

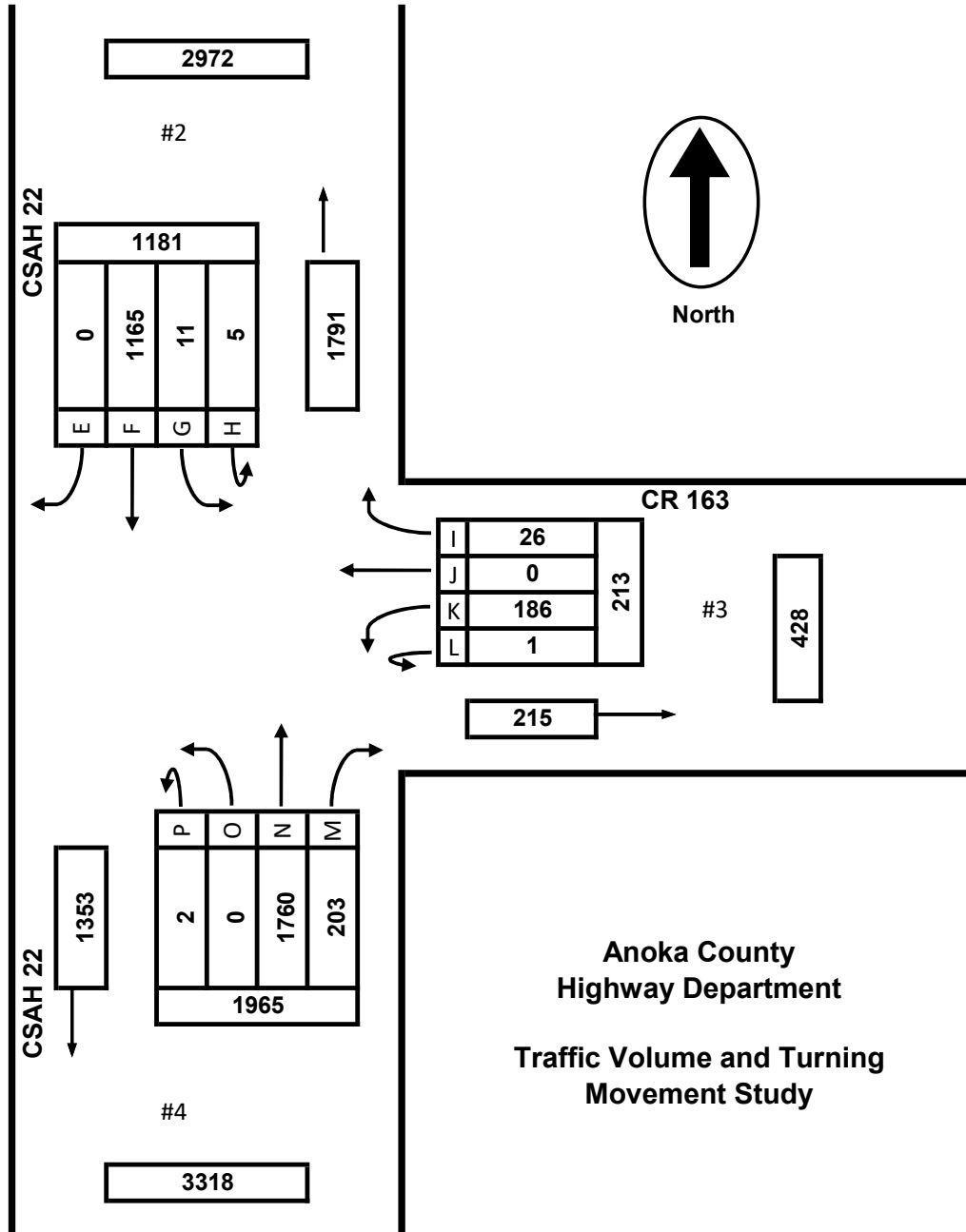
Date: 08/29/24

Count Number: TMC 2469

Location: CSAH 22
@ CR 163

Collection Period: 24 HR

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



**Anoka County
Highway Department
Traffic Volume and Turning
Movement Study**

Date: 08/29/24

Count Number: TMC 2469

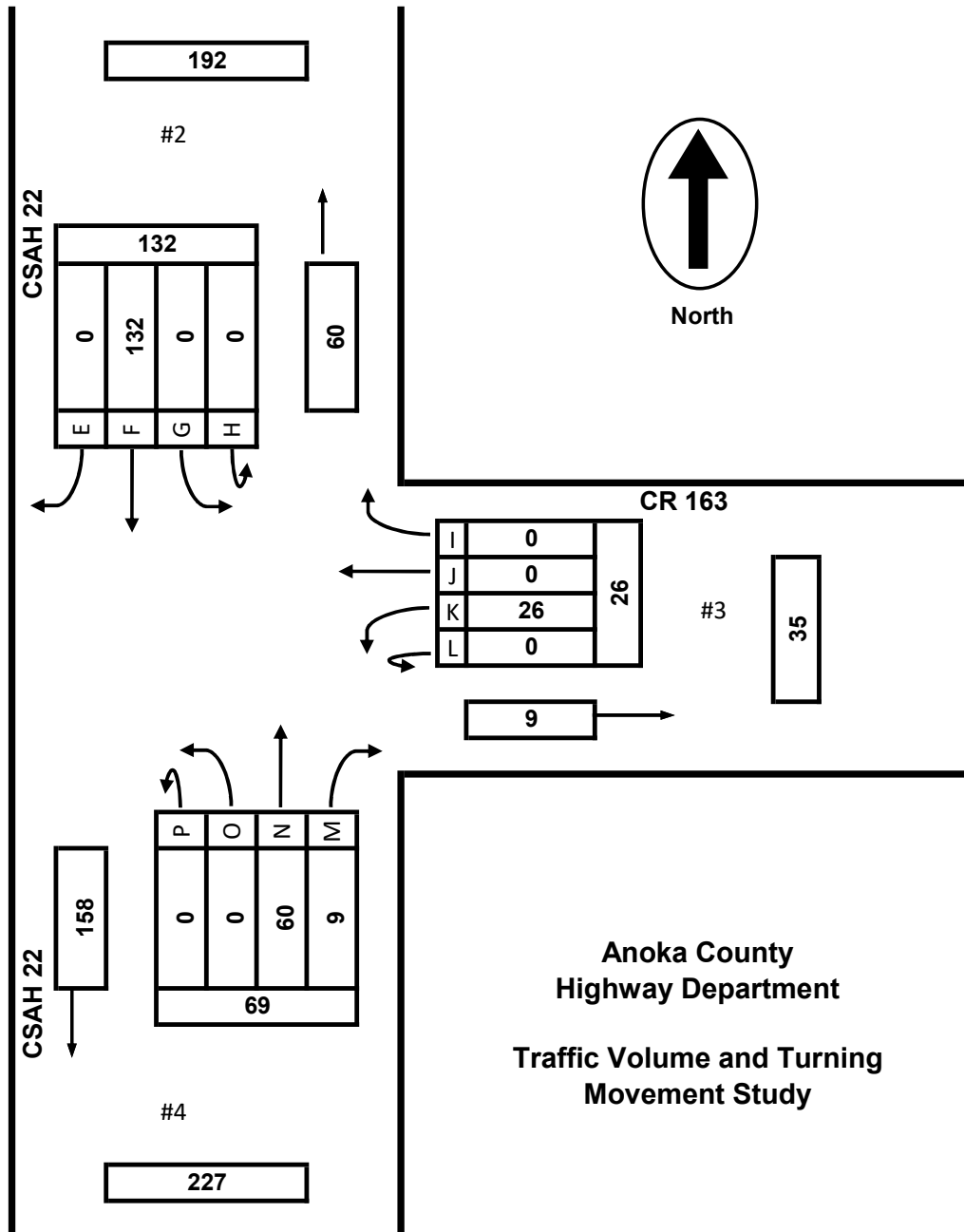
Location: CSAH 22

@ CR 163

Collection Period: 24 HR

Peak Hour: 7:15 - 8:15 AM

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



Anoka County
Highway Department
Traffic Volume and Turning
Movement Study

Date: 08/29/24

Count Number: TMC 2469

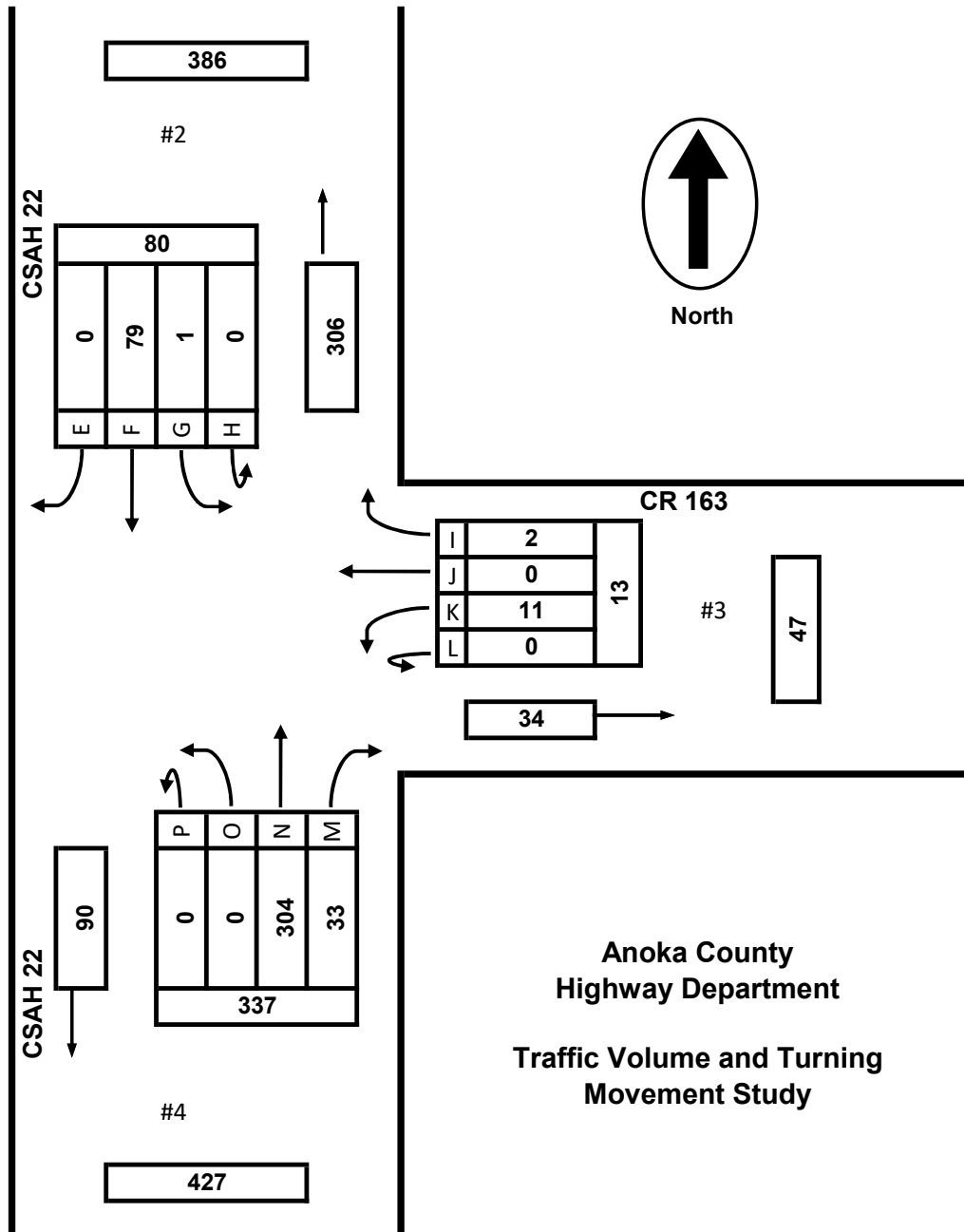
Location: CSAH 22

@ CR 163

Collection Period: 24 HR

Peak Hour: 3:45 - 4:45 PM

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



Anoka County
Highway Department
Traffic Volume and Turning
Movement Study

TMC 2469 - CSAH 22 @ CR 163
Nowthen MN
Thursday, August 29, 2024

Time	Southbound CSAH 22						Westbound CR 163						Northbound CSAH 22						Eastbound 0						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
12:00 AM	0	0	3	0	0	3	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	6
