

Date : 03/24/09

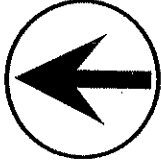
Count Number : TMC0901

Location : CSAH 78 (Hanson Blvd.)

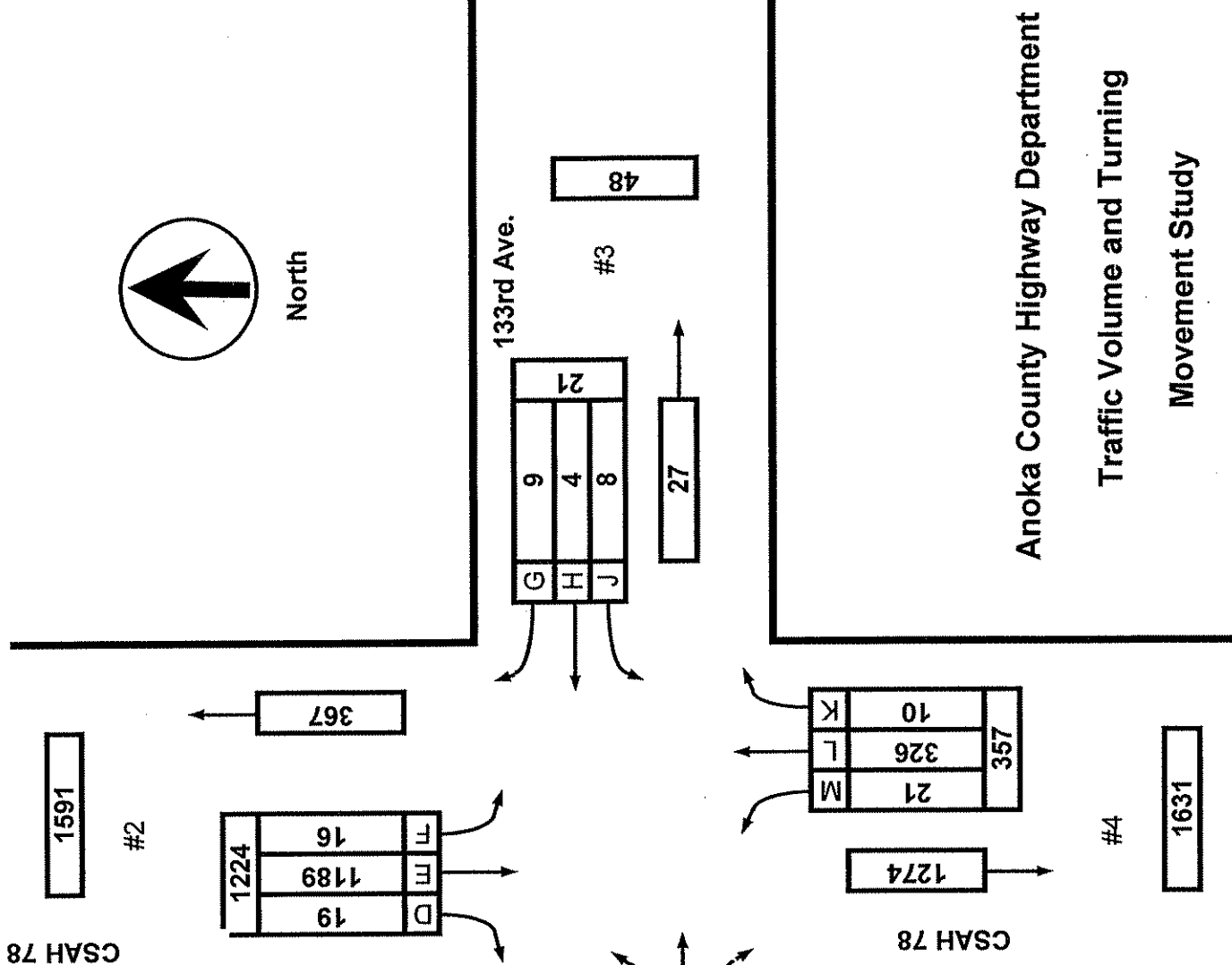
@ 133rd Ave.

