



**City of Kingston  
Report to Council  
Report Number 15-365**

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**To:** Mayor and Members of Council  
**From:** Jim Keech, President and CEO, Utilities Kingston  
**Resource Staff:** Mark Van Buren, Director of Engineering  
**Date of Meeting:** September 15, 2015  
**Subject:** Proposed Various All-Way Stop Intersections

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**Executive Summary:**

Engineering Department staff have completed detailed traffic counts at various intersections in the City and are recommending the installation of all-way stop control at the following 6 locations:

- Barrie Street & Stuart Street
- Earl Street & Clergy Street
- Lancaster Drive & Milford Drive
- Henderson Boulevard & Glen Castle Road
- Biscayne Street & Schooner Street
- Bur Brook Road & Cordukes Road

Intersections are assessed on an on-going basis as part of the Engineering Department's traffic counting program as well as in response to requests from Kingston City Police and members of the public.

**Recommendation:**

**That** a by-law be presented to amend By-Law No. 2003-209, being a "A By-Law For Regulating Traffic in the Highways Of The City of Kingston, Subject To The Provisions Of The Highway Traffic Act" as amended, in order to install all-way stop control at the following 6 intersections: 1) Barrie Street & Stuart Street, 2) Earl Street & Clergy Street, 3) Lancaster Drive & Milford Drive, 4) Henderson Boulevard & Glen Castle Road, 5) Biscayne Street & Schooner Street and 6) Burbrook Road & Cordukes Road.

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**Authorizing Signatures:**

ORIGINAL SIGNED BY PRESIDENT & CEO, UTILITIES KINGSTON

**Jim Keech, President & CEO, Utilities Kingston**

ORIGINAL SIGNED BY CHIEF ADMINISTRATIVE OFFICER

**Gerard Hunt, Chief Administrative Officer**

**Consultation with the following Commissioners:**

|  |              |
|--|--------------|
| Cynthia Beach, Corporate & Strategic Initiatives             | Not required |
| Lanie Hurdle, Community Services                             | Not required |
| Denis Leger, Transportation, Facilities & Emergency Services | Not required |
| Desiree Kennedy, Chief Financial Officer & City Treasurer    | Not required |

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**Options/Discussion:**

The City of Kingston uses guidelines, approved by Council in 2010, to determine where all-way stop control should be installed. The Guidelines consider vehicle and pedestrian volumes, vehicle splits (percentage of vehicles travelling in each direction) and collision history.

Intersections are assessed on an on-going basis as part of the Engineering Department's traffic counting program as well as in response to requests from Kingston City Police and members of the public.

The City of Kingston's guidelines for all-way stop control are as follows:

All-way stop control may be considered on roadways when the following conditions are met:

1) Total vehicle volume per hour

The total vehicle volume on all approaches of an intersection exceeds an average of 200 vehicles per hour over the eight hour peak period; and

2) Number of vehicles on minor street plus number of pedestrians crossing major street

The total volume of vehicles on the minor street plus the total number of pedestrians crossing the major street exceeds an average of 80 units per hour over the eight hour peak period; and

3) Vehicle volume split

Average volume split of vehicles does not exceed 75/25 for three-way control or 65/35 for four-way control. The average vehicle volumes over the eight hour peak period are used to determine the average split; or

4) Collisions

The average number of preventable collisions per year is at least three per year over at least three years.

Each of the first three conditions described above should be met for all-way stop control to be warranted at an intersection. Alternatively, if the collision condition is met, no other conditions need to be met in order for all-way stop control to be warranted.

#### Summary of Recommended Locations for All-Way Stop Control

- Barrie Street & Stuart Street

A review of the traffic counts completed at this intersection on April 14, 2014 revealed that this location essentially meets the warrants for all-way stop control. The total vehicle volume of 486 exceeds the required minimum of 200, traffic volumes on the side street (vehicles plus pedestrians equals 287) are higher than the required minimum of 80 and the existing split (% of traffic in each direction) is currently 66%/34%, only 1% lower than required minimum of 65%/35%. A review of the collision history at this location indicated that there was an average of

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0.3 collisions per year at this location that could most likely have been prevented with all-way stop control.

- Earl Street & Clergy Street

A review of the traffic counts completed at this intersection on April 14, 2015 revealed that this location is very close to meeting the requirements for all-way stop control. The existing traffic volumes (vehicles plus pedestrians equals 167) on the side street exceed the required minimum of 80 and the existing split (% of traffic in each direction) is currently 55%/45% which is greater than the minimum requirement of 65%/35%. Although the warrants are not quite met for total volume (178 instead of the required 200), this intersection is slightly skewed and more than 1200 pedestrians cross during the day hence the recommended option for this intersection is to install all-way stop control.

A review of the collision history at this location indicated that in the past five years there has been one reported collision.

- Lancaster Drive & Milford Drive

A review of the traffic counts completed at this intersection on September 9, 2014 revealed that this location meets the warrants for all-way stop control. The total vehicle volume of 330 exceeds the required minimum of 200, the vehicles plus pedestrians on the side street equals 101 which exceeds the required minimum of 80 and the existing split (% of traffic in each direction) is currently 70%/30% which is greater than the minimum requirement of 75%/25% for a t-intersection. There is no collision history at this intersection within the past five years.

- Henderson Boulevard & Glen Castle Road

A review of the traffic counts completed at this intersection on May 7, 2015 revealed that this location is very close to meeting the warrants for all-way stop control. The total vehicle volume of 336 exceeds the required minimum of 200, the vehicles plus pedestrians on the side street equals 110 exceeds the required minimum of 80 and the existing split (% of traffic in each direction) is currently 72%/28% which is close to the minimum requirement of 65%/35% for a 4-legged intersection.

