

## **M E M O R A N D U M**

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**DATE:** JULY 6, 2012  
**TO:** MELANIE KNIGHT  
**FROM:** BRAD BYVELDS/ JENNIFER LUONG  
**RE:** 1050 SOMERSET STREET  
PRELIMINARY TRAFFIC ANALYSIS  
OUR FILE NO. 111152  
**CC:** NEIL MALHOTRA

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The purpose of this memo is to summarize the findings of preliminary traffic analysis in support of the Zoning By-law Amendment application for the above development. A Transportation Brief will be prepared in accordance with City of Ottawa guidelines in support of the Site Plan application.

The development presently consists of 23 storey tower and 6 storey podium. A total of 195 residential units, 5,020 ft<sup>2</sup> of commercial retail space, 26,100 ft<sup>2</sup> of commercial office space and 244 underground vehicle parking spaces are to be provided. Vehicle access is proposed on the laneway west of the site. The proposal includes widening the laneway to a two-way two-lane cross-section between Somerset and the proposed access.

The study area of the analysis was discussed with City staff and includes the following intersections:

- Somerset/Breezehill
- Somerset/Laneway
- Breezehill/Laurel
- Laurel/Laneway

The time periods for analysis include the weekday a.m. and p.m. peak hours of adjacent street traffic. Analysis was completed for the existing and build-out conditions.

### **1.0 Existing Traffic**

Weekday traffic counts were completed to verify the existing pedestrian, bicycle and motor vehicle volumes at study area intersections. The Devonshire Public School and daycare, located immediately south of 1050 Somerset, were consulted regarding the date, times and locations of the traffic counts. The pedestrian data was classified into two groups including children and adults.

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This distinction was made so that the most vulnerable pedestrians walking to and from the Devonshire Public School could be accounted for.

The traffic counts were completed at the following times and locations:

- Somerset & Breezehill, motor vehicles – Thursday, March 29, 2012
- Somerset & Breezehill, pedestrians and bicycles – Wednesday, May 30, 2012
- Somerset & Public Laneway, motor vehicles – Thursday, March 29, 2012
- Somerset & Public Laneway, pedestrians and bicycles – Thursday, May 31, 2012
- Laurel & Breezehill, all modes – Thursday, May 17, 2012
- Laurel & Public Laneway, all modes – Thursday, May 17, 2012

Copies of the above counts are included in Appendix A.

The volumes observed during the school and daycare's peak hours of operation are summarized in Figures 1 to 3 which are included in Appendix A. The 7:30 to 8:30 a.m. peak reflects school and daycare arrivals, the 3:00 to 4:00 p.m. peak reflects school departures and the 4:30 to 5:30 p.m. peak reflects daycare departures.

The peak hours of the adjacent street traffic generally occur at 8:00 to 9:00 a.m. and 4:30 to 5:30 p.m. Peak hour site traffic generated by the proposed development is expected to coincide with the peak hours of the adjacent street traffic.

## **2.0 Site Traffic**

Key assumptions are as follows:

- Trip generation rates for the previous and proposed land uses were estimated using the ITE Trip Generation Manual (8<sup>th</sup> Edition),
- Trips generated by the former supermarket were reduced by 50% of the ITE rate to allow for the unique nature of this supermarket,
- Pass-by trips for the former supermarket were estimated at 35% based on the ITE Trip Generation Handbook.
- A vehicle occupancy factor of 1.23 (taken from the TRANS O-D Survey Report) and non auto usage factor of 1.1 was applied to convert ITE vehicle trip rates to person trip rates,
- An auto modal share of 40% was used for trips generated by the former supermarket and proposed specialty retail. An auto modal share of 55% was used for the proposed residential and commercial office (auto modal shares taken from the TRANS O-D Survey Report),
- Distribution of trips generated by the site were based on existing traffic patterns

## **3.0 Intersection Analysis**

Intersection capacity analysis has been completed using Synchro 8 traffic software. This software uses methodology from the *Highway Capacity Manual 2000* (HCM) to evaluate signalized and unsignalized intersections in terms of volume to capacity ratios, delay and queue length.

The results of the analysis show that all movements at intersections within the study area perform at an acceptable level of service under existing and future conditions during the weekday AM and PM peak hours.

The peak hour site traffic volumes meet the MTO criteria for a dedicated westbound left-turn lane on Somerset Street at the laneway. A copy of the left-turn storage lane graph is included in Appendix B. Based on the peak hour volumes the MTO criteria suggest a minimum storage length of 15 metres.

A review of the existing traffic volumes at the Somerset/Breezehill intersection shows that a westbound left turn lane is currently warranted without the addition of site traffic. A left turn lane was not implemented as part of the recent Somerset Street reconstruction project.

Within the study area Somerset Street has a right of way (ROW) of approximately 20 metres and consists of a four lane undivided arterial roadway with a width of approximately 14 metres and concrete sidewalks on both sides. Since this section of Somerset Street is not under ROW protection according to Annex 1 of the City of Ottawa Official Plan there is insufficient space to create a westbound left-turn lane at the laneway and Breezehill Avenue.

Collision records will be obtained and reviewed as part of the Transportation Brief.

While the above results do not indicate a need for traffic signal control at Somerset Street and Breezehill Avenue, the MTO criteria for traffic signal control was reviewed to determine the extent to which the warrants are met. The calculations were performed for both the existing and build-out conditions. Average Hourly Volumes (AHV) were estimated for the future condition by dividing the sum of the projected AM and PM peak hour volumes by four. The results show that warrants are far from being met under existing and future conditions. A copy of the calculations is included in Appendix B.

#### **4.0 Proposed Access**

Sight distance analysis has been completed for the intersection of Somerset Street and the laneway using standards outlined in the TAC Geometric Design Guide. The guidelines outline minimum requirements for stopping sight distance (SSD) and turning sight distance (TSD).

Field measurements have been conducted to confirm the available SSD for westbound vehicles coming over the O-Train overpass and TSD for vehicles exiting left out of the laneway.

The minimum SSD required along Somerset is 105 metres. A SSD of 135 metres is currently provided for westbound vehicles approaching the Somerset/laneway intersection, which exceeds the minimum requirement. The minimum sight distance required to turn left onto Somerset Street from the laneway is approximately 180 metres. A TSD of 150 metres is currently provided. As noted previously, collision data will be reviewed as part of the Transportation Brief to determine if there are any historical safety concerns at the laneway.

## **5.0 Neighbourhood Infiltration**

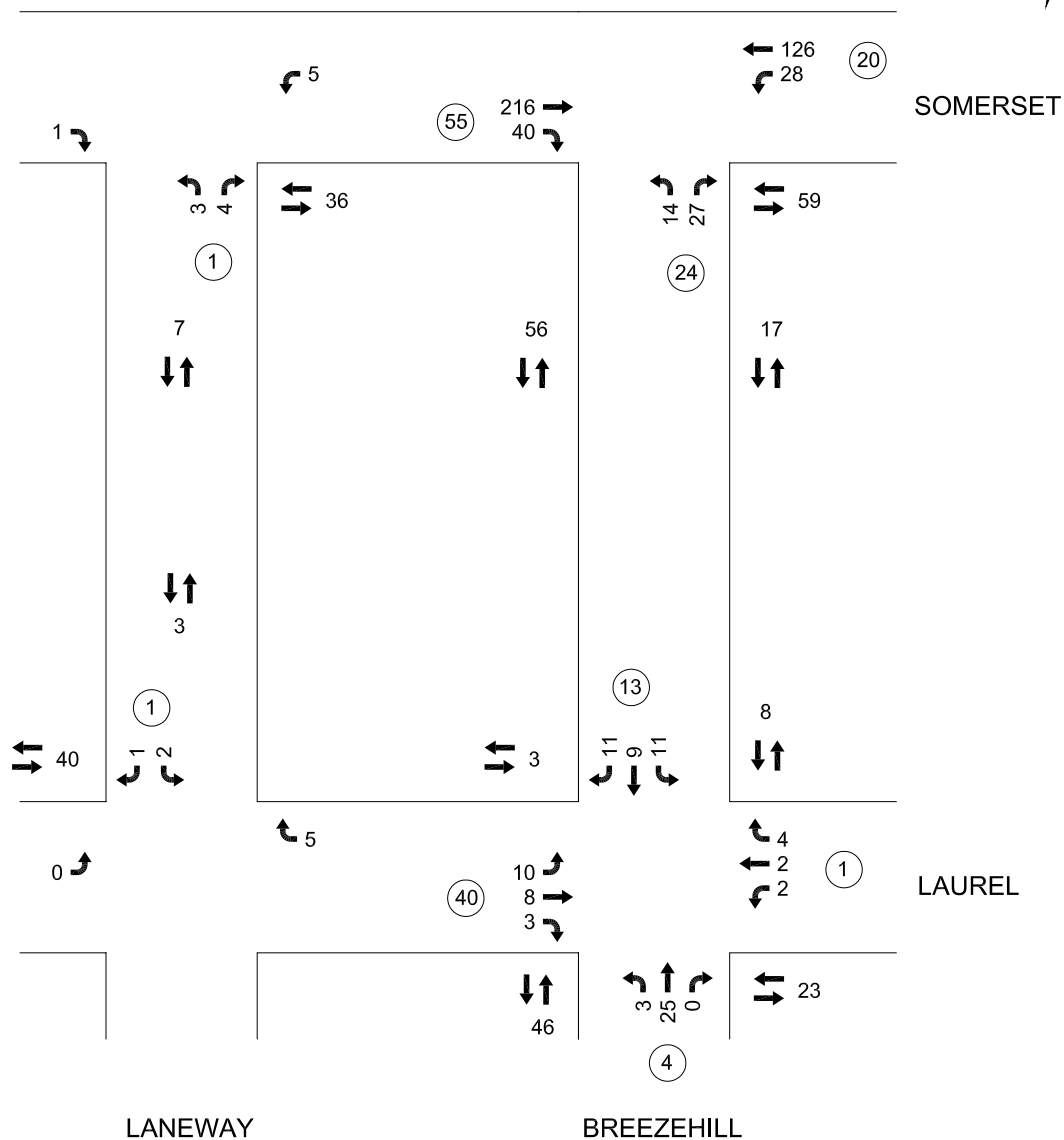
Concerns have been raised by members of the public regarding the potential for site traffic to travel south on the laneway to Laurel or Gladstone rather than access the site via Somerset. The concerns were specifically with respect to children who currently use the laneway to access the Devonshire Public School.

Based on the results of the capacity analysis, we recommend signage prohibiting the left turn movement out of the proposed parking garage and monitoring of the laneway following occupancy to determine if cut-through traffic is a problem. Possible mitigation measures to resolve the issue could include blocking the laneway south of the site.

## **APPENDIX A**

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### **Traffic Counts**



### LEGEND

- (xx) Bicycles
- ↑↓ Pedestrians
- xx VPH Vehicles



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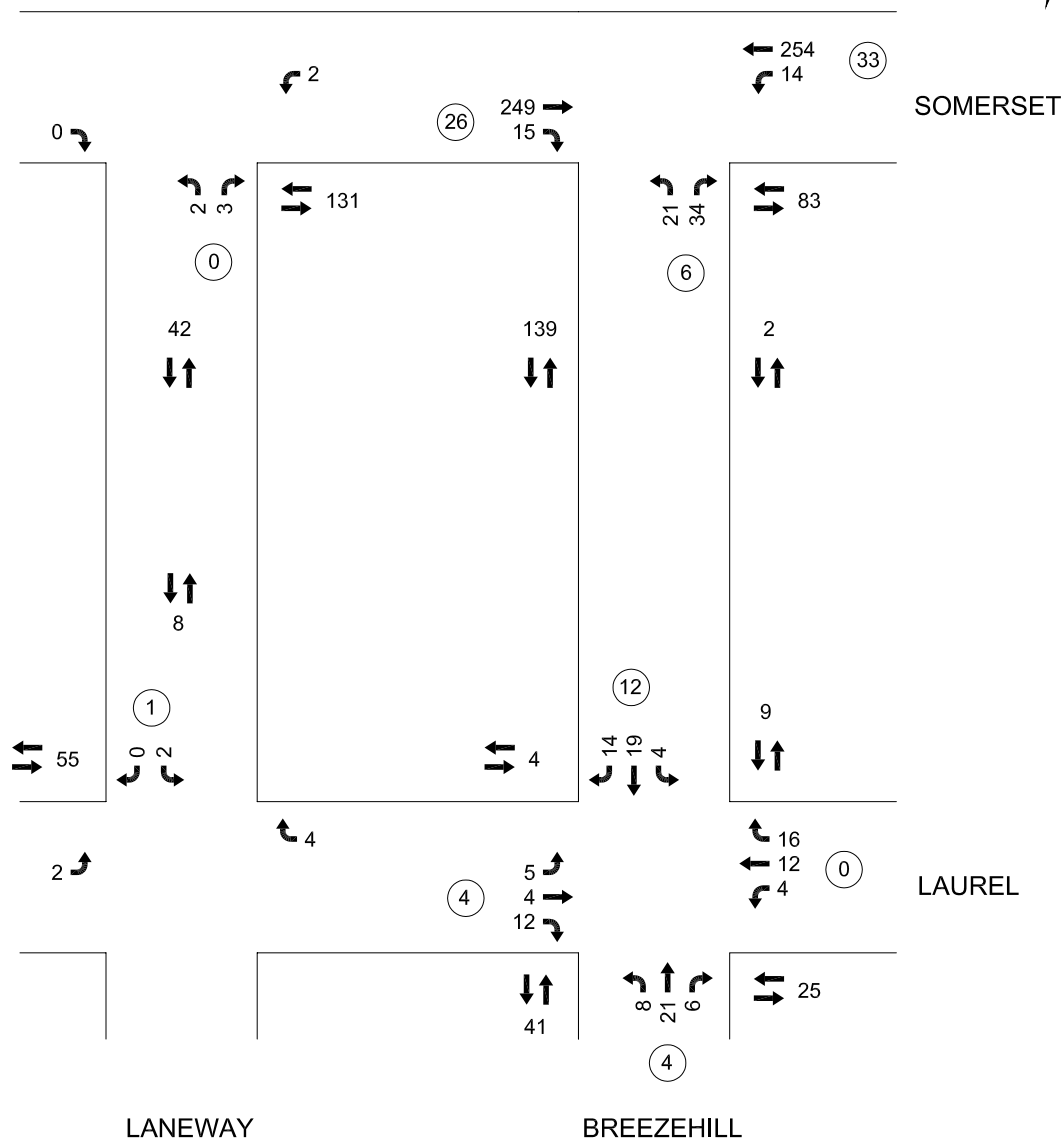
1040/1050 SOMERSET

EXISTING TRAFFIC  
7:30 - 8:30 AM

JUN 2012

111152

FIGURE 1



**NOVATECH**  
**ENGINEERING**  
**CONSULTANTS LTD.**

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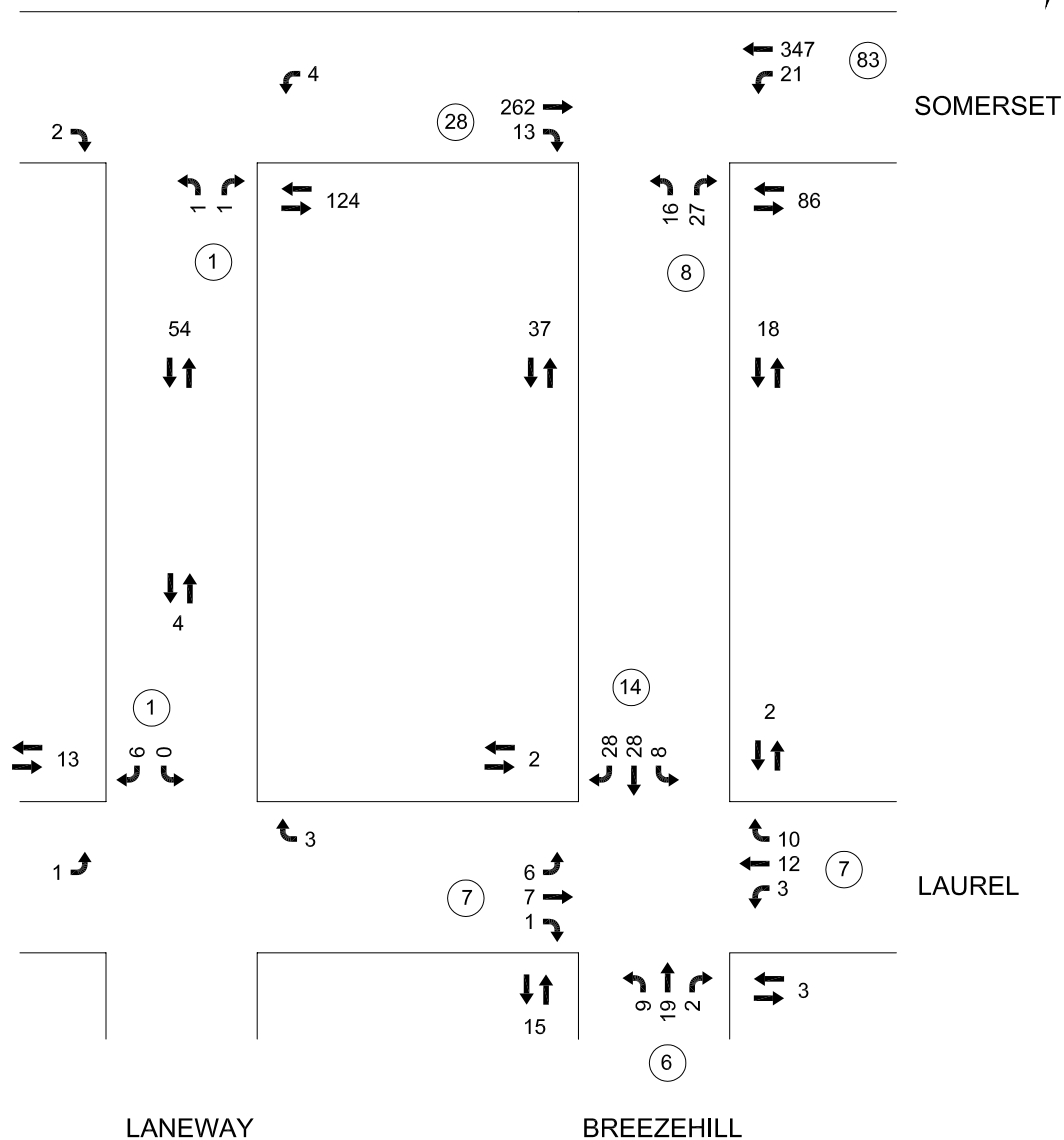
1040/1050 SOMERSET

EXISTING TRAFFIC  
3:00 - 4:00 PM

JUN 2012

111152

FIGURE 2



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1040/1050 SOMERSET

EXISTING TRAFFIC  
4:30 - 5:30 PM

JUN 2012

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FIGURE 3

Weather: 3C, Overcast  
Serial Number: TDC-12-1614  
Collected By: H.Donald, H.Lu  
Notes: Thursday

File Name : 20120329 - Somerset&Breezehill  
Site Code : 11115214  
Start Date : 3/29/2012  
Page No : 1

Groups Printed- Cars - LGV - HGV

|            | Breezehill Avenue N<br>Northbound |       |            | Somerset Street<br>Westbound |      |            | Somerset Street<br>Eastbound |       |            |            |
|------------|-----------------------------------|-------|------------|------------------------------|------|------------|------------------------------|-------|------------|------------|
| Start Time | Left                              | Right | App. Total | Left                         | Thru | App. Total | Thru                         | Right | App. Total | Int. Total |
| 07:00      | 0                                 | 3     | 3          | 0                            | 8    | 8          | 24                           | 1     | 25         | 36         |
| 07:15      | 2                                 | 1     | 3          | 1                            | 17   | 18         | 29                           | 6     | 35         | 56         |
| 07:30      | 4                                 | 5     | 9          | 7                            | 31   | 38         | 29                           | 4     | 33         | 80         |
| 07:45      | 3                                 | 2     | 5          | 4                            | 28   | 32         | 52                           | 3     | 55         | 92         |
| Total      | 9                                 | 11    | 20         | 12                           | 84   | 96         | 134                          | 14    | 148        | 264        |
| 08:00      | 2                                 | 6     | 8          | 8                            | 39   | 47         | 64                           | 14    | 78         | 133        |
| 08:15      | 5                                 | 14    | 19         | 9                            | 28   | 37         | 71                           | 19    | 90         | 146        |
| 08:30      | 8                                 | 9     | 17         | 6                            | 43   | 49         | 70                           | 14    | 84         | 150        |
| 08:45      | 2                                 | 7     | 9          | 4                            | 31   | 35         | 80                           | 7     | 87         | 131        |
| Total      | 17                                | 36    | 53         | 27                           | 141  | 168        | 285                          | 54    | 339        | 560        |
| 09:00      | 3                                 | 4     | 7          | 4                            | 38   | 42         | 41                           | 3     | 44         | 93         |
| 09:15      | 6                                 | 2     | 8          | 3                            | 37   | 40         | 55                           | 7     | 62         | 110        |
| 09:30      | 5                                 | 2     | 7          | 3                            | 45   | 48         | 63                           | 2     | 65         | 120        |
| 09:45      | 2                                 | 2     | 4          | 1                            | 53   | 54         | 43                           | 4     | 47         | 105        |
| Total      | 16                                | 10    | 26         | 11                           | 173  | 184        | 202                          | 16    | 218        | 428        |
| 11:00      | 0                                 | 0     | 0          | 1                            | 9    | 10         | 0                            | 0     | 0          | 10         |
| 11:15      | 0                                 | 3     | 3          | 2                            | 9    | 11         | 0                            | 0     | 0          | 14         |
| 11:30      | 2                                 | 9     | 11         | 8                            | 53   | 61         | 65                           | 3     | 68         | 140        |
| 11:45      | 2                                 | 5     | 7          | 3                            | 37   | 40         | 58                           | 3     | 61         | 108        |
| Total      | 4                                 | 17    | 21         | 14                           | 108  | 122        | 123                          | 6     | 129        | 272        |
| 12:00      | 6                                 | 7     | 13         | 8                            | 55   | 63         | 53                           | 4     | 57         | 133        |
| 12:15      | 5                                 | 4     | 9          | 3                            | 55   | 58         | 44                           | 8     | 52         | 119        |
| 12:30      | 4                                 | 4     | 8          | 4                            | 46   | 50         | 58                           | 4     | 62         | 120        |
| 12:45      | 3                                 | 4     | 7          | 6                            | 51   | 57         | 61                           | 4     | 65         | 129        |
| Total      | 18                                | 19    | 37         | 21                           | 207  | 228        | 216                          | 20    | 236        | 501        |
| 13:00      | 3                                 | 3     | 6          | 5                            | 39   | 44         | 55                           | 4     | 59         | 109        |
| 13:15      | 8                                 | 5     | 13         | 5                            | 43   | 48         | 57                           | 6     | 63         | 124        |
| Total      | 11                                | 8     | 19         | 10                           | 82   | 92         | 112                          | 10    | 122        | 233        |
| 14:30      | 0                                 | 2     | 2          | 0                            | 7    | 7          | 0                            | 0     | 0          | 9          |
| 14:45      | 0                                 | 3     | 3          | 0                            | 10   | 10         | 0                            | 0     | 0          | 13         |
| Total      | 0                                 | 5     | 5          | 0                            | 17   | 17         | 0                            | 0     | 0          | 22         |
| 15:00      | 10                                | 20    | 30         | 3                            | 58   | 61         | 58                           | 11    | 69         | 160        |
| 15:15      | 8                                 | 5     | 13         | 5                            | 61   | 66         | 65                           | 1     | 66         | 145        |
| 15:30      | 2                                 | 4     | 6          | 3                            | 63   | 66         | 66                           | 3     | 69         | 141        |
| 15:45      | 1                                 | 5     | 6          | 3                            | 72   | 75         | 60                           | 0     | 60         | 141        |
| Total      | 21                                | 34    | 55         | 14                           | 254  | 268        | 249                          | 15    | 264        | 587        |
| 16:00      | 2                                 | 7     | 9          | 2                            | 77   | 79         | 61                           | 1     | 62         | 150        |
| 16:15      | 1                                 | 2     | 3          | 2                            | 82   | 84         | 45                           | 5     | 50         | 137        |
| 16:30      | 1                                 | 5     | 6          | 5                            | 87   | 92         | 66                           | 0     | 66         | 164        |
| 16:45      | 2                                 | 10    | 12         | 9                            | 91   | 100        | 67                           | 5     | 72         | 184        |
| Total      | 6                                 | 24    | 30         | 18                           | 337  | 355        | 239                          | 11    | 250        | 635        |