Collection Period : AM PEAK

Hour : 6:45 - 7:45AM



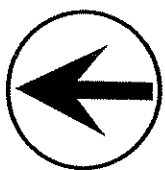
North



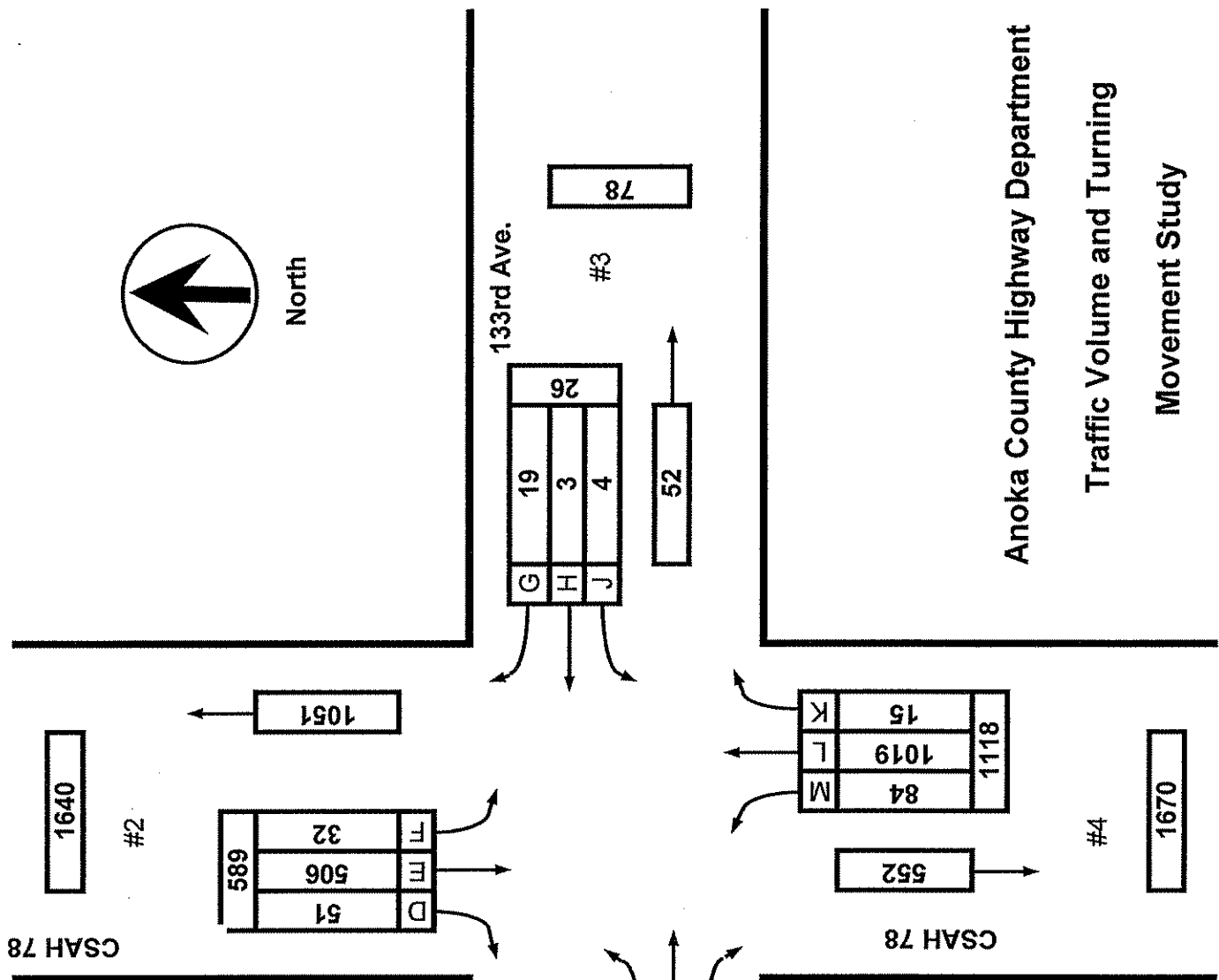
	EXISTING/PROPOSED LANES OF APPROACH			TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	0	0	1	1
#2	1	1	2	4
#3	0	0	1	1
#4	1	1	2	4

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

Date : 03/24/09 \_\_\_\_\_  
 Count Number : TMC0901 \_\_\_\_\_  
 Location : CSAH 78 (Hanson Blvd.) \_\_\_\_\_  
 @ 133rd Ave. \_\_\_\_\_  
 Collection Period : PM PEAK \_\_\_\_\_  
 Hour : 4:30 - 5:30PM \_\_\_\_\_

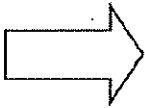


North



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

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study



**NORTH**

**COUNT LOCATION:**

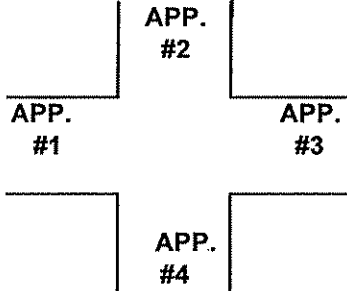
CSAH 78 (Hanson Blvd.) @

**DATE:**

03/24/2009

133rd Ave.