The collision history indicates that there is an average of 0.6 collisions per year at this location that could be prevented with all-way stop control.

- Biscayne Street & Schooner Street

Although it is more appropriate for stop control to be installed on the minor street, the stop signs are currently located on Biscayne Street, the major street. Biscayne Street has a volume of 434 vehicles in 8 hours and Schooner Street has a volume of 167 vehicles in 8 hours. As it can be confusing for motorists when the direction of stop control is reversed, the recommended option for this intersection is to install all-way stop control.

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- Bur Brook Road & Cordukes Road

Although it is more appropriate for stop control to be installed on the minor street, the stop signs are currently located on Cordukes Road, the major street. Cordukes Road has a volume of 876 vehicles in 8 hours and Burbrook Road has a volume of 184 vehicles in 8 hours. As it can be confusing for motorists when the direction of stop control is reversed, the recommended option for this intersection is to install all-way stop control.

Existing Policy/By Law:

By-Law No. 2003-209, "A By-Law For Regulating Traffic in the Highways Of The City of Kingston, Subject To The Provisions Of The Highway Traffic Act".

**Notice Provisions:**

Not Applicable.

**Accessibility Considerations:**

Not Applicable.

**Financial Considerations:**

The cost associated with the installation of signs required will be accommodated within the existing approved operating budget.

**Contacts:**

Mark Van Buren, Director of Engineering 613-546-4291, ext. 3218

Deanna Green, Manager Traffic Division 613-546-4291, ext. 3170

**Other City of Kingston Staff Consulted:**

Chris Sleeth, Traffic Supervisor, Public Works

**Exhibits Attached:**

Exhibit A Draft By-Law

Exhibit B Location maps

Exhibit C All-way stop control warrants

**By-Law Number. 2015-XX**

**A By-Law to Amend By-Law Number 2003-209 “A By-Law to Regulate Traffic”**

**Passed:** Meeting date, 2015

**Therefore be it resolved that** the Council of the Corporation of the City of Kingston hereby enacts as follows:

- 1. By-Law Number 2003-209 of the Corporation of the City of Kingston entitled “A By-Law to Regulate Traffic, Subject to the Provisions of the Highway Traffic Act”, as amended, is hereby further amended as follows:
  - 1.1 Schedule C-3, All-Way Stop Signs, is hereby amended by **adding** the following thereto:
    - Barrie Street at Stuart Street
    - Earl Street at Clergy Street
    - Lancaster Drive at Milford Drive
    - Henderson Boulevard at Glen Castle Road
    - Bur Brook Road at Cordukes Road
    - Biscayne Street at Schooner Street
  - 1.2 Schedule C-1, Through Highways, is hereby amended by **removing** the following therefrom:
    - Barrie Street from the North Side of King Street East to the South Side of York Street
    - Earl Street from the East Side of Barrie Street to the West Side of Bagot Street
    - Lancaster Drive from the East Side of Limestone Drive to Keenan Drive
    - Henderson Boulevard from the West Side of Roosevelt Drive to Bayridge Drive
    - Bur Brook Road from the East Side of Road # 38 to the West Side of Sydenham Road
    - Biscayne Street from Road # 15 to Waterside Way
    - Schooner Street from Biscayne Street to Waterside Way
  - 1.3 Schedule C-1, Through Highways, is hereby amended by adding the following thereto:
    - Barrie Street from the North Side of King Street to the South Side of Stuart Street
    - Barrie Street from the North Side of Stuart Street to the South Side of Johnson Street

Barrie Street from the North Side of Queen Street to the South Side of York Street

Earl Street from the East Side of Clergy Street to the West Side of Bagot Street

Lancaster Drive from the East Side of Limestone Drive to the East Side of Milford Drive

Lancaster Drive from the West Side of Milford Drive to Keenan Drive

Henderson Boulevard from the West Side of Roosevelt Drive to the East Side of Glen Castle Road

Henderson Boulevard from the West Side of Glen Castle Road to Bayridge Drive

Bur Brook Road from the East Side of Cordukes Road to the West Side of Sydenham Road