Weather: 3C, Overcast  
Serial Number: TDC-12-1614  
Collected By: H.Donald, H.Lu  
Notes: Thursday

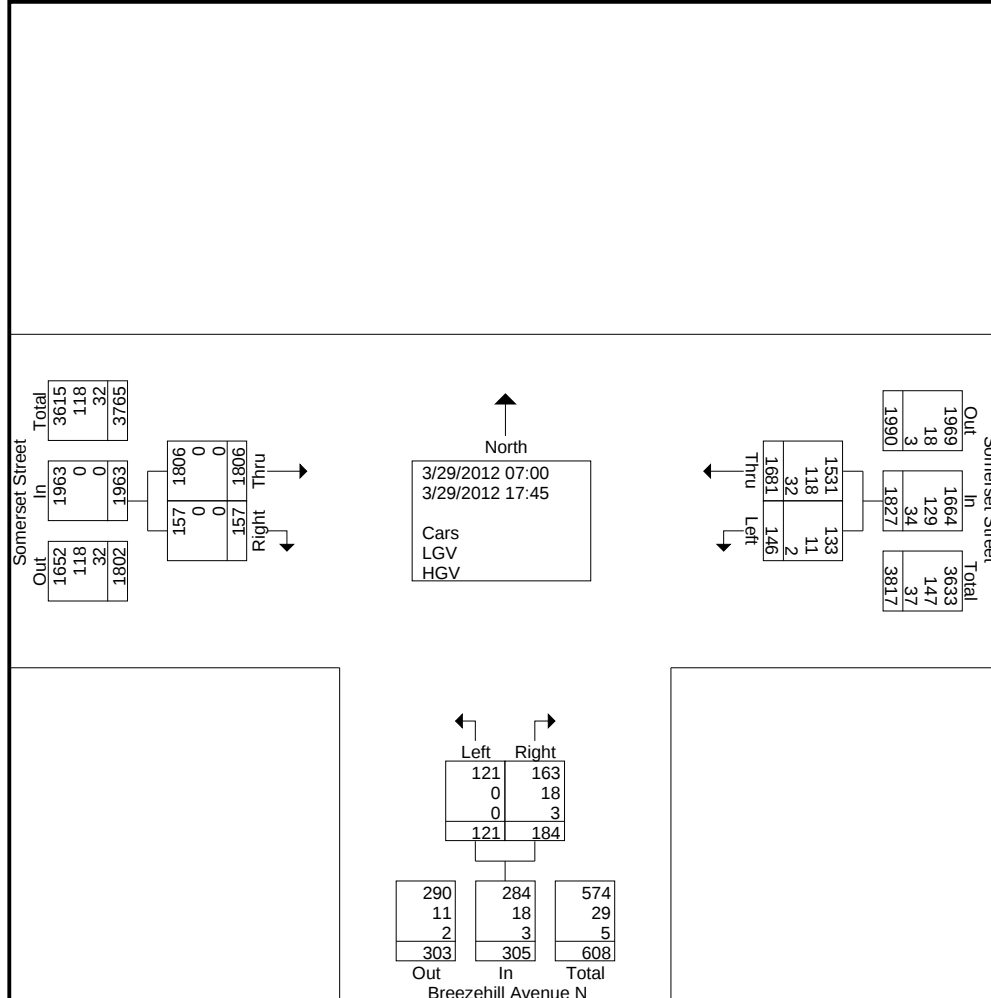
File Name : 20120329 - Somerset&Breezehill  
Site Code : 11115214  
Start Date : 3/29/2012  
Page No : 2

**Groups Printed- Cars - LGV - HGV**

|             | <b>Breezehill Avenue N<br/>Northbound</b> |       |            | <b>Somerset Street<br/>Westbound</b> |      |            | <b>Somerset Street<br/>Eastbound</b> |       |            |            |
|-------------|-------------------------------------------|-------|------------|--------------------------------------|------|------------|--------------------------------------|-------|------------|------------|
| Start Time  | Left                                      | Right | App. Total | Left                                 | Thru | App. Total | Thru                                 | Right | App. Total | Int. Total |
| 17:00       | 9                                         | 5     | 14         | 6                                    | 99   | 105        | 49                                   | 4     | 53         | 172        |
| 17:15       | 4                                         | 7     | 11         | 1                                    | 70   | 71         | 80                                   | 4     | 84         | 166        |
| 17:30       | 4                                         | 5     | 9          | 8                                    | 52   | 60         | 59                                   | 1     | 60         | 129        |
| 17:45       | 2                                         | 3     | 5          | 4                                    | 57   | 61         | 58                                   | 2     | 60         | 126        |
| Total       | 19                                        | 20    | 39         | 19                                   | 278  | 297        | 246                                  | 11    | 257        | 593        |
| Grand Total | 121                                       | 184   | 305        | 146                                  | 1681 | 1827       | 1806                                 | 157   | 1963       | 4095       |
| Apprch %    | 39.7                                      | 60.3  |            | 8                                    | 92   |            | 92                                   | 8     |            |            |
| Total %     | 3                                         | 4.5   | 7.4        | 3.6                                  | 41.1 | 44.6       | 44.1                                 | 3.8   | 47.9       |            |
| Cars        | 121                                       | 163   | 284        | 133                                  | 1531 | 1664       | 1806                                 | 157   | 1963       | 3911       |
| % Cars      | 100                                       | 88.6  | 93.1       | 91.1                                 | 91.1 | 91.1       | 100                                  | 100   | 100        | 95.5       |
| LGV         | 0                                         | 18    | 18         | 11                                   | 118  | 129        | 0                                    | 0     | 0          | 147        |
| % LGV       | 0                                         | 9.8   | 5.9        | 7.5                                  | 7    | 7.1        | 0                                    | 0     | 0          | 3.6        |
| HGV         | 0                                         | 3     | 3          | 2                                    | 32   | 34         | 0                                    | 0     | 0          | 37         |
| % HGV       | 0                                         | 1.6   | 1          | 1.4                                  | 1.9  | 1.9        | 0                                    | 0     | 0          | 0.9        |

Weather: 3C, Overcast  
Serial Number: TDC-12-1614  
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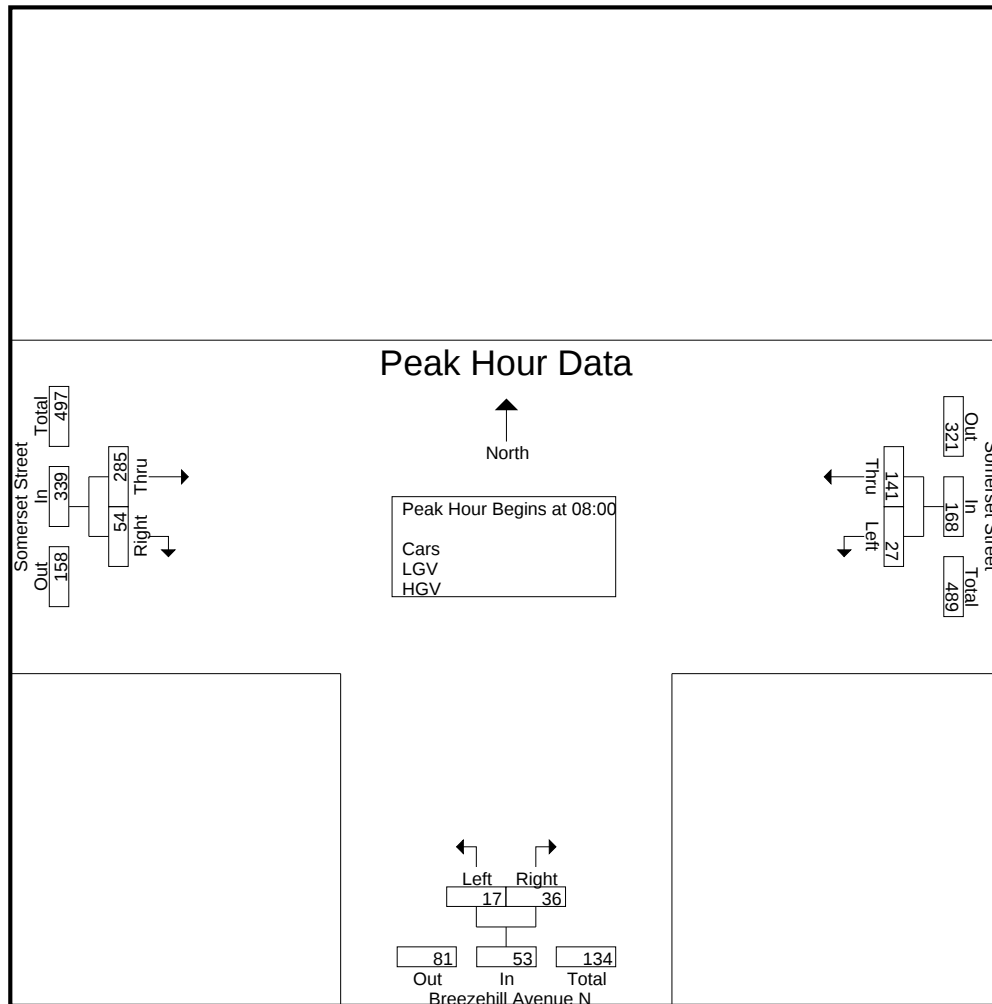
File Name : 20120329 - Somerset&Breezehill  
Site Code : 11115214  
Start Date : 3/29/2012  
Page No : 3



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Serial Number: TDC-12-1614  
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Start Date : 3/29/2012  
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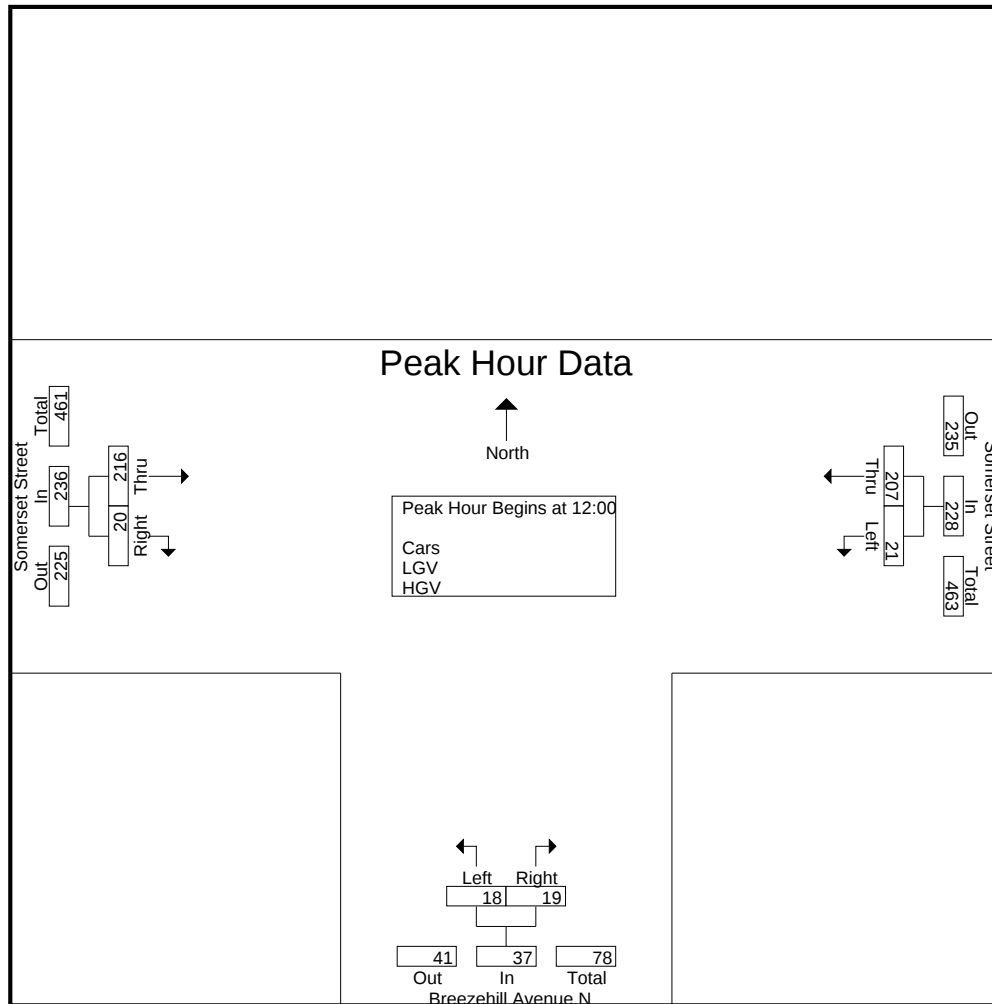
|                                                      | Breezehill Avenue N<br>Northbound |       |            | Somerset Street<br>Westbound |      |            | Somerset Street<br>Eastbound |       |            |            |
|------------------------------------------------------|-----------------------------------|-------|------------|------------------------------|------|------------|------------------------------|-------|------------|------------|
| Start Time                                           | Left                              | Right | App. Total | Left                         | Thru | App. Total | Thru                         | Right | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1 |                                   |       |            |                              |      |            |                              |       |            |            |
| Peak Hour for Entire Intersection Begins at 08:00    |                                   |       |            |                              |      |            |                              |       |            |            |
| 08:00                                                | 2                                 | 6     | 8          | 8                            | 39   | 47         | 64                           | 14    | 78         | 133        |
| 08:15                                                | 5                                 | 14    | 19         | 9                            | 28   | 37         | 71                           | 19    | 90         | 146        |
| 08:30                                                | 8                                 | 9     | 17         | 6                            | 43   | 49         | 70                           | 14    | 84         | 150        |
| 08:45                                                | 2                                 | 7     | 9          | 4                            | 31   | 35         | 80                           | 7     | 87         | 131        |
| Total Volume                                         | 17                                | 36    | 53         | 27                           | 141  | 168        | 285                          | 54    | 339        | 560        |
| % App. Total                                         | 32.1                              | 67.9  |            | 16.1                         | 83.9 |            | 84.1                         | 15.9  |            |            |
| PHF                                                  | .531                              | .643  | .697       | .750                         | .820 | .857       | .891                         | .711  | .942       | .933       |



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Page No : 5

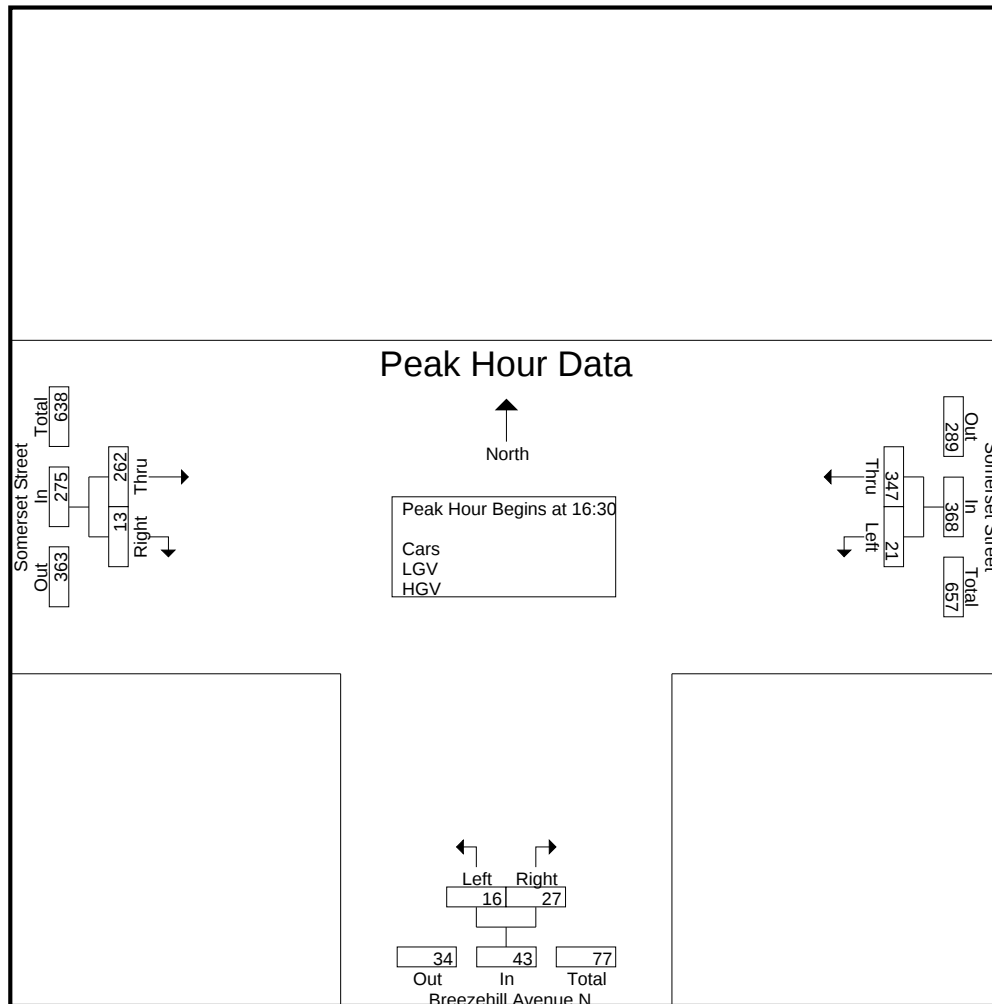
|                                                      | Breezehill Avenue N<br>Northbound |       |            | Somerset Street<br>Westbound |      |            | Somerset Street<br>Eastbound |       |            |            |
|------------------------------------------------------|-----------------------------------|-------|------------|------------------------------|------|------------|------------------------------|-------|------------|------------|
| Start Time                                           | Left                              | Right | App. Total | Left                         | Thru | App. Total | Thru                         | Right | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1 |                                   |       |            |                              |      |            |                              |       |            |            |
| Peak Hour for Entire Intersection Begins at 12:00    |                                   |       |            |                              |      |            |                              |       |            |            |
| 12:00                                                | 6                                 | 7     | 13         | 8                            | 55   | 63         | 53                           | 4     | 57         | 133        |
| 12:15                                                | 5                                 | 4     | 9          | 3                            | 55   | 58         | 44                           | 8     | 52         | 119        |
| 12:30                                                | 4                                 | 4     | 8          | 4                            | 46   | 50         | 58                           | 4     | 62         | 120        |
| 12:45                                                | 3                                 | 4     | 7          | 6                            | 51   | 57         | 61                           | 4     | 65         | 129        |
| Total Volume                                         | 18                                | 19    | 37         | 21                           | 207  | 228        | 216                          | 20    | 236        | 501        |
| % App. Total                                         | 48.6                              | 51.4  |            | 9.2                          | 90.8 |            | 91.5                         | 8.5   |            |            |
| PHF                                                  | .750                              | .679  | .712       | .656                         | .941 | .905       | .885                         | .625  | .908       | .942       |



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Site Code : 11115214  
Start Date : 3/29/2012  
Page No : 6

|                                                      | Breezehill Avenue N<br>Northbound |       |            | Somerset Street<br>Westbound |      |            | Somerset Street<br>Eastbound |       |            |            |
|------------------------------------------------------|-----------------------------------|-------|------------|------------------------------|------|------------|------------------------------|-------|------------|------------|
| Start Time                                           | Left                              | Right | App. Total | Left                         | Thru | App. Total | Thru                         | Right | App. Total | Int. Total |
| Peak Hour Analysis From 14:00 to 17:45 - Peak 1 of 1 |                                   |       |            |                              |      |            |                              |       |            |            |
| Peak Hour for Entire Intersection Begins at 16:30    |                                   |       |            |                              |      |            |                              |       |            |            |
| 16:30                                                | 1                                 | 5     | 6          | 5                            | 87   | 92         | 66                           | 0     | 66         | 164        |
| 16:45                                                | 2                                 | 10    | 12         | 9                            | 91   | 100        | 67                           | 5     | 72         | 184        |
| 17:00                                                | 9                                 | 5     | 14         | 6                            | 99   | 105        | 49                           | 4     | 53         | 172        |
| 17:15                                                | 4                                 | 7     | 11         | 1                            | 70   | 71         | 80                           | 4     | 84         | 166        |
| Total Volume                                         | 16                                | 27    | 43         | 21                           | 347  | 368        | 262                          | 13    | 275        | 686        |
| % App. Total                                         | 37.2                              | 62.8  |            | 5.7                          | 94.3 |            | 95.3                         | 4.7   |            |            |
| PHF                                                  | .444                              | .675  | .768       | .583                         | .876 | .876       | .819                         | .650  | .818       | .932       |



## BICYCLE TURNING MOVEMENTS (15 Min. Volumes)

**Somerset Street & Breezehill Avenue**

**Survey Date: Wednesday, May 30, 2012**

**Total Observed U-Turns**

|              |               |
|--------------|---------------|
| Westbound: 0 | Southbound: 0 |
| Eastbound: 0 | Northbound: 0 |

**Job No.: 111152**

**Weather: 20 degrees, Sun**

Recorded: DS

| Time Period | Somerset Street |    |  |            |           |    |  |            | Breezehill Avenue |            |    |  |            |            |                |
|-------------|-----------------|----|--|------------|-----------|----|--|------------|-------------------|------------|----|--|------------|------------|----------------|
|             | WESTBOUND       |    |  |            | EASTBOUND |    |  |            | STR<br>TOT        | NORTHBOUND |    |  |            | STR<br>TOT | GRAND<br>TOTAL |
|             |                 |    |  | SUB<br>TOT |           |    |  | SUB<br>TOT |                   |            |    |  | SUB<br>TOT |            |                |
| 7:30-7:45   |                 | 3  |  | 3          |           | 13 |  | 13         | 16                |            | 4  |  | 4          | 4          | 20             |
| 7:45-8:00   |                 | 6  |  | 6          |           | 15 |  | 15         | 21                |            | 5  |  | 5          | 5          | 26             |
| 8:00-8:15   |                 | 6  |  | 6          |           | 13 |  | 13         | 19                |            | 4  |  | 4          | 4          | 23             |
| 8:15-8:30   |                 | 5  |  | 5          |           | 14 |  | 14         | 19                |            | 11 |  | 11         | 11         | 30             |
| 8:30-8:45   |                 | 6  |  | 6          |           | 11 |  | 11         | 17                |            | 4  |  | 4          | 4          | 21             |
| 8:45-9:00   |                 | 7  |  | 7          |           | 20 |  | 20         | 27                |            | 2  |  | 2          | 2          | 29             |
| 3:00-3:15   |                 | 7  |  | 7          |           | 5  |  | 5          | 12                |            | 3  |  | 3          | 3          | 15             |
| 3:15-3:30   |                 | 8  |  | 8          |           | 10 |  | 10         | 18                |            | 0  |  | 0          | 0          | 18             |
| 3:30-3:45   |                 | 6  |  | 6          |           | 4  |  | 4          | 10                |            | 2  |  | 2          | 2          | 12             |
| 3:45-4:00   |                 | 12 |  | 12         |           | 7  |  | 7          | 19                |            | 1  |  | 1          | 1          | 20             |
| 4:00-4:15   |                 | 15 |  | 15         |           | 7  |  | 7          | 22                |            | 4  |  | 4          | 4          | 26             |
| 4:15-4:30   |                 | 12 |  | 12         |           | 7  |  | 7          | 19                |            | 1  |  | 1          | 1          | 20             |
| 4:30-4:45   |                 | 18 |  | 18         |           | 5  |  | 5          | 23                |            | 1  |  | 1          | 1          | 24             |
| 4:45-5:00   |                 | 19 |  | 19         |           | 12 |  | 12         | 31                |            | 5  |  | 5          | 5          | 36             |
| 5:00-5:15   |                 | 25 |  | 25         |           | 6  |  | 6          | 31                |            | 0  |  | 0          | 0          | 31             |
| 5:15-5:30   |                 | 21 |  | 21         |           | 5  |  | 5          | 26                |            | 2  |  | 2          | 2          | 28             |
|             |                 |    |  |            |           |    |  |            |                   |            |    |  |            |            | 379            |

