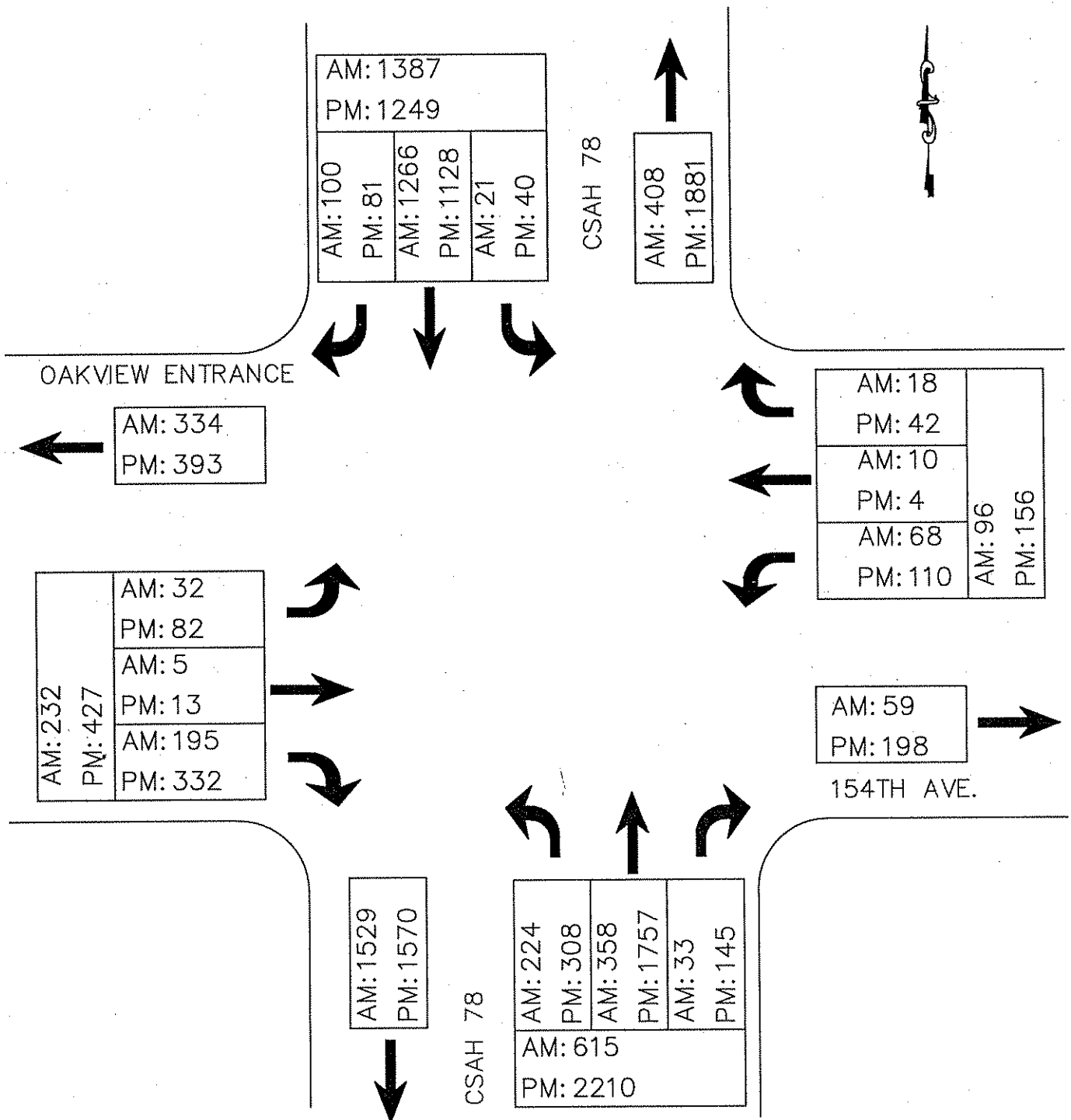


ANOKA COUNTY HIGHWAY DEPARTMENT

PEAK AM/PM TURNING MOVEMENT DIAGRAM

Location: C. S. A. H. 78 (HANSON BLVD.) @ 154TH AVE. / OAKVIEW ENT.