APP. #1 = CSAH 78
APP. #2 = 133rd Ave
APP. #3 = CSAH 78
APP. #4 = 133rd 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
6:30-6:45								23
6:45-7:00						5		15
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL 43</b>		
7:00-7:15AM						3		5
7:15-7:30						2		8
7:30-7:45						3		10
7:45-8:00						5		9
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL 45</b>		
8:00-8:15AM						1		13
8:15-8:30						6		10
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL 30</b>		
<b>TOTAL</b>						<b>TOTAL</b>		<b>118</b>

TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
4:00-4:15PM						3		6
4:15-4:30						1		12
4:30-4:45						4		16
4:45-5:00						1		6
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL 49</b>		
5:00-5:15PM						1		3
5:15-5:30						1		2
5:30-5:45						2		2
5:45-6:00						2		1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL 14</b>		
<b>TOTAL</b>						<b>TOTAL</b>		<b>63</b>



# Anoka County Highway Department

## Traffic Engineering Section Traffic Volume and Turning Movement Study

Weather: Cool and Rainy  
Counter: TDC-12  
Counted by: Josie/Randy

File Name : TMC0901  
Site Code : 09010202  
Start Date : 03/24/2009  
Page No : 1

Groups Printed- Unshifted

Start Time	CSAH 78 Southbound					133rd Ave Westbound					CSAH 78 Northbound					133rd Ave 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			
06:30	7	247	2	22	256	1	1	1	0	3	0	46	5	0	51	4	1	18	0	23	22	333	355
06:45	8	297	6	18	311	1	0	1	0	2	1	63	7	2	71	4	0	22	0	26	20	410	430
Total	15	544	8	40	567	2	1	2	0	5	1	109	12	2	122	8	1	40	0	49	42	743	785
07:00	6	283	6	5	295	1	1	2	0	4	4	72	0	3	76	7	0	19	0	26	8	401	409
07:15	0	276	6	7	282	3	2	3	0	8	6	89	1	3	96	14	0	18	0	32	10	418	428
07:30	2	333	1	9	336	3	1	3	0	7	10	102	2	5	114	7	1	18	0	26	14	483	497
07:45	5	260	6	4	271	2	0	1	1	3	7	95	2	8	104	1	0	25	1	26	14	404	418
Total	13	1152	19	25	1184	9	4	9	1	22	27	358	5	19	390	29	1	80	1	110	46	1706	1752
08:00	3	220	2	7	225	2	0	4	0	6	6	69	1	6	76	3	0	18	2	21	15	328	343
08:15	12	173	3	5	188	4	0	2	1	6	10	69	12	8	91	2	2	9	2	13	16	298	314
*** BREAK ***																							
Total	15	393	5	12	413	6	0	6	1	12	16	138	13	14	167	5	2	27	4	34	31	626	657
*** BREAK ***																							
16:00	10	121	15	1	146	3	3	1	0	7	24	230	3	8	257	9	0	8	0	17	9	427	436
16:15	9	112	18	0	139	0	1	8	0	9	13	232	1	13	246	3	0	10	0	13	13	407	420
16:30	10	110	9	3	129	4	0	4	0	8	25	259	2	16	286	4	0	12	0	16	19	439	458
16:45	7	114	15	2	136	0	0	5	0	5	17	276	3	6	296	3	0	12	0	15	8	452	460
Total	36	457	57	6	550	7	4	18	0	29	79	997	9	43	1085	19	0	42	0	61	49	1725	1774
17:00	7	149	14	2	170	0	0	6	0	6	23	244	7	2	274	2	1	9	0	12	4	462	466
17:15	8	133	13	3	154	0	3	4	0	7	19	240	3	0	262	4	4	9	0	17	3	440	443
17:30	8	128	14	2	150	0	1	4	0	5	34	227	4	2	265	7	3	5	0	15	4	435	439
17:45	8	125	6	2	139	1	0	8	1	9	22	219	2	0	243	4	2	10	0	16	3	407	410
Total	31	535	47	9	613	1	4	22	1	27	98	930	16	4	1044	17	10	33	0	60	14	1744	1758
Grand Total	110	3081	136	92	3327	25	13	57	3	95	221	2532	55	82	2808	78	14	222	5	314	182	6544	6726
Approch %	3.3	92.6	4.1			26.3	13.7	60			7.9	90.2	2			24.8	4.5	70.7					
Total %	1.7	47.1	2.1		50.8	0.4	0.2	0.9		1.5	3.4	38.7	0.8		42.9	1.2	0.2	3.4		4.8	2.7	97.3	

Start Time	CSAH 78 Southbound				133rd Ave Westbound				CSAH 78 Northbound				133rd Ave 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 06:30 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45																	
06:45	8	297	6	311	1	0	1	2	1	63	7	71	4	0	22	26	410
07:00	6	283	6	295	1	1	2	4	4	72	0	76	7	0	19	26	401
07:15	0	276	6	282	3	2	3	8	6	89	1	96	14	0	18	32	418
07:30	2	333	1	336	3	1	3	7	10	102	2	114	7	1	18	26	483
Total Volume	16	1189	19	1224	8	4	9	21	21	326	10	357	32	1	77	110	1712
% App. Total	1.3	97.1	1.6		38.1	19	42.9		5.9	91.3	2.8		29.1	0.9	70		
PHF	.500	.893	.792	.911	.667	.500	.750	.656	.525	.799	.357	.783	.571	.250	.875	.859	.886

