30	11	85	0	0	96	59	64	23	1	146	45	132	75	3	252	26	79	15	1	120	5	614	619
20:45	12	54	8	0	74	69	53	16	2	138	54	125	110	1	289	21	90	17	0	128	3	629	632
<b>Total</b>	<b>48</b>	<b>277</b>	<b>18</b>	<b>0</b>	<b>343</b>	<b>287</b>	<b>249</b>	<b>62</b>	<b>4</b>	<b>598</b>	<b>207</b>	<b>515</b>	<b>381</b>	<b>7</b>	<b>1103</b>	<b>89</b>	<b>324</b>	<b>78</b>	<b>1</b>	<b>491</b>	<b>12</b>	<b>2535</b>	<b>2547</b>
21:00	13	75	1	2	89	63	55	14	0	132	56	127	97	0	280	33	94	21	0	148	2	649	651
21:15	15	65	9	0	89	49	70	12	1	131	46	108	56	1	210	18	89	18	1	125	3	555	558
21:30	7	61	7	0	75	33	38	10	0	81	30	95	65	1	190	11	53	16	0	80	1	426	427
<b>Grand Total</b>	<b>1021</b>	<b>7252</b>	<b>608</b>	<b>184</b>	<b>8881</b>	<b>6538</b>	<b>5640</b>	<b>972</b>	<b>358</b>	<b>13150</b>	<b>3828</b>	<b>8908</b>	<b>5807</b>	<b>340</b>	<b>18543</b>	<b>1654</b>	<b>6536</b>	<b>2256</b>	<b>251</b>	<b>10446</b>	<b>1133</b>	<b>51020</b>	<b>52153</b>
Apprch %	11.5	81.7	6.8			49.7	42.9	7.4			20.6	48	31.3			15.8	62.6	21.6					
Total %	2	14.2	1.2		17.4	12.8	11.1	1.9		25.8	7.5	17.5	11.4		36.3	3.2	12.8	4.4		20.5	2.2	97.8	
Unshifted	1021	7252	608		9065	6538	5640	972		13508	3828	8908	5807		18883	1654	6536	2256		10697	0	0	52153
% Unshifted	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	CSAH 9 (Round Lake Blvd.) Southbound				CSAH 116 (Bunker Lake Blvd.) Westbound				CSAH 9 (Round Lake Blvd.) Northbound				CSAH 116 (Bunker Lake Blvd.) 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 11:00																	
11:00	14	97	12	123	113	69	9	191	37	96	68	201	21	93	23	137	652
11:15	14	98	3	115	104	58	14	176	48	109	92	249	15	88	41	144	684
11:30	17	84	8	109	136	98	6	240	70	143	75	288	39	125	43	207	844
11:45	11	95	13	119	130	86	17	233	88	113	75	276	21	85	41	147	775
<b>Total Volume</b>	<b>56</b>	<b>374</b>	<b>36</b>	<b>466</b>	<b>483</b>	<b>311</b>	<b>46</b>	<b>840</b>	<b>243</b>	<b>461</b>	<b>310</b>	<b>1014</b>	<b>96</b>	<b>391</b>	<b>148</b>	<b>635</b>	<b>2955</b>
<b>% App. Total</b>	<b>12</b>	<b>80.3</b>	<b>7.7</b>		<b>57.5</b>	<b>37</b>	<b>5.5</b>		<b>24</b>	<b>45.5</b>	<b>30.6</b>		<b>15.1</b>	<b>61.6</b>	<b>23.3</b>		
PHF	.824	.954	.692	.947	.888	.793	.676	.875	.690	.806	.842	.880	.615	.782	.860	.767	.875

Start Time	CSAH 9 (Round Lake Blvd.) Southbound				CSAH 116 (Bunker Lake Blvd.) Westbound				CSAH 9 (Round Lake Blvd.) Northbound				CSAH 116 (Bunker Lake Blvd.) 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 21:30 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	19	97	25	141	137	171	25	333	100	304	155	559	47	138	41	226	1259
16:30	35	104	20	159	123	131	30	284	111	272	156	539	51	157	74	282	1264
16:45	19	94	14	127	81	142	29	252	111	279	135	525	37	137	50	224	1128
17:00	24	94	15	133	104	166	14	284	112	265	157	534	59	157	43	259	1210
<b>Total Volume</b>	<b>97</b>	<b>389</b>	<b>74</b>	<b>560</b>	<b>445</b>	<b>610</b>	<b>98</b>	<b>1153</b>	<b>434</b>	<b>1120</b>	<b>603</b>	<b>2157</b>	<b>194</b>	<b>589</b>	<b>208</b>	<b>991</b>	<b>4861</b>
<b>% App. Total</b>	<b>17.3</b>	<b>69.5</b>	<b>13.2</b>		<b>38.6</b>	<b>52.9</b>	<b>8.5</b>		<b>20.1</b>	<b>51.9</b>	<b>28</b>		<b>19.6</b>	<b>59.4</b>	<b>21</b>		
PHF	.693	.935	.740	.881	.812	.692	.817	.866	.969	.921	.960	.965	.822	.938	.703	.879	.961

