

Date : 7/31/02

Count Number : TMC0219

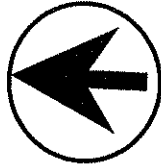
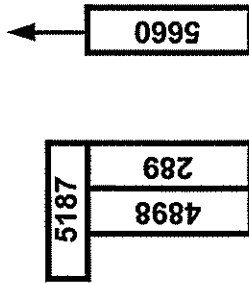
Location : CSAH 7

@ CSAH 20

CSAH 7

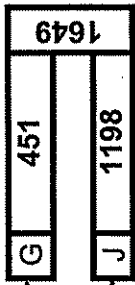
10847

#2



North

CSAH 20



#3

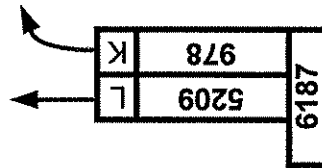
2916



CSAH 7

6096

#4



12283

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

Anoka County Highway Department

Traffic Volume and Turning

Movement Study



Anoka County Highway Department  
Traffic Engineering

Weather: Warm, Humid  
Counter TDC-8  
Counted by: Melissa/Jessica

Traffic Volume and Turning Movement Stud

File Name : TMC 0219  
Site Code : 02190102  
Start Date : 07/31/2002  
Page No : 2

Groups Printed- 1 - Unshifted

Start Time	CSAH 7 Southbound					CSAH 20 Westbound					CSAH 7 Northbound					Eastbound					Exclu Total	Inclu. Total	Int. Total
	Left	Thru	Rig ht	Hea vy	App. Total	Left	Thru	Rig ht	Hea vy	App. Total	Left	Thru	Rig ht	Hea vy	App. Total	Left	Thru	Rig ht	Hea vy	App. Total			
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
18:00	6	58	0	3	64	18	0	17	1	35	0	147	16	6	163	0	0	0	0	0	10	262	272
18:15	3	89	0	2	92	13	0	10	2	23	0	134	11	4	145	0	0	0	0	0	8	260	268
18:30	5	61	0	0	66	21	0	9	0	30	0	120	18	3	138	0	0	0	0	0	3	234	237
18:45	9	72	0	1	81	22	0	7	1	29	0	111	16	3	127	0	0	0	0	0	5	237	242
Total	23	280	0	6	303	74	0	43	4	117	0	512	61	16	573	0	0	0	0	0	26	993	1019
19:00	0	0	0	0	0	23	0	14	2	37	0	87	14	3	101	0	0	0	0	0	5	138	143
19:15	4	46	0	1	50	10	0	6	0	16	0	110	13	3	123	0	0	0	0	0	4	189	193
19:30	4	47	0	2	51	11	0	12	0	23	0	87	19	2	106	0	0	0	0	0	4	180	184
19:45	4	45	0	3	49	16	0	12	0	28	0	112	18	3	130	0	0	0	0	0	6	207	213
Total	12	138	0	6	150	60	0	44	2	104	0	396	64	11	460	0	0	0	0	0	19	714	733
20:00	4	43	0	1	47	16	0	13	1	29	0	105	19	4	124	0	0	0	0	0	6	200	206
20:15	3	38	0	0	41	11	0	8	0	19	0	106	13	3	119	0	0	0	0	0	3	179	182
20:30	5	35	0	0	40	10	0	9	0	19	0	100	9	1	109	0	0	0	0	0	1	168	169
20:45	4	33	0	1	37	10	0	5	0	15	0	98	12	2	110	0	0	0	0	0	3	162	165
Total	16	149	0	2	165	47	0	35	1	82	0	409	53	10	462	0	0	0	0	0	13	709	722
21:00	2	28	0	0	30	9	0	8	0	17	0	91	10	2	101	0	0	0	0	0	2	148	150
21:15	3	27	0	0	30	10	0	8	0	18	0	88	14	3	102	0	0	0	0	0	3	150	153
21:30	2	26	0	0	28	10	0	5	1	15	0	93	8	3	101	0	0	0	0	0	4	144	148
21:45	2	23	0	0	25	8	0	3	0	11	0	89	3	2	92	0	0	0	0	0	2	128	130
Total	9	104	0	0	113	37	0	24	1	61	0	361	35	10	396	0	0	0	0	0	11	570	581
Grand Total	289	489	0	209	5187	119	0	451	64	1649	0	520	978	240	6187	0	0	0	0	0	513	1302	1353
Apprch %	5.6	94.4	0.0			72.7	0.0	27.3			0.0	84.2	15.8			0.0	0.0	0.0					
Total %	2.2	37.6	0.0		39.8	9.2	0.0	3.5		12.7	0.0	40.0	7.5		47.5	0.0	0.0	0.0		0.0	3.8	96.2	

**Multiway Stop Warrant Analysis**  
**TMC 0219 CSAH 7 @ CSAH 20**  
**Speed Limit of Major Roadway..... 55**

**Minimum Traffic Volumes Multiway Stop Warrant Criteria:**

- a) The total vehicular volume entering the intersection from all approaches must average at least 500 vehicles per hour (vph) for any 8 hours of an average day, AND:
- b) The combined vehicular and pedestrian volume from the minor street or highway must average at least 200 vph for the same 8 hours, with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the maximum hour, BUT:
- c) When the 85-percentile approach speed of the major street traffic exceeds 40 miles per hour, the minimum volume warrant is 70% of the above requirements.