Anoka County Highway Department
Traffic Engineering
Traffic Volume and Turning Movement Stud

File Name : TMC0432
Site Code : 04320101
Start Date : 09/28/2004
Page No : 1

Weather: Sunny and Cool
Counter: TDC-8
Counted by: Josie/Terri

Groups Printed- Unshifted

Start Time	CSAH 78 Southbound					154TH AVE Westbound					CSAH 78 Northbound					OAKVIEW ENTRANCE 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			
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				
06:00	1	117	0	2	118	6	0	0	0	6	0	9	2	1	11	0	0	0	0	0	3	135	138
06:15	0	117	1	1	118	6	0	1	0	7	0	21	3	5	24	0	0	0	0	0	6	149	155
06:30	4	160	0	1	164	7	0	2	2	9	2	30	1	5	33	0	0	0	0	0	8	206	214
06:45	3	134	4	6	141	8	0	3	0	11	13	28	3	4	44	0	0	5	1	5	11	201	212
Total	8	528	5	10	541	27	0	6	2	33	15	88	9	15	112	0	0	5	1	5	28	691	719
07:00	1	132	5	3	138	8	1	0	1	9	12	38	2	7	52	2	0	11	0	13	11	212	223
07:15	4	136	11	3	151	9	0	1	0	10	30	33	3	0	66	1	0	14	0	15	3	242	245
07:30	2	99	6	3	107	9	2	2	0	13	22	31	1	2	54	2	1	15	0	18	5	192	197
07:45	1	80	29	8	110	0	7	3	2	10	62	41	2	13	105	6	1	40	0	47	23	272	295
Total	8	447	51	17	506	26	10	6	3	42	126	143	8	22	277	11	2	80	0	93	42	918	960
08:00	1	73	37	12	111	2	0	1	2	3	63	30	2	9	95	17	3	85	0	105	23	314	337
08:15	1	76	3	9	80	2	0	0	0	2	13	34	2	6	49	3	0	13	2	16	17	147	164
08:30	0	78	0	6	78	6	0	4	1	10	1	23	7	4	31	0	0	6	0	6	11	125	136
08:45	3	64	4	1	71	5	0	1	1	6	6	40	5	2	51	1	0	6	0	7	4	135	139
Total	5	291	44	28	340	15	0	6	4	21	83	127	16	21	226	21	3	110	2	134	55	721	776
*** BREAK ***																							
14:30	0	44	0	2	44	6	0	2	0	8	9	83	6	6	96	1	0	4	0	5	8	155	163
14:45	1	56	9	4	66	3	0	1	1	4	35	74	3	13	112	0	0	6	0	6	18	188	206
Total	1	100	9	6	110	9	0	3	1	12	44	157	9	19	210	1	0	10	0	11	26	343	369
15:00	2	49	13	16	64	7	0	7	0	14	31	82	2	9	115	11	3	49	0	63	25	256	281
15:15	3	65	3	11	71	9	0	1	0	10	1	82	7	2	90	10	2	53	0	65	13	236	249
15:30	0	66	1	7	67	4	0	0	0	4	7	99	8	5	114	3	2	21	0	26	12	211	223
15:45	4	46	2	5	52	3	1	4	0	8	16	86	7	1	109	2	0	8	0	10	6	179	185
Total	9	226	19	39	254	23	1	12	0	36	55	349	24	17	428	26	7	131	0	164	56	882	938
16:00	4	47	1	1	52	2	1	3	0	6	29	104	13	8	146	4	1	14	0	19	9	223	232
16:15	4	55	2	8	61	4	0	2	2	6	12	114	12	3	138	1	0	7	0	8	13	213	226
16:30	4	78	2	8	84	5	0	1	0	6	15	94	5	2	114	2	0	8	1	10	11	214	225
16:45	0	73	5	4	78	2	0	0	0	2	13	110	8	2	131	4	0	2	1	6	7	217	224
Total	12	253	10	21	275	13	1	6	2	20	69	422	38	15	529	11	1	31	2	43	40	867	907
17:00	1	68	8	0	77	10	1	4	0	15	23	118	11	2	152	6	1	28	1	35	3	279	282
17:15	0	65	4	4	69	7	0	1	0	8	26	109	8	3	143	9	0	22	0	31	7	251	258
17:30	3	61	1	2	65	3	0	3	0	6	7	96	12	2	115	0	0	11	0	11	4	197	201
17:45	2	76	5	4	83	7	0	3	0	10	17	110	5	2	132	9	1	24	0	34	6	259	265
Total	6	270	18	10	294	27	1	11	0	39	73	433	36	9	542	24	2	85	1	111	20	986	1006
18:00	4	67	6	3	77	12	0	1	0	13	17	116	6	6	139	6	1	22	1	29	10	258	268
18:15	1	60	2	1	63	10	0	2	0	12	3	100	13	2	116	1	0	12	1	13	4	204	208
18:30	4	67	7	3	78	8	0	3	0	11	17	103	7	3	127	11	2	32	3	45	9	261	270
18:45	3	85	10	0	98	8	1	4	0	13	30	77	12	0	119	2	0	9	0	11	0	241	241
Total	12	279	25	7	316	38	1	10	0	49	67	396	38	11	501	20	3	75	5	98	23	964	987
Grand Total	61	2394	181	138	2636	178	14	60	12	252	532	2115	178	129	2825	114	18	527	11	659	290	6372	6662
Apprch %	2.3	90.8	6.9			70.6	5.6	23.8			18.8	74.9	6.3			17.3	2.7	80.0					
Total %	1.0	37.6	2.8		41.4	2.8	0.2	0.9		4.0	8.3	33.2	2.8		44.3	1.8	0.3	8.3		10.3	4.4	95.6	