2. This By-Law shall come into force and take effect on the date of its passing.

Given First and Second Readings Month XX, 2015

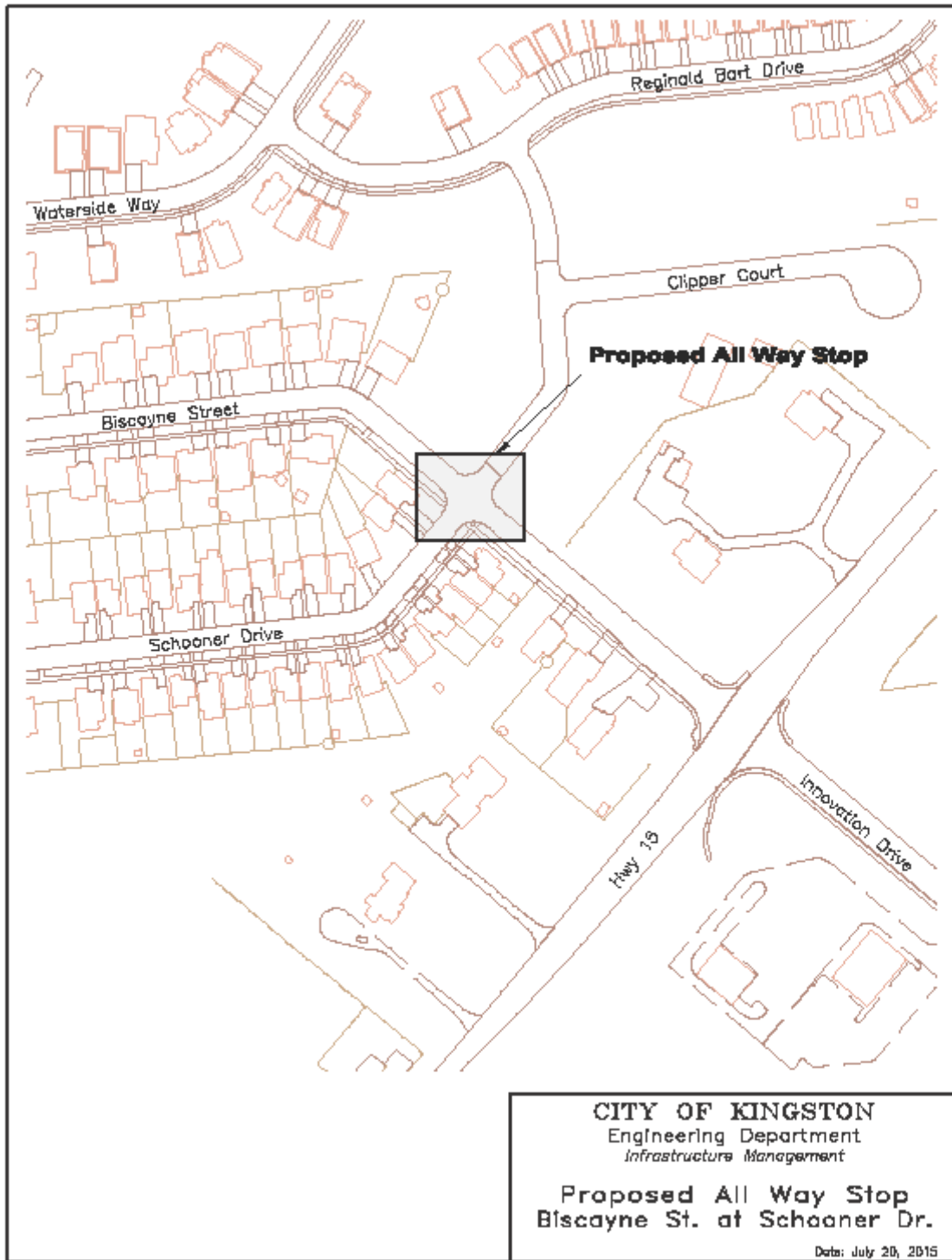
Given Third Reading and Passed Month XX, 2015

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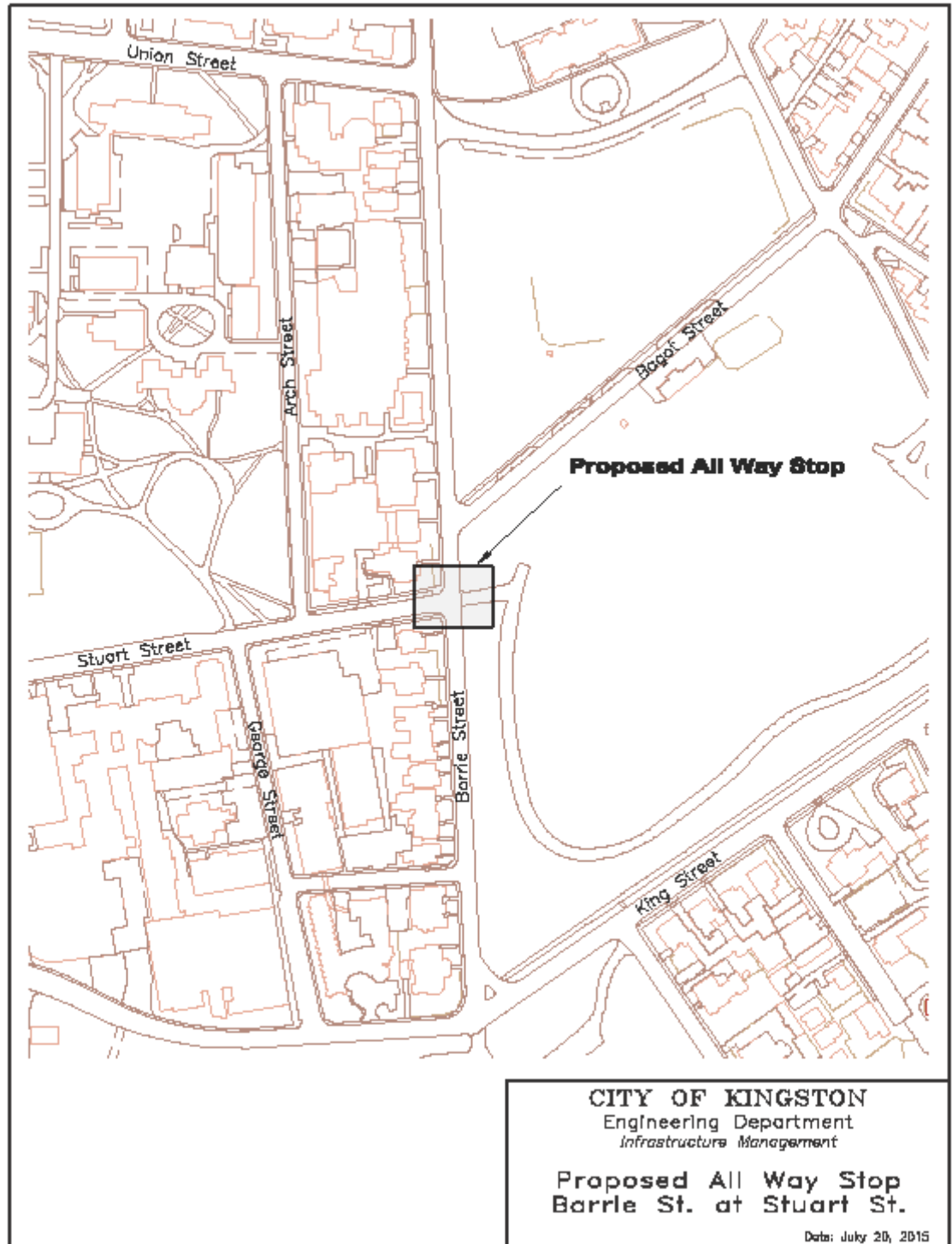
**John Bolognone**  
**City Clerk**