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

Study Name : TMC1027  
Study Date : 07/26/10  
Page No. : 1

**Signal Warrants - Summary**

**Major Street Approaches**

**Northbound: CSAH 9 (Round Lake Blvd.)**  
Number of Lanes: 2  
Approach Speed: 45  
Total Approach Volume: 18,543

**Southbound: CSAH 9 (Round Lake Blvd.)**  
Number of Lanes: 2  
Approach Speed: 45  
Total Approach Volume: 8,881

**Minor Street Approaches**

**Eastbound: CSAH 116 (Bunker Lake Blvd.)**  
Number of Lanes: 2  
  
Total Approach Volume: 10,446

**Westbound: CSAH 116 (Bunker Lake Blvd.)**  
Number of Lanes: 2  
  
Total Approach Volume: 13,150

**Warrant Summary (Rural values apply.)**

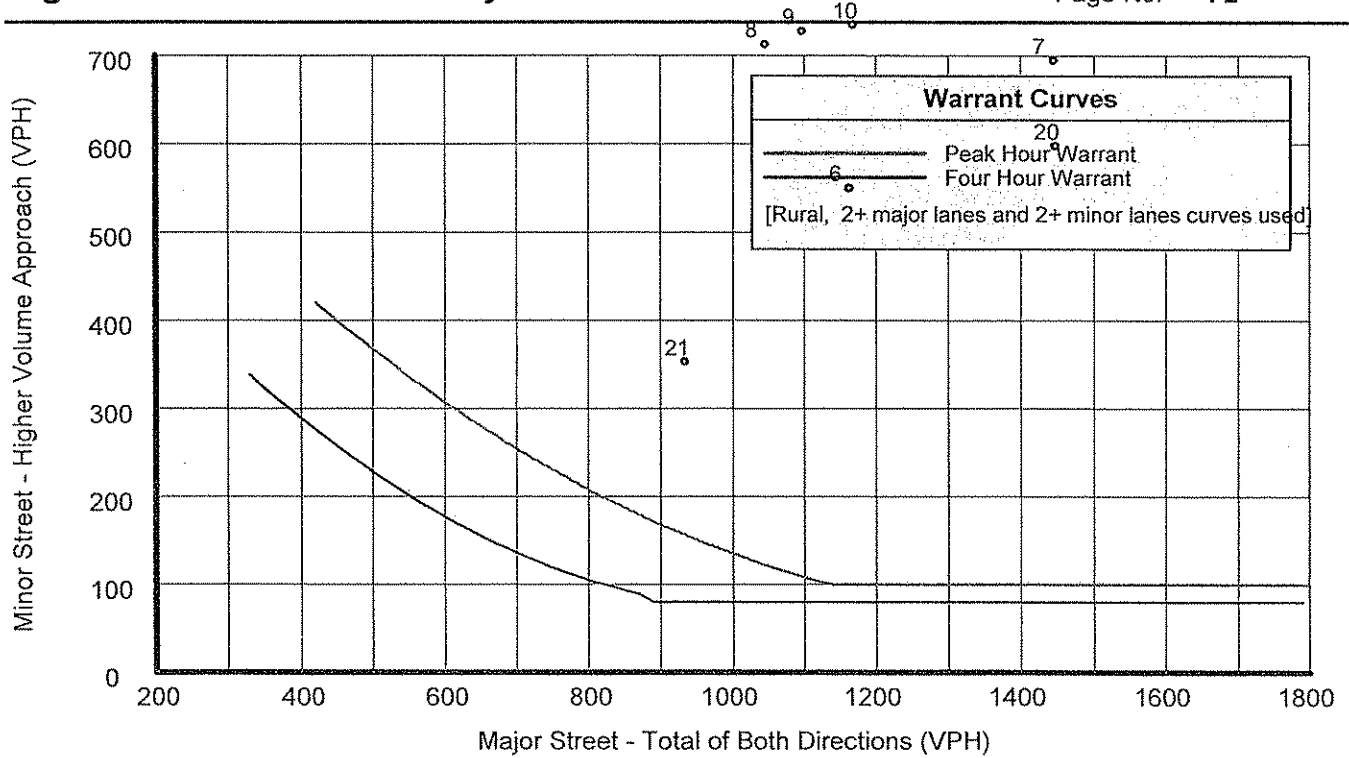
<b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....	<b>Satisfied</b>
<b>Warrant 1A - Minimum Vehicular Volume</b> .....	<b>Satisfied</b>
Required volumes reached for 16 hours, 8 are needed	
<b>Warrant 1B - Interruption of Continuous Traffic</b> .....	<b>Satisfied</b>
Required volumes reached for 16 hours, 8 are needed	
<b>Warrant 1 A&amp;B - Combination of Warrants</b> .....	<b>Satisfied</b>
Required volumes reached for 16 hours, 8 are needed	
<b>Warrant 2 - Four Hour Volumes</b> .....	<b>Satisfied</b>
Number of hours (16) volumes exceed minimum >= minimum required (4).	
<b>Warrant 3 - Peak Hour</b> .....	<b>Satisfied</b>
<b>Warrant 3A - Peak Hour Delay</b> .....	<b>Satisfied</b>
Number of hours (64) volumes exceed minimum >= required (1). Delay data not evaluated.	
<b>Warrant 3B - Peak Hour Volumes</b> .....	<b>Satisfied</b>
Volumes exceed minimums for at least one hour.	
<b>Warrant 4 - Pedestrian Volumes</b> .....	<b>Not Evaluated</b>
<b>Warrant 5 - School Crossing</b> .....	<b>Not Evaluated</b>
<b>Warrant 6 - Coordinated Signal System</b> .....	<b>Not Evaluated</b>
<b>Warrant 7 - Crash Experience</b> .....	<b>Not Evaluated</b>
<b>Warrant 8 - Roadway Network</b> .....	<b>Not Evaluated</b>