### PEDESTRIAN (ALL) TURNING MOVEMENTS (15 Min. Volumes)

**Somerset Street & Breezehill Avenue**

**Survey Date: Wednesday, May 30, 2012**

### Total Observed U-Turns

**Job No.: 111152**

**Weather: 20 degrees, Sun**

Westbound: 0

Southbound: 0

Eastbound: 0

Northbound: 0

Recorded: DS

| Time Period | Somerset Street          |    |            |                          |  |                      |  |                                            | Breezehill Avenue |            |            |  |    | GRAND TOTAL |     |
|-------------|--------------------------|----|------------|--------------------------|--|----------------------|--|--------------------------------------------|-------------------|------------|------------|--|----|-------------|-----|
|             | NORTH SOUTH<br>WEST SIDE |    | SUB<br>TOT | NORTH-SOUTH<br>EAST SIDE |  | SUB<br>TOTSTR<br>TOT |  | CROSSING BREEZEHILL<br>NORTHBOUND APPROACH |                   | SUB<br>TOT | STR<br>TOT |  |    |             |     |
|             |                          |    |            |                          |  |                      |  |                                            |                   |            |            |  |    |             |     |
| 7:30-7:45   |                          | 3  |            | 3                        |  | 7                    |  | 7                                          | 10                |            | 7          |  | 7  | 7           | 17  |
| 7:45-8:00   |                          | 1  |            | 1                        |  | 1                    |  | 1                                          | 2                 |            | 10         |  | 10 | 10          | 12  |
| 8:00-8:15   |                          | 10 |            | 10                       |  | 2                    |  | 2                                          | 12                |            | 10         |  | 10 | 10          | 22  |
| 8:15-8:30   |                          | 42 |            | 42                       |  | 7                    |  | 7                                          | 49                |            | 32         |  | 32 | 32          | 81  |
| 8:30-8:45   |                          | 19 |            | 19                       |  | 2                    |  | 2                                          | 21                |            | 21         |  | 21 | 21          | 42  |
| 8:45-9:00   |                          | 3  |            | 3                        |  | 2                    |  | 2                                          | 5                 |            | 11         |  | 11 | 11          | 16  |
| 3:00-3:15   |                          | 51 |            | 51                       |  | 0                    |  | 0                                          | 51                |            | 31         |  | 31 | 31          | 82  |
| 3:15-3:30   |                          | 59 |            | 59                       |  | 0                    |  | 0                                          | 59                |            | 24         |  | 24 | 24          | 83  |
| 3:30-3:45   |                          | 18 |            | 18                       |  | 1                    |  | 1                                          | 19                |            | 16         |  | 16 | 16          | 35  |
| 3:45-4:00   |                          | 11 |            | 11                       |  | 1                    |  | 1                                          | 12                |            | 12         |  | 12 | 12          | 24  |
| 4:00-4:15   |                          | 4  |            | 4                        |  | 0                    |  | 0                                          | 4                 |            | 7          |  | 7  | 7           | 11  |
| 4:15-4:30   |                          | 5  |            | 5                        |  | 1                    |  | 1                                          | 6                 |            | 20         |  | 20 | 20          | 26  |
| 4:30-4:45   |                          | 7  |            | 7                        |  | 5                    |  | 5                                          | 12                |            | 28         |  | 28 | 28          | 40  |
| 4:45-5:00   |                          | 11 |            | 11                       |  | 3                    |  | 3                                          | 14                |            | 13         |  | 13 | 13          | 27  |
| 5:00-5:15   |                          | 3  |            | 3                        |  | 5                    |  | 5                                          | 8                 |            | 19         |  | 19 | 19          | 27  |
| 5:15-5:30   |                          | 16 |            | 16                       |  | 5                    |  | 5                                          | 21                |            | 26         |  | 26 | 26          | 47  |
|             |                          |    |            |                          |  |                      |  |                                            |                   |            |            |  |    |             | 592 |

### PEDESTRIAN (CHILD) TURNING MOVEMENTS (15 Min. Volumes)

**Somerset Street & Breezehill Avenue**

**Survey Date: Wednesday, May 30, 2012**

### Total Observed U-Turns

**Job No.: 111152**

**Weather: 20 degrees, Sun**

Westbound: 0

Southbound: 0

Eastbound: 0

Northbound: 0

Recorded: DS

| Time Period | Somerset Street          |    |  |         |                          |   |  |   | Breezehill Avenue |                                            |    |         |         | GRAND TOTAL |     |
|-------------|--------------------------|----|--|---------|--------------------------|---|--|---|-------------------|--------------------------------------------|----|---------|---------|-------------|-----|
|             | NORTH SOUTH<br>WEST SIDE |    |  | SUB TOT | NORTH-SOUTH<br>EAST SIDE |   |  |   |                   | CROSSING BREEZEHILL<br>NORTHBOUND APPROACH |    | SUB TOT | STR TOT |             |     |
|             |                          |    |  |         |                          |   |  |   |                   |                                            |    |         |         |             |     |
| 7:30-7:45   |                          | 0  |  | 0       |                          | 0 |  | 0 | 0                 |                                            | 0  |         | 0       | 0           | 0   |
| 7:45-8:00   |                          | 0  |  | 0       |                          | 0 |  | 0 | 0                 |                                            | 0  |         | 0       | 0           | 0   |
| 8:00-8:15   |                          | 2  |  | 2       |                          | 0 |  | 0 | 2                 |                                            | 1  |         | 1       | 1           | 3   |
| 8:15-8:30   |                          | 22 |  | 22      |                          | 1 |  | 1 | 23                |                                            | 13 |         | 13      | 13          | 36  |
| 8:30-8:45   |                          | 6  |  | 6       |                          | 1 |  | 1 | 7                 |                                            | 6  |         | 6       | 6           | 13  |
| 8:45-9:00   |                          | 0  |  | 0       |                          | 0 |  | 0 | 0                 |                                            | 0  |         | 0       | 0           | 0   |
| 3:00-3:15   |                          | 34 |  | 34      |                          | 0 |  | 0 | 34                |                                            | 11 |         | 11      | 11          | 45  |
| 3:15-3:30   |                          | 51 |  | 51      |                          | 0 |  | 0 | 51                |                                            | 10 |         | 10      | 10          | 61  |
| 3:30-3:45   |                          | 7  |  | 7       |                          | 0 |  | 0 | 7                 |                                            | 5  |         | 5       | 5           | 12  |
| 3:45-4:00   |                          | 4  |  | 4       |                          | 0 |  | 0 | 4                 |                                            | 1  |         | 1       | 1           | 5   |
| 4:00-4:15   |                          | 1  |  | 1       |                          | 0 |  | 0 | 1                 |                                            | 0  |         | 0       | 0           | 1   |
| 4:15-4:30   |                          | 1  |  | 1       |                          | 0 |  | 0 | 1                 |                                            | 0  |         | 0       | 0           | 1   |
| 4:30-4:45   |                          | 2  |  | 2       |                          | 0 |  | 0 | 2                 |                                            | 1  |         | 1       | 1           | 3   |
| 4:45-5:00   |                          | 1  |  | 1       |                          | 0 |  | 0 | 1                 |                                            | 0  |         | 0       | 0           | 1   |
| 5:00-5:15   |                          | 1  |  | 1       |                          | 1 |  | 1 | 2                 |                                            | 0  |         | 0       | 0           | 2   |
| 5:15-5:30   |                          | 7  |  | 7       |                          | 3 |  | 3 | 10                |                                            | 3  |         | 3       | 3           | 13  |
|             |                          |    |  |         |                          |   |  |   |                   |                                            |    |         |         |             | 196 |

Weather: 3C, Overcast  
Serial Number: TDC-12-1612  
Collected By:  
Notes: Thursday

File Name : 20120329 Somerset&Laneway  
Site Code : 11115212  
Start Date : 3/29/2012  
Page No : 1

**Groups Printed- Cars - LGV - HGV**

|             | Laneway West of Breezehill |       |            | Somerset Street |            | Somerset Street |            |            |
|-------------|----------------------------|-------|------------|-----------------|------------|-----------------|------------|------------|
|             | Northbound                 |       |            | Westbound       |            | Eastbound       |            |            |
| Start Time  | Left                       | Right | App. Total | Left            | App. Total | Right           | App. Total | Int. Total |
| 07:15       | 1                          | 0     | 1          | 3               | 3          | 0               | 0          | 4          |
| 07:30       | 1                          | 0     | 1          | 2               | 2          | 0               | 0          | 3          |
| 07:45       | 1                          | 1     | 2          | 2               | 2          | 1               | 1          | 5          |
| Total       | 3                          | 1     | 4          | 7               | 7          | 1               | 1          | 12         |
| 08:00       | 1                          | 2     | 3          | 1               | 1          | 0               | 0          | 4          |
| 08:15       | 0                          | 1     | 1          | 0               | 0          | 0               | 0          | 1          |
| 08:45       | 1                          | 1     | 2          | 1               | 1          | 1               | 1          | 4          |
| Total       | 2                          | 4     | 6          | 2               | 2          | 1               | 1          | 9          |
| 09:00       | 0                          | 0     | 0          | 1               | 1          | 0               | 0          | 1          |
| 09:15       | 1                          | 0     | 1          | 1               | 1          | 0               | 0          | 2          |
| 09:30       | 0                          | 1     | 1          | 0               | 0          | 0               | 0          | 1          |
| 09:45       | 0                          | 1     | 1          | 0               | 0          | 1               | 1          | 2          |
| Total       | 1                          | 2     | 3          | 2               | 2          | 1               | 1          | 6          |
| 11:30       | 0                          | 0     | 0          | 0               | 0          | 1               | 1          | 1          |
| 11:45       | 0                          | 0     | 0          | 2               | 2          | 1               | 1          | 3          |
| Total       | 0                          | 0     | 0          | 2               | 2          | 2               | 2          | 4          |
| 12:15       | 0                          | 1     | 1          | 1               | 1          | 0               | 0          | 2          |
| 12:30       | 0                          | 0     | 0          | 0               | 0          | 1               | 1          | 1          |
| 12:45       | 2                          | 2     | 4          | 1               | 1          | 0               | 0          | 5          |
| Total       | 2                          | 3     | 5          | 2               | 2          | 1               | 1          | 8          |
| 13:00       | 2                          | 0     | 2          | 1               | 1          | 1               | 1          | 4          |
| Total       | 2                          | 0     | 2          | 1               | 1          | 1               | 1          | 4          |
| 14:45       | 0                          | 3     | 3          | 1               | 1          | 0               | 0          | 4          |
| Total       | 0                          | 3     | 3          | 1               | 1          | 0               | 0          | 4          |
| 15:15       | 1                          | 1     | 2          | 1               | 1          | 0               | 0          | 3          |
| 15:30       | 0                          | 1     | 1          | 1               | 1          | 0               | 0          | 2          |
| 15:45       | 1                          | 1     | 2          | 0               | 0          | 0               | 0          | 2          |
| Total       | 2                          | 3     | 5          | 2               | 2          | 0               | 0          | 7          |
| 16:00       | 0                          | 0     | 0          | 1               | 1          | 0               | 0          | 1          |
| 16:15       | 0                          | 0     | 0          | 4               | 4          | 0               | 0          | 4          |
| 16:30       | 0                          | 1     | 1          | 1               | 1          | 0               | 0          | 2          |
| 16:45       | 1                          | 0     | 1          | 0               | 0          | 0               | 0          | 1          |
| Total       | 1                          | 1     | 2          | 6               | 6          | 0               | 0          | 8          |
| 17:00       | 0                          | 0     | 0          | 2               | 2          | 1               | 1          | 3          |
| 17:15       | 0                          | 0     | 0          | 1               | 1          | 1               | 1          | 2          |
| 17:30       | 0                          | 1     | 1          | 2               | 2          | 0               | 0          | 3          |
| Grand Total | 13                         | 18    | 31         | 30              | 30         | 9               | 9          | 70         |
| Apprch %    | 41.9                       | 58.1  |            | 100             |            | 100             |            |            |
| Total %     | 18.6                       | 25.7  | 44.3       | 42.9            | 42.9       | 12.9            | 12.9       |            |
| Cars        | 13                         | 18    | 31         | 30              | 30         | 9               | 9          | 70         |
| % Cars      | 100                        | 100   | 100        | 100             | 100        | 100             | 100        | 100        |

Suite 200  
240 Michael Cowpland Drive  
Kanata ON, K2M 1P6

Weather: 3C, Overcast  
Serial Number: TDC-12-1612  
Collected By:  
Notes: Thursday

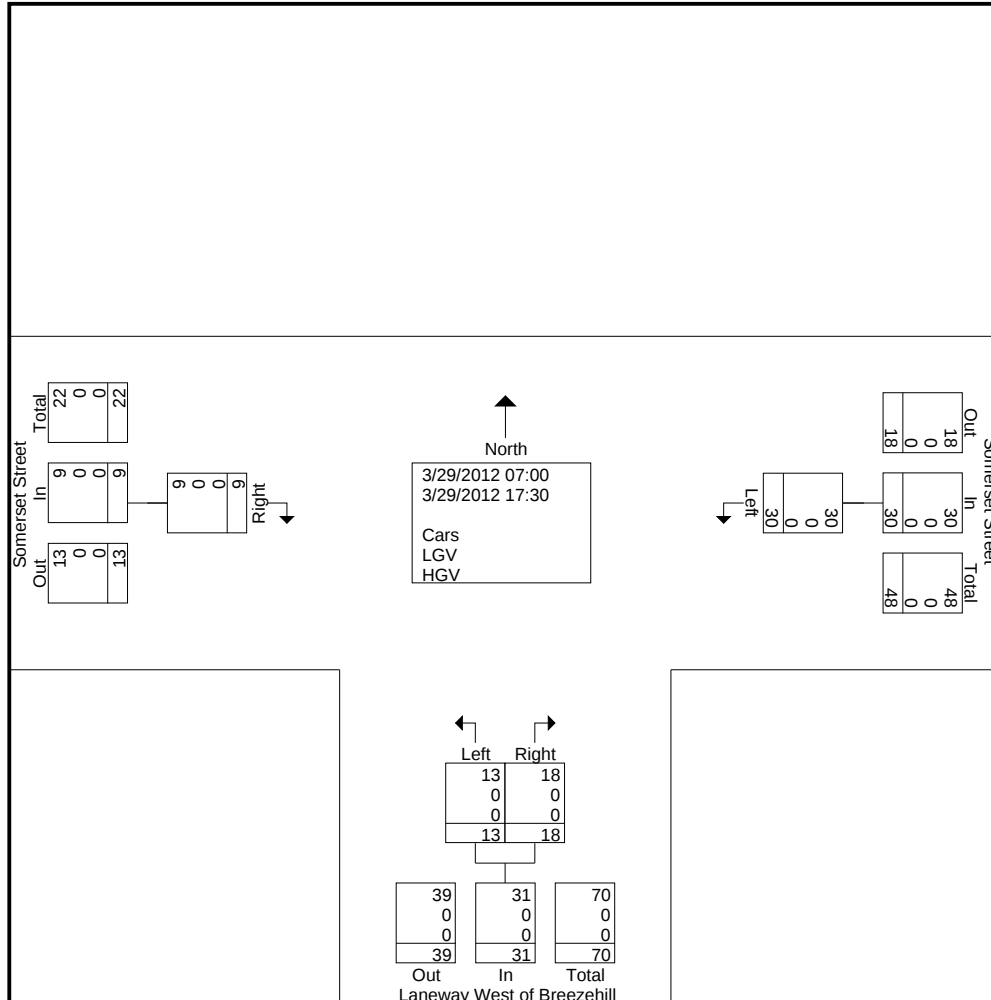
File Name : 20120329 Somerset&Laneway  
Site Code : 11115212  
Start Date : 3/29/2012  
Page No : 2

**Groups Printed- Cars - LGV - HGV**

|       | Laneway West of Breezehill<br>Northbound |       |            | Somerset Street<br>Westbound |            | Somerset Street<br>Eastbound |            | Int. Total |
|-------|------------------------------------------|-------|------------|------------------------------|------------|------------------------------|------------|------------|
|       | Left                                     | Right | App. Total | Left                         | App. Total | Right                        | App. Total |            |
| LGV   | 0                                        | 0     | 0          | 0                            | 0          | 0                            | 0          | 0          |
| % LGV | 0                                        | 0     | 0          | 0                            | 0          | 0                            | 0          | 0          |
| HGV   | 0                                        | 0     | 0          | 0                            | 0          | 0                            | 0          | 0          |
| % HGV | 0                                        | 0     | 0          | 0                            | 0          | 0                            | 0          | 0          |

Weather: 3C, Overcast  
Serial Number: TDC-12-1612  
Collected By:  
Notes: Thursday

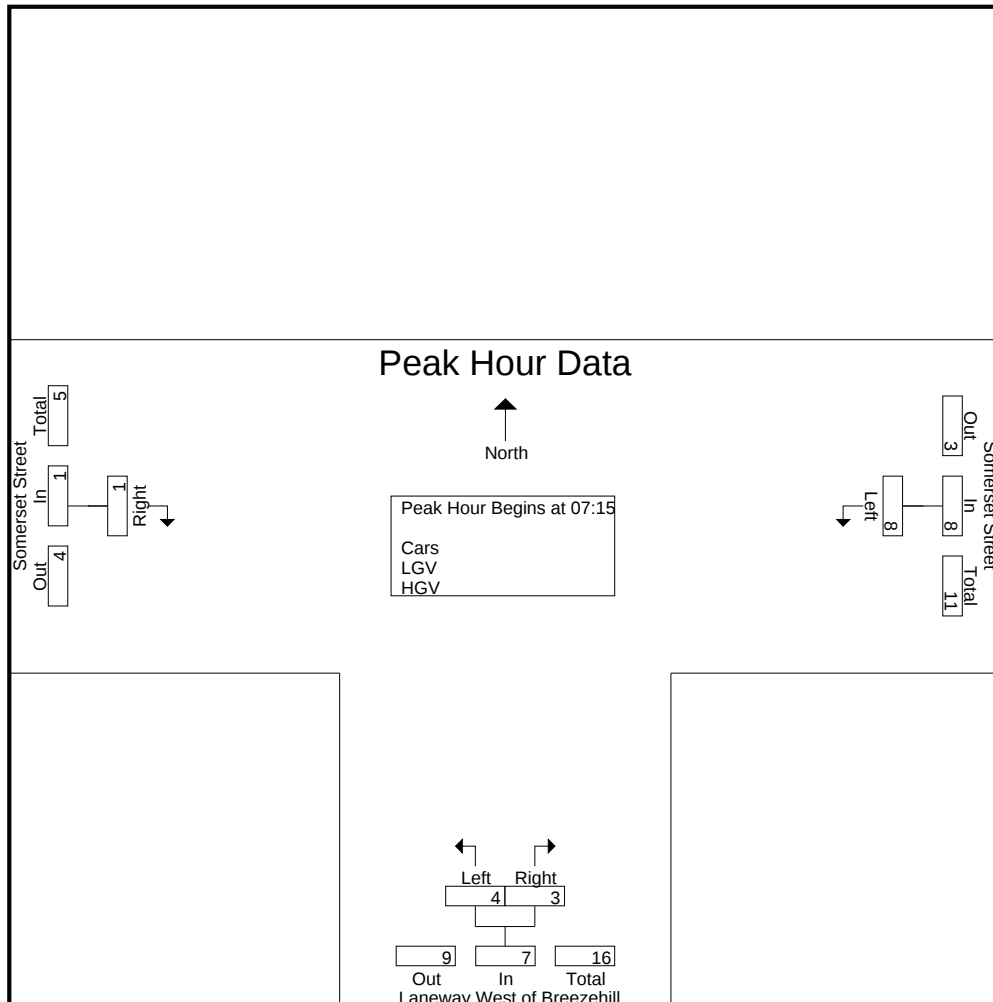
File Name : 20120329 Somerset&Laneway  
Site Code : 11115212  
Start Date : 3/29/2012  
Page No : 3



Weather: 3C, Overcast  
Serial Number: TDC-12-1612  
Collected By:  
Notes: Thursday

File Name : 20120329 Somerset&Laneway  
Site Code : 11115212  
Start Date : 3/29/2012  
Page No : 4

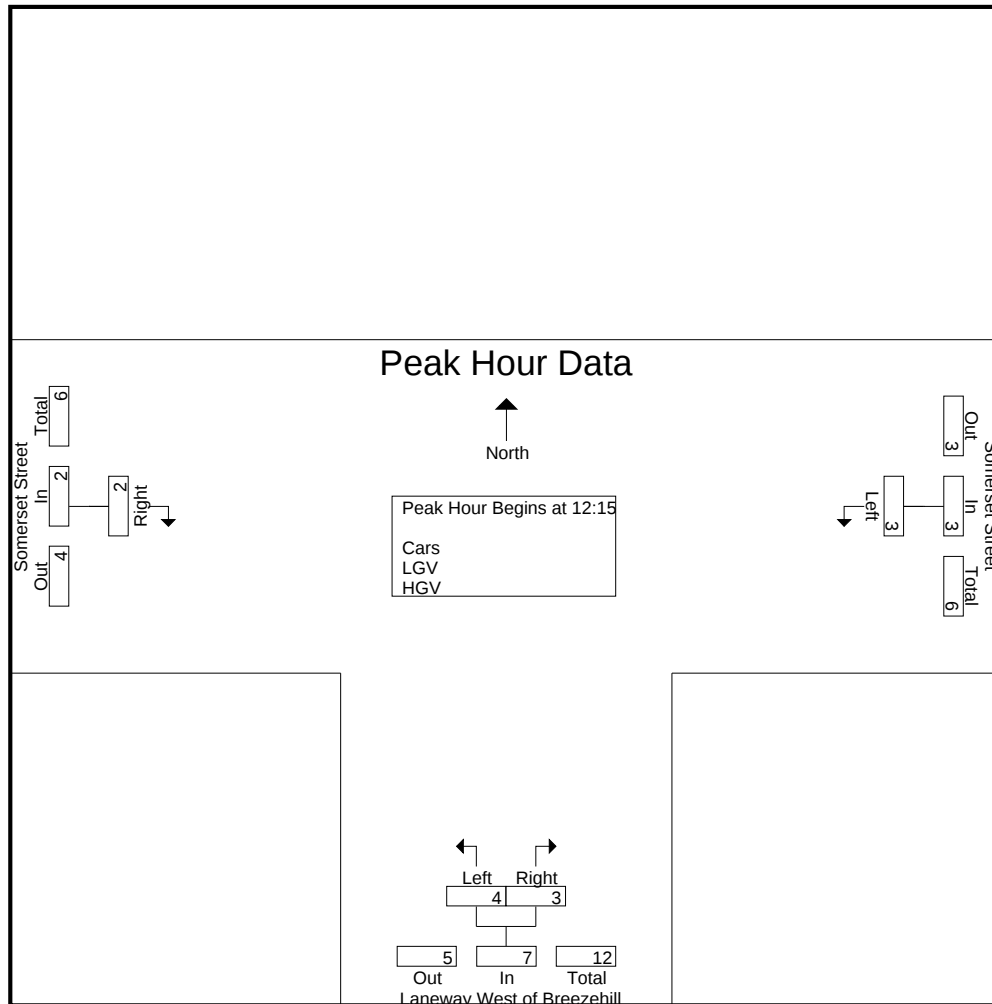
|                                                      | Laneway West of Breezehill<br>Northbound |       |            | Somerset Street<br>Westbound |            | Somerset Street<br>Eastbound |            |            |
|------------------------------------------------------|------------------------------------------|-------|------------|------------------------------|------------|------------------------------|------------|------------|
| Start Time                                           | Left                                     | Right | App. Total | Left                         | App. Total | Right                        | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1 |                                          |       |            |                              |            |                              |            |            |
| Peak Hour for Entire Intersection Begins at 07:15    |                                          |       |            |                              |            |                              |            |            |
| 07:15                                                | 1                                        | 0     | 1          | 3                            | 3          | 0                            | 0          | 4          |
| 07:30                                                | 1                                        | 0     | 1          | 2                            | 2          | 0                            | 0          | 3          |
| 07:45                                                | 1                                        | 1     | 2          | 2                            | 2          | 1                            | 1          | 5          |
| 08:00                                                | 1                                        | 2     | 3          | 1                            | 1          | 0                            | 0          | 4          |
| Total Volume                                         | 4                                        | 3     | 7          | 8                            | 8          | 1                            | 1          | 16         |
| % App. Total                                         | 57.1                                     | 42.9  |            | 100                          |            | 100                          |            |            |
| PHF                                                  | 1.000                                    | .375  | .583       | .667                         | .667       | .250                         | .250       | .800       |



Weather: 3C, Overcast  
Serial Number: TDC-12-1612  
Collected By:  
Notes: Thursday

File Name : 20120329 Somerset&Laneway  
Site Code : 11115212  
Start Date : 3/29/2012  
Page No : 5

