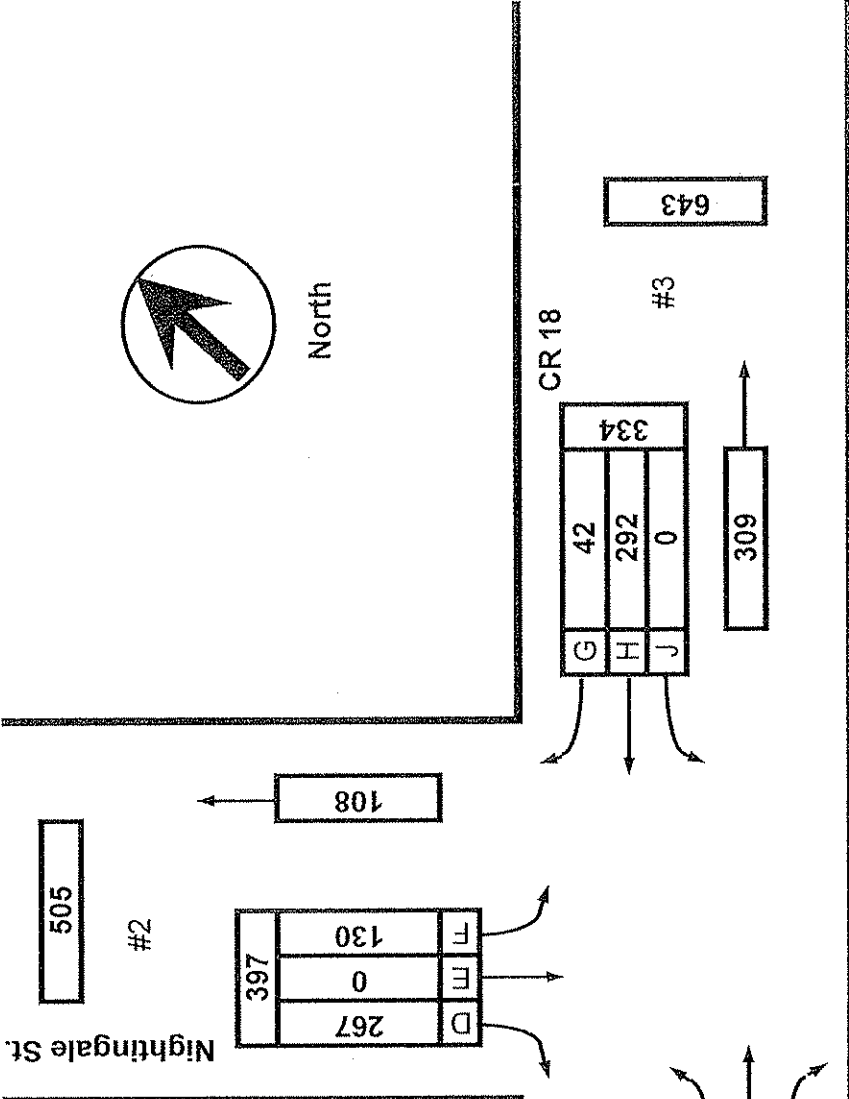


Date : 03/23/10  
 Count Number : TMC1002  
 Location : CR 18 (Crosstown Blvd.)  
 @ Nightingale St.  
 Collection Period : AM PEAK  
 Hour : 7:00 AM-8:00 AM