Start Time	CSAH 78 Southbound				133rd Ave Westbound				CSAH 78 Northbound				133rd Ave 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 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	10	110	9	129	4	0	4	8	25	259	2	286	4	0	12	16	439
16:45	7	114	15	136	0	0	5	5	17	276	3	296	3	0	12	15	452
17:00	7	149	14	170	0	0	6	6	23	244	7	274	2	1	9	12	462
17:15	8	133	13	154	0	3	4	7	19	240	3	262	4	4	9	17	440
Total Volume	32	506	51	589	4	3	19	26	84	1019	15	1118	13	5	42	60	1793
% App. Total	5.4	85.9	8.7		15.4	11.5	73.1		7.5	91.1	1.3		21.7	8.3	70		
PHF	.800	.849	.850	.866	.250	.250	.792	.813	.840	.923	.536	.944	.813	.313	.875	.882	.970

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

**Signal Warrants - Summary**

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**Major Street Approaches**

**Northbound: CSAH 78**  
 Number of Lanes: 2  
 Approach Speed: 50  
 Total Approach Volume: 2,808

**Southbound: CSAH 78**  
 Number of Lanes: 2  
 Approach Speed: 50  
 Total Approach Volume: 3,327

**Minor Street Approaches**

**Eastbound: 133rd Ave**  
 Number of Lanes: 1  
 Total Approach Volume: 314

**Westbound: 133rd Ave**  
 Number of Lanes: 1  
 Total Approach Volume: 95

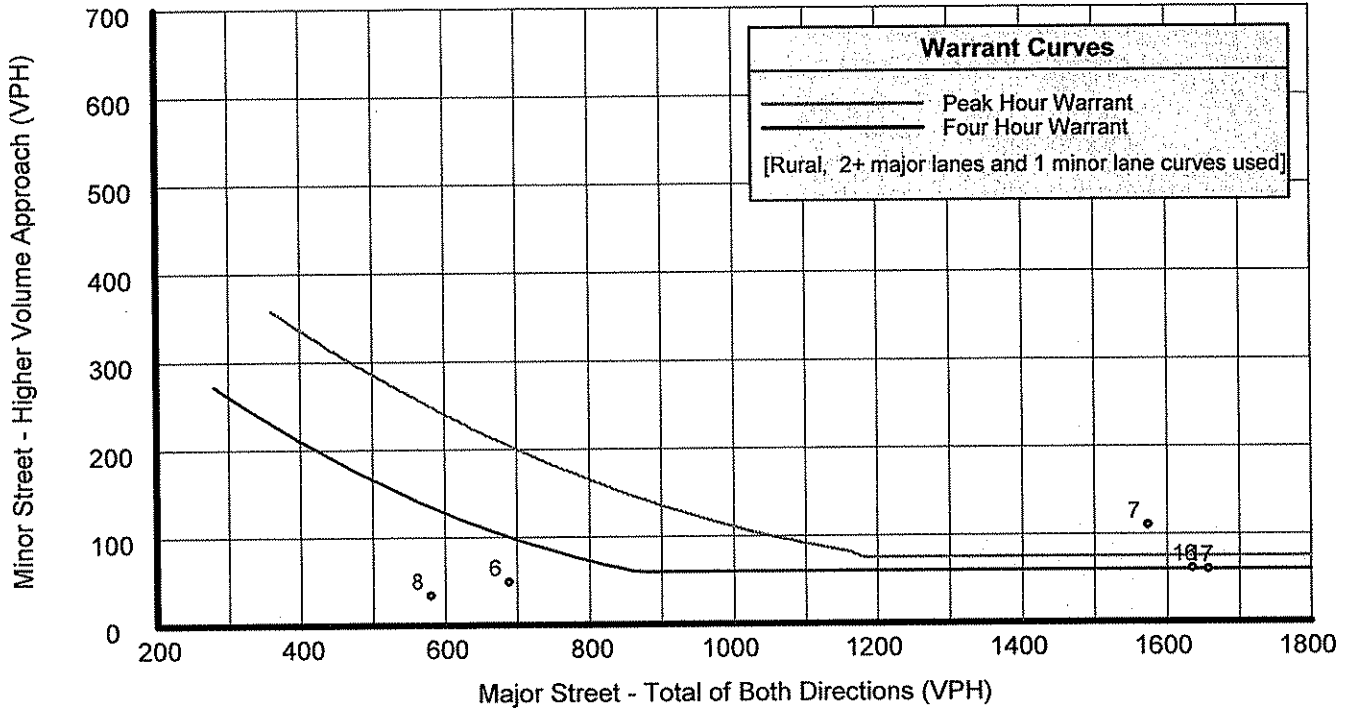
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**Warrant Summary (Rural values apply.)**