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
12:30 AM	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 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	0	2	0	0	0	0	0	0	3
Hourly Total	0	0	3	0	0	3	0	1	0	0	0	1	0	0	4	2	0	6	0	0	0	0	0	0	10
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
1:30 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1:45 AM	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
Hourly Total	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3	0	0	3	0	0	0	0	0	0	4
2:00 AM	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
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
2:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:45 AM	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
Hourly Total	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
3:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
3:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
Hourly Total	0	0	4	0	0	4	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	6
4:00 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	5
4:15 AM	0	0	9	0	0	9	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	11
4:30 AM	0	0	6	0	0	6	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	7
4:45 AM	0	0	6	0	0	6	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	9
Hourly Total	0	0	25	0	0	25	0	0	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	32
5:00 AM	0	0	5	0	0	5	0	1	0	0	0	1	0	0	3	0	0	3	0	0	0	0	0	0	9
5:15 AM	0	0	12	0	0	12	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	14
5:30 AM	0	0	13	0	0	13	1	5	0	0	0	6	0	0	4	0	0	4	0	0	0	0	0	0	23
5:45 AM	0	0	19	0	0	19	0	3	0	0	0	3	0	0	5	0	0	5	0	0	0	0	0	0	27
Hourly Total	0	0	49	0	0	49	1	9	0	0	0	10	0	0	14	0	0	14	0	0	0	0	0	0	73
6:00 AM	0	0	20	0	0	20	0	2	0	0	0	2	0	0	9	0	0	9	0	0	0	0	0	0	31
6:15 AM	0	0	30	0	0	30	0	0	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	38
6:30 AM	0	0	39	0	0	39	0	3	0	0	0	3	0	0	10	1	0	11	0	0	0	0	0	0	53
6:45 AM	0	0	30	0	0	30	0	6	0	0	0	6	0	0	10	1	0	11	0	0	0	0	0	0	47
Hourly Total	0	0	119	0	0	119	0	11	0	0	0	11	0	0	37	2	0	39	0	0	0	0	0	0	169
7:00 AM	0	0	30	0	0	30	0	8	0	1	0	9	0	0	12	3	0	15	0	0	0	0	0	0	54
7:15 AM	0	0	31	0	0	31	0	8	0	0	0	8	0	0	13	4	0	17	0	0	0	0	0	0	56
7:30 AM	0	0	38	0	0	38	0	9	0	0	0	9	0	0	14	1	0	15	0	0	0	0	0	0	62
7:45 AM	0	0	30	0	0	30	0	5	0	0	0	5	0	0	15	2	0	17	0	0	0	0	0	0	52
Hourly Total	0	0	129	0	0	129	0	30	0	1	0	31	0	0	54	10	0	64	0	0	0	0	0	0	224