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

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**Signal Warrants - Summary**



**Analysis of 8-Hour Volume Warrants:**

Hour Begin	Major Total	Higher Minor		War-1A			War-1B			War-1A&B		
		Vol	Dir	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	1,163	550	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
07:00	1,444	695	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
08:00	1,045	713	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
09:00	1,097	728	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
10:00	1,168	735	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
11:00	1,480	840	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
12:00	1,817	991	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
13:00	2,463	1,156	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
14:00	2,041	834	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
15:00	2,435	991	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
16:00	2,733	1,143	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
17:00	2,608	1,126	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
18:00	2,043	915	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
19:00	1,508	791	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
20:00	1,446	598	WB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
21:00	933	353	EB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
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 : TMC1027  
Study Date : 07/26/10  
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**Multi-Way Stop Warrant Report**

**Major Street Approaches**

**Northbound: CSAH 9 (Round Lake Blvd.)**  
Total Approach Volume: 18,543  
Approach Speed: 45

**Southbound: CSAH 9 (Round Lake Blvd.)**  
Total Approach Volume: 8,881  
Approach Speed: 45

**Minor Street Approaches**

**Eastbound: CSAH 116 (Bunker Lake Blvd.)**  
Total Approach Volume: 10,446

**Westbound: CSAH 116 (Bunker Lake Blvd.)**  
Total Approach Volume: 13,150

**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

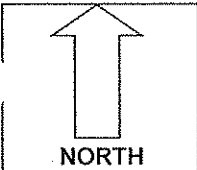
**Criteria C - Minimum Volumes and Delays** ..... Satisfied  
Delay data not evaluated  
Required volumes reached for 17 hours, 8 are needed