<b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....	<b>Not Satisfied</b>
<b>Warrant 1A - Minimum Vehicular Volume</b> .....	<b>Not Satisfied</b>
Required volumes reached for 1 hours, 8 are needed	
<b>Warrant 1B - Interruption of Continuous Traffic</b> .....	<b>Not Satisfied</b>
Required volumes reached for 3 hours, 8 are needed	
<b>Warrant 1 A&amp;B - Combination of Warrants</b> .....	<b>Not Satisfied</b>
Required volumes reached for 1 hours, 8 are needed	
<b>Warrant 2 - Four Hour Volumes</b> .....	<b>Not Satisfied</b>
Number of hours (3) volumes exceed minimum < minimum required (4).	
<b>Warrant 3 - Peak Hour</b> .....	<b>Satisfied</b>
<b>Warrant 3A - Peak Hour Delay</b> .....	<b>Not Satisfied</b>
Approach volumes on minor street don't exceed minimums for any hour. 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**

**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	105-No	---	630-No	53-No	---	504-No	84-No	---
01:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
02:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
03:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
04:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
05:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
06:00	689	49	EB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
07:00	1,574	110	EB	420-Yes	105-Yes	Both	630-Yes	53-Yes	Both	504-Yes	84-Yes	Both
08:00	580	34	EB	420-Yes	105-No	Major	630-No	53-No	---	504-Yes	84-No	Major
09:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
10:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
11:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
12:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
13:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
14:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
15:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
16:00	1,635	61	EB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
17:00	1,657	60	EB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
18:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
19:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
20:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
21:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
22:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
23:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---

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

**Multi-Way Stop Warrant Report**

**Major Street Approaches**

**Northbound: CSAH 78**

Total Approach Volume: 2,808

Approach Speed: 50

**Southbound: CSAH 78**

Total Approach Volume: 3,327

Approach Speed: 50

**Minor Street Approaches**

**Eastbound: 133rd Ave**

Total Approach Volume: 314

**Westbound: 133rd Ave**

Total Approach Volume: 95

**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?
05:45 - 06:45	307	26	210-Yes	140-No	Major	240-Yes	160-No	Major
06:00 - 07:00	689	54	210-Yes	140-No	Major	240-Yes	160-No	Major
06:15 - 07:15	1,060	84	210-Yes	140-No	Major	240-Yes	160-No	Major
06:30 - 07:30	1,438	124	210-Yes	140-No	Major	240-Yes	160-No	Major
06:45 - 07:45	1,581	131	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	1,574	132	210-Yes	140-No	Major	240-Yes	160-No	Major
07:15 - 08:15	1,504	129	210-Yes	140-No	Major	240-Yes	160-No	Major
07:30 - 08:30	1,405	108	210-Yes	140-No	Major	240-Yes	160-No	Major
07:45 - 08:45	955	75	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	580	46	210-Yes	140-No	Major	240-Yes	160-No	Major
08:15 - 09:15	279	19	210-Yes	140-No	Major	240-Yes	160-No	Major
15:15 - 16:15	403	24	210-Yes	140-No	Major	240-Yes	160-No	Major
15:30 - 16:30	788	46	210-Yes	140-No	Major	240-Yes	160-No	Major
15:45 - 16:45	1,203	70	210-Yes	140-No	Major	240-Yes	160-No	Major
16:00 - 17:00	1,635	90	210-Yes	140-No	Major	240-Yes	160-No	Major
16:15 - 17:15	1,676	84	210-Yes	140-No	Major	240-Yes	160-No	Major
16:30 - 17:30	1,707	86	210-Yes	140-No	Major	240-Yes	160-No	Major
16:45 - 17:45	1,707	82	210-Yes	140-No	Major	240-Yes	160-No	Major
17:00 - 18:00	1,657	87	210-Yes	140-No	Major	240-Yes	160-No	Major
17:15 - 18:15	1,213	69	210-Yes	140-No	Major	240-Yes	160-No	Major
17:30 - 18:30	797	45	210-Yes	140-No	Major	240-Yes	160-No	Major
17:45 - 18:45	382	25	210-Yes	140-No	Major	240-Yes	160-No	Major
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

# ANOKA COUNTY HIGHWAY DEPARTMENT

## TRAFFIC ENGINEERING SECTION

### TRAFFIC STUDY

Location : CSAH 78 north of 133rd Ave  
 Weather : Rainy and Warm  
 Operator : ST

Site: 0720097801  
 Date: 07/21/09

Interval			Day:	Tuesday
Begin	AM - SB		PM - SB	
12:00	18	50	152	611
12:15	12		158	
12:30	8		157	
12:45	12		144	
1:00	9	34	148	529
1:15	10		128	
1:30	8		134	
1:45	7		119	
2:00	6	32	124	551
2:15	10		142	
2:30	10		130	
2:45	6		155	
3:00	3	45	126	508
3:15	14		116	
3:30	14		144	
3:45	14		122	
4:00	9	118	172	578
4:15	34		142	
4:30	35		156	
4:45	40		108	
5:00	60	460	124	574
5:15	104		134	
5:30	152		174	
5:45	144		142	
6:00	129	823	136	518
6:15	198		130	
	238		122	
	258		130	
7:00	195	948	84	363
7:15	206		84	
7:30	259		95	
7:45	288		100	
8:00	247	850	98	405
8:15	224		100	
8:30	184		116	
8:45	195		91	
9:00	170	652	95	337
9:15	190		85	
9:30	152		83	
9:45	140		74	
10:00	125	557	53	198
10:15	134		71	
10:30	135		50	
10:45	163		24	
11:00	140	572	44	108
11:15	120		24	
11:30	154		21	
11:45	158		19	
<b>Totals</b>	<b>5,141</b>		<b>5,280</b>	
Peak Hour	7:30		12:00	
Volume	1,018		611	
Factor	0.88		0.97	
<b>Grand Total</b>	<b>10,421</b>			