TMC 2469 - CSAH 22 @ CR 163
Nowthen MN
Thursday, August 29, 2024

Time	Southbound CSAH 22						Westbound CR 163						Northbound CSAH 22						Eastbound 0						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
8:00 AM	0	0	33	0	0	33	0	4	0	0	0	4	0	0	18	2	0	20	0	0	0	0	0	0	57
8:15 AM	0	0	15	0	0	15	0	3	0	0	0	3	1	0	17	0	0	18	0	0	0	0	0	0	36
8:30 AM	0	0	14	0	0	14	0	5	0	0	0	5	0	0	12	3	0	15	0	0	0	0	0	0	34
8:45 AM	0	0	16	0	0	16	0	2	0	0	0	2	0	0	9	0	0	9	0	0	0	0	0	0	27
Hourly Total	0	0	78	0	0	78	0	14	0	0	0	14	1	0	56	5	0	62	0	0	0	0	0	0	154
9:00 AM	0	0	19	0	0	19	0	2	0	0	0	2	0	0	18	3	0	21	0	0	0	0	0	0	42
9:15 AM	0	0	20	0	0	20	0	2	0	0	0	2	0	0	13	3	0	16	0	0	0	0	0	0	38
9:30 AM	0	0	16	0	0	16	0	1	0	0	0	1	0	0	11	5	0	16	0	0	0	0	0	0	33
9:45 AM	0	0	17	0	0	17	0	3	0	0	0	3	0	0	16	0	0	16	0	0	0	0	0	0	36
Hourly Total	0	0	72	0	0	72	0	8	0	0	0	8	0	0	58	11	0	69	0	0	0	0	0	0	149
10:00 AM	0	0	10	0	0	10	0	2	0	0	0	2	0	0	23	3	0	26	0	0	0	0	0	0	38
10:15 AM	0	1	18	0	0	19	0	7	0	1	0	8	0	0	22	3	0	25	0	0	0	0	0	0	52
10:30 AM	0	0	14	0	0	14	0	4	0	1	0	5	0	0	19	3	0	22	0	0	0	0	0	0	41
10:45 AM	0	2	18	0	0	20	0	5	0	1	0	6	0	0	15	8	0	23	0	0	0	0	0	0	49
Hourly Total	0	3	60	0	0	63	0	18	0	3	0	21	0	0	79	17	0	96	0	0	0	0	0	0	180
11:00 AM	5	0	13	0	0	18	0	2	0	1	0	3	0	0	22	0	0	22	0	0	0	0	0	0	43
11:15 AM	0	0	17	0	0	17	0	1	0	1	0	2	0	0	17	1	0	18	0	0	0	0	0	0	37
11:30 AM	0	1	15	0	0	16	0	2	0	0	0	2	0	0	23	5	0	28	0	0	0	0	0	0	46
11:45 AM	0	0	10	0	0	10	0	6	0	1	0	7	0	0	13	2	0	15	0	0	0	0	0	0	32
Hourly Total	5	1	55	0	0	61	0	11	0	3	0	14	0	0	75	8	0	83	0	0	0	0	0	0	158
12:00 PM	0	0	17	0	0	17	0	2	0	0	0	2	0	0	27	2	0	29	0	0	0	0	0	0	48
12:15 PM	0	0	12	0	0	12	0	1	0	2	0	3	0	0	16	3	0	19	0	0	0	0	0	0	34
12:30 PM	0	0	13	0	0	13	0	4	0	0	0	4	0	0	28	1	0	29	0	0	0	0	0	0	46
12:45 PM	0	0	17	0	0	17	0	4	0	0	0	4	0	0	17	3	0	20	0	0	0	0	0	0	41
Hourly Total	0	0	59	0	0	59	0	11	0	2	0	13	0	0	88	9	0	97	0	0	0	0	0	0	169
1:00 PM	0	0	17	0	0	17	0	2	0	0	0	2	0	0	23	5	0	28	0	0	0	0	0	0	47
1:15 PM	0	0	13	0	0	13	0	5	0	0	0	5	0	0	20	0	0	20	0	0	0	0	0	0	38
1:30 PM	0	1	10	0	0	11	0	2	0	0	0	2	0	0	21	3	0	24	0	0	0	0	0	0	37
1:45 PM	0	0	22	0	0	22	0	3	0	0	0	3	0	0	34	5	0	39	0	0	0	0	0	0	64
Hourly Total	0	1	62	0	0	63	0	12	0	0	0	12	0	0	98	13	0	111	0	0	0	0	0	0	186
2:00 PM	0	0	27	0	0	27	0	5	0	0	0	5	0	0	23	4	0	27	0	0	0	0	0	0	59
2:15 PM	0	1	23	0	0	24	0	3	0	0	0	3	0	0	38	8	0	46	0	0	0	0	0	0	73
2:30 PM	0	0	19	0	0	19	0	0	0	1	0	1	0	0	41	5	0	46	0	0	0	0	0	0	66
2:45 PM	0	0	23	0	0	23	0	2	0	1	0	3	0	0	42	6	0	48	0	0	0	0	0	0	74
Hourly Total	0	1	92	0	0	93	0	10	0	2	0	12	0	0	144	23	0	167	0	0	0	0	0	0	272
3:00 PM	0	0	20	0	0	20	0	2	0	2	0	4	0	0	59	2	0	61	0	0	0	0	0	0	85
3:15 PM	0	0	15	0	0	15	0	2	0	0	0	2	0	0	70	4	0	74	0	0	0	0	0	0	91
3:30 PM	0	1	20	0	0	21	0	3	0	1	0	4	1	0	60	4	0	65	0	0	0	0	0	0	90
3:45 PM	0	1	21	0	0	22	0	5	0	1	0	6	0	0	77	12	0	89	0	0	0	0	0	0	117
Hourly Total	0	2	76	0	0	78	0	12	0	4	0	16	1	0	266	22	0	289	0	0	0	0	0	0	383