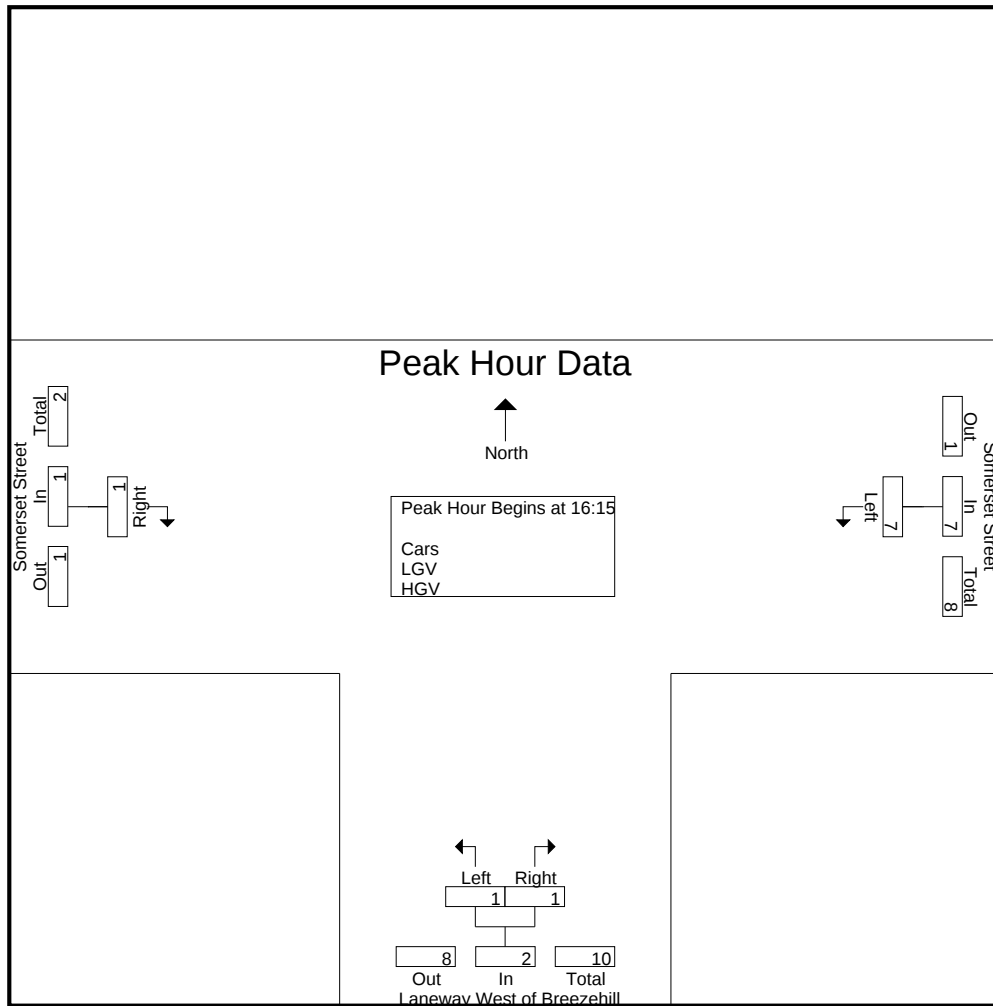
|                                                      | Laneway West of Breezehill<br>Northbound |       |            | Somerset Street<br>Westbound |            | Somerset Street<br>Eastbound |            |            |
|------------------------------------------------------|------------------------------------------|-------|------------|------------------------------|------------|------------------------------|------------|------------|
| Start Time                                           | Left                                     | Right | App. Total | Left                         | App. Total | Right                        | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1 |                                          |       |            |                              |            |                              |            |            |
| Peak Hour for Entire Intersection Begins at 12:15    |                                          |       |            |                              |            |                              |            |            |
| 12:15                                                | 0                                        | 1     | 1          | 1                            | 1          | 0                            | 0          | 2          |
| 12:30                                                | 0                                        | 0     | 0          | 0                            | 0          | 1                            | 1          | 1          |
| 12:45                                                | 2                                        | 2     | 4          | 1                            | 1          | 0                            | 0          | 5          |
| 13:00                                                | 2                                        | 0     | 2          | 1                            | 1          | 1                            | 1          | 4          |
| Total Volume                                         | 4                                        | 3     | 7          | 3                            | 3          | 2                            | 2          | 12         |
| % App. Total                                         | 57.1                                     | 42.9  |            | 100                          |            | 100                          |            |            |
| PHF                                                  | .500                                     | .375  | .438       | .750                         | .750       | .500                         | .500       | .600       |



Weather: 3C, Overcast  
Serial Number: TDC-12-1612  
Collected By:  
Notes: Thursday

File Name : 20120329 Somerset&Laneway  
Site Code : 11115212  
Start Date : 3/29/2012  
Page No : 6

|                                                      | Laneway West of Breezehill<br>Northbound |       |            | Somerset Street<br>Westbound |            | Somerset Street<br>Eastbound |            |            |
|------------------------------------------------------|------------------------------------------|-------|------------|------------------------------|------------|------------------------------|------------|------------|
| Start Time                                           | Left                                     | Right | App. Total | Left                         | App. Total | Right                        | App. Total | Int. Total |
| Peak Hour Analysis From 14:00 to 17:30 - Peak 1 of 1 |                                          |       |            |                              |            |                              |            |            |
| Peak Hour for Entire Intersection Begins at 16:15    |                                          |       |            |                              |            |                              |            |            |
| 16:15                                                | 0                                        | 0     | 0          | 4                            | 4          | 0                            | 0          | 4          |
| 16:30                                                | 0                                        | 1     | 1          | 1                            | 1          | 0                            | 0          | 2          |
| 16:45                                                | 1                                        | 0     | 1          | 0                            | 0          | 0                            | 0          | 1          |
| 17:00                                                | 0                                        | 0     | 0          | 2                            | 2          | 1                            | 1          | 3          |
| Total Volume                                         | 1                                        | 1     | 2          | 7                            | 7          | 1                            | 1          | 10         |
| % App. Total                                         | 50                                       | 50    |            | 100                          |            | 100                          |            |            |
| PHF                                                  | .250                                     | .250  | .500       | .438                         | .438       | .250                         | .250       | .625       |



### BICYCLE TURNING MOVEMENTS (15 Min. Volumes)

## Somerset Street & Driveway

**Survey Date: Thursday, May 31, 2012**

**Total Observed U-Turns**

|              |               |
|--------------|---------------|
| Westbound: 0 | Southbound: 0 |
| Eastbound: 0 | Northbound: 0 |

**Job No.: 111152**

**Weather: 13 degrees, Sun**

Recorded: DS

| Time Period | Somerset Street |    |  |            |           |    |  |            |            | Driveway   |   |  |            |            |   |  |            |            |                |
|-------------|-----------------|----|--|------------|-----------|----|--|------------|------------|------------|---|--|------------|------------|---|--|------------|------------|----------------|
|             | WESTBOUND       |    |  | SUB<br>TOT | EASTBOUND |    |  | SUB<br>TOT | STR<br>TOT | NORTHBOUND |   |  | SUB<br>TOT | SOUTHBOUND |   |  | SUB<br>TOT | STR<br>TOT | GRAND<br>TOTAL |
|             |                 |    |  |            |           |    |  |            |            |            |   |  |            |            |   |  |            |            |                |
| 7:30-7:45   |                 | 3  |  | 3          |           | 10 |  | 10         | 13         |            | 1 |  | 1          |            | 0 |  | 0          | 1          | 14             |
| 7:45-8:00   |                 | 8  |  | 8          |           | 10 |  | 10         | 18         |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 18             |
| 8:00-8:15   |                 | 5  |  | 5          |           | 15 |  | 15         | 20         |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 20             |
| 8:15-8:30   |                 | 7  |  | 7          |           | 17 |  | 17         | 24         |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 24             |
| 8:30-8:45   |                 | 13 |  | 13         |           | 17 |  | 17         | 30         |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 30             |
| 8:45-9:00   |                 | 9  |  | 9          |           | 13 |  | 13         | 22         |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 22             |
| 3:00-3:15   |                 | 1  |  | 1          |           | 12 |  | 12         | 13         |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 13             |
| 3:15-3:30   |                 | 2  |  | 2          |           | 3  |  | 3          | 5          |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 5              |
| 3:30-3:45   |                 | 2  |  | 2          |           | 4  |  | 4          | 6          |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 6              |
| 3:45-4:00   |                 | 5  |  | 5          |           | 8  |  | 8          | 13         |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 13             |
| 4:00-4:15   |                 | 16 |  | 16         |           | 5  |  | 5          | 21         |            | 1 |  | 1          |            | 0 |  | 0          | 1          | 22             |
| 4:15-4:30   |                 | 11 |  | 11         |           | 7  |  | 7          | 18         |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 18             |
| 4:30-4:45   |                 | 15 |  | 15         |           | 4  |  | 4          | 19         |            | 0 |  | 0          |            | 1 |  | 1          | 1          | 20             |
| 4:45-5:00   |                 | 16 |  | 16         |           | 13 |  | 13         | 29         |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 29             |
| 5:00-5:15   |                 | 22 |  | 22         |           | 15 |  | 15         | 37         |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 37             |
| 5:15-5:30   |                 | 21 |  | 21         |           | 15 |  | 15         | 36         |            | 0 |  | 0          |            | 0 |  | 0          | 0          | 36             |
|             |                 |    |  |            |           |    |  |            |            |            |   |  |            |            |   |  |            |            | 327            |

### PEDESTRIAN (ALL) TURNING MOVEMENTS (15 Min. Volumes)

### Somerset Street & Driveway

**Survey Date: Thursday, May 31, 2012**

### Total Observed U-Turns

Job No.: 111152

Westbound: 0

Southbound: 0

Eastbound: 0

Northbound: 0

**Weather: 13 degrees, Sun**

Recorded: DS

| Time Period | Somerset Street          |    |  |            |            | Driveway           |    |  |            |            |                |     |
|-------------|--------------------------|----|--|------------|------------|--------------------|----|--|------------|------------|----------------|-----|
|             | <u>CROSSING DRIVEWAY</u> |    |  |            |            | <u>IN DRIVEWAY</u> |    |  |            |            |                |     |
|             |                          |    |  | SUB<br>TOT | STR<br>TOT |                    |    |  | SUB<br>TOT | STR<br>TOT | GRAND<br>TOTAL |     |
| 7:30-7:45   |                          | 5  |  | 5          | 5          |                    | 0  |  | 0          | 0          | 5              |     |
| 7:45-8:00   |                          | 4  |  | 4          | 4          |                    | 2  |  | 2          | 2          | 6              |     |
| 8:00-8:15   |                          | 8  |  | 8          | 8          |                    | 3  |  | 3          | 3          | 11             |     |
| 8:15-8:30   |                          | 19 |  | 19         | 19         |                    | 2  |  | 2          | 2          | 21             |     |
| 8:30-8:45   |                          | 14 |  | 14         | 14         |                    | 1  |  | 1          | 1          | 15             |     |
| 8:45-9:00   |                          | 17 |  | 17         | 17         |                    | 6  |  | 6          | 6          | 23             |     |
| 3:00-3:15   |                          | 73 |  | 73         | 73         |                    | 8  |  | 8          | 8          | 81             |     |
| 3:15-3:30   |                          | 23 |  | 23         | 23         |                    | 11 |  | 11         | 11         | 34             |     |
| 3:30-3:45   |                          | 21 |  | 21         | 21         |                    | 11 |  | 11         | 11         | 32             |     |
| 3:45-4:00   |                          | 14 |  | 14         | 14         |                    | 12 |  | 12         | 12         | 26             |     |
| 4:00-4:15   |                          | 22 |  | 22         | 22         |                    | 6  |  | 6          | 6          | 28             |     |
| 4:15-4:30   |                          | 20 |  | 20         | 20         |                    | 15 |  | 15         | 15         | 35             |     |
| 4:30-4:45   |                          | 27 |  | 27         | 27         |                    | 15 |  | 15         | 15         | 42             |     |
| 4:45-5:00   |                          | 26 |  | 26         | 26         |                    | 14 |  | 14         | 14         | 40             |     |
| 5:00-5:15   |                          | 39 |  | 39         | 39         |                    | 11 |  | 11         | 11         | 50             |     |
| 5:15-5:30   |                          | 32 |  | 32         | 32         |                    | 14 |  | 14         | 14         | 46             |     |
|             |                          |    |  |            |            |                    |    |  |            |            |                | 495 |

### PEDESTRIAN (CHILD) TURNING MOVEMENTS (15 Min. Volumes)

### Somerset Street & Driveway

**Survey Date: Thursday, May 31, 2012**

### Total Observed U-Turns

Job No.: 111152

Westbound: 0

Southbound: 0

Eastbound: 0

Northbound: 0

Recorded: DS

**Weather: 13 degrees, Sun**

| Time Period | Somerset Street   |    |  |         |         | Driveway    |   |  |         |         | GRAND TOTAL |
|-------------|-------------------|----|--|---------|---------|-------------|---|--|---------|---------|-------------|
|             | CROSSING DRIVEWAY |    |  | SUB TOT | STR TOT | IN DRIVEWAY |   |  | SUB TOT | STR TOT |             |
|             |                   |    |  |         |         |             |   |  |         |         |             |
| 7:30-7:45   |                   | 0  |  | 0       | 0       |             | 0 |  | 0       | 0       | 0           |
| 7:45-8:00   |                   | 0  |  | 0       | 0       |             | 0 |  | 0       | 0       | 0           |
| 8:00-8:15   |                   | 1  |  | 1       | 1       |             | 1 |  | 1       | 1       | 2           |
| 8:15-8:30   |                   | 5  |  | 5       | 5       |             | 1 |  | 1       | 1       | 6           |
| 8:30-8:45   |                   | 0  |  | 0       | 0       |             | 0 |  | 0       | 0       | 0           |
| 8:45-9:00   |                   | 0  |  | 0       | 0       |             | 0 |  | 0       | 0       | 0           |
| 3:00-3:15   |                   | 51 |  | 51      | 51      |             | 1 |  | 1       | 1       | 52          |
| 3:15-3:30   |                   | 4  |  | 4       | 4       |             | 1 |  | 1       | 1       | 5           |
| 3:30-3:45   |                   | 2  |  | 2       | 2       |             | 4 |  | 4       | 4       | 6           |
| 3:45-4:00   |                   | 0  |  | 0       | 0       |             | 2 |  | 2       | 2       | 2           |
| 4:00-4:15   |                   | 4  |  | 4       | 4       |             | 0 |  | 0       | 0       | 4           |
| 4:15-4:30   |                   | 4  |  | 4       | 4       |             | 3 |  | 3       | 3       | 7           |
| 4:30-4:45   |                   | 1  |  | 1       | 1       |             | 2 |  | 2       | 2       | 3           |
| 4:45-5:00   |                   | 0  |  | 0       | 0       |             | 4 |  | 4       | 4       | 4           |
| 5:00-5:15   |                   | 7  |  | 7       | 7       |             | 1 |  | 1       | 1       | 8           |
| 5:15-5:30   |                   | 5  |  | 5       | 5       |             | 2 |  | 2       | 2       | 7           |
|             |                   |    |  |         |         |             |   |  |         |         |             |
|             |                   |    |  |         |         |             |   |  |         |         | 106         |

Serial Number: TDC-121612  
Weather: High 17C Low 5C Sunny  
Collected By: Brad Byvelds  
Comments:

File Name : 20120512 - Laurel&Breezehill Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 1

**Groups Printed- Cars - Light Trucks - Heavy Trucks**

| Start Time    | Breezehill Ave North Northbound |      |       |            | Breezehill Ave North Southbound |      |       |            | Laurel Street Westbound |      |       |            | Laurel Street Eastbound |      |       |            | Int. Total |
|---------------|---------------------------------|------|-------|------------|---------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|               | Left                            | Thru | Right | App. Total | Left                            | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00         | 2                               | 2    | 0     | 4          | 3                               | 2    | 0     | 5          | 0                       | 2    | 1     | 3          | 0                       | 2    | 1     | 3          | 15         |
| 07:15         | 0                               | 7    | 0     | 7          | 1                               | 1    | 0     | 2          | 0                       | 1    | 2     | 3          | 3                       | 1    | 0     | 4          | 16         |
| 07:30         | 1                               | 8    | 0     | 9          | 6                               | 1    | 4     | 11         | 0                       | 0    | 1     | 1          | 5                       | 3    | 1     | 9          | 30         |
| 07:45         | 1                               | 6    | 0     | 7          | 4                               | 4    | 3     | 11         | 2                       | 0    | 1     | 3          | 2                       | 3    | 2     | 7          | 28         |
| Total         | 4                               | 23   | 0     | 27         | 14                              | 8    | 7     | 29         | 2                       | 3    | 5     | 10         | 10                      | 9    | 4     | 23         | 89         |
| 08:00         | 1                               | 3    | 0     | 4          | 0                               | 3    | 4     | 7          | 0                       | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 12         |
| 08:15         | 8                               | 17   | 2     | 27         | 2                               | 15   | 7     | 24         | 0                       | 1    | 1     | 2          | 5                       | 3    | 2     | 10         | 63         |
| 08:30         | 7                               | 16   | 1     | 24         | 2                               | 12   | 9     | 23         | 2                       | 2    | 3     | 7          | 6                       | 2    | 4     | 12         | 66         |
| 08:45         | 4                               | 10   | 2     | 16         | 0                               | 3    | 1     | 4          | 1                       | 3    | 1     | 5          | 1                       | 5    | 2     | 8          | 33         |
| Total         | 20                              | 46   | 5     | 71         | 4                               | 33   | 21    | 58         | 3                       | 6    | 5     | 14         | 12                      | 11   | 8     | 31         | 174        |
| 09:00         | 2                               | 7    | 1     | 10         | 3                               | 4    | 1     | 8          | 1                       | 3    | 1     | 5          | 2                       | 3    | 2     | 7          | 30         |
| 09:15         | 1                               | 10   | 2     | 13         | 4                               | 4    | 1     | 9          | 0                       | 1    | 0     | 1          | 4                       | 2    | 2     | 8          | 31         |
| 09:30         | 2                               | 8    | 1     | 11         | 3                               | 11   | 3     | 17         | 0                       | 4    | 3     | 7          | 4                       | 2    | 4     | 10         | 45         |
| 09:45         | 1                               | 9    | 1     | 11         | 1                               | 4    | 3     | 8          | 2                       | 2    | 4     | 8          | 2                       | 4    | 1     | 7          | 34         |
| Total         | 6                               | 34   | 5     | 45         | 11                              | 23   | 8     | 42         | 3                       | 10   | 8     | 21         | 12                      | 11   | 9     | 32         | 140        |
| 10:00         | 0                               | 0    | 0     | 0          | 0                               | 0    | 0     | 0          | 0                       | 0    | 1     | 1          | 1                       | 0    | 0     | 1          | 2          |
| *** BREAK *** |                                 |      |       |            |                                 |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Total         | 0                               | 0    | 0     | 0          | 0                               | 0    | 0     | 0          | 0                       | 0    | 1     | 1          | 1                       | 0    | 0     | 1          | 2          |
| 11:00         | 1                               | 9    | 0     | 10         | 2                               | 10   | 2     | 14         | 2                       | 3    | 3     | 8          | 2                       | 4    | 1     | 7          | 39         |
| 11:15         | 1                               | 3    | 0     | 4          | 1                               | 4    | 2     | 7          | 0                       | 1    | 1     | 2          | 2                       | 1    | 0     | 3          | 16         |
| 11:30         | 2                               | 7    | 0     | 9          | 2                               | 5    | 4     | 11         | 1                       | 4    | 2     | 7          | 1                       | 4    | 3     | 8          | 35         |
| 11:45         | 0                               | 6    | 2     | 8          | 3                               | 5    | 0     | 8          | 0                       | 3    | 3     | 6          | 5                       | 4    | 1     | 10         | 32         |
| Total         | 4                               | 25   | 2     | 31         | 8                               | 24   | 8     | 40         | 3                       | 11   | 9     | 23         | 10                      | 13   | 5     | 28         | 122        |
| 12:00         | 0                               | 10   | 1     | 11         | 1                               | 1    | 0     | 2          | 1                       | 1    | 4     | 6          | 0                       | 4    | 0     | 4          | 23         |
| 12:15         | 4                               | 9    | 2     | 15         | 2                               | 4    | 1     | 7          | 3                       | 3    | 1     | 7          | 3                       | 3    | 1     | 7          | 36         |
| 12:30         | 4                               | 6    | 3     | 13         | 2                               | 4    | 1     | 7          | 0                       | 3    | 0     | 3          | 1                       | 2    | 2     | 5          | 28         |
| 12:45         | 2                               | 2    | 0     | 4          | 3                               | 5    | 3     | 11         | 2                       | 4    | 1     | 7          | 0                       | 4    | 0     | 4          | 26         |
| Total         | 10                              | 27   | 6     | 43         | 8                               | 14   | 5     | 27         | 6                       | 11   | 6     | 23         | 4                       | 13   | 3     | 20         | 113        |
| 13:00         | 1                               | 5    | 0     | 6          | 0                               | 4    | 3     | 7          | 0                       | 1    | 1     | 2          | 1                       | 2    | 1     | 4          | 19         |
| 13:15         | 1                               | 8    | 1     | 10         | 3                               | 7    | 4     | 14         | 0                       | 2    | 0     | 2          | 3                       | 2    | 2     | 7          | 33         |
| *** BREAK *** |                                 |      |       |            |                                 |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Total         | 2                               | 13   | 1     | 16         | 3                               | 11   | 7     | 21         | 0                       | 3    | 1     | 4          | 4                       | 4    | 3     | 11         | 52         |
| *** BREAK *** |                                 |      |       |            |                                 |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 15:00         | 4                               | 11   | 4     | 19         | 2                               | 11   | 3     | 16         | 0                       | 3    | 6     | 9          | 2                       | 2    | 8     | 12         | 56         |
| 15:15         | 0                               | 6    | 1     | 7          | 0                               | 1    | 3     | 4          | 3                       | 5    | 5     | 13         | 2                       | 1    | 2     | 5          | 29         |
| 15:30         | 4                               | 3    | 1     | 8          | 1                               | 5    | 7     | 13         | 1                       | 4    | 4     | 9          | 1                       | 1    | 2     | 4          | 34         |
| 15:45         | 1                               | 8    | 2     | 11         | 3                               | 9    | 4     | 16         | 1                       | 3    | 0     | 4          | 3                       | 4    | 1     | 8          | 39         |
| Total         | 9                               | 28   | 8     | 45         | 6                               | 26   | 17    | 49         | 5                       | 15   | 15    | 35         | 8                       | 8    | 13    | 29         | 158        |
| 16:00         | 4                               | 4    | 0     | 8          | 1                               | 6    | 6     | 13         | 1                       | 6    | 3     | 10         | 3                       | 2    | 1     | 6          | 37         |
| 16:15         | 1                               | 7    | 1     | 9          | 2                               | 3    | 5     | 10         | 3                       | 4    | 6     | 13         | 1                       | 2    | 0     | 3          | 35         |
| 16:30         | 2                               | 3    | 1     | 6          | 2                               | 10   | 8     | 20         | 0                       | 3    | 1     | 4          | 2                       | 1    | 0     | 3          | 33         |
| 16:45         | 4                               | 2    | 0     | 6          | 3                               | 7    | 3     | 13         | 0                       | 4    | 2     | 6          | 2                       | 2    | 0     | 4          | 29         |
| Total         | 11                              | 16   | 2     | 29         | 8                               | 26   | 22    | 56         | 4                       | 17   | 12    | 33         | 8                       | 7    | 1     | 16         | 134        |
| 17:00         | 2                               | 6    | 0     | 8          | 1                               | 8    | 11    | 20         | 0                       | 1    | 1     | 2          | 1                       | 2    | 1     | 4          | 34         |
| 17:15         | 1                               | 3    | 0     | 4          | 4                               | 4    | 5     | 13         | 1                       | 1    | 1     | 3          | 4                       | 0    | 1     | 5          | 25         |

Serial Number: TDC-121612  
Weather: High 17C Low 5C Sunny  
Collected By: Brad Byvelds  
Comments:

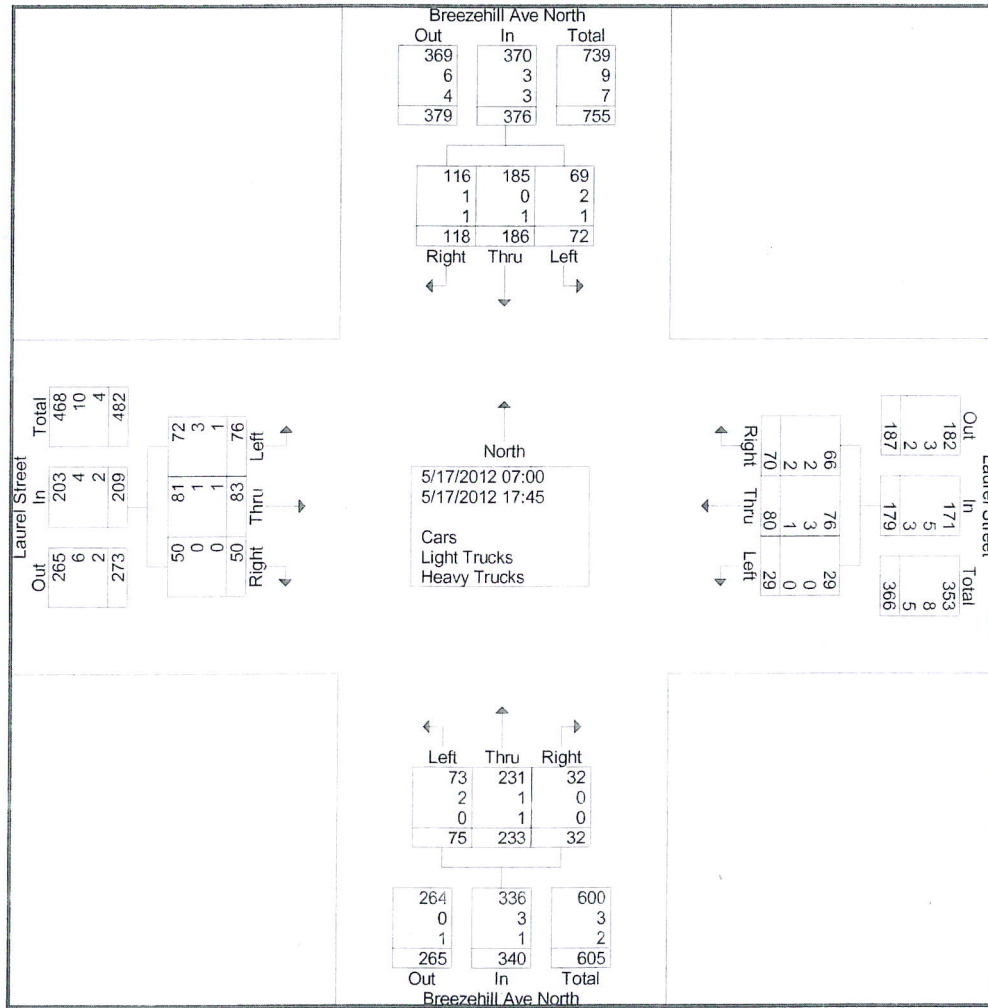
File Name : 20120512 - Laurel&Breezehill Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 2

**Groups Printed- Cars - Light Trucks - Heavy Trucks**

|                | <b>Breezehill Ave North Northbound</b> |      |       |            | <b>Breezehill Ave North Southbound</b> |      |       |            | <b>Laurel Street Westbound</b> |      |       |            | <b>Laurel Street Eastbound</b> |      |       |            |            |
|----------------|----------------------------------------|------|-------|------------|----------------------------------------|------|-------|------------|--------------------------------|------|-------|------------|--------------------------------|------|-------|------------|------------|
| Start Time     | Left                                   | Thru | Right | App. Total | Left                                   | Thru | Right | App. Total | Left                           | Thru | Right | App. Total | Left                           | Thru | Right | App. Total | Int. Total |
| 17:30          | 5                                      | 7    | 1     | 13         | 4                                      | 8    | 5     | 17         | 1                              | 1    | 3     | 5          | 1                              | 2    | 2     | 5          | 40         |
| 17:45          | 1                                      | 5    | 2     | 8          | 1                                      | 1    | 2     | 4          | 1                              | 1    | 3     | 5          | 1                              | 3    | 0     | 4          | 21         |
| Total          | 9                                      | 21   | 3     | 33         | 10                                     | 21   | 23    | 54         | 3                              | 4    | 8     | 15         | 7                              | 7    | 4     | 18         | 120        |
| Grand Total    | 75                                     | 233  | 32    | 340        | 72                                     | 186  | 118   | 376        | 29                             | 80   | 70    | 179        | 76                             | 83   | 50    | 209        | 1104       |
| Apprch %       | 22.1                                   | 68.5 | 9.4   |            | 19.1                                   | 49.5 | 31.4  |            | 16.2                           | 44.7 | 39.1  |            | 36.4                           | 39.7 | 23.9  |            |            |
| Total %        | 6.8                                    | 21.1 | 2.9   | 30.8       | 6.5                                    | 16.8 | 10.7  | 34.1       | 2.6                            | 7.2  | 6.3   | 16.2       | 6.9                            | 7.5  | 4.5   | 18.9       |            |
| Cars           | 73                                     | 231  | 32    | 336        | 69                                     | 185  | 116   | 370        | 29                             | 76   | 66    | 171        | 72                             | 81   | 50    | 203        | 1080       |
| % Cars         | 97.3                                   | 99.1 | 100   | 98.8       | 95.8                                   | 99.5 | 98.3  | 98.4       | 100                            | 95   | 94.3  | 95.5       | 94.7                           | 97.6 | 100   | 97.1       | 97.8       |
| Light Trucks   | 2                                      | 1    | 0     | 3          | 2                                      | 0    | 1     | 3          | 0                              | 3    | 2     | 5          | 3                              | 1    | 0     | 4          | 15         |
| % Light Trucks | 2.7                                    | 0.4  | 0     | 0.9        | 2.8                                    | 0    | 0.8   | 0.8        | 0                              | 3.8  | 2.9   | 2.8        | 3.9                            | 1.2  | 0     | 1.9        | 1.4        |
| Heavy Trucks   | 0                                      | 1    | 0     | 1          | 1                                      | 1    | 1     | 3          | 0                              | 1    | 2     | 3          | 1                              | 1    | 0     | 2          | 9          |
| % Heavy Trucks | 0                                      | 0.4  | 0     | 0.3        | 1.4                                    | 0.5  | 0.8   | 0.8        | 0                              | 1.2  | 2.9   | 1.7        | 1.3                            | 1.2  | 0     | 1          | 0.8        |

Serial Number: TDC-121612  
Weather: High 17C Low 5C Sunny  
Collected By: Brad Byvelds  
Comments:

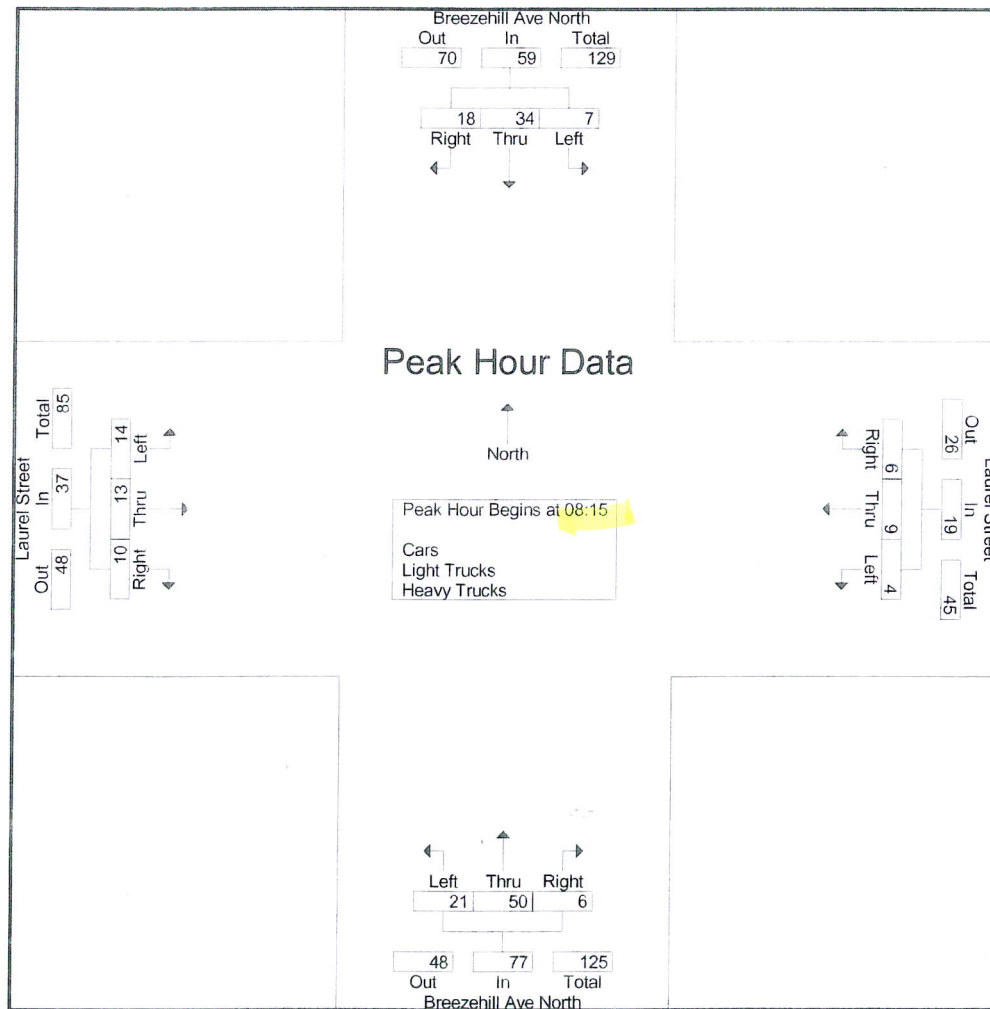
File Name : 20120512 - Laurel&Breezehill Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 3



Serial Number: TDC-121612  
Weather: High 17C Low 5C Sunny  
Collected By: Brad Byvelds  
Comments:

File Name : 20120512 - Laurel&Breezehill Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 4

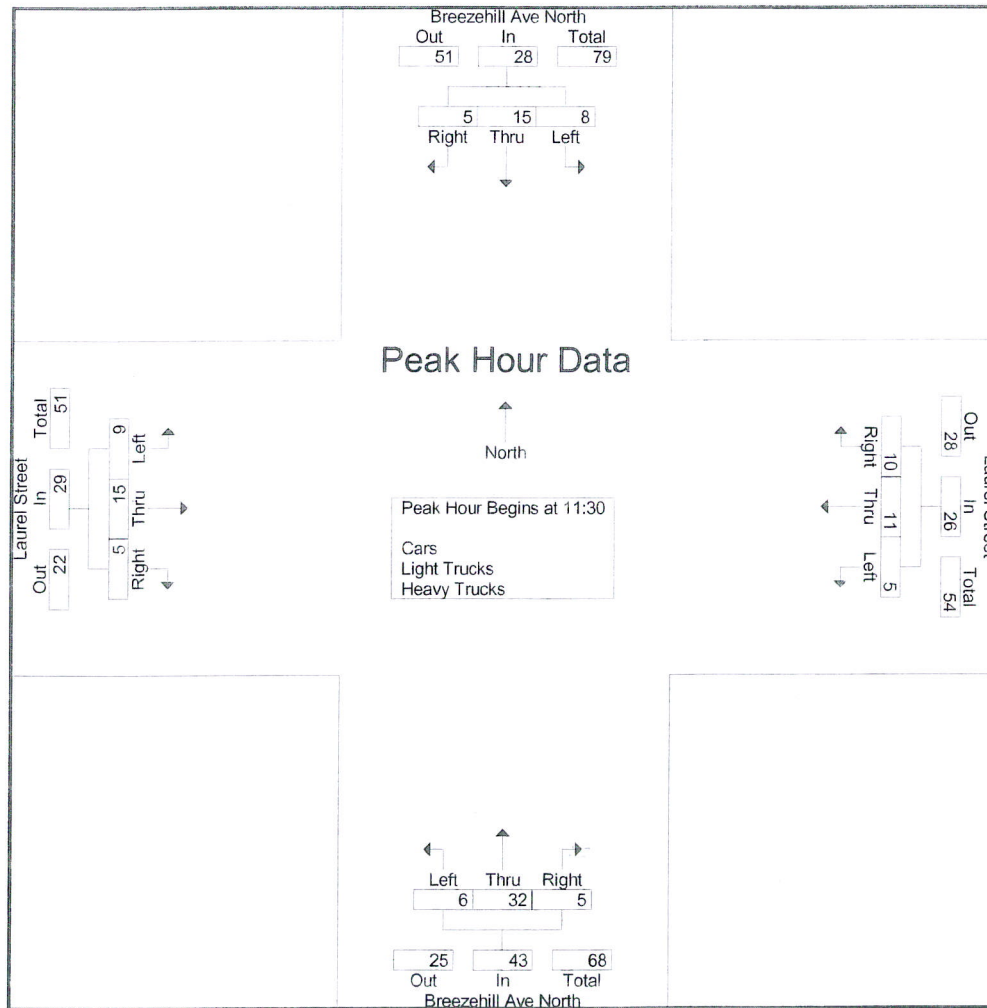
|                                                      | Breezehill Ave North Northbound |      |       |            | Breezehill Ave North Southbound |      |       |            | Laurel Street Westbound |      |       |            | Laurel Street Eastbound |      |       |            |            |
|------------------------------------------------------|---------------------------------|------|-------|------------|---------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
| Start Time                                           | Left                            | Thru | Right | App. Total | Left                            | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1 |                                 |      |       |            |                                 |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 08:15    |                                 |      |       |            |                                 |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 08:15                                                | 8                               | 17   | 2     | 27         | 2                               | 15   | 7     | 24         | 0                       | 1    | 1     | 2          | 5                       | 3    | 2     | 10         | 63         |
| 08:30                                                | 7                               | 16   | 1     | 24         | 2                               | 12   | 9     | 23         | 2                       | 2    | 3     | 7          | 6                       | 2    | 4     | 12         | 66         |
| 08:45                                                | 4                               | 10   | 2     | 16         | 0                               | 3    | 1     | 4          | 1                       | 3    | 1     | 5          | 1                       | 5    | 2     | 8          | 33         |
| 09:00                                                | 2                               | 7    | 1     | 10         | 3                               | 4    | 1     | 8          | 1                       | 3    | 1     | 5          | 2                       | 3    | 2     | 7          | 30         |
| Total Volume                                         | 21                              | 50   | 6     | 77         | 7                               | 34   | 18    | 59         | 4                       | 9    | 6     | 19         | 14                      | 13   | 10    | 37         | 192        |
| % App. Total                                         | 27.3                            | 64.9 | 7.8   |            | 11.9                            | 57.6 | 30.5  |            | 21.1                    | 47.4 | 31.6  |            | 37.8                    | 35.1 | 27    |            |            |
| PHF                                                  | .656                            | .735 | .750  | .713       | .583                            | .567 | .500  | .615       | .500                    | .750 | .500  | .679       | .583                    | .650 | .625  | .771       | .727       |



Serial Number: TDC-121612  
Weather: High 17C Low 5C Sunny  
Collected By: Brad Byvelds  
Comments:

File Name : 20120512 - Laurel&Breezehill Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 5

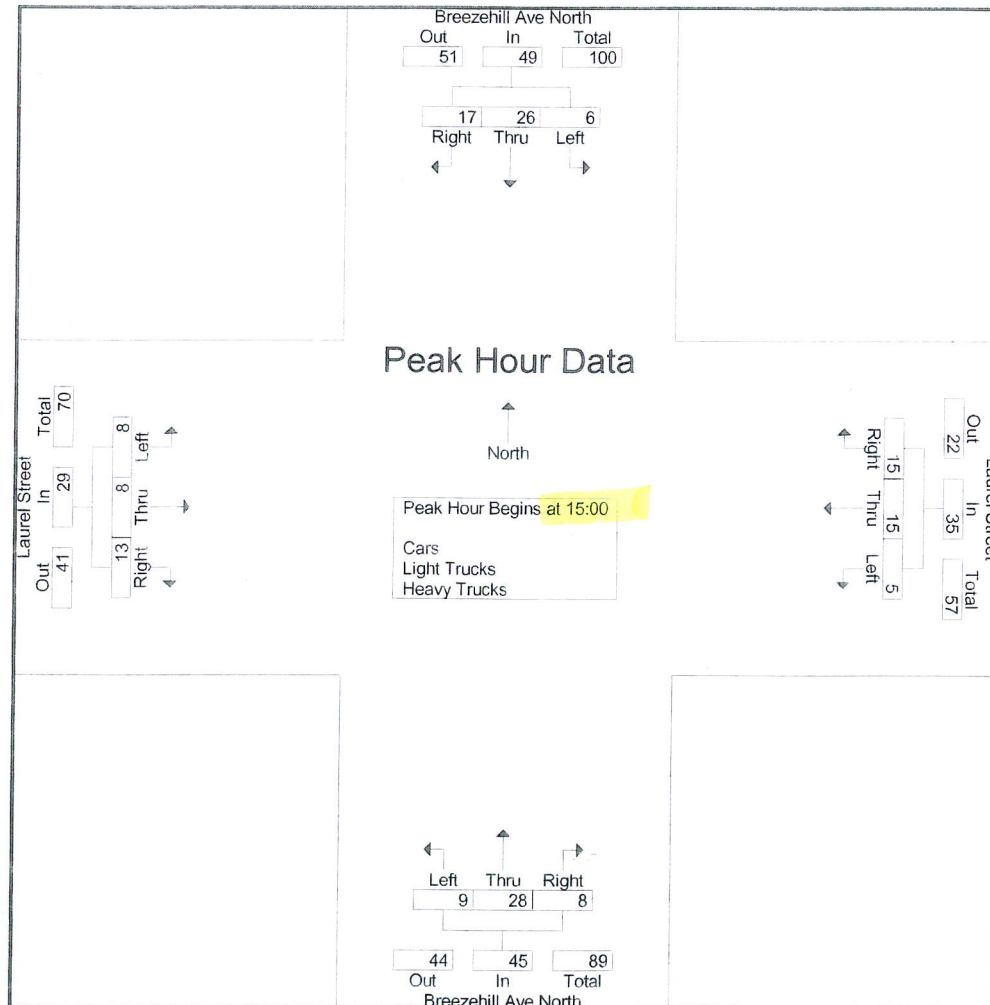
|                                                      | Breezehill Ave North Northbound |      |       |            | Breezehill Ave North Southbound |      |       |            | Laurel Street Westbound |      |       |            | Laurel Street Eastbound |      |       |            |            |
|------------------------------------------------------|---------------------------------|------|-------|------------|---------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
| Start Time                                           | Left                            | Thru | Right | App. Total | Left                            | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 to 13:15 - Peak 1 of 1 |                                 |      |       |            |                                 |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 11:30    |                                 |      |       |            |                                 |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 11:30                                                | 2                               | 7    | 0     | 9          | 2                               | 5    | 4     | 11         | 1                       | 4    | 2     | 7          | 1                       | 4    | 3     | 8          | 35         |
| 11:45                                                | 0                               | 6    | 2     | 8          | 3                               | 5    | 0     | 8          | 0                       | 3    | 3     | 6          | 5                       | 4    | 1     | 10         | 32         |
| 12:00                                                | 0                               | 10   | 1     | 11         | 1                               | 1    | 0     | 2          | 1                       | 1    | 4     | 6          | 0                       | 4    | 0     | 4          | 23         |
| 12:15                                                | 4                               | 9    | 2     | 15         | 2                               | 4    | 1     | 7          | 3                       | 3    | 1     | 7          | 3                       | 3    | 1     | 7          | 36         |
| Total Volume                                         | 6                               | 32   | 5     | 43         | 8                               | 15   | 5     | 28         | 5                       | 11   | 10    | 26         | 9                       | 15   | 5     | 29         | 126        |
| % App. Total                                         | 14                              | 74.4 | 11.6  |            | 28.6                            | 53.6 | 17.9  |            | 19.2                    | 42.3 | 38.5  |            | 31                      | 51.7 | 17.2  |            |            |
| PHF                                                  | .375                            | .800 | .625  | .717       | .667                            | .750 | .313  | .636       | .417                    | .688 | .625  | .929       | .450                    | .938 | .417  | .725       | .875       |



Serial Number: TDC-121612  
Weather: High 17C Low 5C Sunny  
Collected By: Brad Byvelds  
Comments:

File Name : 20120512 - Laurel&Breezehill Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 6

|                                                      | Breezehill Ave North Northbound |      |       |            | Breezehill Ave North Southbound |      |       |            | Laurel Street Westbound |      |       |            | Laurel Street Eastbound |      |       |            |            |
|------------------------------------------------------|---------------------------------|------|-------|------------|---------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
| Start Time                                           | Left                            | Thru | Right | App. Total | Left                            | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 15:00 to 17:45 - Peak 1 of 1 |                                 |      |       |            |                                 |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 15:00    |                                 |      |       |            |                                 |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 15:00                                                | 4                               | 11   | 4     | 19         | 2                               | 11   | 3     | 16         | 0                       | 3    | 6     | 9          | 2                       | 2    | 8     | 12         | 56         |
| 15:15                                                | 0                               | 6    | 1     | 7          | 0                               | 1    | 3     | 4          | 3                       | 5    | 5     | 13         | 2                       | 1    | 2     | 5          | 29         |
| 15:30                                                | 4                               | 3    | 1     | 8          | 1                               | 5    | 7     | 13         | 1                       | 4    | 4     | 9          | 1                       | 1    | 2     | 4          | 34         |
| 15:45                                                | 1                               | 8    | 2     | 11         | 3                               | 9    | 4     | 16         | 1                       | 3    | 0     | 4          | 3                       | 4    | 1     | 8          | 39         |
| Total Volume                                         | 9                               | 28   | 8     | 45         | 6                               | 26   | 17    | 49         | 5                       | 15   | 15    | 35         | 8                       | 8    | 13    | 29         | 158        |
| % App. Total                                         | 20                              | 62.2 | 17.8  |            | 12.2                            | 53.1 | 34.7  |            | 14.3                    | 42.9 | 42.9  |            | 27.6                    | 27.6 | 44.8  |            |            |
| PHF                                                  | .563                            | .636 | .500  | .592       | .500                            | .591 | .607  | .766       | .417                    | .750 | .625  | .673       | .667                    | .500 | .406  | .604       | .705       |