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

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

Date : 03/23/10

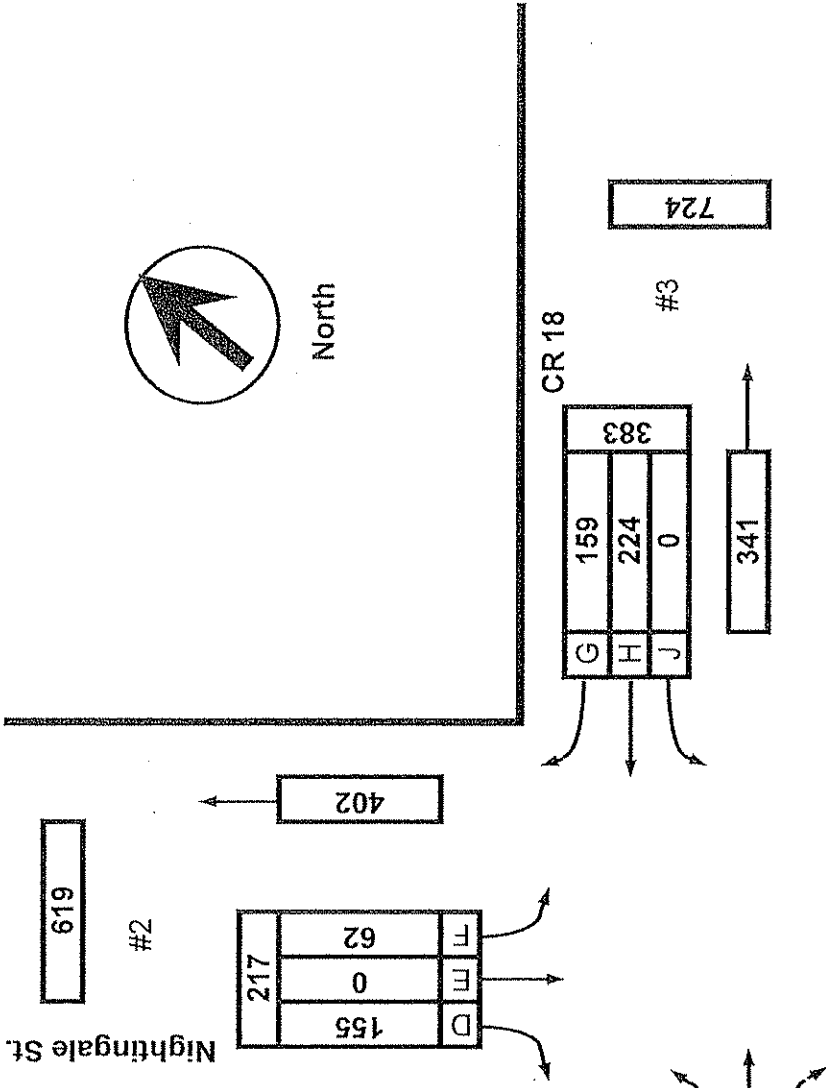
Count Number : TMC1002

Location : CR 18 (Crosstown Blvd.)

@ Nightingale St.

Collection Period : PM PEAK

Hour : 4:15 PM-5:15 PM



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



# Anoka County Highway Department

## Traffic Engineering Section

### Traffic Volume and Turning Movement Study

File Name : TMC1002  
 Site Code : 10020202  
 Start Date : 3/23/2010  
 Page No : 1