# ANOKA COUNTY HIGHWAY DEPARTMENT

## TRAFFIC ENGINEERING SECTION

### TRAFFIC STUDY

Location : CSAH 78 south of 133rd Ave  
 Weather : Rainy and Warm  
 Motor : ST

Site: 0720097802  
 Date: 07/21/09

Interval			Day:	Tuesday
Begin	AM - NB		PM - NB	
12:00	29	87	121	526
12:15	22		128	
12:30	22		152	
12:45	14		125	
1:00	12	37	137	519
1:15	7		112	
1:30	13		132	
1:45	5		138	
2:00	7	24	156	660
2:15	4		152	
2:30	5		151	
2:45	8		201	
3:00	2	18	206	909
3:15	8		221	
3:30	3		232	
3:45	5		250	
4:00	9	31	244	1,157
4:15	8		284	
4:30	6		312	
4:45	8		317	
5:00	7	61	260	1,198
5:15	5		334	
5:30	13		312	
5:45	36		292	
6:00	42	214	230	863
6:15	60		244	
	40		194	
	72		195	
7:00	54	352	166	550
7:15	80		156	
7:30	94		114	
7:45	124		114	
8:00	87	379	122	465
8:15	76		100	
8:30	86		117	
8:45	130		126	
9:00	102	348	111	456
9:15	96		134	
9:30	62		116	
9:45	88		95	
10:00	80	371	88	265
10:15	94		68	
10:30	105		62	
10:45	92		47	
11:00	126	477	35	139
11:15	107		47	
11:30	143		25	
11:45	101		32	
<b>Totals</b>	<b>2,399</b>		<b>7,707</b>	
Peak Hour	11:00		4:30	
Volume	477		1,223	
Factor	0.83		0.92	
<b>Total</b>	<b>10,106</b>			

# ANOKA COUNTY HIGHWAY DEPARTMENT

## TRAFFIC ENGINEERING SECTION

### TRAFFIC STUDY

Location : 133rd Ave west of CSAH 78  
 Weather : Rainy and Warm  
 ator : ST

Site: 07200913302  
 Date: 07/21/09

Interval			Day:	Tuesday
Begin	AM -	EB		
			PM -	EB
12:00	3	7	21	69
12:15	1		20	
12:30	3		20	
12:45	0		8	
1:00	1	2	13	52
1:15	0		16	
1:30	0		10	
1:45	1		13	
2:00	1	4	20	62
2:15	2		8	
2:30	1		22	
2:45	0		12	
3:00	1	5	14	50
3:15	1		11	
3:30	1		16	
3:45	2		9	
4:00	1	10	16	67
4:15	3		18	
4:30	3		18	
4:45	3		15	
5:00	7	39	17	66
5:15	6		20	
5:30	16		16	
5:45	10		13	
6:00	12	60	18	71
6:15	16		18	
	14		17	
	18		18	
7:00	30	93	14	52
7:15	16		9	
7:30	23		16	
7:45	24		13	
8:00	16	76	12	55
8:15	19		20	
8:30	18		11	
8:45	23		12	
9:00	11	60	15	44
9:15	18		11	
9:30	20		5	
9:45	11		13	
10:00	13	51	4	31
10:15	12		14	
10:30	12		6	
10:45	14		7	
11:00	11	35	7	22
11:15	2		6	
11:30	12		4	
11:45	10		5	
<b>Totals</b>	<b>442</b>		<b>641</b>	
Peak Hour	7:00		6:00	
Volume	93		71	
Factor	0.78		0.99	
<b>Peak Total</b>	<b>1,083</b>			

# ANOKA COUNTY HIGHWAY DEPARTMENT

## TRAFFIC ENGINEERING SECTION

### TRAFFIC STUDY

Location : 133rd Ave east of CSAH 78  
 Weather : Rainy and Warm  
 Operator : ST