### BICYCLE TURNING MOVEMENTS (15 Min. Volumes)

## Laurel Street & Breezehill Avenue

**Survey Date: Thursday, May 17, 2012**

**Weather: 20 degrees, Sun**

### Total Observed U-Turns

Westbound: 0

Southbound: C

Eastbound: 0

Northbound: 0

**Job No.: 111152**

**Recorded: Cameron Odam**

| Time Period | Laurel Street |    |    |         |           |    |    |         | Breezehill Avenue |            |    |    |         |            |    |  | GRAND TOTAL |         |         |
|-------------|---------------|----|----|---------|-----------|----|----|---------|-------------------|------------|----|----|---------|------------|----|--|-------------|---------|---------|
|             | WESTBOUND     |    |    | SUB TOT | EASTBOUND |    |    | SUB TOT | STR TOT           | NORTHBOUND |    |    | SUB TOT | SOUTHBOUND |    |  |             | SUB TOT | STR TOT |
|             |               |    |    |         |           |    |    |         |                   |            |    |    |         |            |    |  |             |         |         |
|             | LT            | ST | RT | LT      | ST        | RT | LT | ST      | RT                | LT         | ST | RT | LT      | ST         | RT |  |             |         |         |
| 7:00-7:15   |               | 0  |    | 0       |           | 0  |    | 0       | 0                 |            | 0  |    | 0       |            | 0  |  | 0           | 0       |         |
| 7:15-7:30   |               | 1  |    | 1       |           | 2  |    | 2       | 3                 |            | 0  |    | 0       |            | 1  |  | 1           | 4       |         |
| 7:30-7:45   |               | 0  |    | 0       |           | 4  |    | 4       | 4                 |            | 0  |    | 0       |            | 0  |  | 0           | 4       |         |
| 7:45-8:00   |               | 1  |    | 1       |           | 6  |    | 6       | 7                 |            | 3  |    | 3       |            | 1  |  | 4           | 11      |         |
| 8:00-8:15   |               | 0  |    | 0       |           | 0  |    | 0       | 0                 |            | 0  |    | 0       |            | 3  |  | 3           | 3       |         |
| 8:15-8:30   |               | 0  |    | 0       |           | 30 |    | 30      | 30                |            | 1  |    | 1       |            | 9  |  | 10          | 40      |         |
| 8:30-8:45   |               | 0  |    | 0       |           | 6  |    | 6       | 6                 |            | 3  |    | 3       |            | 7  |  | 10          | 16      |         |
| 8:45-9:00   |               | 1  |    | 1       |           | 3  |    | 3       | 4                 |            | 2  |    | 2       |            | 0  |  | 2           | 6       |         |
| 9:00-9:15   |               | 0  |    | 0       |           | 4  |    | 4       | 4                 |            | 0  |    | 0       |            | 0  |  | 0           | 4       |         |
| 9:15-9:30   |               | 1  |    | 1       |           | 0  |    | 0       | 1                 |            | 1  |    | 1       |            | 0  |  | 1           | 2       |         |
| 9:30-9:45   |               | 0  |    | 0       |           | 2  |    | 2       | 2                 |            | 0  |    | 0       |            | 0  |  | 0           | 2       |         |
| 9:45-10:00  |               | 2  |    | 2       |           | 0  |    | 0       | 2                 |            | 0  |    | 0       |            | 2  |  | 2           | 4       |         |
| 11:00-11:15 |               | 0  |    | 0       |           | 1  |    | 1       | 1                 |            | 0  |    | 0       |            | 4  |  | 4           | 5       |         |
| 11:15-11:30 |               | 0  |    | 0       |           | 1  |    | 1       | 1                 |            | 0  |    | 0       |            | 0  |  | 0           | 1       |         |
| 11:30-11:45 |               | 0  |    | 0       |           | 0  |    | 0       | 0                 |            | 0  |    | 0       |            | 0  |  | 0           | 0       |         |
| 11:45-12:00 |               | 0  |    | 0       |           | 0  |    | 0       | 0                 |            | 1  |    | 1       |            | 1  |  | 2           | 2       |         |
| 12:00-12:15 |               | 0  |    | 0       |           | 2  |    | 2       | 2                 |            | 0  |    | 0       |            | 1  |  | 1           | 3       |         |
| 12:15-12:30 |               | 0  |    | 0       |           | 1  |    | 1       | 1                 |            | 0  |    | 0       |            | 4  |  | 4           | 5       |         |
| 12:30-12:45 |               | 1  |    | 1       |           | 1  |    | 1       | 2                 |            | 0  |    | 0       |            | 1  |  | 1           | 3       |         |
| 12:45-1:00  |               | 1  |    | 1       |           | 2  |    | 2       | 3                 |            | 0  |    | 0       |            | 0  |  | 0           | 3       |         |
| 1:00-1:15   |               | 0  |    | 0       |           | 0  |    | 0       | 0                 |            | 0  |    | 0       |            | 0  |  | 0           | 0       |         |
| 1:15-1:30   |               | 0  |    | 0       |           | 0  |    | 0       | 0                 |            | 1  |    | 1       |            | 1  |  | 2           | 2       |         |
| 3:00-3:15   |               | 0  |    | 0       |           | 2  |    | 2       | 2                 |            | 3  |    | 3       |            | 0  |  | 3           | 5       |         |
| 3:15-3:30   |               | 0  |    | 0       |           | 1  |    | 1       | 1                 |            | 0  |    | 0       |            | 2  |  | 2           | 3       |         |
| 3:30-3:45   |               | 0  |    | 0       |           | 0  |    | 0       | 0                 |            | 0  |    | 0       |            | 8  |  | 8           | 8       |         |
| 3:45-4:00   |               | 0  |    | 0       |           | 1  |    | 1       | 1                 |            | 1  |    | 1       |            | 2  |  | 3           | 4       |         |
| 4:00-4:15   |               | 1  |    | 1       |           | 0  |    | 0       | 1                 |            | 2  |    | 2       |            | 11 |  | 13          | 14      |         |
| 4:15-4:30   |               | 2  |    | 2       |           | 1  |    | 1       | 3                 |            | 0  |    | 0       |            | 7  |  | 7           | 10      |         |
| 4:30-4:45   |               | 2  |    | 2       |           | 0  |    | 0       | 2                 |            | 1  |    | 1       |            | 2  |  | 3           | 5       |         |
| 4:45-5:00   |               | 3  |    | 3       |           | 3  |    | 3       | 6                 |            | 3  |    | 3       |            | 3  |  | 6           | 12      |         |
| 5:00-5:15   |               | 0  |    | 0       |           | 3  |    | 3       | 3                 |            | 1  |    | 1       |            | 6  |  | 7           | 10      |         |
| 5:15-5:30   |               | 2  |    | 2       |           | 1  |    | 1       | 3                 |            | 1  |    | 1       |            | 3  |  | 4           | 7       |         |
| 5:30-5:45   |               | 0  |    | 0       |           | 0  |    | 0       | 0                 |            | 0  |    | 0       |            | 3  |  | 3           | 3       |         |
| 5:45-6:00   |               | 1  |    | 1       |           | 7  |    | 7       | 8                 |            | 0  |    | 0       |            | 3  |  | 3           | 11      |         |
|             |               |    |    |         |           |    |    |         |                   |            |    |    |         |            |    |  |             |         | 212     |

### PEDESTRIAN (ALL) TURNING MOVEMENTS (15 Min. Volumes)

## Laurel Street & Breezehill Avenue

**Survey Date: Thursday, May 17, 2012**

**Weather: 20 degrees, Sun**

### Total Observed U-Turns

Westbound: 0

Southbound: C

Eastbound: 0

Northbound: 0

**Job No.:111152**

**Recorded: Ryan Donnelly**

| Time Period | Laurel Street                                 |   |  |                    |                                               |   |  |                    | Breezehill Avenue  |                                                    |   |  |                    |                                                    |   |    |                    |                    |                        |
|-------------|-----------------------------------------------|---|--|--------------------|-----------------------------------------------|---|--|--------------------|--------------------|----------------------------------------------------|---|--|--------------------|----------------------------------------------------|---|----|--------------------|--------------------|------------------------|
|             | <u>CROSSING LAUREL<br/>EASTBOUND APPROACH</u> |   |  | <u>SUB<br/>TOT</u> | <u>CROSSING LAUREL<br/>WESTBOUND APPROACH</u> |   |  | <u>SUB<br/>TOT</u> | <u>STR<br/>TOT</u> | <u>CROSSING BREEZEHILL<br/>NORTHBOUND APPROACH</u> |   |  | <u>SUB<br/>TOT</u> | <u>CROSSING BREEZEHILL<br/>SOUTHBOUND APPROACH</u> |   |    | <u>SUB<br/>TOT</u> | <u>STR<br/>TOT</u> | <u>GRAND<br/>TOTAL</u> |
|             |                                               |   |  |                    |                                               |   |  |                    |                    |                                                    |   |  |                    |                                                    |   |    |                    |                    |                        |
| 7:00-7:15   |                                               | 1 |  | 1                  |                                               | 1 |  | 1                  | 2                  |                                                    | 5 |  | 5                  |                                                    | 0 |    | 5                  | 7                  |                        |
| 7:15-7:30   |                                               | 2 |  | 2                  |                                               | 2 |  | 2                  | 4                  |                                                    | 4 |  | 4                  |                                                    | 0 | 4  | 4                  | 8                  |                        |
| 7:30-7:45   |                                               | 2 |  | 2                  |                                               | 0 |  | 0                  | 2                  |                                                    | 4 |  | 4                  |                                                    | 0 | 4  |                    | 6                  |                        |
| 7:45-8:00   |                                               | 1 |  | 1                  |                                               | 0 |  | 0                  | 1                  |                                                    | 2 |  | 2                  |                                                    | 0 | 2  |                    | 3                  |                        |
| 8:00-8:15   |                                               | 3 |  | 3                  |                                               | 0 |  | 0                  | 3                  |                                                    | 2 |  | 2                  |                                                    | 1 | 3  |                    | 6                  |                        |
| 8:15-8:30   | 40                                            |   |  | 40                 |                                               | 8 |  | 8                  | 48                 | 15                                                 |   |  | 15                 | 2                                                  |   | 17 |                    | 65                 |                        |
| 8:30-8:45   | 16                                            |   |  | 16                 |                                               | 6 |  | 6                  | 22                 | 16                                                 |   |  | 16                 | 0                                                  |   | 16 |                    | 38                 |                        |
| 8:45-9:00   | 2                                             |   |  | 2                  |                                               | 0 |  | 0                  | 2                  | 0                                                  |   |  | 0                  | 0                                                  |   | 0  |                    | 2                  |                        |
| 9:00-9:15   | 1                                             |   |  | 1                  |                                               | 2 |  | 2                  | 3                  | 3                                                  |   |  | 3                  | 0                                                  |   | 3  |                    | 6                  |                        |
| 9:15-9:30   | 1                                             |   |  | 1                  |                                               | 4 |  | 4                  | 5                  | 4                                                  |   |  | 4                  | 0                                                  |   | 4  |                    | 9                  |                        |
| 9:30-9:45   | 2                                             |   |  | 2                  |                                               | 0 |  | 0                  | 2                  | 2                                                  |   |  | 2                  | 1                                                  |   | 3  |                    | 5                  |                        |
| 9:45-10:00  | 2                                             |   |  | 2                  |                                               | 0 |  | 0                  | 2                  | 3                                                  |   |  | 3                  | 1                                                  |   | 4  |                    | 6                  |                        |
| 11:00-11:15 | 2                                             |   |  | 2                  |                                               | 6 |  | 6                  | 8                  | 1                                                  |   |  | 1                  | 2                                                  |   | 21 |                    | 29                 |                        |
| 11:15-11:30 | 0                                             |   |  | 0                  |                                               | 4 |  | 4                  | 4                  | 1                                                  |   |  | 1                  | 2                                                  |   | 4  |                    | 8                  |                        |
| 11:30-11:45 | 1                                             |   |  | 1                  |                                               | 0 |  | 0                  | 1                  | 1                                                  |   |  | 1                  | 0                                                  |   | 2  |                    | 3                  |                        |
| 11:45-12:00 | 0                                             |   |  | 0                  |                                               | 0 |  | 0                  | 0                  | 1                                                  |   |  | 1                  | 0                                                  |   | 2  |                    | 2                  |                        |
| 12:00-12:15 | 2                                             |   |  | 2                  |                                               | 1 |  | 1                  | 3                  | 1                                                  |   |  | 1                  | 1                                                  |   | 3  |                    | 6                  |                        |
| 12:15-12:30 | 9                                             |   |  | 9                  |                                               | 1 |  | 1                  | 10                 | 4                                                  |   |  | 4                  | 1                                                  |   | 1  |                    | 11                 |                        |
| 12:30-12:45 | 2                                             |   |  | 2                  |                                               | 0 |  | 0                  | 2                  | 2                                                  |   |  | 2                  | 1                                                  |   | 1  |                    | 3                  |                        |
| 12:45-1:00  | 4                                             |   |  | 4                  |                                               | 1 |  | 1                  | 5                  | 0                                                  |   |  | 0                  | 2                                                  |   | 5  |                    | 10                 |                        |
| 1:00-1:15   | 0                                             |   |  | 0                  |                                               | 0 |  | 0                  | 0                  | 0                                                  |   |  | 0                  | 0                                                  |   | 0  |                    | 0                  |                        |
| 1:15-1:30   | 1                                             |   |  | 1                  |                                               | 0 |  | 0                  | 1                  | 0                                                  |   |  | 3                  | 1                                                  |   | 1  |                    | 2                  |                        |
| 3:00-3:15   | 34                                            |   |  | 34                 |                                               | 5 |  | 5                  | 39                 | 19                                                 |   |  | 19                 | 0                                                  |   | 19 |                    | 58                 |                        |
| 3:15-3:30   | 3                                             |   |  | 3                  |                                               | 2 |  | 2                  | 5                  | 2                                                  |   |  | 2                  | 1                                                  |   | 3  |                    | 8                  |                        |
| 3:30-3:45   | 1                                             |   |  | 1                  |                                               | 1 |  | 1                  | 2                  | 2                                                  |   |  | 2                  | 3                                                  |   | 5  |                    | 7                  |                        |
| 3:45-4:00   | 3                                             |   |  | 3                  |                                               | 1 |  | 1                  | 4                  | 2                                                  |   |  | 2                  | 0                                                  |   | 2  |                    | 6                  |                        |
| 4:00-4:15   | 4                                             |   |  | 4                  |                                               | 3 |  | 3                  | 7                  | 2                                                  |   |  | 2                  | 0                                                  |   | 2  |                    | 9                  |                        |
| 4:15-4:30   | 4                                             |   |  | 4                  |                                               | 1 |  | 1                  | 5                  | 0                                                  |   |  | 0                  | 0                                                  |   | 0  |                    | 5                  |                        |
| 4:30-4:45   | 5                                             |   |  | 5                  |                                               | 2 |  | 2                  | 7                  | 0                                                  |   |  | 0                  | 2                                                  |   | 2  |                    | 9                  |                        |
| 4:45-5:00   | 6                                             |   |  | 6                  |                                               | 0 |  | 0                  | 6                  | 3                                                  |   |  | 3                  | 0                                                  |   | 3  |                    | 9                  |                        |
| 5:00-5:15   | 1                                             |   |  | 1                  |                                               | 0 |  | 0                  | 1                  | 0                                                  |   |  | 0                  | 0                                                  |   | 0  |                    | 1                  |                        |
| 5:15-5:30   | 3                                             |   |  | 3                  |                                               | 0 |  | 0                  | 3                  | 0                                                  |   |  | 0                  | 0                                                  |   | 0  |                    | 3                  |                        |
| 5:30-5:45   | 8                                             |   |  | 8                  |                                               | 2 |  | 2                  | 10                 | 2                                                  |   |  | 2                  | 4                                                  |   | 6  |                    | 16                 |                        |
| 5:45-6:00   | 0                                             |   |  | 0                  |                                               | 0 |  | 0                  | 0                  | 0                                                  |   |  | 0                  | 0                                                  |   | 0  |                    | 0                  |                        |
|             |                                               |   |  |                    |                                               |   |  |                    |                    |                                                    |   |  |                    |                                                    |   |    |                    | 366                |                        |

## PEDESTRIAN (CHILD) TURNING MOVEMENTS (15 Min. Volumes)

## Laurel Street & Breezehill Avenue

**Survey Date: Thursday, May 17, 2012**

**Weather: 20 degrees, Sun**

### Total Observed U-Turns

Westbound: 0                      Southbound: 0

Eastbound: 0                      Northbound: 0

**Job No.:111152**

**Recorded: Ryan Donnelly**

| Time Period | Laurel Street                                 |    |  |                    |                                               |   |  |                    | Breezehill Avenue  |                                                    |   |  |                    |                                                    |   |  |                    |                    |                        |
|-------------|-----------------------------------------------|----|--|--------------------|-----------------------------------------------|---|--|--------------------|--------------------|----------------------------------------------------|---|--|--------------------|----------------------------------------------------|---|--|--------------------|--------------------|------------------------|
|             | <u>CROSSING LAUREL<br/>EASTBOUND APPROACH</u> |    |  | <u>SUB<br/>TOT</u> | <u>CROSSING LAUREL<br/>WESTBOUND APPROACH</u> |   |  | <u>SUB<br/>TOT</u> | <u>STR<br/>TOT</u> | <u>CROSSING BREEZEHILL<br/>NORTHBOUND APPROACH</u> |   |  | <u>SUB<br/>TOT</u> | <u>CROSSING BREEZEHILL<br/>SOUTHBOUND APPROACH</u> |   |  | <u>SUB<br/>TOT</u> | <u>STR<br/>TOT</u> | <u>GRAND<br/>TOTAL</u> |
|             |                                               |    |  |                    |                                               |   |  |                    |                    |                                                    |   |  |                    |                                                    |   |  |                    |                    |                        |
| 7:00-7:15   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  | 0                      |
| 7:15-7:30   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  | 0                      |
| 7:30-7:45   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  | 0                      |
| 7:45-8:00   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  | 0                      |
| 8:00-8:15   |                                               | 1  |  | 1                  |                                               | 0 |  | 0                  | 1                  |                                                    | 1 |  | 0                  |                                                    | 0 |  | 1                  | 2                  |                        |
| 8:15-8:30   |                                               | 22 |  | 22                 |                                               | 5 |  | 5                  | 27                 |                                                    | 8 |  | 0                  |                                                    | 0 |  | 8                  | 35                 |                        |
| 8:30-8:45   |                                               | 2  |  | 2                  |                                               | 2 |  | 2                  | 4                  |                                                    | 6 |  | 0                  |                                                    | 0 |  | 6                  | 10                 |                        |
| 8:45-9:00   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 9:00-9:15   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 9:15-9:30   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 9:30-9:45   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 9:45-10:00  |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 11:00-11:15 |                                               | 1  |  | 1                  |                                               | 0 |  | 0                  | 1                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 9                  | 10                 |                        |
| 11:15-11:30 |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 11:30-11:45 |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 11:45-12:00 |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 12:00-12:15 |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 12:15-12:30 |                                               | 3  |  | 3                  |                                               | 0 |  | 0                  | 3                  |                                                    | 1 |  | 0                  |                                                    | 0 |  | 0                  | 3                  |                        |
| 12:30-12:45 |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 12:45-1:00  |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 1:00-1:15   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 1:15-1:30   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 3:00-3:15   |                                               | 20 |  | 20                 |                                               | 2 |  | 2                  | 22                 |                                                    | 9 |  | 0                  |                                                    | 0 |  | 9                  | 31                 |                        |
| 3:15-3:30   |                                               | 2  |  | 2                  |                                               | 0 |  | 0                  | 2                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 2                  |                        |
| 3:30-3:45   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 3:45-4:00   |                                               | 1  |  | 1                  |                                               | 0 |  | 0                  | 1                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 1                  |                        |
| 4:00-4:15   |                                               | 2  |  | 2                  |                                               | 0 |  | 0                  | 2                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 2                  |                        |
| 4:15-4:30   |                                               | 2  |  | 2                  |                                               | 0 |  | 0                  | 2                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 2                  |                        |
| 4:30-4:45   |                                               | 1  |  | 1                  |                                               | 0 |  | 0                  | 1                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 1                  |                        |
| 4:45-5:00   |                                               | 1  |  | 1                  |                                               | 0 |  | 0                  | 1                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 1                  |                        |
| 5:00-5:15   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 5:15-5:30   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
| 5:30-5:45   |                                               | 2  |  | 2                  |                                               | 0 |  | 0                  | 2                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 2                  |                        |
| 5:45-6:00   |                                               | 0  |  | 0                  |                                               | 0 |  | 0                  | 0                  |                                                    | 0 |  | 0                  |                                                    | 0 |  | 0                  | 0                  |                        |
|             |                                               |    |  |                    |                                               |   |  |                    |                    |                                                    |   |  |                    |                                                    |   |  |                    |                    | 102                    |

Serial Number: TDC-121613  
Weather: High 17C Low 5C Sunny  
Collected By: Cameron Odam  
Comments: Thursday

File Name : 20120512 - Laurel&Laneway Turn Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 1

**Groups Printed- Turning Movements - Light Trucks - Heavy Trucks**

|               | Laneway Southbound |       |            | Laurel Street Westbound |            | Laurel Street Eastbound |            |            |
|---------------|--------------------|-------|------------|-------------------------|------------|-------------------------|------------|------------|
| Start Time    | Left               | Right | App. Total | Right                   | App. Total | Left                    | App. Total | Int. Total |
| *** BREAK *** |                    |       |            |                         |            |                         |            |            |
| 07:30 AM      | 2                  | 0     | 2          | 0                       | 0          | 0                       | 0          | 2          |
| 07:45 AM      | 0                  | 0     | 0          | 2                       | 2          | 0                       | 0          | 2          |
| Total         | 2                  | 0     | 2          | 2                       | 2          | 0                       | 0          | 4          |
| 08:00 AM      | 0                  | 0     | 0          | 1                       | 1          | 0                       | 0          | 1          |
| 08:15 AM      | 0                  | 1     | 1          | 2                       | 2          | 0                       | 0          | 3          |
| 08:30 AM      | 0                  | 0     | 0          | 0                       | 0          | 1                       | 1          | 1          |
| 08:45 AM      | 0                  | 1     | 1          | 2                       | 2          | 1                       | 1          | 4          |
| Total         | 0                  | 2     | 2          | 5                       | 5          | 2                       | 2          | 9          |
| *** BREAK *** |                    |       |            |                         |            |                         |            |            |
| 09:30 AM      | 1                  | 1     | 2          | 1                       | 1          | 0                       | 0          | 3          |
| *** BREAK *** |                    |       |            |                         |            |                         |            |            |
| Total         | 1                  | 1     | 2          | 1                       | 1          | 0                       | 0          | 3          |
| *** BREAK *** |                    |       |            |                         |            |                         |            |            |
| 11:00 AM      | 0                  | 0     | 0          | 0                       | 0          | 1                       | 1          | 1          |
| 11:15 AM      | 0                  | 1     | 1          | 1                       | 1          | 1                       | 1          | 3          |
| 11:30 AM      | 3                  | 1     | 4          | 0                       | 0          | 1                       | 1          | 5          |
| 11:45 AM      | 0                  | 1     | 1          | 0                       | 0          | 0                       | 0          | 1          |
| Total         | 3                  | 3     | 6          | 1                       | 1          | 3                       | 3          | 10         |
| 12:00 PM      | 0                  | 0     | 0          | 1                       | 1          | 0                       | 0          | 1          |
| 12:15 PM      | 0                  | 2     | 2          | 1                       | 1          | 1                       | 1          | 4          |
| 12:30 PM      | 0                  | 2     | 2          | 0                       | 0          | 1                       | 1          | 3          |
| *** BREAK *** |                    |       |            |                         |            |                         |            |            |
| Total         | 0                  | 4     | 4          | 2                       | 2          | 2                       | 2          | 8          |
| 01:00 PM      | 0                  | 0     | 0          | 1                       | 1          | 1                       | 1          | 2          |
| 01:15 PM      | 0                  | 0     | 0          | 0                       | 0          | 1                       | 1          | 1          |
| *** BREAK *** |                    |       |            |                         |            |                         |            |            |
| Total         | 0                  | 0     | 0          | 1                       | 1          | 2                       | 2          | 3          |
| *** BREAK *** |                    |       |            |                         |            |                         |            |            |
| 03:00 PM      | 2                  | 0     | 2          | 2                       | 2          | 0                       | 0          | 4          |
| *** BREAK *** |                    |       |            |                         |            |                         |            |            |
| 03:30 PM      | 0                  | 0     | 0          | 1                       | 1          | 1                       | 1          | 2          |
| 03:45 PM      | 0                  | 0     | 0          | 1                       | 1          | 1                       | 1          | 2          |
| Total         | 2                  | 0     | 2          | 4                       | 4          | 2                       | 2          | 8          |
| 04:00 PM      | 1                  | 2     | 3          | 0                       | 0          | 0                       | 0          | 3          |
| 04:15 PM      | 0                  | 1     | 1          | 1                       | 1          | 0                       | 0          | 2          |
| 04:30 PM      | 0                  | 2     | 2          | 1                       | 1          | 0                       | 0          | 3          |
| 04:45 PM      | 0                  | 1     | 1          | 1                       | 1          | 1                       | 1          | 3          |
| Total         | 1                  | 6     | 7          | 3                       | 3          | 1                       | 1          | 11         |

Serial Number: TDC-121613  
Weather: High 17C Low 5C Sunny  
Collected By: Cameron Odam  
Comments: Thursday

File Name : 20120512 - Laurel&Laneway Turn Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 2