Hour	Total Vehicular Traffic Entering the Intersection	Vehicular Traffic Entering on First Minor Roadway	Vehicular Traffic Entering on Second Minor Roadway	Sum of Minor Approaches	Is Stop Warrant Met?
6 AM - 7 AM	965	111	0	111	NO
7 AM - 8 AM	956	154	0	154	YES
8 AM - 9 AM	758	139	0	139	NO
9 AM - 10 AM	607	82	0	82	NO
10 AM - 11 AM	544	60	0	60	NO
11 AM - 12 PM	587	78	0	78	NO
12 PM - 13 PM	622	78	0	78	NO
1 PM - 2 PM	637	64	0	64	NO
2 PM - 3 PM	780	122	0	122	NO
3 PM - 4 PM	1022	97	0	97	NO
4 PM - 5 PM	1279	151	0	151	YES
5 PM - 6 PM	1280	149	0	149	YES
6 PM - 7 PM	993	117	0	117	NO
7 PM - 8 PM	714	104	0	104	NO
8 PM - 9 PM	709	82	0	82	NO
9 PM - 10 PM	570	61	0	61	NO

**TOTAL HOURS MET: 3**

**MULTIWAY STOP WARRANT IS NOT MET**

or Street Approaches:

Northbound:

CSAH 7

Data File: C:\Program Files\PC-Warrants\TMC0219.war  
 Count Type: IMC. Channel: 0. Count Date: 7/31/ 2  
 Number of Lanes: 2  
 Approach Speed: 55  
 Total Approach Traffic: 6187

Southbound:

CSAH 7

Data File: C:\Program Files\PC-Warrants\TMC0219.war  
 Count Type: IMC. Channel: 0. Count Date: 7/31/ 2  
 Number of Lanes: 1  
 Approach Speed: 55  
 Total Approach Traffic: 5187

Minor Street Approaches:

Eastbound:

Data File: C:\Program Files\PC-Warrants\TMC0219.war  
 Count Type: IMC. Channel: 0. Count Date: 7/31/ 2  
 Number of Lanes: 1  
 Approach Speed: 0  
 Total Approach Traffic: 0

Westbound:

CSAH 20

Data File: C:\Program Files\PC-Warrants\TMC0219.war  
 Count Type: IMC. Channel: 0. Count Date: 7/31/ 2  
 Number of Lanes: 1  
 Approach Speed: 55  
 Total Approach Traffic: 1649

Analysis of 8-Hour Volume Warrants (Criteria refers to high volume side street for that hour):

Hour	Main (Total)	Side Vol.	Dir.	Rank	Warrant 1 Meets? Criteria	Warrant 2 Meets? Criteria	Warrant 8 Meets? Criteria
0	0	0	W	17	105	52	84
1	0	0	W	18	105	52	84
2	0	0	W	19	105	52	84
3	0	0	W	20	105	52	84
4	0	0	W	21	105	52	84
5	0	0	W	22	105	52	84
6	854	111	W	7	--BOTH-- 105	--BOTH-- 52	--BOTH-- 84
7	802	154	W	1	--BOTH-- 105	--BOTH-- 52	--BOTH-- 84
8	619	139	W	4	--BOTH-- 105	SIDE 52	--BOTH-- 84
9	525	82	W	10	MAIN 105	SIDE 52	MAIN 84
10	484	60	W	16	MAIN 105	SIDE 52	84
11	509	78	W	12	MAIN 105	SIDE 52	MAIN 84
12	544	78	W	13	MAIN 105	SIDE 52	MAIN 84
13	573	64	W	14	MAIN 105	SIDE 52	MAIN 84
14	658	122	W	5	--BOTH-- 105	--BOTH-- 52	--BOTH-- 84
15	925	97	W	9	MAIN 105	--BOTH-- 52	--BOTH-- 84
16	1128	151	W	2	--BOTH-- 105	--BOTH-- 52	--BOTH-- 84
17	1131	149	W	3	--BOTH-- 105	--BOTH-- 52	--BOTH-- 84
18	876	117	W	6	--BOTH-- 105	--BOTH-- 52	--BOTH-- 84
19	610	104	W	8	MAIN 105	SIDE 52	--BOTH-- 84
20	627	82	W	11	MAIN 105	SIDE 52	MAIN 84
21	509	61	W	15	MAIN 105	SIDE 52	MAIN 84
22	0	0	W	23	105	52	84
23	0	0	W	24	105	52	84

## Warrant Summary:

Rural values apply.