**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?
05:15 - 06:15	215	159	210-Yes	140-Yes	Both	240-No	160-No	No
06:15 - 07:15	1,300	1,145	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
07:15 - 08:15	1,343	1,337	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
08:15 - 09:15	1,039	1,248	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
09:15 - 10:15	1,104	1,339	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
10:15 - 11:15	1,240	1,294	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
11:15 - 12:15	1,613	1,612	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
12:15 - 13:15	1,909	1,681	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
13:15 - 14:15	2,430	1,906	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
14:15 - 15:15	2,062	1,634	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
15:15 - 16:15	2,581	1,944	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
16:15 - 17:15	2,717	2,144	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
17:15 - 18:15	2,498	1,900	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
18:15 - 19:15	1,940	1,407	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
19:15 - 20:15	1,412	1,383	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
20:15 - 21:15	1,457	1,046	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
21:15 - 22:15	564	417	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
00:00 - 01:00	0	0	210-No	140-No	No	240-No	160-No	No
00:15 - 01:15	0	0	210-No	140-No	No	240-No	160-No	No
00:30 - 01:30	0	0	210-No	140-No	No	240-No	160-No	No
00:45 - 01:45	0	0	210-No	140-No	No	240-No	160-No	No
01:00 - 02:00	0	0	210-No	140-No	No	240-No	160-No	No
01:15 - 02:15	0	0	210-No	140-No	No	240-No	160-No	No
01:30 - 02:30	0	0	210-No	140-No	No	240-No	160-No	No





COUNT LOCATION:

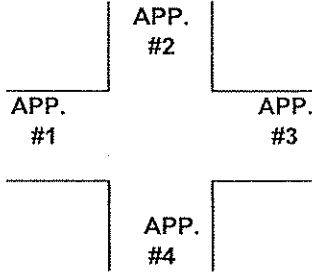
CSAH 116 (Bunker Lake Blvd.)

DATE:

07/27/2010

@ CSAH 9 (Round Lake Blvd.)

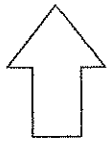
APP. #1 = CSAH 116
APP. #2 = CSAH 9
APP. #3 = CSAH 116
APP. #4 = CSAH 9



- 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						10		
6:15-6:30						19		
6:30-6:45						14		6
6:45-7:00						17		8
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>74</b>
7:00-7:15						18		3
7:15-7:30						14		4
7:30-7:45						27		14
7:45-8:00						24		23
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>127</b>
8:00-8:15						20		10
8:15-8:30						18		4
8:30-8:45						19		12
8:45-9:00						21		1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>105</b>
9:00-9:15						17		15
9:15-9:30						27		2
9:30-9:45						16		
9:45-10:00						23		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>100</b>
10:00-10:15						22		
10:15-10:30						20		
10:30-10:45						24		3
10:45-11:00						16		33
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>118</b>
11:00-11:15						20		19
11:15-11:30						19		4
11:30-11:45						26		8
11:45-12:00						16		7
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>119</b>
12:00-12:15						17		9
12:15-12:30						22		5
12:30-12:45						27		4
12:45-1:00						20	1	4
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>109</b>
1:00-1:15						19		2
1:15-1:30						23		2
1:30-1:45						15		1
1:45-2:00						16		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>78</b>
					<b>TOTAL</b>		<b>TOTAL</b>	<b>830</b>

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NORTH

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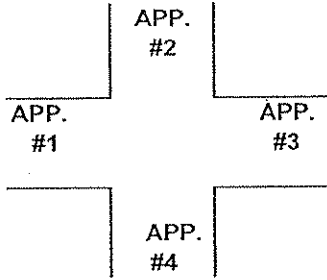
CSAH 116 (Bunker Lake Blvd.)

DATE:

07/26/2010

@ CSAH 9 (Round Lake Blvd.)

APP. #1 = CSAH 116
APP. #2 = CSAH 9
APP. #3 = CSAH 116
APP. #4 = CSAH 9



- 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						15		
2:15-2:30						15	1	1
2:30-2:45						17		1
2:45-3:00						20	1	1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>72</b>
3:00-3:15						30		
3:15-3:30						21		1
3:30-3:45						14	1	
3:45-4:00						10		1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>78</b>
4:00-4:15						11		
4:15-4:30						18		2
4:30-4:45						13		
4:45-5:00						7	1	1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>53</b>
5:00-5:15						8		
5:15-5:30						6	1	1
5:30-5:45						4		
5:45-6:00						5	1	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>26</b>
6:00-6:15						5		
6:15-6:30						8		
6:30-6:45						7	1	
6:45-7:00						5	1	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>27</b>
7:00-7:15						5		
7:15-7:30						1		
7:30-7:45						3		
7:45-8:00						2		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>11</b>
8:00-8:15						1		
8:15-8:30						2		
8:30-8:45						2		
8:45-9:00						5		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>10</b>
9:00-9:15						3		
9:15-9:30						2		
9:30-9:45						2		
9:45-10:00						1		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>8</b>
					<b>TOTAL</b>		<b>TOTAL</b>	<b>1115</b>

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