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

Study Name : TMC0432
Study Date : 10/04/04
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 78

Number of Lanes: 1
Approach Speed: 55
Total Approach Volume: 2,825

Southbound: CSAH 78

Number of Lanes: 1
Approach Speed: 55
Total Approach Volume: 2,636

Minor Street Approaches

Eastbound: OAKVIEW ENTRANCE

Number of Lanes: 1

Total Approach Volume: 659

Westbound: 154TH AVE

Number of Lanes: 2

Total Approach Volume: 252

Warrant Summary (Rural values apply.)

Warrant 1 - Eight Hour Vehicular Volumes	Not Satisfied
Warrant 1A - Minimum Vehicular Volume	Not Satisfied
Required volumes reached for 3 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic	Not Satisfied
Required volumes reached for 5 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants	Not Satisfied
Required volumes reached for 5 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Satisfied
Number of hours (4) volumes exceed minimum >= minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Volumes	Satisfied
Volumes exceed minimums for at least one hour.	
Warrant 3B - Peak Hour Delay	Satisfied
Number of hours (5) volumes exceed minimum >= required (1). Delay data not evaluated.	
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

ANOKA COUNTY HIGHWAY

PC-WARRANTS

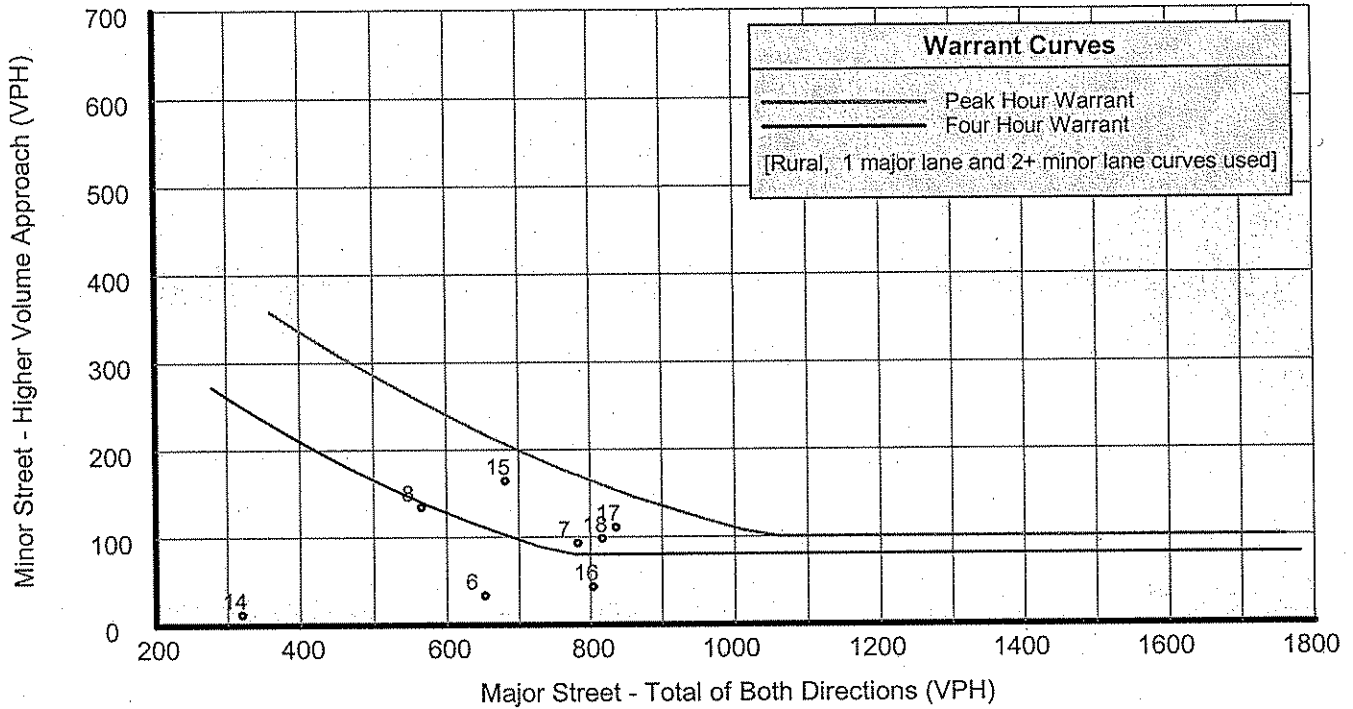
TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC0432

Study Date : 10/04/04

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	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
01:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
02:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
03:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
04:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
05:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