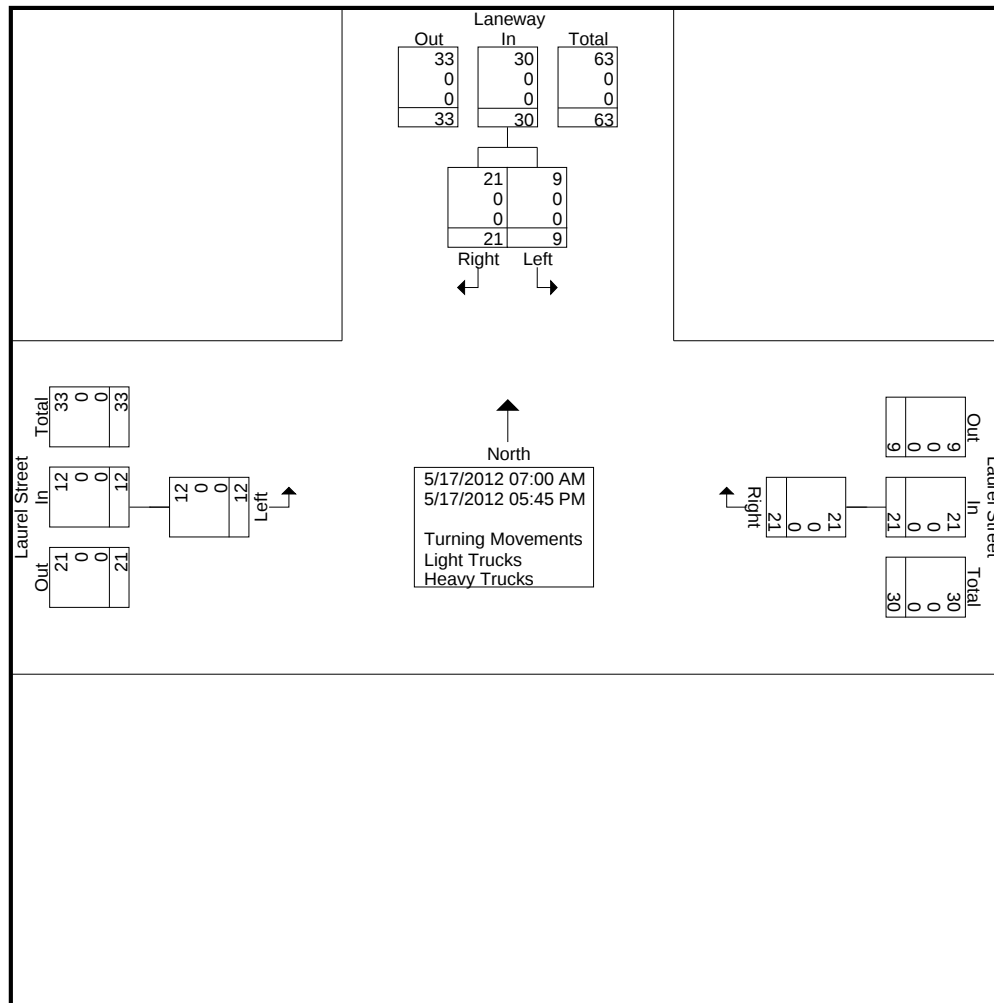
**Groups Printed- Turning Movements - Light Trucks - Heavy Trucks**

|                     | Laneway<br>Southbound |       |            | Laurel Street<br>Westbound |            | Laurel Street<br>Eastbound |            |            |
|---------------------|-----------------------|-------|------------|----------------------------|------------|----------------------------|------------|------------|
| Start Time          | Left                  | Right | App. Total | Right                      | App. Total | Left                       | App. Total | Int. Total |
| 05:00 PM            | 0                     | 3     | 3          | 0                          | 0          | 0                          | 0          | 3          |
| 05:15 PM            | 0                     | 0     | 0          | 1                          | 1          | 0                          | 0          | 1          |
| 05:30 PM            | 0                     | 1     | 1          | 0                          | 0          | 0                          | 0          | 1          |
| 05:45 PM            | 0                     | 1     | 1          | 1                          | 1          | 0                          | 0          | 2          |
| Total               | 0                     | 5     | 5          | 2                          | 2          | 0                          | 0          | 7          |
| Grand Total         | 9                     | 21    | 30         | 21                         | 21         | 12                         | 12         | 63         |
| Apprch %            | 30                    | 70    |            | 100                        |            | 100                        |            |            |
| Total %             | 14.3                  | 33.3  | 47.6       | 33.3                       | 33.3       | 19                         | 19         |            |
| Turning Movements   | 9                     | 21    | 30         | 21                         | 21         | 12                         | 12         | 63         |
| % Turning Movements | 100                   | 100   | 100        | 100                        | 100        | 100                        | 100        | 100        |
| Light Trucks        | 0                     | 0     | 0          | 0                          | 0          | 0                          | 0          | 0          |
| % Light Trucks      | 0                     | 0     | 0          | 0                          | 0          | 0                          | 0          | 0          |
| Heavy Trucks        | 0                     | 0     | 0          | 0                          | 0          | 0                          | 0          | 0          |
| % Heavy Trucks      | 0                     | 0     | 0          | 0                          | 0          | 0                          | 0          | 0          |

Suite 200,  
Michael Cowpland Drive,  
Ottawa, ON, K2M 1P6

Serial Number: TDC-121613  
Weather: High 17C Low 5C Sunny  
Collected By: Cameron Odam  
Comments: Thursday

File Name : 20120512 - Laurel&Laneway Turn Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 3

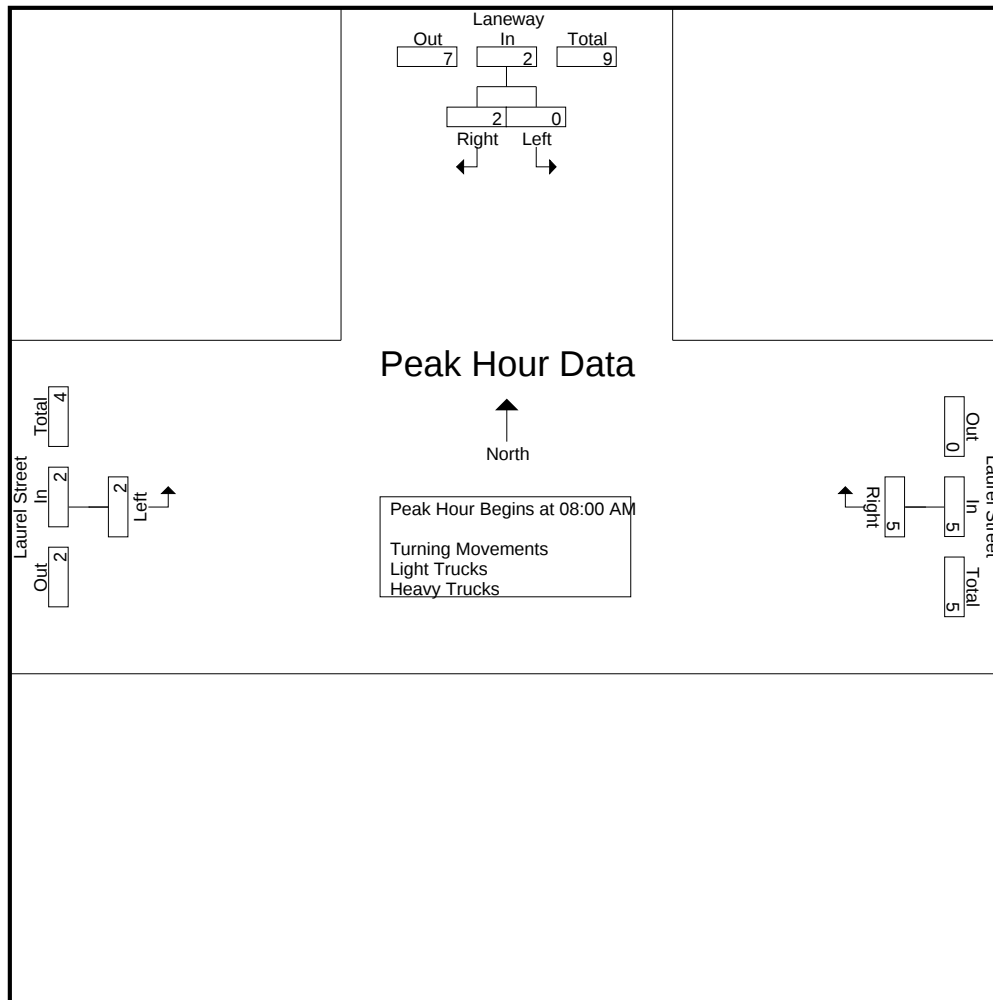


Suite 200,  
Michael Cowpland Drive,  
Ottawa, ON, K2M 1P6

Serial Number: TDC-121613  
Weather: High 17C Low 5C Sunny  
Collected By: Cameron Odam  
Comments: Thursday

File Name : 20120512 - Laurel&Laneway Turn Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 4

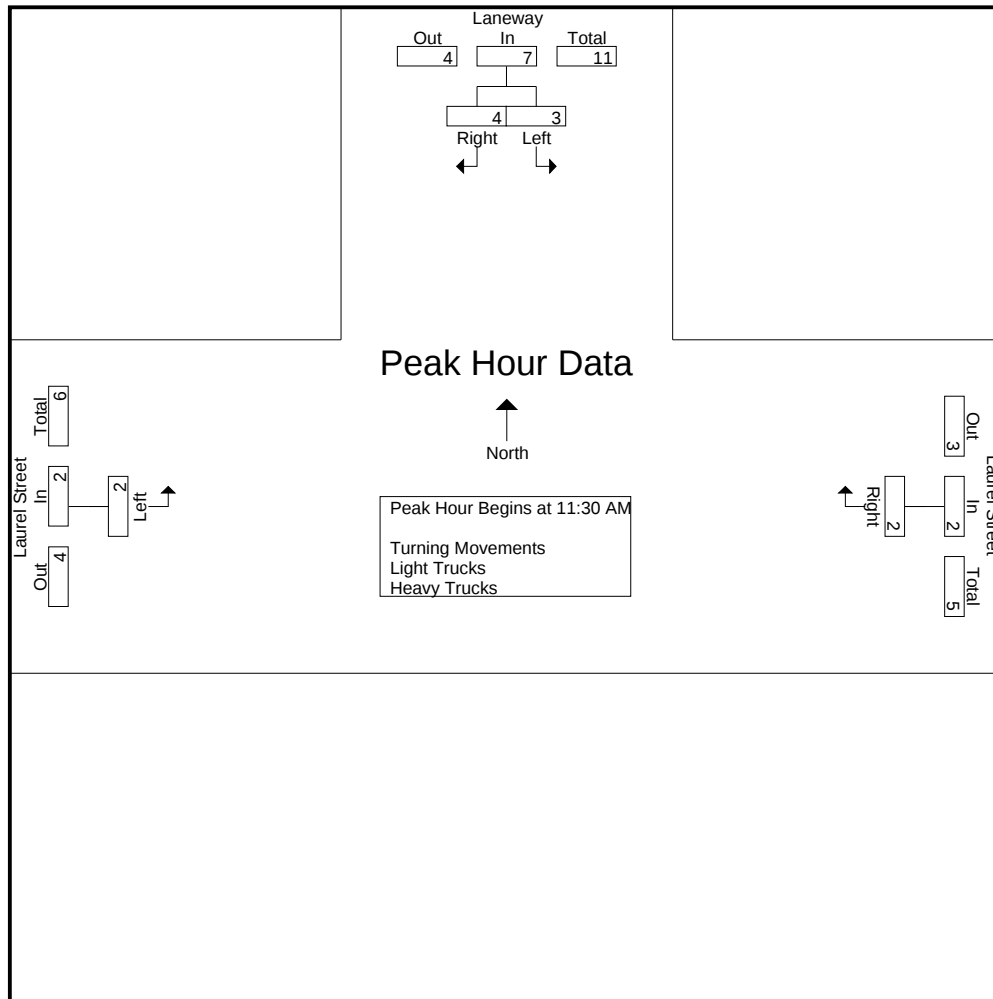
|                                                            | Laneway<br>Southbound |       |            | Laurel Street<br>Westbound |            | Laurel Street<br>Eastbound |            |            |
|------------------------------------------------------------|-----------------------|-------|------------|----------------------------|------------|----------------------------|------------|------------|
| Start Time                                                 | Left                  | Right | App. Total | Right                      | App. Total | Left                       | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 |                       |       |            |                            |            |                            |            |            |
| Peak Hour for Entire Intersection Begins at 08:00 AM       |                       |       |            |                            |            |                            |            |            |
| 08:00 AM                                                   | 0                     | 0     | 0          | 1                          | 1          | 0                          | 0          | 1          |
| 08:15 AM                                                   | 0                     | 1     | 1          | 2                          | 2          | 0                          | 0          | 3          |
| 08:30 AM                                                   | 0                     | 0     | 0          | 0                          | 0          | 1                          | 1          | 1          |
| 08:45 AM                                                   | 0                     | 1     | 1          | 2                          | 2          | 1                          | 1          | 4          |
| Total Volume                                               | 0                     | 2     | 2          | 5                          | 5          | 2                          | 2          | 9          |
| % App. Total                                               | 0                     | 100   |            | 100                        |            | 100                        |            |            |
| PHF                                                        | .000                  | .500  | .500       | .625                       | .625       | .500                       | .500       | .563       |



Serial Number: TDC-121613  
Weather: High 17C Low 5C Sunny  
Collected By: Cameron Odam  
Comments: Thursday

File Name : 20120512 - Laurel&Laneway Turn Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 5

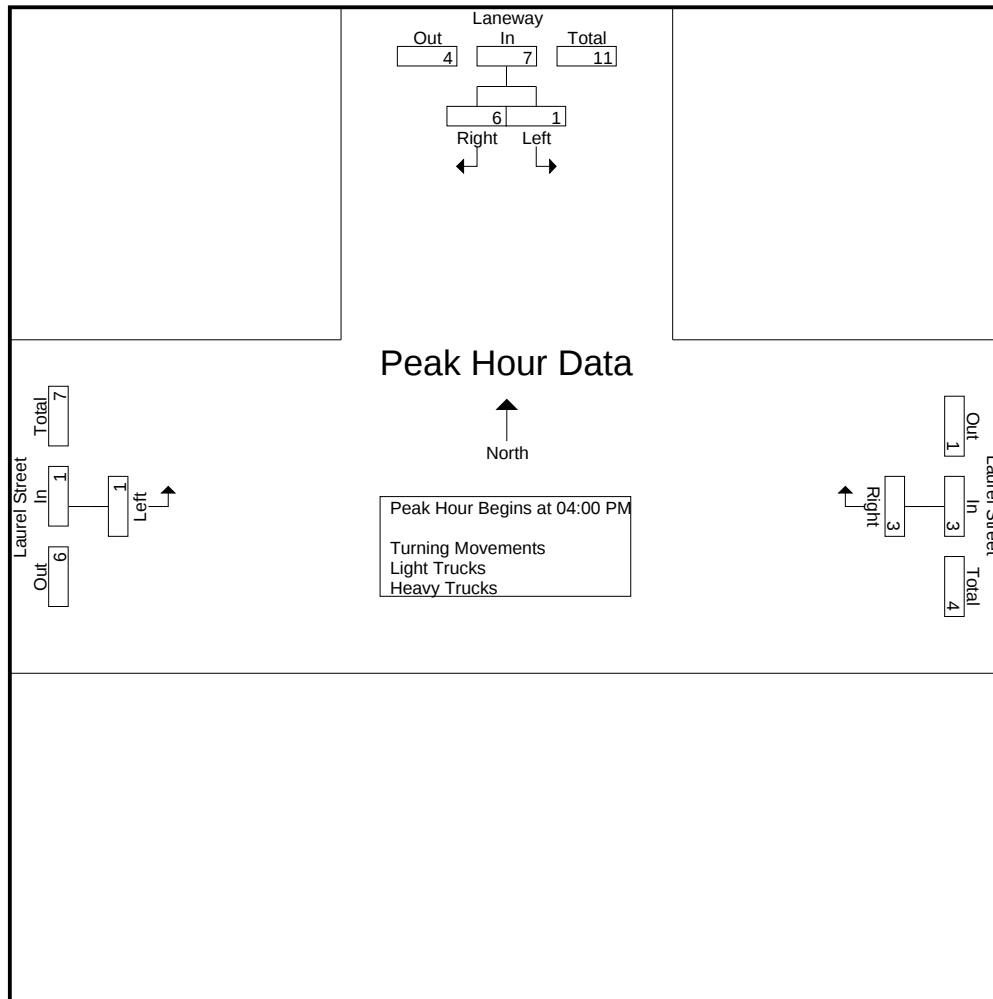
|                                                            | Laneway Southbound |       |            | Laurel Street Westbound |            | Laurel Street Eastbound |            |            |
|------------------------------------------------------------|--------------------|-------|------------|-------------------------|------------|-------------------------|------------|------------|
| Start Time                                                 | Left               | Right | App. Total | Right                   | App. Total | Left                    | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1 |                    |       |            |                         |            |                         |            |            |
| Peak Hour for Entire Intersection Begins at 11:30 AM       |                    |       |            |                         |            |                         |            |            |
| 11:30 AM                                                   | 3                  | 1     | 4          | 0                       | 0          | 1                       | 1          | 5          |
| 11:45 AM                                                   | 0                  | 1     | 1          | 0                       | 0          | 0                       | 0          | 1          |
| 12:00 PM                                                   | 0                  | 0     | 0          | 1                       | 1          | 0                       | 0          | 1          |
| 12:15 PM                                                   | 0                  | 2     | 2          | 1                       | 1          | 1                       | 1          | 4          |
| Total Volume                                               | 3                  | 4     | 7          | 2                       | 2          | 2                       | 2          | 11         |
| % App. Total                                               | 42.9               | 57.1  |            | 100                     |            | 100                     |            |            |
| PHF                                                        | .250               | .500  | .438       | .500                    | .500       | .500                    | .500       | .550       |



Serial Number: TDC-121613  
Weather: High 17C Low 5C Sunny  
Collected By: Cameron Odam  
Comments: Thursday

File Name : 20120512 - Laurel&Laneway Turn Count Combined  
Site Code : 00111152  
Start Date : 5/17/2012  
Page No : 6

|                                                            | Laneway Southbound |       |            | Laurel Street Westbound |            | Laurel Street Eastbound |            |            |
|------------------------------------------------------------|--------------------|-------|------------|-------------------------|------------|-------------------------|------------|------------|
| Start Time                                                 | Left               | Right | App. Total | Right                   | App. Total | Left                    | App. Total | Int. Total |
| Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1 |                    |       |            |                         |            |                         |            |            |
| Peak Hour for Entire Intersection Begins at 04:00 PM       |                    |       |            |                         |            |                         |            |            |
| 04:00 PM                                                   | 1                  | 2     | 3          | 0                       | 0          | 0                       | 0          | 3          |
| 04:15 PM                                                   | 0                  | 1     | 1          | 1                       | 1          | 0                       | 0          | 2          |
| 04:30 PM                                                   | 0                  | 2     | 2          | 1                       | 1          | 0                       | 0          | 3          |
| 04:45 PM                                                   | 0                  | 1     | 1          | 1                       | 1          | 1                       | 1          | 3          |
| Total Volume                                               | 1                  | 6     | 7          | 3                       | 3          | 1                       | 1          | 11         |
| % App. Total                                               | 14.3               | 85.7  |            | 100                     |            | 100                     |            |            |
| PHF                                                        | .250               | .750  | .583       | .750                    | .750       | .250                    | .250       | .917       |



## BICYCLE TURNING MOVEMENTS (15 Min. Volumes)

### Laurel Street & Driveway

**Survey Date: Thursday, May 17, 2012**

**Weather: 20 degrees, Sun**

### Total Observed U-Turns

Westbound: 0                      Southbound: 0

Eastbound: 0      Northbound: 0

**Job No.: 111152**

Recorded: Cameron Odam

| Time Period | Laurel Street |    |    |         |           |    |    |         |         | Driveway   |    |    |         |            |    |    |         |         | GRAND TOTAL |     |
|-------------|---------------|----|----|---------|-----------|----|----|---------|---------|------------|----|----|---------|------------|----|----|---------|---------|-------------|-----|
|             | WESTBOUND     |    |    | SUB TOT | EASTBOUND |    |    | SUB TOT | STR TOT | NORTHBOUND |    |    | SUB TOT | SOUTHBOUND |    |    | SUB TOT | STR TOT |             |     |
|             | LT            | ST | RT |         | LT        | ST | RT |         |         | LT         | ST | RT |         | LT         | ST | RT |         |         |             |     |
| 7:00-7:15   |               | 0  |    | 0       |           | 0  |    | 0       | 0       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 0           |     |
| 7:15-7:30   |               | 2  |    | 2       |           | 0  |    | 0       | 2       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 2           |     |
| 7:30-7:45   |               | 4  |    | 4       |           | 0  |    | 0       | 4       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 4           |     |
| 7:45-8:00   |               | 4  |    | 4       |           | 0  |    | 0       | 4       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 4           |     |
| 8:00-8:15   |               | 1  |    | 1       |           | 1  |    | 1       | 2       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 2           |     |
| 8:15-8:30   |               | 25 |    | 25      |           | 8  |    | 8       | 33      |            | 0  |    | 0       |            | 1  |    | 1       | 1       | 34          |     |
| 8:30-8:45   |               | 8  |    | 8       |           | 4  |    | 4       | 12      |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 12          |     |
| 8:45-9:00   |               | 2  |    | 2       |           | 0  |    | 0       | 2       |            | 1  |    | 1       |            | 0  |    | 0       | 1       | 3           |     |
| 9:00-9:15   |               | 1  |    | 1       |           | 0  |    | 0       | 1       |            | 1  |    | 1       |            | 0  |    | 0       | 1       | 2           |     |
| 9:15-9:30   |               | 0  |    | 0       |           | 1  |    | 1       | 1       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 1           |     |
| 9:30-9:45   |               | 2  |    | 2       |           | 0  |    | 0       | 2       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 2           |     |
| 9:45-10:00  |               | 1  |    | 1       |           | 2  |    | 2       | 3       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 3           |     |
| 11:00-11:15 |               | 1  |    | 1       |           | 2  |    | 2       | 3       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 3           |     |
| 11:15-11:30 |               | 1  |    | 1       |           | 0  |    | 0       | 1       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 1           |     |
| 11:30-11:45 |               | 0  |    | 0       |           | 1  |    | 1       | 1       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 1           |     |
| 11:45-12:00 |               | 0  |    | 0       |           | 1  |    | 1       | 1       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 1           |     |
| 12:00-12:15 |               | 2  |    | 2       |           | 0  |    | 0       | 2       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 2           |     |
| 12:15-12:30 |               | 2  |    | 2       |           | 0  |    | 0       | 2       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 2           |     |
| 12:30-12:45 |               | 1  |    | 1       |           | 2  |    | 2       | 3       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 3           |     |
| 12:45-1:00  |               | 0  |    | 0       |           | 0  |    | 0       | 0       |            | 2  |    | 2       |            | 0  |    | 0       | 2       | 2           |     |
| 1:00-1:15   |               | 2  |    | 2       |           | 0  |    | 0       | 2       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 2           |     |
| 1:15-1:30   |               | 0  |    | 0       |           | 0  |    | 0       | 0       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 0           |     |
| 3:00-3:15   |               | 4  |    | 4       |           | 7  |    | 7       | 11      |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 11          |     |
| 3:15-3:30   |               | 1  |    | 1       |           | 1  |    | 1       | 2       |            | 1  |    | 1       |            | 0  |    | 0       | 1       | 3           |     |
| 3:30-3:45   |               | 1  |    | 1       |           | 6  |    | 6       | 7       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 7           |     |
| 3:45-4:00   |               | 1  |    | 1       |           | 3  |    | 3       | 4       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 4           |     |
| 4:00-4:15   |               | 0  |    | 0       |           | 11 |    | 11      | 11      |            | 0  |    | 0       |            | 1  |    | 1       | 1       | 12          |     |
| 4:15-4:30   |               | 1  |    | 1       |           | 6  |    | 6       | 7       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 7           |     |
| 4:30-4:45   |               | 0  |    | 0       |           | 6  |    | 6       | 6       |            | 1  |    | 1       |            | 0  |    | 0       | 1       | 7           |     |
| 4:45-5:00   |               | 3  |    | 3       |           | 2  |    | 2       | 5       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 5           |     |
| 5:00-5:15   |               | 3  |    | 3       |           | 4  |    | 4       | 7       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 7           |     |
| 5:15-5:30   |               | 0  |    | 0       |           | 5  |    | 5       | 5       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 5           |     |
| 5:30-5:45   |               | 0  |    | 0       |           | 3  |    | 3       | 3       |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 3           |     |
| 5:45-6:00   |               | 7  |    | 7       |           | 4  |    | 4       | 11      |            | 0  |    | 0       |            | 0  |    | 0       | 0       | 11          |     |
|             |               |    |    |         |           |    |    |         |         |            |    |    |         |            |    |    |         |         |             | 168 |

### PEDESTRIAN (ALL) TURNING MOVEMENTS (15 Min. Volumes)

## Laurel Street & Driveway

**Survey Date: Thursday, May 17, 2012**

**Total Observed U-Turns**

|              |               |
|--------------|---------------|
| Westbound: 0 | Southbound: 0 |
| Eastbound: 0 | Northbound: 0 |

**Job No.: 111152**

**Weather: 20 degrees, Sun**

**Recorded: Cameron Odam**

[illegible]