TMC 2469 - CSAH 22 @ CR 163

Nowthen MN

Thursday, August 29, 2024

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL						
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total							
7:15 AM	0	0	31	0	0	31	0	8	0	0	0	8	0	0	13	4	0	17	0	0	0	0	0	0	0	0	0	0	0	0	56
7:30 AM	0	0	38	0	0	38	0	9	0	0	0	9	0	0	14	1	0	15	0	0	0	0	0	0	0	0	0	0	0	0	62
7:45 AM	0	0	30	0	0	30	0	5	0	0	0	5	0	0	15	2	0	17	0	0	0	0	0	0	0	0	0	0	0	0	52
8:00 AM	0	0	33	0	0	33	0	4	0	0	0	4	0	0	18	2	0	20	0	0	0	0	0	0	0	0	0	0	0	0	57
Peak Hour Total PHF	0.000	0.000	132	0.000	0.000	132	0.000	0.722	0.000	0.000	0.000	0.722	0.000	0.000	0.833	0.563	0.000	0.863	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	227
			0.868			0.868						0.722						0.863													0.915

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL						
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total							
3:45 PM	0	1	21	0	0	22	0	5	0	1	0	6	0	0	77	12	0	89	0	0	0	0	0	0	0	0	0	0	0	0	117
4:00 PM	0	0	24	0	0	24	0	0	0	1	0	1	0	0	74	8	0	82	0	0	0	0	0	0	0	0	0	0	0	0	107
4:15 PM	0	0	20	0	0	20	0	5	0	0	0	5	0	0	74	6	0	80	0	0	0	0	0	0	0	0	0	0	0	0	105
4:30 PM	0	0	14	0	0	14	0	1	0	0	0	1	0	0	79	7	0	86	0	0	0	0	0	0	0	0	0	0	0	0	101
Peak Hour Total PHF	0.000	0.250	0.823	0.000	0.000	0.833	0.000	0.550	0.000	0.500	0.000	0.542	0.000	0.000	0.962	0.688	0.000	0.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	430
			0.823			0.833						0.542						0.947													0.919

Total Vehicles On Leg				2972			
Vehicles Entering Intersection				Vehicles Exiting Intersection			
1181				1791			
Southbound							
Cars	0	970	10	0	0	0	0
Heavy	0	195	1	5	0	0	0
Total	0	1165	11	5	0	0	0



Total Vehicles on Leg 0	Vehicles Entering Intersection 0	Eastbound	Cars	0	0	0	
			Heavy	0	0	0	
			Total	0	0	0	
			Vehicles Exiting Intersection	0	0	0	
			Total	0	0	0	

Daily Volumes

Cars	21	5	26	Westbound	Vehicles Entering Intersection 213	Total Vehicles on Leg 428
Heavy	0	0	0			
Total	184	2	186			
Vehicles Exiting Intersection	1	0	1			
Total	0	0	0			



Cars	0	2	0	1563	200
Heavy	0	0	0	197	3
Total	0	2	0	1760	203
Northbound					
Vehicles Entering Intersection			Vehicles Exiting Intersection		
1965			1353		
Total Vehicles On Leg			3318		

ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2469

Study Date : 09/03/2024

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 22

Number of Lanes : 1

Total Approach Volume: 1,965

Southbound: CSAH 22

Number of Lanes : 1

Total Approach Volume: 1,181

Minor Street Approaches

Westbound: CR 163

Number of Lanes : 1

Total Approach Volume: 213

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 1C - Combination of Warrants.....Not Satisfied

Required 1A volumes reached for 0 hours, 8 are needed

Required 1B 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 one hour period. Delay data not evaluated.