06:00	653	33	WB	350-Yes	140-No	Major	525-Yes	70-No	Major	420-Yes	112-No	Major
07:00	783	93	EB	350-Yes	105-No	Major	525-Yes	52-Yes	Both	420-Yes	84-Yes	Both
08:00	566	134	EB	350-Yes	105-Yes	Both	525-Yes	52-Yes	Both	420-Yes	84-Yes	Both
09:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
10:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
11:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
12:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
13:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
14:00	320	12	WB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
15:00	682	164	EB	350-Yes	105-Yes	Both	525-Yes	52-Yes	Both	420-Yes	84-Yes	Both
16:00	804	43	EB	350-Yes	105-No	Major	525-Yes	52-No	Major	420-Yes	84-No	Major
17:00	836	111	EB	350-Yes	105-Yes	Both	525-Yes	52-Yes	Both	420-Yes	84-Yes	Both
18:00	817	98	EB	350-Yes	105-No	Major	525-Yes	52-Yes	Both	420-Yes	84-Yes	Both
19:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
20:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
21:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
22:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---
23:00	0	0	EB	350-No	140-No	---	525-No	70-No	---	420-No	112-No	---

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

Study Name : TMC0432
Study Date : 10/04/04

Multi-Way Stop Warrant Report

Major Street Approaches

Northbound: CSAH 78
Total Approach Volume: 2,825
Approach Speed: 55

Southbound: CSAH 78
Total Approach Volume: 2,636
Approach Speed: 55

Minor Street Approaches

Eastbound: OAKVIEW ENTRANCE
Total Approach Volume: 659

Westbound: 154TH AVE
Total Approach Volume: 252

Warrant Summary

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

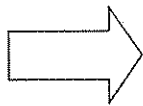
Criteria B - Crash Experience Not Evaluated
Number of crashes (0) is less than the minimum required (5).