## Warrant 1 - Minimum Vehicular Volumes

NOT SATISFIED. Required values reached for 7 hours. Criteria--Main St.: 420; Side St.: See Volume Summary.

## Warrant 2 - Interruption of Continuous Traffic

NOT SATISFIED. Required values reached for 7 hours. Criteria--Main St.: 630; Side St.: See Volume Summary.

## Warrant 3 - Minimum Pedestrian Volumes

NOT SATISFIED. Ped volumes too low. Criteria--190 Peds in peak hour, 100 peds in 4th high hour.

## Warrant 4 - School Crossing

NOT APPLICABLE. Gap data has not been defined.

## Warrant 5 - Progressive Movement

NOT SATISFIED. Adjacent signals closer than 1000 feet and/or not part of coordinated system.

## Warrant 6 - Accident Experience

NOT SATISFIED. 0 correctable accidents is fewer than required 5.

Correctable Accidents: 0; Right Angle Accidents: 0; Left Turn Accidents: 0; Other Accidents: 0.

## Warrant 7 - Systems Warrant

NOT SATISFIED. At least one street has no major approaches. Peak hour total entering volume: 1280.

- Approaches which are part of the principal through traffic roadway network.
- Approaches which include rural or suburban highways outside, entering or traversing a city.
- Approaches which appear as a major route in an official transportation plan.

## Warrant 8 - Combination of Warrants

SATISFIED for 9 hours. Criteria--Main: 504; Side: See Volume Summary.

## Warrant 9 - Four Hour Volumes

SATISFIED for 8 hours.