## PEDESTRIAN (CHILD) TURNING MOVEMENTS (15 Min. Volumes)

### Laurel Street & Driveway

**Survey Date: Thursday, May 17, 2012**

**Total Observed U-Turns**

|              |               |
|--------------|---------------|
| Westbound: 0 | Southbound: 0 |
| Eastbound: 0 | Northbound: 0 |

Job No.: 111152

**Weather: 20 degrees, Sun**

**Recorded: Cameron Odam**

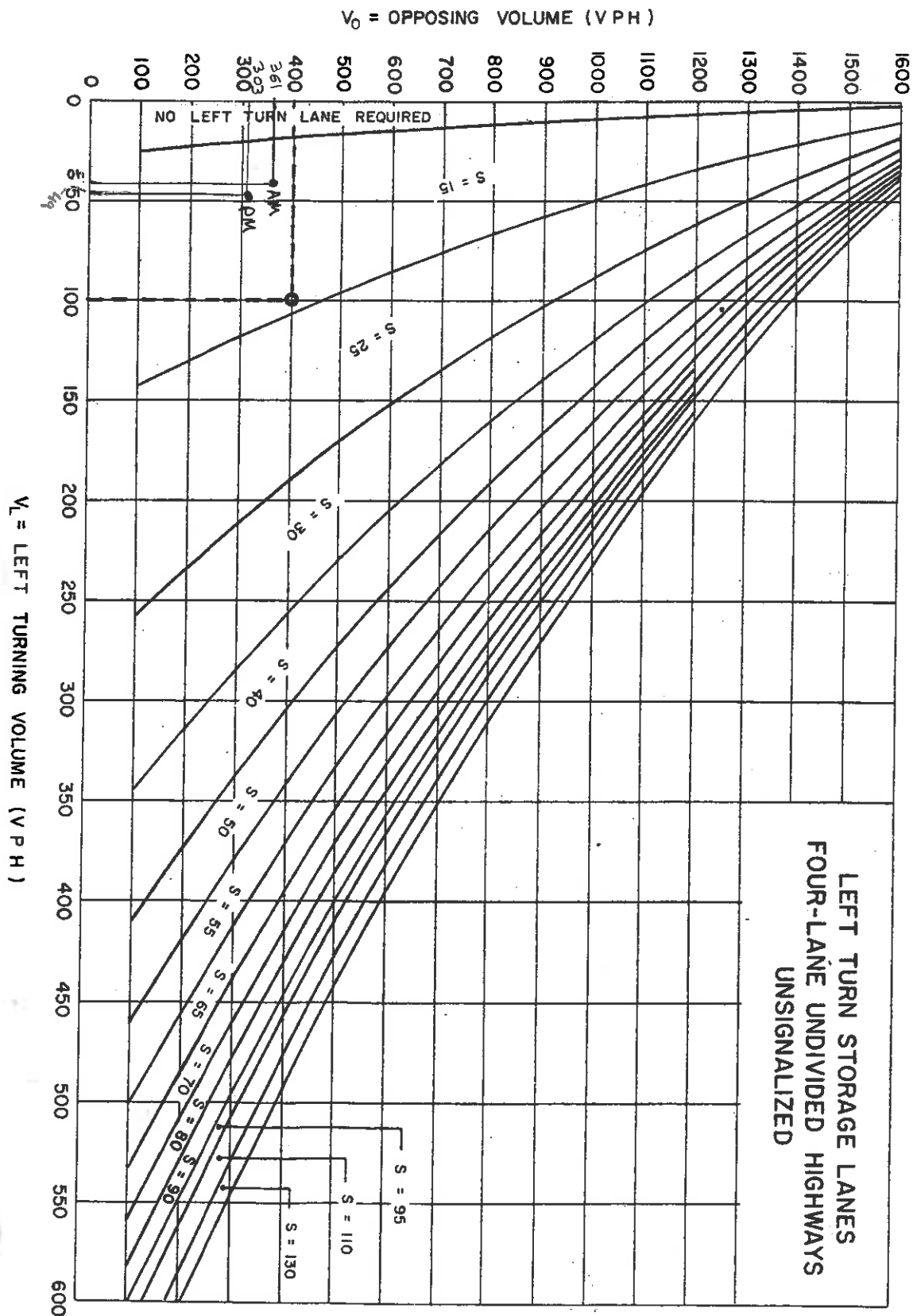
[illegible]

## **APPENDIX B**

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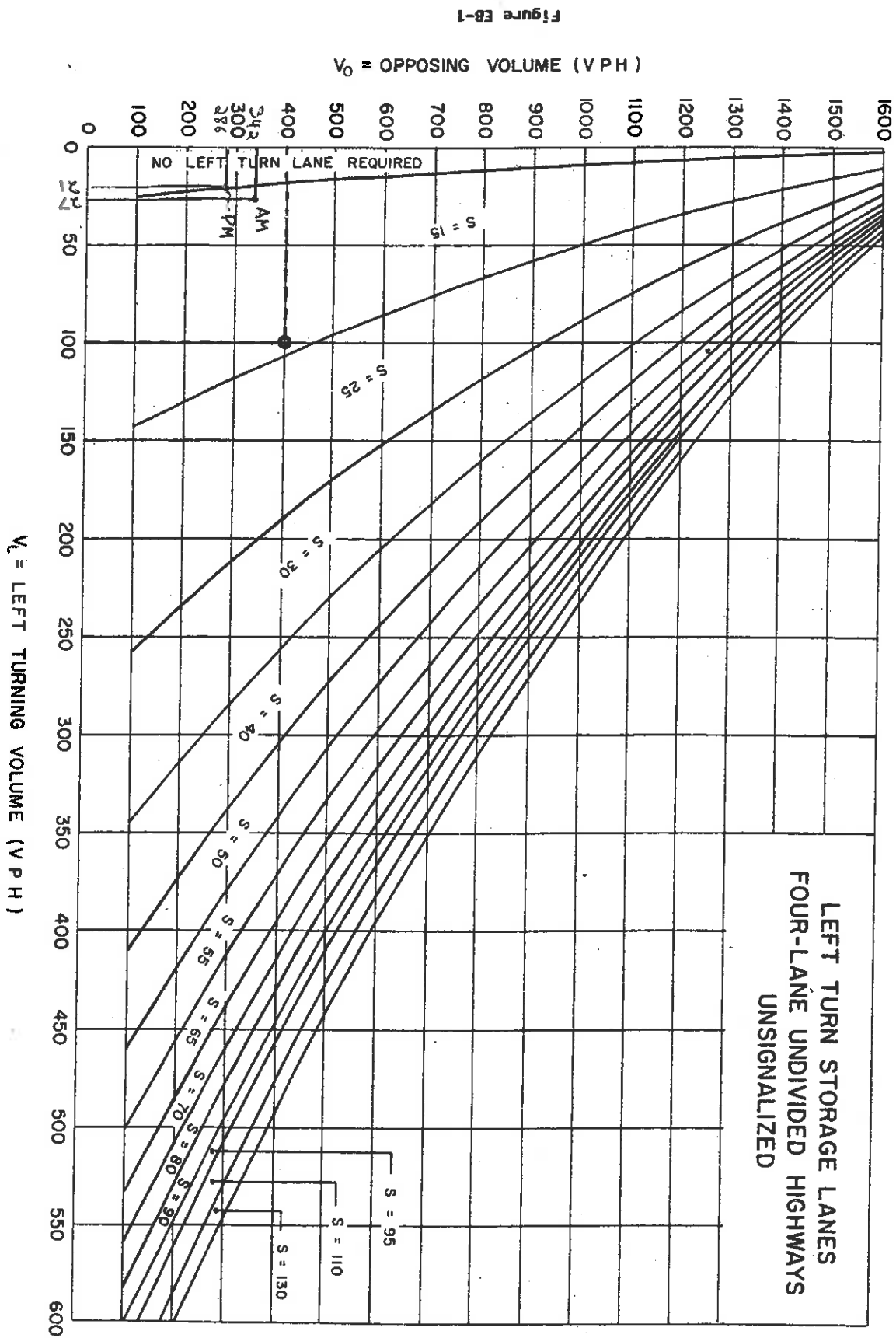
### **MTO Warrants for Traffic Signal Control And Left-Turn Storage Lanes**

Figure EB-1



Comer set 5+ / lane way

Somerset St / Breeze Hill Ave



**TRAFFIC SIGNAL JUSTIFICATION**

LOCATION: Breeze Hill at Somerset

DATE: July 2012

**JUSTIFICATION 1 – Minimum Vehicular Volume**

|                          | MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) |            |           |            | PERCENTAGE  |      |       |       |                    |       |       |       | WARRANT      |  |
|--------------------------|----------------------------------------------|------------|-----------|------------|-------------|------|-------|-------|--------------------|-------|-------|-------|--------------|--|
| APPROACH LANES           | 1                                            |            | 2 or MORE |            | HOUR ENDING |      |       |       |                    |       |       |       | TOTAL ACROSS |  |
| FLOW CONDITION           | FREE FLOW                                    | RESTR FLOW | FREE FLOW | RESTR FLOW | 8:00        | 9:00 | 10:00 | 12:30 | 13:30              | 16:00 | 17:00 | 18:00 |              |  |
| A.<br><br>ALL APPROACHES | 480                                          | 720        | 600       | 900        | 264         | 560  | 428   | 494   | 482                | 587   | 635   | 593   |              |  |
|                          | (385)                                        | (575)      | (480)     | (720)      |             |      |       |       |                    |       |       |       |              |  |
|                          | 100% FULFILLED                               |            |           |            |             |      |       |       |                    |       |       |       |              |  |
|                          | 80% FULFILLED                                |            |           |            |             |      |       |       |                    |       |       |       |              |  |
|                          | ACTUAL % IF BELOW 80% VALUE                  |            |           |            | 29%         | 62%  | 48%   | 55%   | 54%                | 65%   | 71%   | 66%   | 450          |  |
|                          |                                              |            |           |            |             |      |       |       | TOTAL DOWN:        |       |       | 450   |              |  |
|                          |                                              |            |           |            |             |      |       |       | AVERAGE (TOTAL/8): |       |       | 56%   |              |  |

T Intersection Add 50%

|                                              |                             |       |      |       |    |     |     |     |                    |     |     |     |                 |
|----------------------------------------------|-----------------------------|-------|------|-------|----|-----|-----|-----|--------------------|-----|-----|-----|-----------------|
|                                              | 180                         | 255   | 180  | 255   |    |     |     |     |                    |     |     |     |                 |
|                                              | 143                         | 203   | 143  | 203   |    |     |     |     |                    |     |     |     |                 |
| B.<br><br>MINOR STREET<br>BOTH<br>APPROACHES | 120                         | 170   | 120  | 170   | 20 | 53  | 26  | 40  | 34                 | 55  | 30  | 39  | TOTAL<br>ACROSS |
|                                              | (95)                        | (135) | (95) | (135) |    |     |     |     |                    |     |     |     |                 |
|                                              | 100% FULFILLED              |       |      |       |    |     |     |     |                    |     |     |     |                 |
|                                              | 80% FULFILLED               |       |      |       |    |     |     |     |                    |     |     |     |                 |
|                                              | ACTUAL % IF BELOW 80% VALUE |       |      |       | 8% | 21% | 10% | 16% | 13%                | 22% | 12% | 15% | 117             |
|                                              |                             |       |      |       |    |     |     |     | TOTAL DOWN:        |     |     |     | 117             |
|                                              |                             |       |      |       |    |     |     |     | AVERAGE (TOTAL/8): |     |     |     | 15%             |

**JUSTIFICATION 2 – Delay To Cross Traffic**

|                                 | MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) |            |           |            | PERCENTAGE  |      |       |       |                    |       |       |       | WARRANT      |  |  |
|---------------------------------|----------------------------------------------|------------|-----------|------------|-------------|------|-------|-------|--------------------|-------|-------|-------|--------------|--|--|
| APPROACH LANES                  | 1                                            |            | 2 or MORE |            | HOUR ENDING |      |       |       |                    |       |       |       |              |  |  |
| FLOW CONDITION                  | FREE FLOW                                    | RESTR FLOW | FREE FLOW | RESTR FLOW | 8:00        | 9:00 | 10:00 | 12:30 | 13:30              | 16:00 | 17:00 | 18:00 | TOTAL ACROSS |  |  |
| A. MAJOR STREET BOTH APPROACHES | 480                                          | 720        | 600       | 900        | 244         | 507  | 402   | 460   | 448                | 532   | 605   | 554   |              |  |  |
|                                 | (385)                                        | (575)      | (480)     | (720)      |             |      |       |       |                    |       |       |       |              |  |  |
|                                 | 100% FULFILLED                               |            |           |            |             |      |       |       |                    |       |       |       |              |  |  |
|                                 | 80% FULFILLED                                |            |           |            |             |      |       |       |                    |       |       |       |              |  |  |
|                                 | ACTUAL % IF BELOW 80% VALUE                  |            |           |            | 27%         | 56%  | 45%   | 51%   | 50%                | 59%   | 67%   | 62%   | 417          |  |  |
|                                 |                                              |            |           |            |             |      |       |       | TOTAL DOWN:        |       |       | 417   |              |  |  |
|                                 |                                              |            |           |            |             |      |       |       | AVERAGE (TOTAL/8): |       |       | 52%   |              |  |  |

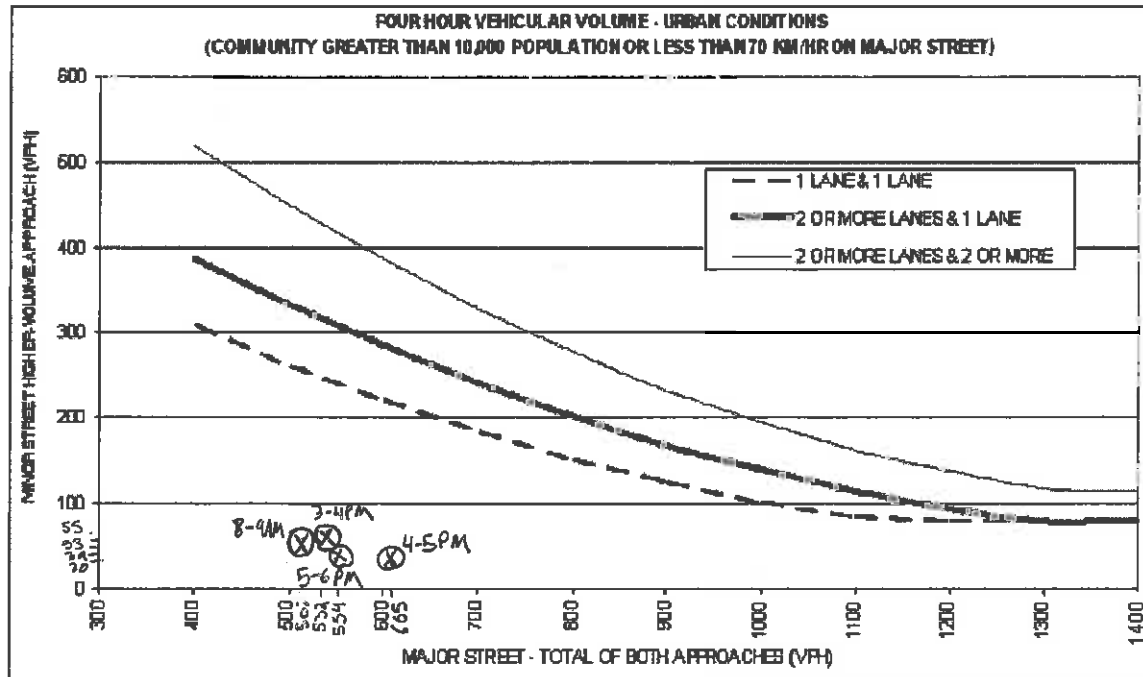
|                                               |                             |      |      |      |     |     |     |     |                    |             |    |     |                 |
|-----------------------------------------------|-----------------------------|------|------|------|-----|-----|-----|-----|--------------------|-------------|----|-----|-----------------|
| B.<br><br>TRAFFIC<br>CROSSING<br>MAJOR STREET | 50                          | 75   | 50   | 75   | 9   | 17  | 16  | 15  | 18                 | 21          | 6  | 19  | TOTAL<br>ACROSS |
|                                               | (40)                        | (60) | (40) | (60) |     |     |     |     |                    |             |    |     |                 |
|                                               | 100% FULFILLED              |      |      |      |     |     |     |     |                    |             |    |     |                 |
|                                               | 80% FULFILLED               |      |      |      |     |     |     |     |                    |             |    |     |                 |
|                                               | ACTUAL % IF BELOW 80% VALUE |      |      |      | 12% | 23% | 21% | 20% | 24%                | 28%         | 8% | 25% | 161             |
|                                               |                             |      |      |      |     |     |     |     |                    | TOTAL DOWN: |    |     |                 |
|                                               |                             |      |      |      |     |     |     |     | AVERAGE (TOTAL/8): |             |    |     | 20%             |

LOCATION: Breezehill at Somerset

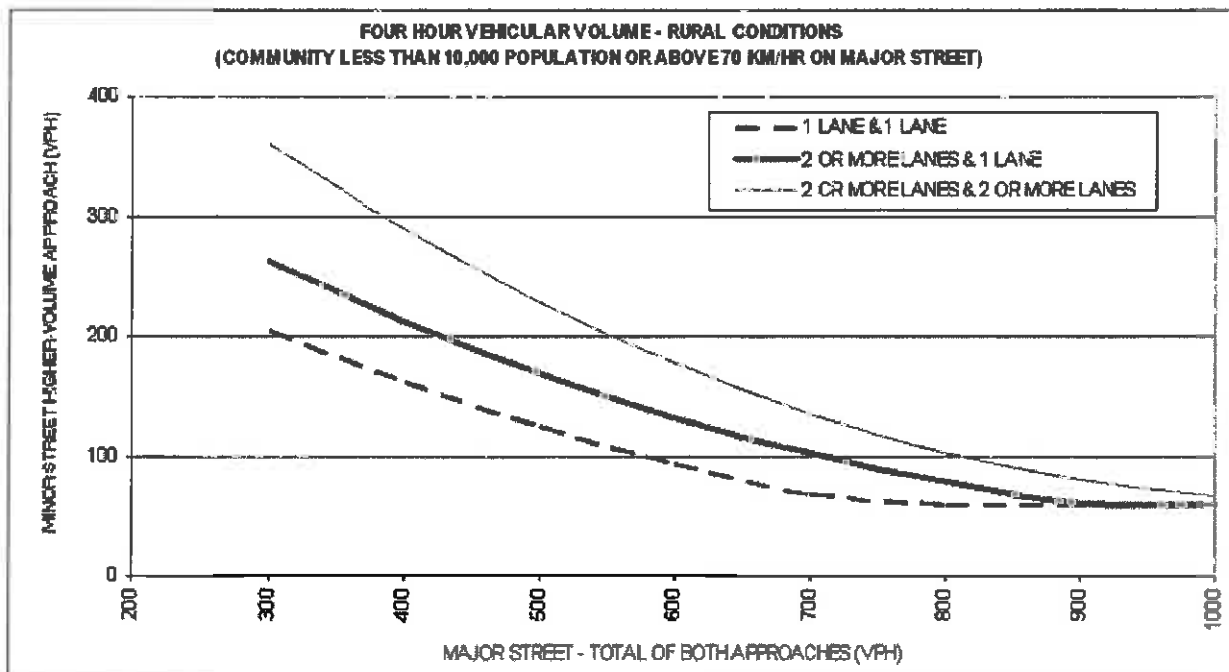
DATE: July 2012

**JUSTIFICATION 4 – Minimum Four-Hour Vehicle Volume**

**A. Restricted Flow**



**B. Free Flow**



**TRAFFIC SIGNAL JUSTIFICATION  
SUMMARY TABLE**

LOCATION: Breeze Hill at Somerset

DATE: July 2012

| JUSTIFICATION                       | DESCRIPTION                                                                                                                                             | MINIMUM REQUIREMENT                  |                                        | COMPLIANCE  |                         |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------|-------------|-------------------------|
|                                     |                                                                                                                                                         | FREE FLOW                            | RESTRICTED FLOW                        | SECTIONAL % | ENTIRE % <sup>(2)</sup> |
|                                     |                                                                                                                                                         | OPERATING SPEED<br>≥ 70KM/H          | OPERATING SPEED<br>< 70 KM/H           |             |                         |
| 1. MINIMUM VEHICULAR WARRANT        | A. Vehicle volume, all approaches for each of the heaviest 8 hours of an average day, and                                                               | 480<br>600 (2 or more lane approach) | 720<br>900 (2 or more lane approach)   | 56%         | 15%                     |
|                                     | B. Vehicle volume, along minor street, for each of the same 8 hours.                                                                                    | 120<br>180 (tee intersection)        | 170<br>255 (tee intersection)          | 15%         |                         |
| 2. DELAY TO CROSS TRAFFIC           | A. Vehicle volume, along major street for each for the heaviest 8 hours of an average day, and                                                          | 480<br>600 (2 or more lane approach) | 720<br>900 (2 or more lane approach)   | 52%         | 20%                     |
|                                     | B <sup>(1)</sup> . Combined vehicle and pedestrian volume <u>crossing</u> the major street for each of the same 8 hours                                 | 50                                   | 75                                     | 20%         |                         |
| 3. VOLUME/DELAY COMBINATION         | The above Justifications (1 and 2) both satisfied to the extent of 80% or more                                                                          | Yes <input type="checkbox"/>         | No <input checked="" type="checkbox"/> |             |                         |
| 4. MINIMUM FOUR HOUR VEHICLE VOLUME | Plotted point representing hourly volume for minor approach vs. major approach for hour highest hours of an average day fall above the applicable curve | Yes <input type="checkbox"/>         | No <input checked="" type="checkbox"/> |             |                         |
| 5. COLLISION EXPERIENCE             | A. Total reported accidents of types susceptible to correction by a traffic signal, per 12 month period averaged over a 36 month period, and            | 5                                    |                                        |             |                         |
|                                     | B. Adequate trial of less restrictive remedies, where satisfactory observance and enforcement have failed to reduce the number of accidents             | Yes <input type="checkbox"/>         | No <input type="checkbox"/>            |             |                         |
| 6. PEDESTRIAN VOLUME AND DELAY      | A. Plotted point representing 8 hour pedestrian volume vs. 8 hour vehicular volume fall in justified zone, and                                          | Yes <input type="checkbox"/>         | No <input type="checkbox"/>            |             |                         |
|                                     | B. Plotted point representing 8 hour volume of pedestrian experiencing delays of 10 s or more vs. 8 hour pedestrian volume fall in justified zone       | Yes <input type="checkbox"/>         | No <input type="checkbox"/>            |             |                         |

**NOTES**

- 1) For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
- 2) The lowest sectional percentage governs the entire Justification.

**TRAFFIC SIGNAL JUSTIFICATION  
USING PROJECTED VOLUMES**

LOCATION: Breezehill at Somerset

YEAR: 2012 Total Traffic (w development)

| JUSTIFICATION                       | DESCRIPTION                                                                                               | MINIMUM REQUIREMENT                  |                                             | COMPLIANCE |         |                         |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------|------------|---------|-------------------------|
|                                     |                                                                                                           | FREE FLOW                            | RESTRICTED FLOW                             | SECTIONAL  |         | ENTIRE % <sup>(2)</sup> |
|                                     |                                                                                                           | OPERATING SPEED<br>≥ 70KM/H          | OPERATING SPEED<br>< 70 KM/H                | NUMERICAL  | PERCENT |                         |
| <b>1. MINIMUM VEHICULAR WARRANT</b> | A. Vehicle volume, all approaches (average hour)                                                          | 480<br>600 (2 or more lane approach) | 720<br><u>900</u> (2 or more lane approach) | 353        | 39%     | 11%                     |
|                                     | B. Vehicle volume along minor street (average hour)                                                       | 120<br>180 (tee intersection)        | 170<br><u>255</u> (tee intersection)        | 29         | 11%     |                         |
| <b>2. DELAY TO CROSS TRAFFIC</b>    | A. Vehicle volume along major street (average hour)                                                       | 480<br>600 (2 or more lane approach) | 720<br><u>900</u> (2 or more lane approach) | 324        | 36%     | 17%                     |
|                                     | B <sup>(1)</sup> . Combined vehicle and pedestrian volume <u>crossing</u> the major street (average hour) | 50                                   | 75                                          | 13         | 17%     |                         |

**NOTES**

- 1) For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
- 2) The lowest sectional percentage governs the entire Justification.
- 3) Average hourly volumes estimated from peak hour volumes,  $AHV = PM / 2$  or  $AHV = (AM + PM) / 4$ .