Site: 07200913301  
 Date: 07/21/09

Interval			Day:	Tuesday
Begin	AM -	WB	PM -	WB
12:00	1	3	7	47
12:15	1		14	
12:30	0		8	
12:45	1		18	
1:00	2	4	10	36
1:15	1		12	
1:30	1		8	
1:45	0		6	
2:00	0	0	18	64
2:15	0		16	
2:30	0		14	
2:45	0		16	
3:00	0	0	18	56
3:15	0		16	
3:30	0		10	
3:45	0		12	
4:00	0	5	24	67
4:15	1		19	
4:30	3		17	
4:45	1		7	
5:00	0	5	5	38
5:15	4		16	
5:30	0		9	
5:45	1		8	
6:00	5	14	10	40
6:15	5		11	
	1		8	
	3		11	
7:00	4	23	12	28
7:15	5		4	
7:30	9		7	
7:45	5		5	
8:00	7	41	4	24
8:15	6		5	
8:30	18		5	
8:45	10		10	
9:00	4	23	5	14
9:15	6		2	
9:30	6		6	
9:45	7		1	
10:00	12	30	1	12
10:15	8		7	
10:30	6		2	
10:45	4		2	
11:00	11	53	2	4
11:15	13		1	
11:30	19		1	
11:45	10		0	
<b>Totals</b>	<b>201</b>		<b>430</b>	
Peak Hour	11:00		3:45	
Volume	53		72	
Factor	0.7		0.75	
Day/Total	<b>631</b>			