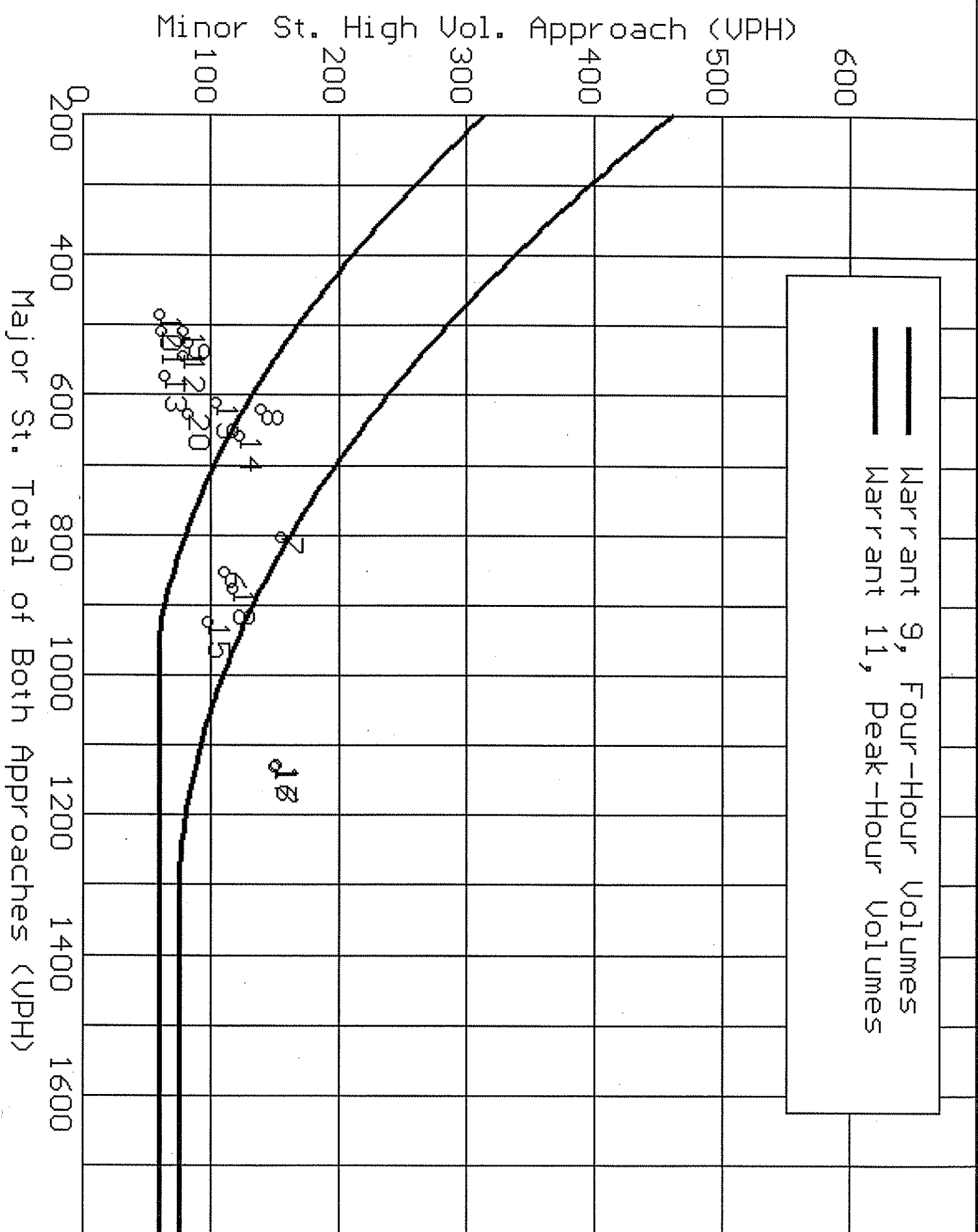
## Warrant 10 - Peak Hour Delay

NOT APPLICABLE. Volume requirements satisfied, but side street peak hour delay not defined.

Criteria--Main St.: 800 (4 approaches), 650 (3 approaches); Side St.: 100.

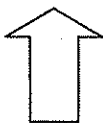
## Warrant 11 - Peak Hour Volume

SATISFIED for 2 hours.



— Warrant 9, Four-Hour Volumes  
 — Warrant 11, Peak-Hour Volumes

Major St. Total of Both Approaches (UPH)



**NORTH**

**COUNT LOCATION:**

CSAH 7@

**DATE:**

7/31/02

CSAH 20

APP. #1 =
APP. #2 = CSAH 7
APP. #3 = CSAH 20
APP. #4 = CSAH 7

APP.  
#1

APP.  
#2

APP.  
#3

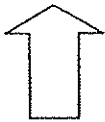
APP.  
#4

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						7		
6:15-6:30						6		
6:30-6:45						8		1
6:45-7:00						12		2
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>36</b>
7:00-7:15						6		1
7:15-7:30		1			1	8		2
7:30-7:45						10		2
7:45-8:00						11	1	
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>41</b>
8:00-8:15						3		
8:15-8:30				1	1	8		2
8:30-8:45						10		1
8:45-9:00						8		
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>32</b>
9:00-9:15						10		
9:15-9:30						14		
9:30-9:45						13		1
9:45-10:00						11		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>49</b>
10:00-10:15						8		
10:15-10:30						10		
10:30-10:45						5		1
10:45-11:00				2	2	16		
<b>HOURLY TOTAL</b>					<b>2</b>	<b>HOURLY TOTAL</b>		<b>40</b>
11:00-11:15						10		1
11:15-11:30		1			1	12		1
11:30-11:45						4		
11:45-12:00						13		
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>41</b>
12:00-12:15						11		
12:15-12:30						13		
12:30-12:45						9		
12:45-1:00						8		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>41</b>
1:00-1:15						13		
1:15-1:30						9		
1:30-1:45						10		
1:45-2:00						5		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>37</b>





NORTH

COUNT LOCATION:

CSAH 7@

DATE:

7/31/02

CSAH 20

APP. #1 =

APP. #2 = CSAH 7

APP. #3 = CSAH 20

APP. #4 = CSAH 7

APP. #2

APP. #1

APP. #3

APP. #4

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						8		
2:15-2:30						12		
2:30-2:45						12		
2:45-3:00						5		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>37</b>
3:00-3:15						9		
3:15-3:30						8		1
3:30-3:45						6		
3:45-4:00				1	1	8		
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>32</b>
4:00-4:15						12		
4:15-4:30						5		
4:30-4:45						9		
4:45-5:00						8		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>34</b>
5:00-5:15						5		
5:15-5:30						3		
5:30-5:45		1			1	6		
5:45-6:00						6		
<b>HOURLY TOTAL</b>					<b>1</b>	<b>HOURLY TOTAL</b>		<b>20</b>
6:00-6:15						8		
6:15-6:30						8		
6:30-6:45						3		
6:45-7:00						6		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>25</b>
7:00-7:15						5		
7:15-7:30						4		
7:30-7:45						4		
7:45-8:00						5	1	
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>19</b>
8:00-8:15						6		
8:15-8:30						3		
8:30-8:45						1		
8:45-9:00						3		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>13</b>
9:00-9:15						2		
9:15-9:30						3		
9:30-9:45						3		
9:45-10:00						2		
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>10</b>