Weather: Clear and Mild  
 Counter: TDC-12  
 Counted by: Josie/Terri

Groups Printed- Unshifted

Start Time	Nightingale St Southeastbound					CR 18 Southwestbound					CR 18 Northeastbound					None Northbound					Exclu. Total	Inclu. Total	Int. Total	
	Left	None	Right	Heavy	App. Total	None	Thru	Right	Heavy	App. Total	Left	Thru	None	Heavy	App. Total	None	None	None	Heavy	App. Total				
06:00	16	0	20	0	36	0	11	4	0	15	1	11	0	0	12	0	0	0	0	0	0	0	63	63
06:15	24	0	21	0	45	0	26	3	0	29	6	11	0	2	17	0	0	0	0	0	0	2	91	93
06:30	18	0	34	0	52	0	31	15	1	46	3	16	0	1	19	0	0	0	0	0	0	2	117	119
06:45	26	0	39	0	65	0	37	6	0	43	6	12	0	1	18	0	0	0	0	0	0	1	126	127
<b>Total</b>	<b>84</b>	<b>0</b>	<b>114</b>	<b>0</b>	<b>198</b>	<b>0</b>	<b>105</b>	<b>28</b>	<b>1</b>	<b>133</b>	<b>16</b>	<b>50</b>	<b>0</b>	<b>4</b>	<b>66</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>397</b>	<b>402</b>
07:00	31	0	77	0	108	0	57	7	2	64	12	30	0	2	42	0	0	0	0	0	0	4	214	218
07:15	32	0	106	2	138	0	117	11	16	128	24	37	0	5	61	0	0	0	0	0	0	23	327	350
07:30	35	0	56	0	91	0	70	13	4	83	23	67	0	6	90	0	0	0	0	0	0	10	264	274
07:45	32	0	28	1	60	0	48	11	0	59	7	45	0	3	52	0	0	0	0	0	0	4	171	175
<b>Total</b>	<b>130</b>	<b>0</b>	<b>267</b>	<b>3</b>	<b>397</b>	<b>0</b>	<b>292</b>	<b>42</b>	<b>22</b>	<b>334</b>	<b>66</b>	<b>179</b>	<b>0</b>	<b>16</b>	<b>245</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>41</b>	<b>976</b>	<b>1017</b>
*** BREAK ***																								
16:00	10	0	24	1	34	0	48	21	2	69	43	66	0	1	109	0	0	0	0	0	0	4	212	216
16:15	15	0	35	1	50	0	54	44	3	98	47	76	0	2	123	0	0	0	0	0	0	6	271	277
16:30	15	0	39	2	54	0	62	41	0	103	74	71	0	0	145	0	0	0	0	0	0	2	302	304
16:45	18	0	36	0	54	0	42	36	0	78	66	61	0	0	127	0	0	0	0	0	0	0	259	259
<b>Total</b>	<b>58</b>	<b>0</b>	<b>134</b>	<b>4</b>	<b>192</b>	<b>0</b>	<b>206</b>	<b>142</b>	<b>5</b>	<b>348</b>	<b>230</b>	<b>274</b>	<b>0</b>	<b>3</b>	<b>504</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>1044</b>	<b>1056</b>
17:00	14	0	45	0	59	0	66	38	1	104	56	71	0	3	127	0	0	0	0	0	0	4	290	294
17:15	21	0	32	0	53	0	50	33	2	83	46	76	0	1	122	0	0	0	0	0	0	3	258	261
17:30	9	0	31	0	40	0	56	32	0	88	47	61	0	0	108	0	0	0	0	0	0	0	236	236
17:45	22	0	31	0	53	0	56	30	1	86	55	58	0	0	113	0	0	0	0	0	0	1	252	253
<b>Total</b>	<b>66</b>	<b>0</b>	<b>139</b>	<b>0</b>	<b>205</b>	<b>0</b>	<b>228</b>	<b>133</b>	<b>4</b>	<b>361</b>	<b>204</b>	<b>266</b>	<b>0</b>	<b>4</b>	<b>470</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>1036</b>	<b>1044</b>
<b>Grand Total</b>	<b>338</b>	<b>0</b>	<b>654</b>	<b>7</b>	<b>992</b>	<b>0</b>	<b>831</b>	<b>345</b>	<b>32</b>	<b>1176</b>	<b>516</b>	<b>769</b>	<b>0</b>	<b>27</b>	<b>1285</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>66</b>	<b>3453</b>	<b>3519</b>
Inch %	34.1	0	65.9			0	70.7	29.3			40.2	59.8	0			0	0	0			0			
Total %	9.8	0	18.9		28.7	0	24.1	10		34.1	14.9	22.3	0		37.2	0	0	0		0	0	1.9	98.1	

Start Time	Nightingale St Southeastbound				App. Total	CR 18 Southwestbound				App. Total	CR 18 Northeastbound				App. Total	None Northbound				Int. Total		
	Left	None	Right	Heavy		None	Thru	Right	Heavy		Left	Thru	None	Heavy		None	None	None	Heavy			
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:00																						
07:00	31	0	77		108	0	57	7		64	12	30	0		42	0	0	0		0	0	214
07:15	32	0	106		138	0	117	11		128	24	37	0		61	0	0	0		0	0	327
07:30	35	0	56		91	0	70	13		83	23	67	0		90	0	0	0		0	0	264
07:45	32	0	28		60	0	48	11		59	7	45	0		52	0	0	0		0	0	171
<b>Total Volume</b>	<b>130</b>	<b>0</b>	<b>267</b>		<b>397</b>	<b>0</b>	<b>292</b>	<b>42</b>		<b>334</b>	<b>66</b>	<b>179</b>	<b>0</b>		<b>245</b>	<b>0</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>976</b>
<b>% App. Total</b>	<b>32.7</b>	<b>0</b>	<b>67.3</b>			<b>0</b>	<b>87.4</b>	<b>12.6</b>			<b>26.9</b>	<b>73.1</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>24.1</b>
<b>PHF</b>	<b>.929</b>	<b>.000</b>	<b>.630</b>		<b>.719</b>	<b>.000</b>	<b>.624</b>	<b>.808</b>		<b>.652</b>	<b>.688</b>	<b>.668</b>	<b>.000</b>		<b>.681</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>		<b>.000</b>	<b>.000</b>	<b>.746</b>
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 16:15																						
16:15	15	0	35		50	0	54	44		98	47	76	0		123	0	0	0		0	0	271
16:30	15	0	39		54	0	62	41		103	74	71	0		145	0	0	0		0	0	302
16:45	18	0	36		54	0	42	36		78	66	61	0		127	0	0	0		0	0	259
17:00	14	0	45		59	0	66	38		104	56	71	0		127	0	0	0		0	0	290
<b>Total Volume</b>	<b>62</b>	<b>0</b>	<b>155</b>		<b>217</b>	<b>0</b>	<b>224</b>	<b>159</b>		<b>383</b>	<b>243</b>	<b>279</b>	<b>0</b>		<b>522</b>	<b>0</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>1122</b>
<b>% App. Total</b>	<b>28.6</b>	<b>0</b>	<b>71.4</b>			<b>0</b>	<b>58.5</b>	<b>41.5</b>			<b>46.6</b>	<b>53.4</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>28.6</b>
<b>PHF</b>	<b>.861</b>	<b>.000</b>	<b>.861</b>		<b>.919</b>	<b>.000</b>	<b>.848</b>	<b>.903</b>		<b>.921</b>	<b>.821</b>	<b>.918</b>	<b>.000</b>		<b>.900</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>		<b>.000</b>	<b>.000</b>	<b>.929</b>