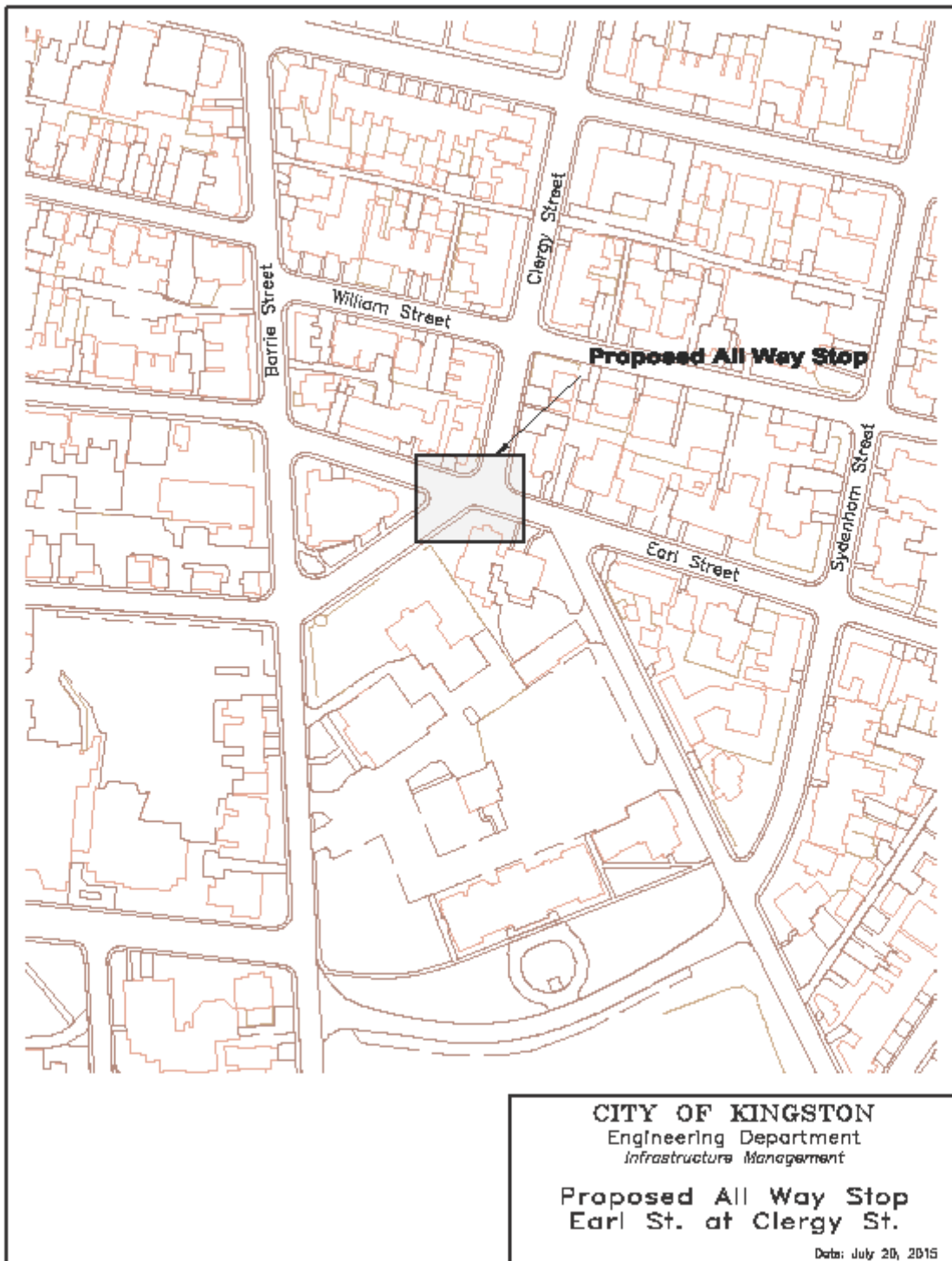
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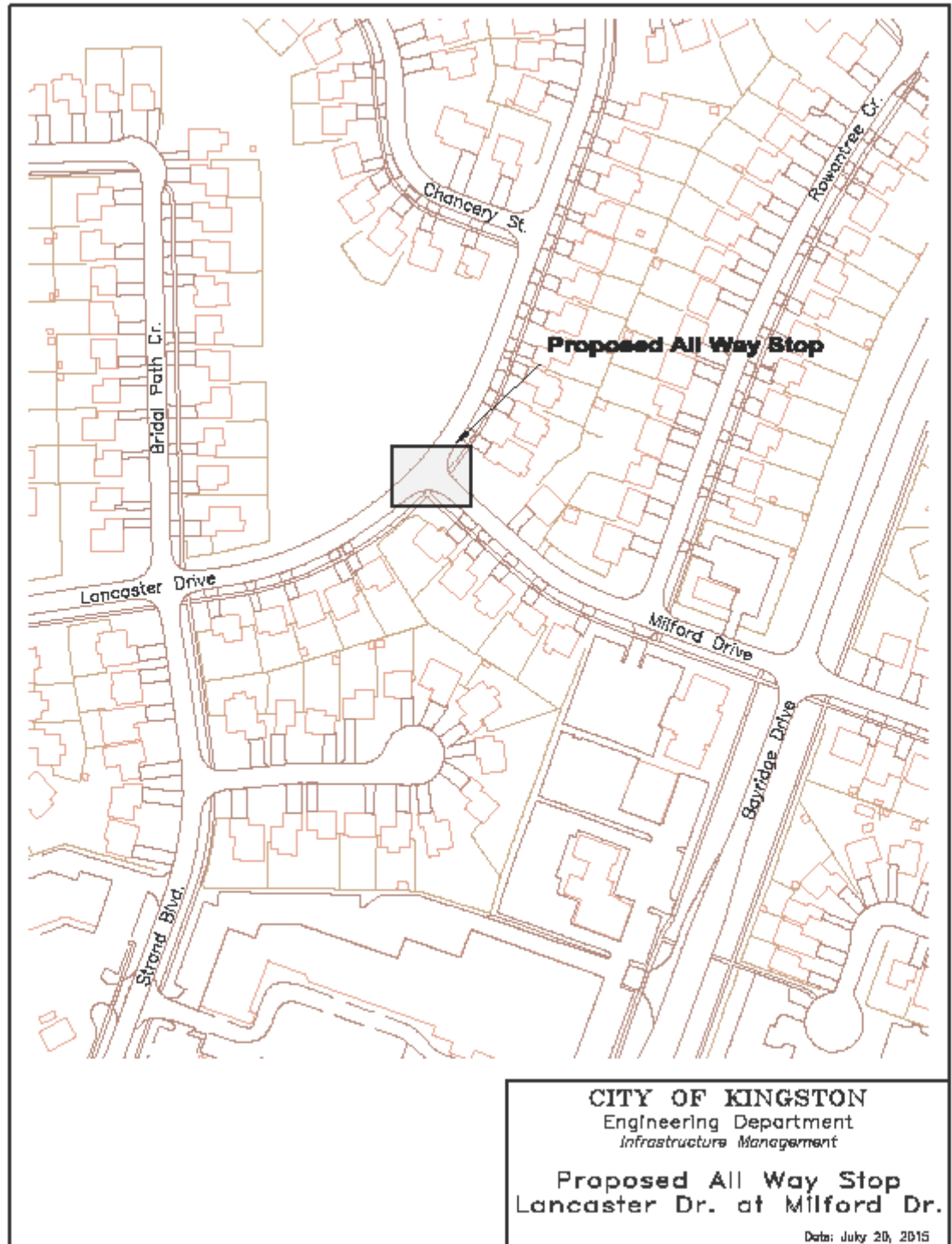
**Bryan Paterson**  
**Mayor**