Warrant 3B - Peak Hour Volumes.....Not Satisfied

Volumes do not exceed minimums for any one hour period.

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 2469

Study Date : 09/03/2024

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 0 one hour periods 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				Total	Minor Road		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
15:45 - 16:45	337	+	80	=	417	0	13	No
15:30 - 16:30	316	+	87	=	403	0	16	No
16:00 - 17:00	322	+	76	=	398	0	10	No
15:15 - 16:15	310	+	82	=	392	0	13	No
16:15 - 17:15	309	+	70	=	379	0	12	No
15:00 - 16:00	289	+	78	=	367	0	16	No
16:30 - 17:30	276	+	69	=	345	0	12	No
14:45 - 15:45	248	+	79	=	327	0	13	No
14:30 - 15:30	229	+	77	=	306	0	10	No
16:45 - 17:45	239	+	65	=	304	0	13	No
14:15 - 15:15	201	+	86	=	287	0	11	No
17:00 - 18:00	209	+	61	=	270	0	18	No
14:00 - 15:00	167	+	93	=	260	0	12	No
13:45 - 14:45	158	+	92	=	250	0	12	No
17:15 - 18:15	178	+	55	=	233	0	18	No
13:30 - 14:30	136	+	84	=	220	0	13	No
17:30 - 18:30	161	+	53	=	214	0	14	No
07:15 - 08:15	69	+	132	=	201	0	26	No
17:45 - 18:45	138	+	57	=	195	0	15	No
07:00 - 08:00	64	+	129	=	193	0	31	No
06:45 - 07:45	58	+	129	=	187	0	32	No
07:30 - 08:30	70	+	116	=	186	0	21	No
06:30 - 07:30	54	+	130	=	184	0	26	No
13:15 - 14:15	110	+	73	=	183	0	15	No
13:00 - 14:00	111		63		174	0	12	No

ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2469

Study Date : 09/03/2024

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 0 one hour periods 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 = **52**

Time	Major Road				Total	Minor Road		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
15:45 - 16:45	337	+	80	=	417	0	13	No
15:30 - 16:30	316	+	87	=	403	0	16	No
16:00 - 17:00	322	+	76	=	398	0	10	No
15:15 - 16:15	310	+	82	=	392	0	13	No
16:15 - 17:15	309	+	70	=	379	0	12	No
15:00 - 16:00	289	+	78	=	367	0	16	No
16:30 - 17:30	276	+	69	=	345	0	12	No
14:45 - 15:45	248	+	79	=	327	0	13	No
14:30 - 15:30	229	+	77	=	306	0	10	No
16:45 - 17:45	239	+	65	=	304	0	13	No
14:15 - 15:15	201	+	86	=	287	0	11	No
17:00 - 18:00	209	+	61	=	270	0	18	No
14:00 - 15:00	167	+	93	=	260	0	12	No
13:45 - 14:45	158	+	92	=	250	0	12	No
17:15 - 18:15	178	+	55	=	233	0	18	No
13:30 - 14:30	136	+	84	=	220	0	13	No
17:30 - 18:30	161	+	53	=	214	0	14	No
07:15 - 08:15	69	+	132	=	201	0	26	No
17:45 - 18:45	138	+	57	=	195	0	15	No
07:00 - 08:00	64	+	129	=	193	0	31	No
06:45 - 07:45	58	+	129	=	187	0	32	No
07:30 - 08:30	70	+	116	=	186	0	21	No
06:30 - 07:30	54	+	130	=	184	0	26	No
13:15 - 14:15	110	+	73	=	183	0	15	No
13:00 - 14:00	111		63		174	0	12	No

ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2469

Study Date : 09/03/2024

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 0 hours meet 1A minimums.
Only 0 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 22

Minor Road CR 163

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1A?
15:45 - 16:45	337	+	80	=	417	0	13	No
15:30 - 16:30	316	+	87	=	403	0	16	No
16:00 - 17:00	322	+	76	=	398	0	10	No
15:15 - 16:15	310	+	82	=	392	0	13	No
16:15 - 17:15	309	+	70	=	379	0	12	No
15:00 - 16:00	289	+	78	=	367	0	16	No
16:30 - 17:30	276	+	69	=	345	0	12	No
14:45 - 15:45	248	+	79	=	327	0	13	No
14:30 - 15:30	229	+	77	=	306	0	10	No
16:45 - 17:45	239	+	65	=	304	0	13	No
14:15 - 15:15	201	+	86	=	287	0	11	No
17:00 - 18:00	209		61		270	0	18	No

Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met1B?
15:45 - 16:45	337	+	80	=	417	0	13	No
15:30 - 16:30	316	+	87	=	403	0	16	No
16:00 - 17:00	322	+	76	=	398	0	10	No
15:15 - 16:15	310	+	82	=	392	0	13	No
16:15 - 17:15	309	+	70	=	379	0	12	No
15:00 - 16:00	289	+	78	=	367	0	16	No
16:30 - 17:30	276	+	69	=	345	0	12	No
14:45 - 15:45	248	+	79	=	327	0	13	No
14:30 - 15:30	229	+	77	=	306	0	10	No
16:45 - 17:45	239	+	65	=	304	0	13	No
14:15 - 15:15	201	+	86	=	287	0	11	No
17:00 - 18:00	209		61		270	0	18	No

ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2469

Study Date : 09/03/2024

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.