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

**Signal Warrants - Summary**

**Major Street Approaches**

**Eastbound: CR 18**  
 Number of Lanes: 1  
 Approach Speed: 45  
 Total Approach Volume: 1,285

**Westbound: CR 18**  
 Number of Lanes: 2  
 Approach Speed: 45  
 Total Approach Volume: 1,176

**Minor Street Approaches**

**Northbound: None**  
 Number of Lanes: 2  
 Total Approach Volume: 0

**Southbound: Nightingale St**  
 Number of Lanes: 2  
 Total Approach Volume: 992

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

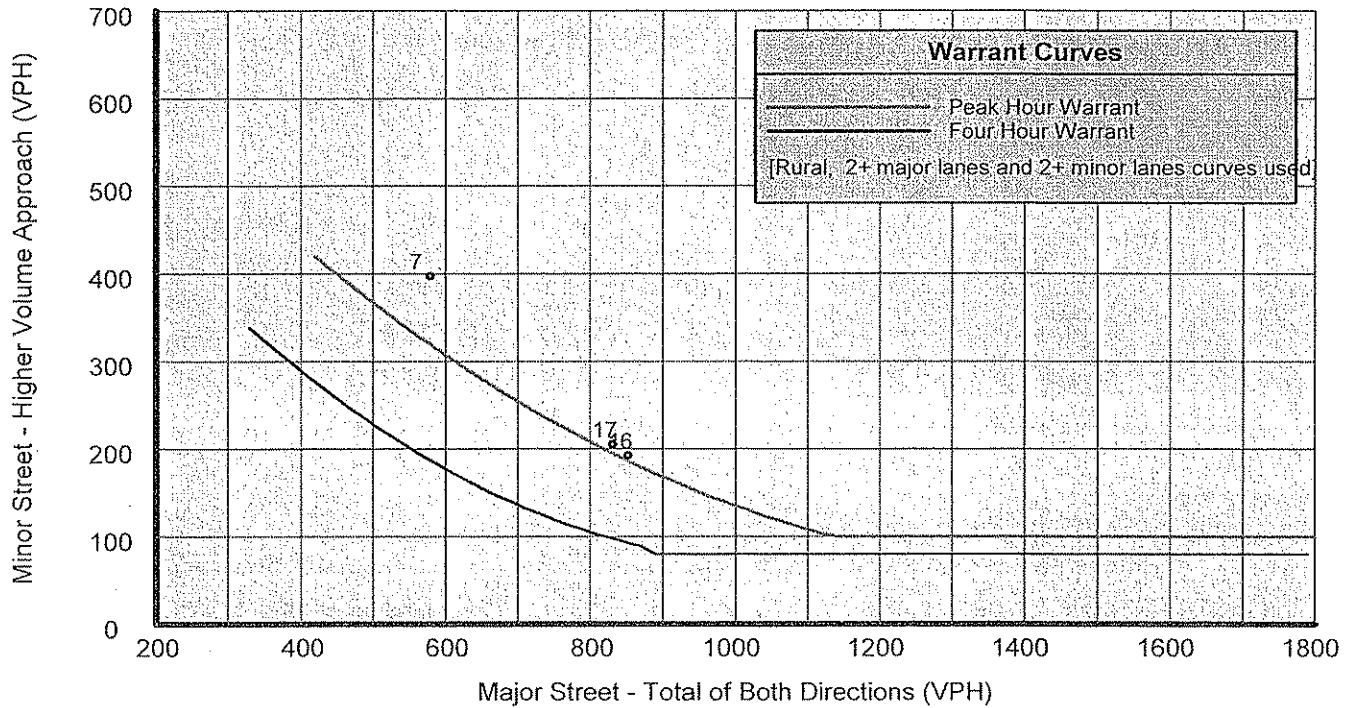
- Warrant 1 - Eight Hour Vehicular Volumes ..... Not Satisfied
  - Warrant 1A - Minimum Vehicular Volume ..... Not Satisfied  
 Required volumes reached for 3 hours, 8 are needed
  - Warrant 1B - Interruption of Continuous Traffic ..... Not Satisfied  
 Required volumes reached for 2 hours, 8 are needed
  - Warrant 1 A&B - Combination of Warrants ..... Not Satisfied  
 Required volumes reached for 3 hours, 8 are needed
  
- Warrant 2 - Four Hour Volumes ..... Not Satisfied  
 Number of hours (3) volumes exceed minimum < minimum required (4).
  