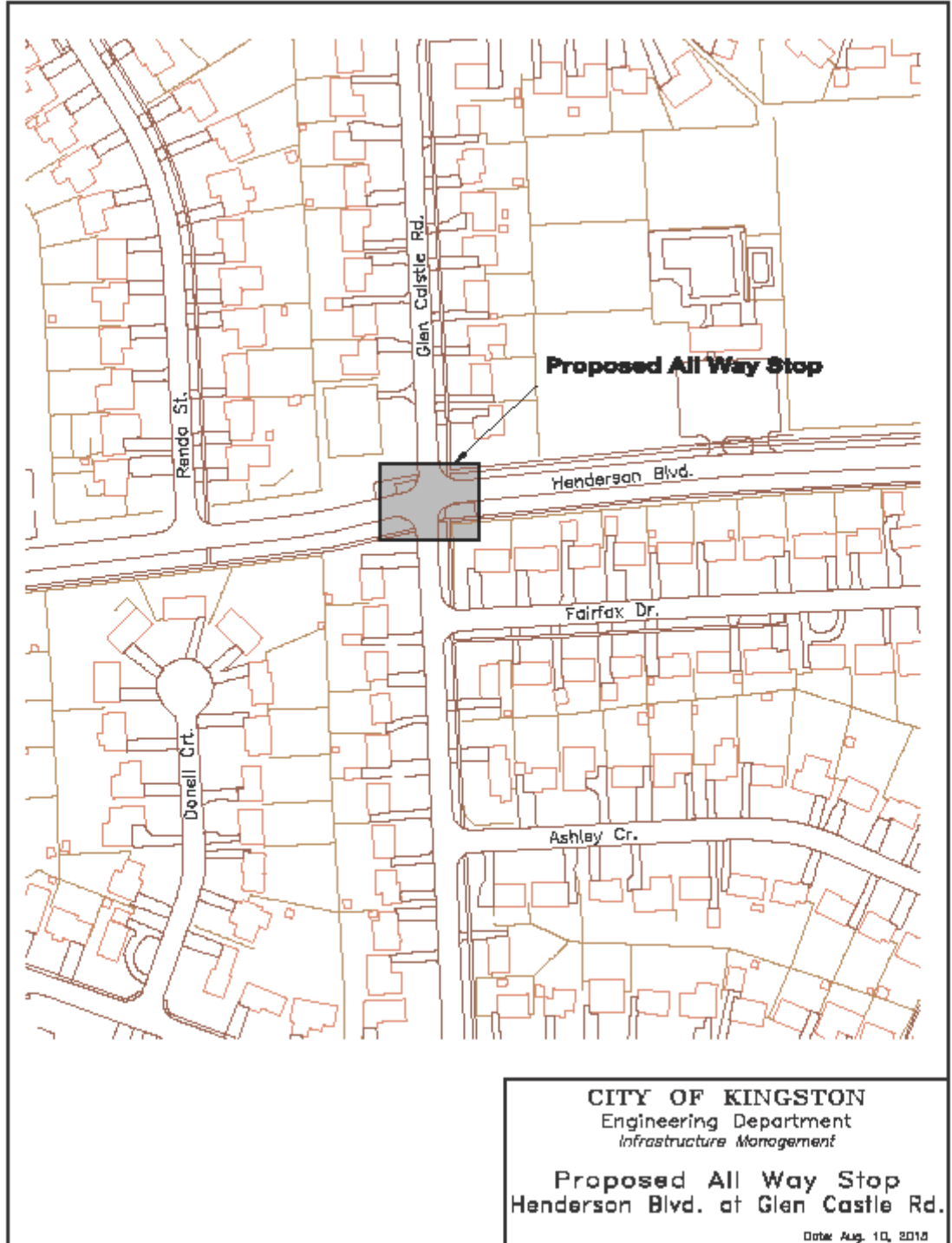


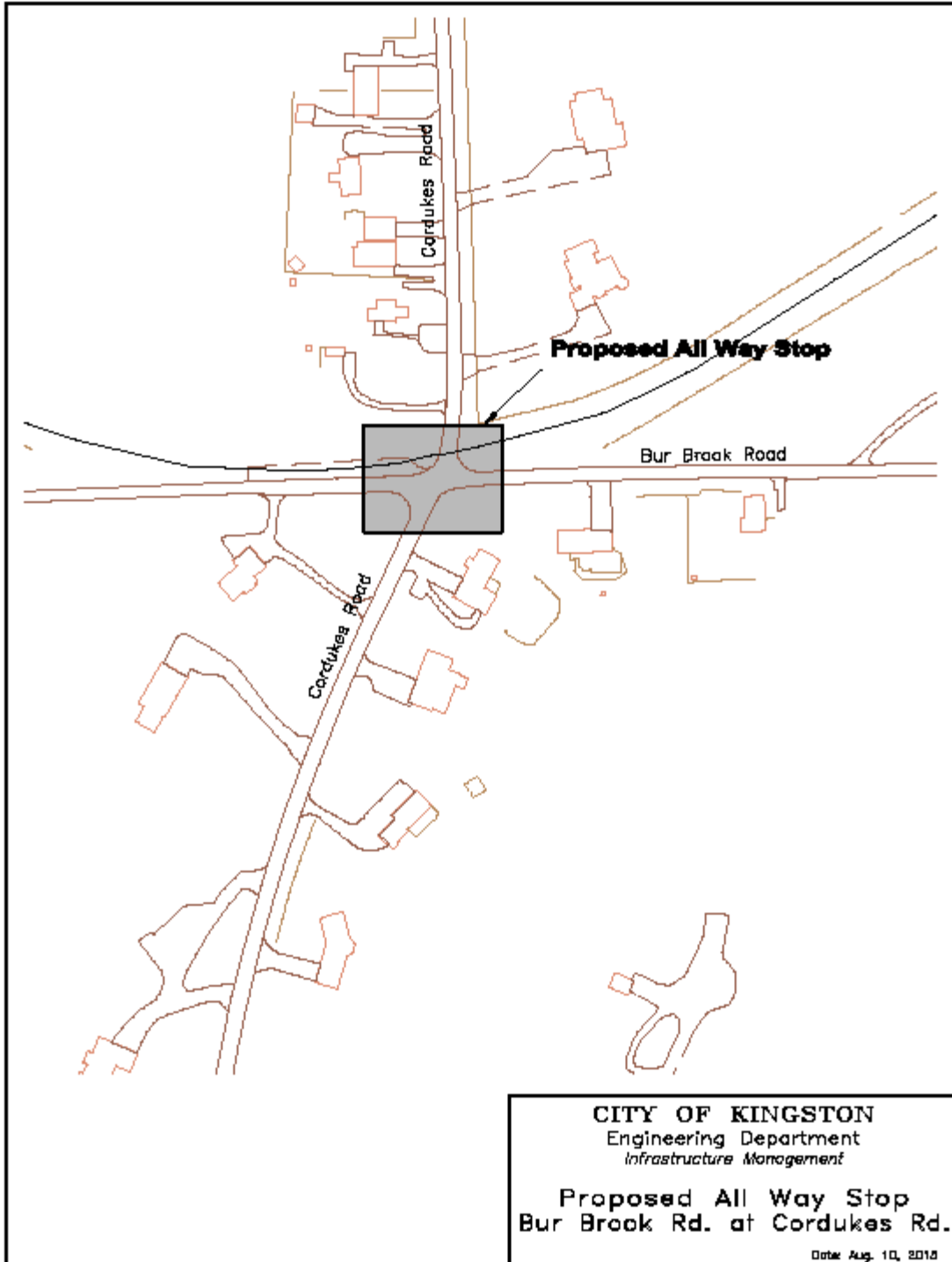












### 4-WAY CONTROL STOP SIGN WARRANT

Location: Biscayne St @ Schooner Dr  
 Date: Tuesday, April 21, 2015  
 Weather: \_\_\_\_\_

| Hour Ending  | Major St.<br>Biscayne St. | Minor St.<br>Schooner Dr | Total Volume | Peds Crossing<br>Biscayne St | Split      |
|--------------|---------------------------|--------------------------|--------------|------------------------------|------------|
| 8:00         | 52                        | 41                       | 93           | 4                            | 56%        |
| 9:00         | 52                        | 24                       | 76           |                              | 68%        |
| 10:00        | 35                        | 14                       | 49           |                              | 71%        |
| 13:00        | 48                        | 18                       | 64           |                              | 72%        |
| 15:00        | 48                        | 7                        | 53           | 2                            | 87%        |
| 16:00        | 65                        | 16                       | 81           | 3                            | 80%        |
| 17:00        | 71                        | 20                       | 91           | 2                            | 78%        |
| 18:00        | 67                        | 27                       | 94           |                              | 71%        |
| <b>Total</b> | <b>434</b>                | <b>167</b>               | <b>601</b>   | <b>11</b>                    | <b>72%</b> |