Used ATR approach counts for analysis. S.T. 7/21/09

# ANOKA COUNTY HIGHWAY

## PC-WARRANTS

### TRAFFIC SIGNAL WARRANT ANALYSIS

#### Signal Warrants - Summary

##### Major Street Approaches

**Northbound: CSAH 78**

Number of Lanes: 2  
Approach Speed: 50  
Total Approach Volume: 10,106

**Southbound: CSAH 78**

Number of Lanes: 2  
Approach Speed: 50  
Total Approach Volume: 10,421

##### Minor Street Approaches

**Eastbound: 133rd Ave**

Number of Lanes: 1  
  
Total Approach Volume: 1,083

**Westbound: 133rd Ave**

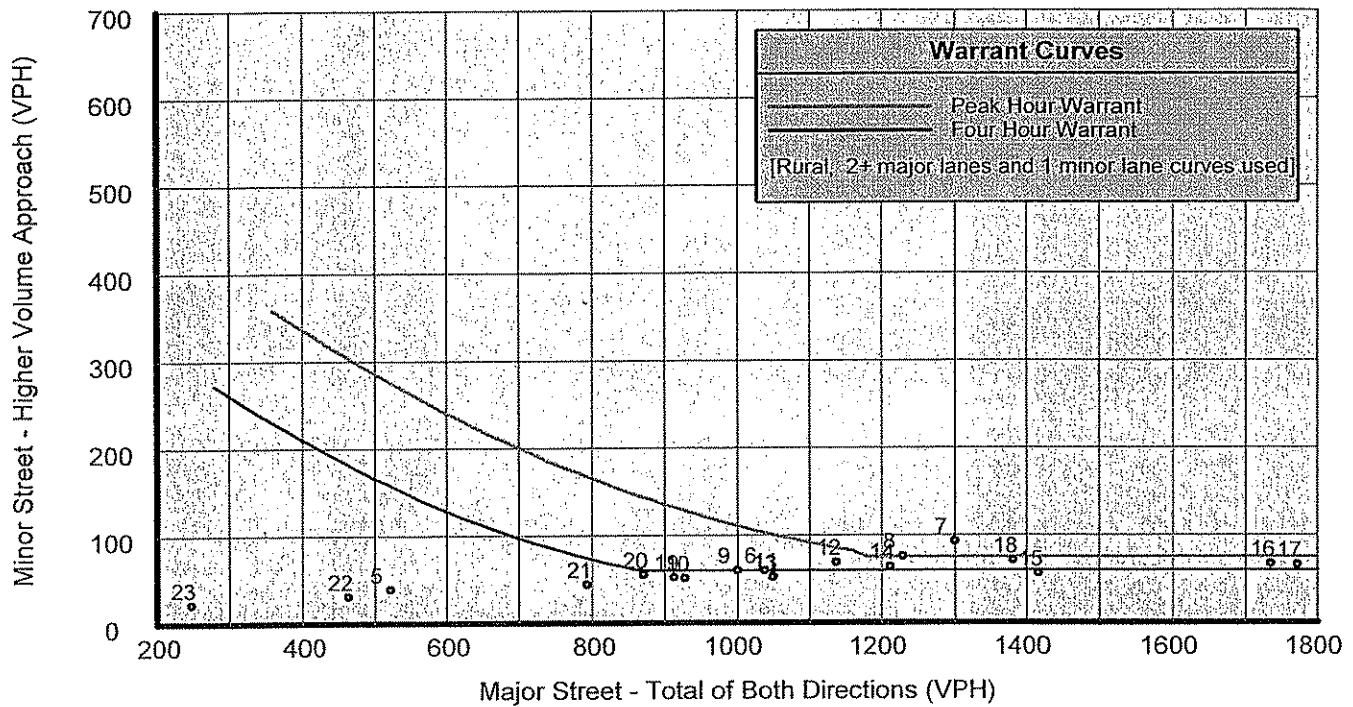
Number of Lanes: 1  
  
Total Approach Volume: 631

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

<b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....	<b>Satisfied</b>
<b>Warrant 1A - Minimum Vehicular Volume</b> .....	<b>Not Satisfied</b>
Required volumes reached for 0 hours, 8 are needed	
<b>Warrant 1B - Interruption of Continuous Traffic</b> .....	<b>Satisfied</b>
Required volumes reached for 12 hours, 8 are needed	
<b>Warrant 1 A&amp;B - Combination of Warrants</b> .....	<b>Not Satisfied</b>
Required volumes reached for 1 hours, 8 are needed	
<b>Warrant 2 - Four Hour Volumes</b> .....	<b>Satisfied</b>
Number of hours (9) volumes exceed minimum >= minimum required (4).	
<b>Warrant 3 - Peak Hour</b> .....	<b>Satisfied</b>
<b>Warrant 3A - Peak Hour Delay</b> .....	<b>Not Satisfied</b>
Approach volumes on minor street don't exceed minimums for any hour. 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

## 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	137	7	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
01:00	71	4	WB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
02:00	56	4	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
03:00	63	5	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
04:00	149	10	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
05:00	521	39	EB	420-Yes	105-No	Major	630-No	53-No	---	504-Yes	84-No	Major
06:00	1,037	60	EB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
07:00	1,300	93	EB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-Yes	Both
08:00	1,229	76	EB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
09:00	1,000	60	EB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
10:00	928	51	EB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
11:00	1,049	53	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
12:00	1,137	69	EB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
13:00	1,048	52	EB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
14:00	1,211	64	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
15:00	1,417	56	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
16:00	1,735	67	EB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
17:00	1,772	66	EB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
18:00	1,381	71	EB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
19:00	913	52	EB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
20:00	870	55	EB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
21:00	793	44	EB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
22:00	463	31	EB	420-Yes	105-No	Major	630-No	53-No	---	504-No	84-No	---
23:00	247	22	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---



# Anoka County Highway PC-WARRANTS Traffic Signal Warrant Analysis

Study Name : TMC0901  
Study Date : 06/08/11  
Page No. : 1

## Multi-Way Stop Warrant Report

### Major Street Approaches

**Northbound: CSAH 78**  
Total Approach Volume: 10,106  
Approach Speed: 50

**Southbound: CSAH 78**  
Total Approach Volume: 10,421  
Approach Speed: 50

### Minor Street Approaches

**Eastbound: 133rd Ave**  
Total Approach Volume: 1,083

**Westbound: 133rd Ave**  
Total Approach Volume: 631

### 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?
04:30 - 05:30	265	27	210-Yes	140-No	Major	240-Yes	160-No	Major
04:45 - 05:45	389	37	210-Yes	140-No	Major	240-Yes	160-No	Major
05:00 - 06:00	521	44	210-Yes	140-No	Major	240-Yes	160-No	Major
05:15 - 06:15	625	54	210-Yes	140-No	Major	240-Yes	160-No	Major
05:30 - 06:30	774	65	210-Yes	140-No	Major	240-Yes	160-No	Major
05:45 - 06:45	887	64	210-Yes	140-No	Major	240-Yes	160-No	Major
06:00 - 07:00	1,037	74	210-Yes	140-No	Major	240-Yes	160-No	Major
06:15 - 07:15	1,115	91	210-Yes	140-No	Major	240-Yes	160-No	Major
06:30 - 07:30	1,143	91	210-Yes	140-No	Major	240-Yes	160-No	Major
06:45 - 07:45	1,218	108	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	1,300	116	210-Yes	140-No	Major	240-Yes	160-No	Major
07:15 - 08:15	1,385	105	210-Yes	140-No	Major	240-Yes	160-No	Major
07:30 - 08:30	1,399	109	210-Yes	140-No	Major	240-Yes	160-No	Major
07:45 - 08:45	1,316	113	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	1,229	117	210-Yes	140-No	Major	240-Yes	160-No	Major
08:15 - 09:15	1,167	109	210-Yes	140-No	Major	240-Yes	160-No	Major
08:30 - 09:30	1,153	108	210-Yes	140-No	Major	240-Yes	160-No	Major
08:45 - 09:45	1,097	98	210-Yes	140-No	Major	240-Yes	160-No	Major
09:00 - 10:00	1,000	83	210-Yes	140-No	Major	240-Yes	160-No	Major
09:15 - 10:15	933	93	210-Yes	140-No	Major	240-Yes	160-No	Major
09:30 - 10:30	875	89	210-Yes	140-No	Major	240-Yes	160-No	Major
09:45 - 10:45	901	81	210-Yes	140-No	Major	240-Yes	160-No	Major
10:00 - 11:00	928	81	210-Yes	140-No	Major	240-Yes	160-No	Major
10:15 - 11:15	989	78	210-Yes	140-No	Major	240-Yes	160-No	Major