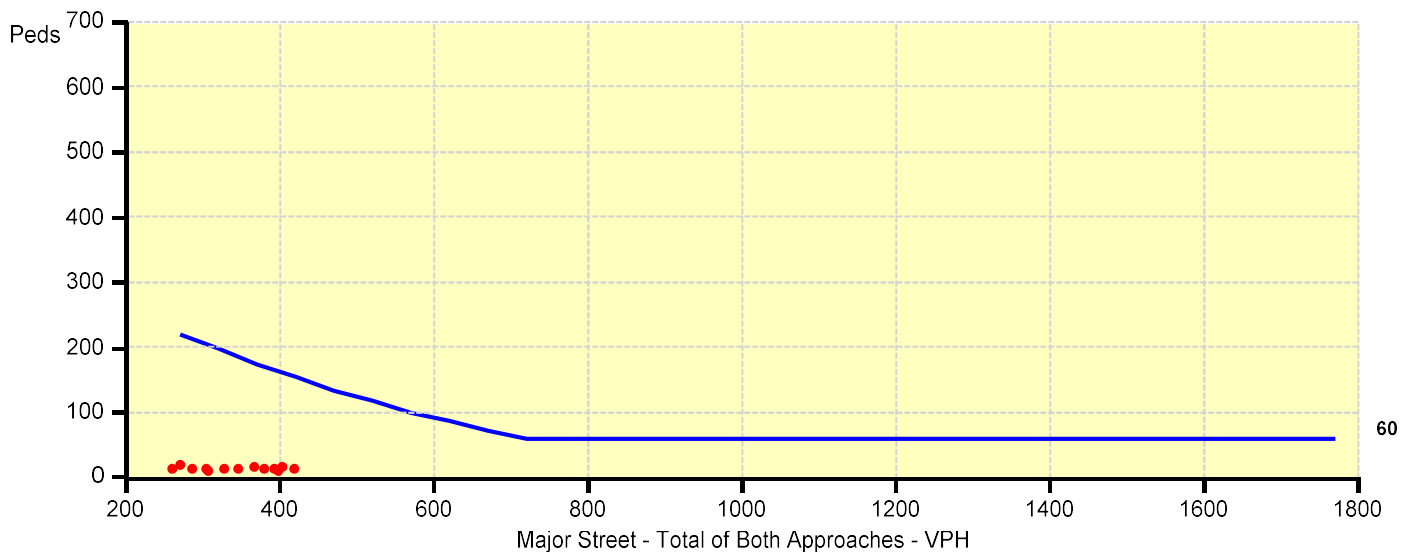
Summary

Only 0 one hour periods meet minimums.
Warrant is NOT met.

Site Data Required

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

Time	Major Road CSAH 22				Total	Minor Road CR 163		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
15:45 - 16:45	337	+	80	=	417	0	13	No
15:30 - 16:30	316	+	87	=	403	0	16	No
16:00 - 17:00	322	+	76	=	398	0	10	No
15:15 - 16:15	310	+	82	=	392	0	13	No
16:15 - 17:15	309	+	70	=	379	0	12	No
15:00 - 16:00	289	+	78	=	367	0	16	No
16:30 - 17:30	276	+	69	=	345	0	12	No
14:45 - 15:45	248	+	79	=	327	0	13	No
14:30 - 15:30	229	+	77	=	306	0	10	No
16:45 - 17:45	239	+	65	=	304	0	13	No
14:15 - 15:15	201	+	86	=	287	0	11	No
17:00 - 18:00	209		61		270	0	18	No



ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2469

Study Date : 09/03/2024

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.