| Condition  | Average per Hour or Year | Requirement   | Conclusion    |
|--|--------------------------|---|---------------|
| (1) Total Vehicle Volume   | 75,125                   | An average of 200 vehicles per hour over the eight hour peak period | NOT WARRANTED |
| (2) Number of Vehicles on Minor St + Number of Pedestrians crossing major street | 22                       | An average of 80 units per hour over the eight peak hours           | NOT WARRANTED |
| (3) Vehicle Volume Split   | 72%                      | The average vehicular volume split does not exceed 65/35            | NOT WARRANTED |
| (4) Preventable Collisions   | 0                        | The average number of preventable collisions is at least three      | NOT WARRANTED |

Note: For an All Way Stop to be Warranted either Condition (1), (2) or (3) must be met together

### ALL WAY STOP NOT WARRANTED

### 4-WAY CONTROL STOP SIGN WARRANT

Location: Barrie St @ Stuart St  
 Date: Tuesday, April 14, 2015  
 Weather: \_\_\_\_\_

| Hour Ending  | Major St<br>Barrie St | Minor St<br>Stuart St | Total Volume | Peds Crossing<br>Barrie St | Split      |
|--------------|-----------------------|-----------------------|--------------|----------------------------|------------|
| 9:00         | 352                   | 133                   | 485          | 177                        | 73%        |
| 10:00        | 301                   | 127                   | 428          | 94                         | 70%        |
| 12:00        | 316                   | 143                   | 459          | 105                        | 69%        |
| 13:00        | 319                   | 157                   | 476          | 183                        | 67%        |
| 15:00        | 302                   | 147                   | 449          | 91                         | 67%        |
| 16:00        | 332                   | 206                   | 538          | 83                         | 62%        |
| 17:00        | 350                   | 216                   | 566          | 126                        | 62%        |
| 18:00        | 294                   | 180                   | 474          | 128                        | 62%        |
| <b>Total</b> | <b>2576</b>           | <b>1309</b>           | <b>3885</b>  | <b>987</b>                 | <b>66%</b> |

| Condition  | Average per Hour or Year | Requirement   | Conclusion    |
|--|--------------------------|---|---------------|
| (1) Total Vehicle Volume   | 485.625                  | An average of 200 vehicles per hour over the eight hour peak period | WARRANTED     |
| (2) Number of Vehicles on Minor St + Number of Pedestrians crossing major street | 287                      | An average of 80 units per hour over the eight peak hours           | WARRANTED     |
| (3) Vehicle Volume Split   | 66%                      | The average vehicle or volume split does not exceed 65/35           | NOT WARRANTED |
| (4) Preventable Collisions   | 0.3                      | The average number of preventable collisions is at least three      | NOT WARRANTED |

Note: For an All Way Stop to be Warranted either Condition (1) or (2) must be met or Conditions (1) & (2) & (3) must be met together

### ALL WAY STOP NOT WARRANTED

### 4-WAY CONTROL STOP SIGN WARRANT

Location: Earl St @ Clergy St  
 Date: Tuesday, April 14, 2015  
 Weather:

| Hour Ending  | Major St.<br>Earl St | Minor St.<br>Clergy St | Total Volume | Peds Crossing<br>Earl St | Split      |
|--------------|----------------------|------------------------|--------------|--------------------------|------------|
| 9:00         | 107                  | 100                    | 207          | 141                      | 52%        |
| 10:00        | 73                   | 74                     | 147          | 67                       | 50%        |
| 12:00        | 77                   | 54                     | 131          | 63                       | 59%        |
| 13:00        | 104                  | 66                     | 170          | 110                      | 61%        |
| 15:00        | 85                   | 73                     | 158          | 62                       | 54%        |
| 16:00        | 98                   | 86                     | 184          | 86                       | 53%        |
| 17:00        | 134                  | 104                    | 238          | 90                       | 56%        |
| 18:00        | 108                  | 83                     | 191          | 77                       | 57%        |
| <b>Total</b> | <b>786</b>           | <b>640</b>             | <b>1426</b>  | <b>696</b>               | <b>55%</b> |

| Condition  | Average per Hour or Year | Requirement   | Conclusion    |
|--|--------------------------|---|---------------|
| (1) Total Vehicle Volume   | 178.25                   | An average of 200 vehicles per hour over the eight hour peak period | NOT WARRANTED |
| (2) Number of Vehicles on Minor St + Number of Pedestrians crossing major street | 167                      | An average of 80 units per hour over the eight peak hours           | WARRANTED     |
| (3) Vehicle Volume Split   | 55%                      | The average vehicular volume split does not exceed 55/35            | WARRANTED     |
| (4) Preventable Collisions   | 0.3                      | The average number of preventable collisions is at least three      | NOT WARRANTED |

Note: For an All Way Stop to be Warranted either Condition (1) must be met or Condition (2) must be met together.