Criteria C - Minimum Volumes and Delays Not Satisfied
Delay data not evaluated
Required volumes reached for 4 hours, 8 are needed

Criteria D - 80% of Volumes, Delays, and Crashes Not Evaluated
Delay data not evaluated
Required volumes reached for 0 hours, 8 are needed

Analysis of 8-Hour Volume Warrants:

Time	Major Crit	Minor	Crit C			Crit D		
	Total	Total	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00 - 01:00	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
02:00 - 03:00	0	0	210-No	140-No	No	240-No	160-No	No
03:00 - 04:00	0	0	210-No	140-No	No	240-No	160-No	No
04:00 - 05:00	0	0	210-No	140-No	No	240-No	160-No	No
05:00 - 06:00	0	0	210-No	140-No	No	240-No	160-No	No
06:00 - 07:00	653	38	210-Yes	140-No	Major	240-Yes	160-No	Major
07:00 - 08:00	783	135	210-Yes	140-No	Major	240-Yes	160-No	Major
08:00 - 09:00	566	155	210-Yes	140-Yes	Both	240-Yes	160-No	Major
09:00 - 10:00	0	0	210-No	140-No	No	240-No	160-No	No
10:00 - 11:00	0	0	210-No	140-No	No	240-No	160-No	No
11:00 - 12:00	0	0	210-No	140-No	No	240-No	160-No	No
12:00 - 13:00	0	0	210-No	140-No	No	240-No	160-No	No
13:00 - 14:00	0	0	210-No	140-No	No	240-No	160-No	No
14:00 - 15:00	320	23	210-Yes	140-No	Major	240-Yes	160-No	Major
15:00 - 16:00	682	200	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
16:00 - 17:00	804	63	210-Yes	140-No	Major	240-Yes	160-No	Major
17:00 - 18:00	836	150	210-Yes	140-Yes	Both	240-Yes	160-No	Major
18:00 - 19:00	817	147	210-Yes	140-Yes	Both	240-Yes	160-No	Major
19:00 - 20:00	0	0	210-No	140-No	No	240-No	160-No	No
20:00 - 21:00	0	0	210-No	140-No	No	240-No	160-No	No
21:00 - 22:00	0	0	210-No	140-No	No	240-No	160-No	No
22:00 - 23:00	0	0	210-No	140-No	No	240-No	160-No	No
23:00 - 00:00	0	0	210-No	140-No	No	240-No	160-No	No



NORTH

COUNT LOCATION:

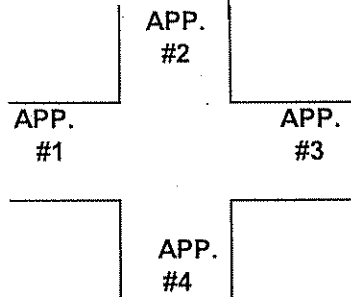
CSAH 78 (Hanson Blvd.)

DATE:

09/28/2004

@ 154th Ave./Oakview Entrance

APP. #1 = CSAH 78
APP.#2 = Oakview Ent.
APP. #3= CSAH 78
APP.#4 = 154th 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						2		1	
6:15-6:30								5	
6:30-6:45						4		4	
6:45-7:00						7		4	
HOURLY TOTAL						HOURLY TOTAL		27	
7:00-7:15						4		7	
7:15-7:30		1			1	2		1	
7:30-7:45		1			1	4		1	
7:45-8:00	2	1		2	5	13		10	
HOURLY TOTAL					7	HOURLY TOTAL		42	
8:00-8:15						8		15	
8:15-8:30						7		9	
8:30-8:45						6		5	
8:45-9:00						3		1	
HOURLY TOTAL						HOURLY TOTAL		54	
					TOTAL	7		TOTAL	123

2:30-2:45 PM						4		4	
2:45-3:00						7		10	
HOURLY TOTAL						HOURLY TOTAL		25	
3:00-3:15						7		18	
3:15-3:30	3		1		4	3		10	
3:30-3:45	11				11	7		4	
3:45-4:00	1				1	4		2	
HOURLY TOTAL					16	HOURLY TOTAL		55	
4:00-4:15	1				1	2		7	
4:15-4:30	1				1	5		8	
4:30-4:45	4			3	7	1		10	
4:45-5:00	4				4	3		4	
HOURLY TOTAL					13	HOURLY TOTAL		40	
5:00-5:15						1		2	
5:15-5:30						1		6	
5:30-5:45						3		1	
5:45-6:00	3				3	3		3	
HOURLY TOTAL					3	HOURLY TOTAL		20	
6:00-6:15						4		6	
6:15-6:30						3		1	
6:30-6:45	1				1	3		5	
6:45-7:00									
HOURLY TOTAL					1	HOURLY TOTAL		22	
					TOTAL	33		TOTAL	162