- Warrant 3 - Peak Hour ..... Satisfied
  - Warrant 3A - Peak Hour Delay ..... Satisfied  
 Number of hours (7) volumes exceed minimum >= required (1). Delay data not evaluated.
  - Warrant 3B - Peak Hour Volumes ..... Satisfied  
 Volumes exceed minimums for at least one hour.
  
- 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

## 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	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
01:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
02:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
03:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
04:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
05:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
06:00	199	198	SB	420-No	140-Yes	Minor	630-No	70-Yes	Minor	504-No	112-Yes	Minor
07:00	579	397	SB	420-Yes	140-Yes	Both	630-No	70-Yes	Minor	504-Yes	112-Yes	Both
08:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
09:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
10:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
11:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
12:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
13:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
14:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
15:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
16:00	852	192	SB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
17:00	831	205	SB	420-Yes	140-Yes	Both	630-Yes	70-Yes	Both	504-Yes	112-Yes	Both
18:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
19:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
20:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
21:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
22:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---
23:00	0	0	NB	420-No	140-No	---	630-No	70-No	---	504-No	112-No	---

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

**Multi-Way Stop Warrant Report**

**Major Street Approaches**

**Eastbound: CR 18**  
Total Approach Volume: 1,285  
Approach Speed: 45

**Westbound: CR 18**  
Total Approach Volume: 1,176  
Approach Speed: 45

**Minor Street Approaches**

**Northbound: None**  
Total Approach Volume: 0

**Southbound: Nightingale St**  
Total Approach Volume: 992

**Warrant Summary**

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

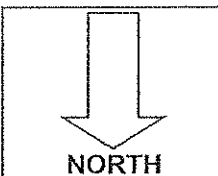
**Criteria B - Crash Experience** ..... Not Evaluated

**Criteria C - Minimum Volumes and Delays** ..... Not Satisfied  
Delay data not evaluated  
Required volumes reached for 3 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 3 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?
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	199	198	210-No	140-Yes	Minor	240-No	160-Yes	Minor
07:00 - 08:00	579	397	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
08:00 - 09:00	0	0	210-No	140-No	No	240-No	160-No	No
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	0	0	210-No	140-No	No	240-No	160-No	No
15:00 - 16:00	0	0	210-No	140-No	No	240-No	160-No	No
16:00 - 17:00	852	192	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
17:00 - 18:00	831	205	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
18:00 - 19:00	0	0	210-No	140-No	No	240-No	160-No	No
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



COUNT LOCATION:

CR 18 (Crosstown Blvd.)

DATE:

3/23/2010

@ Nightingale St.

APP. #1 = CR 18

APP. #2 = None

APP. #3 = CR 18

APP. #4 = Nightingale St.

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
6:00-6:15AM								
6:15-6:30								2
6:30-6:45								2
6:45-7:00								1
<b>HOURLY TOTAL</b>						<b>HOURLY TOTAL</b>		<b>5</b>
7:00-7:15AM								4
7:15-7:30				1	1	2		22
7:30-7:45				2	2	1		8
7:45-8:00						3		1
<b>HOURLY TOTAL</b>					<b>3</b>	<b>HOURLY TOTAL</b>		<b>41</b>
				<b>TOTAL</b>	<b>3</b>		<b>TOTAL</b>	<b>46</b>

TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
4:00-4:15PM						1		3
4:15-4:30						3		3
4:30-4:45				7	7	1		1
4:45-5:00				1	1			
<b>HOURLY TOTAL</b>					<b>8</b>	<b>HOURLY TOTAL</b>		<b>12</b>
5:00-5:15PM								4
5:15-5:30			1		1	1		2
5:30-5:45				1	1			
5:45-6:00				2	2	1		
<b>HOURLY TOTAL</b>					<b>4</b>	<b>HOURLY TOTAL</b>		<b>8</b>
				<b>TOTAL</b>	<b>12</b>		<b>TOTAL</b>	<b>20</b>