### ALL WAY STOP NOT WARRANTED



### 3-WAY CONTROL STOP SIGN WARRANT

Location: Lancaster Dr @ Millford Dr  
 Date: Tuesday, September 09, 2014  
 Weather:

| Hour Ending  | Major St.<br>Lancaster Dr | Minor St.<br>Millford Dr | Total Volume | Peds Crossing<br>Lancaster Dr | Split      |
|--------------|---------------------------|--------------------------|--------------|-------------------------------|------------|
| 8:00         | 197                       | 41                       | 238          | 6                             | 83%        |
| 9:00         | 270                       | 76                       | 346          | 3                             | 78%        |
| 12:00        | 183                       | 76                       | 259          | 2                             | 71%        |
| 13:00        | 180                       | 79                       | 259          | 4                             | 69%        |
| 15:00        | 185                       | 100                      | 285          | 1                             | 65%        |
| 16:00        | 241                       | 113                      | 354          | 1                             | 68%        |
| 17:00        | 321                       | 175                      | 496          | 2                             | 65%        |
| 18:00        | 256                       | 144                      | 400          | 7                             | 84%        |
| <b>Total</b> | <b>1833</b>               | <b>804</b>               | <b>2637</b>  | <b>3</b>                      | <b>70%</b> |

| Condition  | Average per Hour or Year | Requirement   | Conclusion    |
|--|--------------------------|---|---------------|
| (1) Total Vehicle Volume   | 329.625                  | An average of 200 vehicles per hour over the eight hour peak period | WARRANTED     |
| (2) Number of Vehicles on Minor St + Number of Pedestrians crossing major street | 101                      | An average of 80 units per hour over the eight peak hours           | WARRANTED     |
| (3) Vehicle Volume Split   | 70%                      | The average vehicle air volume split does not exceed 75/25          | WARRANTED     |
| (4) Preventable Collisions   | C                        | The average number of preventable collisions is at least three      | NOT WARRANTED |

Note: For an All Way Stop to be Warranted either Condition (4) must be met or Conditions (1)/(2)/(3) must be met together

## ALL WAY STOP WARRANTED

### 4-WAY CONTROL STOP SIGN WARRANT

Location: Henderson Blvd @ Glen Castle Rd  
 Date: Thursday, May 07, 2015  
 Weather:

| Hour Ending  | Major St.<br>Henderson Blvd | Minor St.<br>Glen Castle Rd | Total Volume | Peds Crossing<br>Henderson Blvd | Split          |
|--------------|-----------------------------|-----------------------------|--------------|---------------------------------|----------------|
| 8:00         | 237                         | 108                         | 345          | 10                              | 69% 31%        |
| 10:00        | 183                         | 89                          | 272          | 13                              | 67% 33%        |
| 12:00        | 193                         | 88                          | 281          | 6                               | 69% 31%        |
| 13:00        | 195                         | 75                          | 270          | 8                               | 72% 28%        |
| 15:00        | 188                         | 89                          | 277          | 19                              | 60% 32%        |
| 16:00        | 307                         | 92                          | 399          | 25                              | 77% 23%        |
| 17:00        | 321                         | 117                         | 438          | 18                              | 73% 27%        |
| 18:00        | 306                         | 105                         | 411          | 19                              | 74% 26%        |
| <b>Total</b> | <b>1930</b>                 | <b>763</b>                  | <b>2693</b>  | <b>118</b>                      | <b>72% 28%</b> |

| Condition  | Average per Hour or Year | Requirement   | Conclusion    |
|--|--------------------------|---|---------------|
| (1) Total Vehicle Volume   | 336.625                  | An average of 200 vehicles per hour over the eight hour peak period | WARRANTED     |
| (2) Number of Vehicles on Minor St + Number of Pedestrians crossing major street | 110                      | An average of 80 units per hour over the eight peak hours           | WARRANTED     |
| (3) Vehicle Volume Split   | 72%                      | The average vehicle volume split does not exceed 65/35              | NOT WARRANTED |
| (4) Preventable Collisions   | 0.6                      | The average number of preventable collisions is at least three      | NOT WARRANTED |

Note: For an All Way Stop to be Warranted either Condition (2) must be met or Condition (1) AND (3) must be met together

### ALL WAY STOP NOT WARRANTED

### 4-WAY CONTROL STOP SIGN WARRANT

Bur Brook Rd @ Cordukes Rd

Location:

Thursday, July 16, 2015

Date:

Weather:

| Hour Ending  | Major St.<br>Cordukes Rd | Minor St.<br>Bur Brook Rd | Total Volume | Peds Crossing<br>Cordukes Rd | Split          |
|--------------|--------------------------|---------------------------|--------------|------------------------------|----------------|
| 8:00         | 75                       | 20                        | 95           |                              | 79% 21%        |
| 10:00        | 72                       | 23                        | 95           |                              | 76% 24%        |
| 12:00        | 104                      | 25                        | 129          |                              | 81% 19%        |
| 13:00        | 83                       | 15                        | 98           |                              | 85% 15%        |
| 15:00        | 116                      | 32                        | 148          |                              | 78% 22%        |
| 16:00        | 120                      | 20                        | 140          |                              | 86% 14%        |
| 17:00        | 144                      | 26                        | 170          |                              | 85% 15%        |
| 18:00        | 162                      | 23                        | 185          |                              | 88% 12%        |
| <b>Total</b> | <b>876</b>               | <b>184</b>                | <b>1060</b>  | <b>1</b>                     | <b>83% 17%</b> |

| Condition  | Average per Hour or Year | Requirement   | Conclusion    |
|--|--------------------------|---|---------------|
| (1) Total Vehicle Volume   | 132.5                    | An average of 200 vehicles per hour over the eight hour peak period | NOT WARRANTED |
| (2) Number of Vehicles on Minor St - Number of Pedestrians crossing major street | 23                       | An average of 60 units per hour over the eight peak hours           | NOT WARRANTED |
| (3) Vehicle Volume Split   | 83%                      | The average vehicle volume split does not exceed 85/15              | NOT WARRANTED |
| (4) Preventable Collisions   | 0.66                     | The average number of preventable collisions is at least three      | NOT WARRANTED |

Note: For an All Way Stop to be Warranted either Condition (4) must be met or Conditions (1)/(2)/(3) must be met together.

### ALL WAY STOP NOT WARRANTED