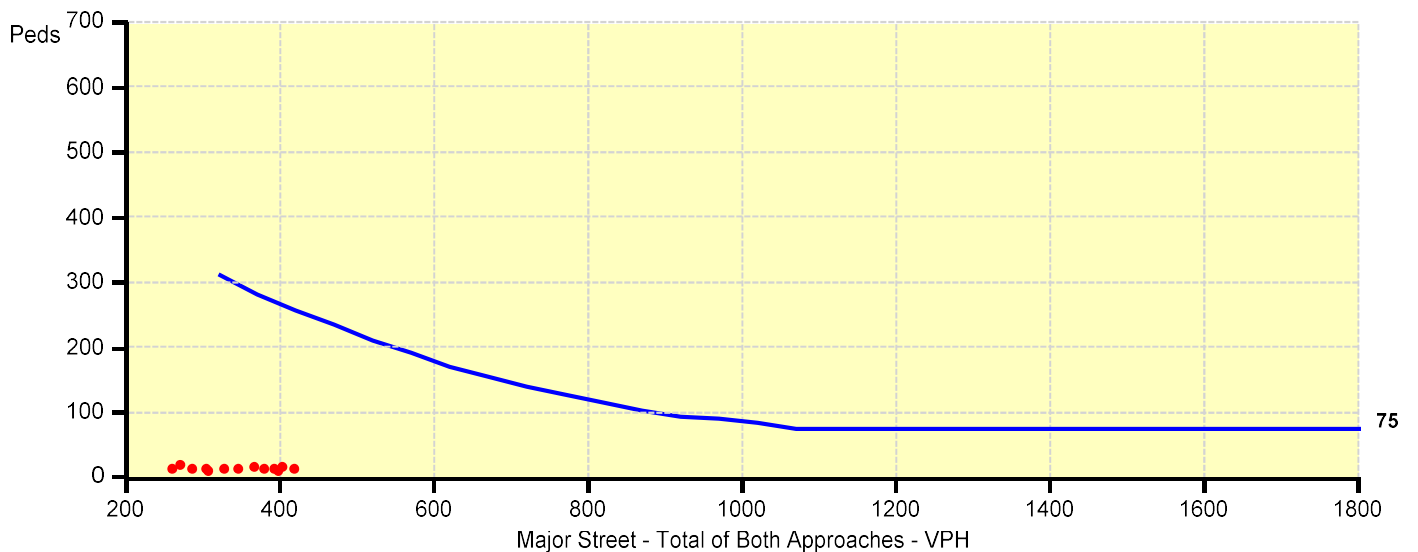
Summary

Only 0 one hour periods meet minimums.
Warrant is NOT met.

Site Data Required

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

Time	Major Road CSAH 22				Total	Minor Road CR 163		Met?
	Major NB	+	Major SB	=		Minor EB	Minor WB	
15:45 - 16:45	337	+	80	=	417	0	13	No
15:30 - 16:30	316	+	87	=	403	0	16	No
16:00 - 17:00	322	+	76	=	398	0	10	No
15:15 - 16:15	310	+	82	=	392	0	13	No
16:15 - 17:15	309	+	70	=	379	0	12	No
15:00 - 16:00	289	+	78	=	367	0	16	No
16:30 - 17:30	276	+	69	=	345	0	12	No
14:45 - 15:45	248	+	79	=	327	0	13	No
14:30 - 15:30	229	+	77	=	306	0	10	No
16:45 - 17:45	239	+	65	=	304	0	13	No
14:15 - 15:15	201	+	86	=	287	0	11	No
17:00 - 18:00	209		61		270	0	18	No



ANOKA COUNTY HIGHWAY

PC - WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name: TMC 2469

Study Date : 09/03/2024

Multiway Stop Warrants - Summary

Major Street Approaches

Northbound: CSAH 22
 Number of Lanes : 1
 Total Approach Volume: 1,965

Southbound: CSAH 22
 Number of Lanes : 1
 Total Approach Volume: 1,181

Minor Street Approaches

Eastbound:
 Number of Lanes :2+
 Total Approach Volume: 0

Westbound: CR 163
 Number of Lanes :1
 Total Approach Volume: 213

Warrant Summary (Rural 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	Not Satisfied
Average of 8 highest hours is less than volume criteria.	
Criteria D - 80% of Volumes, Delays, and Crashes	Not Satisfied
Number of crashes (-1) is less than minimum required (4). Average of 8 highest hours is less than volume criteria.	

Criteria C Volume Summary

Time	Major Total	Major Avg	Minor Total	Minor Avg	Major Crit	Minor Crit	Meets?
15:45 - 16:45	417	253.9	13	16.5	210	140	No
14:45 - 15:45	327		13				
16:45 - 17:45	304		13				
13:45 - 14:45	250		12				
07:15 - 08:15	201		26				
17:45 - 18:45	195		15				
06:15 - 07:15	174		18				
10:15 - 11:15	163		22				
12:30 - 13:30	157		15				
11:15 - 12:15	150		13				
09:00 - 10:00	141		8				
19:15 - 20:15	115		6				

Criteria D Volume Summary

Time	Major Total	Major Avg	Minor Total	Minor Avg	Major Crit	Minor Crit	Meets?
15:45 - 16:45	417	253.9	13	16.5	240	160	No
14:45 - 15:45	327		13				
16:45 - 17:45	304		13				
13:45 - 14:45	250		12				
07:15 - 08:15	201		26				
17:45 - 18:45	195		15				
06:15 - 07:15	174		18				
10:15 - 11:15	163		22				
12:30 - 13:30	157		15				
11:15 - 12:15	150		13				
09:00 - 10:00	141		8				
19:15 - 20:15	115		6				