

**Item No. 1**  
**Halifax and West Community Council**  
**March 25, 2014**

**TO:** Chair and Members of Halifax and West Community Council  
Original Signed

**SUBMITTED BY:** \_\_\_\_\_  
Jane Fraser, Director, Planning and Infrastructure

**DATE:** February 18, 2014

**SUBJECT:** **Effectiveness of the Armdale Rotary-to-Roundabout Conversion**

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**INFORMATION REPORT**

**ORIGIN**

Item 12.2 of the May 7, 2012, meeting of the Chebucto Community Council: MOVED by Councillor Mosher, seconded by Councillor Wile that Chebucto Community Council request a staff report regarding the Armdale Rotary to Roundabout conversion including measurements on performance and observations. MOTION PUT AND PASSED.

**LEGISLATIVE AUTHORITY**

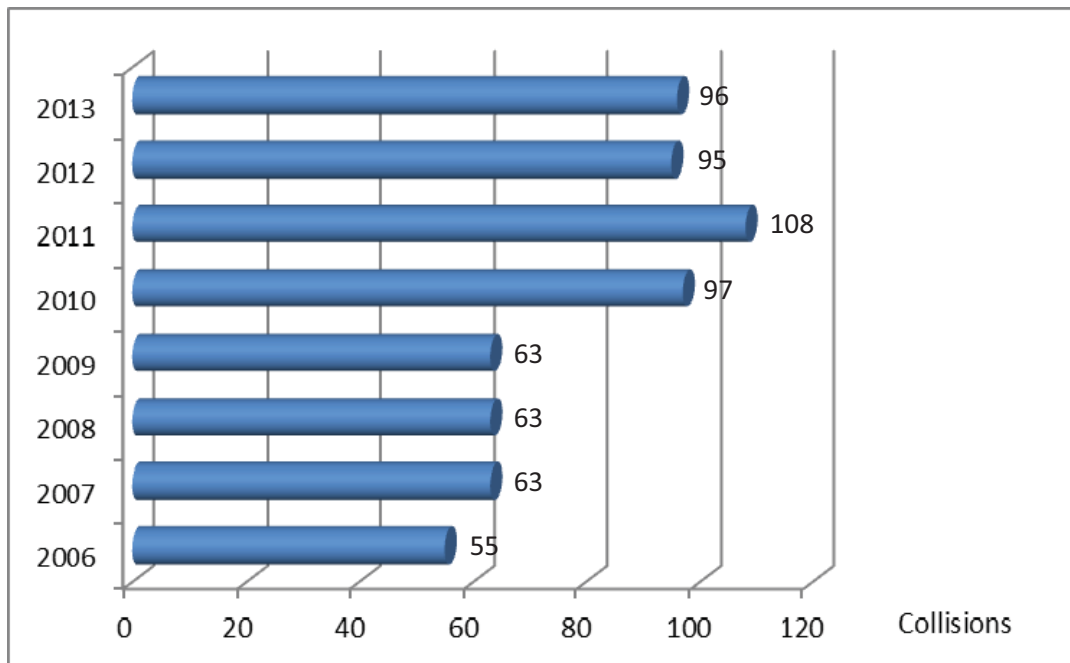
Halifax Regional Municipality Charter, Section 322.

**BACKGROUND**

The Armdale Rotary intersection was completed in 1956 replacing two usual-type intersections. Various relatively small changes were made to the Rotary between 1956 and 2005. In 2005, the Nova Scotia Legislature changed the Nova Scotia Motor Vehicle Act such that the former law of mutual yielding was replaced by a law that gave drivers already on the circular roadway a superior right-of-way to drivers entering the circular roadway. In 2007, significant changes were made in the physical design of the rotary to make the configuration better match the law: a modern roundabout.

**DISCUSSION**

**Safety:** When the request was made by Community Council for a before-and-after analysis, it was expected that a long-promised collision statistics database would be available through Service Nova Scotia and Municipal Relations. That database is still not available and records collected by Halifax Regional Police were used instead. Those numbers appear in Figure 1 below.



***Figure 1 - Collisions by Year – Armdale Roundabout:***

The graph shows a distinct increase in collisions from 2009 to 2010, which does not appear to be returning to pre-2010 levels. It is difficult to attribute that increase to any regulatory or physical changes to the roundabout since those occurred in 2005 and 2007 respectively. Of the 640 collisions reported during this time frame, only two (2) were indicated as involving a pedestrian and six (6) involving a bicycle. Staff has reviewed the data extensively and mapped collisions by type and location but have not found any commonality that would explain this increase.

To explore this issue further, an expert in roundabouts has been retained to conduct a safety audit and to recommend measures to improve overall safety.

**Capacity:** The capacity of the current roundabout is higher than the capacity of the former rotary. Capacity can be expressed as vehicles passing through the roundabout per hour. It is difficult to define the capacity of a roundabout because the performance depends very much on the relative amounts of traffic entering and leaving by each of the adjacent roadways. What is obvious, are the observed differences before and after conversion:

1. Before conversion there were long, stop-and-go queues on the busier approaches to the rotary at peak periods of the day. After conversion the queues are usually shorter, and instead of being stop-and-go are rolling queues (a rolling queue is one with vehicles proceeding slowly but rarely stopping).
2. Before conversion traffic signals had to be used at certain approaches to the rotary so other approaches' drivers could enter the rotary. After conversion these traffic signals have not been needed while still allowing reasonable queue lengths and travellers' delay (underground ducts are in place if ever signals are required again).
3. Before conversion, in the workday afternoon peak period, one part of the rotary was closed to traffic (except taxis and buses). This was the part of the circular roadway between the Herring Cove Road and Quinpool Road legs. Drivers could not proceed past the Quinpool Road exit from the rotary. This was to allow for drivers to enter the rotary from Quinpool Road and Chebucto Road without delay from drivers entering by the other approaches. After conversion closing part of the circle has not been needed and drivers are able to enter and exit using any approach/exit leg.
4. Before conversion there were delays to drivers at different off-peak times, particularly around noon on weekdays. These delays have completely disappeared.

**Delay:** As mentioned above, observations of queue lengths and queue characteristics show that delay to drivers has decreased because queues are shorter or are rolling queues or are absent (absent during off-peak periods when they once would occur).

**Volumes:** When analysis of traffic volumes was done in preparation of this report, the results showed that there has been no significant increase or decrease in traffic volumes over twenty four hour days or during peak periods. This result was surprising at first because expectations were that with higher capacity or less delay, more drivers would choose to use the roundabout. On the other hand traffic demand is based on a need to travel and while there has been some development in the commutershed of the roundabout, there has not been a large amount. In addition, changes have been made at Exit Zero of Highway 102, which may have taken some of what might have been an increase in traffic away from the roundabout.

### **FINANCIAL IMPLICATIONS**

There are no financial implications **identified as a result of this report**. The safety audit referred to in the report is being undertaken at a cost of \$9,930 and was initiated by staff through the approved Project Budget **for Project No. CTU00884** - Functional Transportation Planning.

### **COMMUNITY ENGAGEMENT**

There has been no community engagement done in preparation of this report.

**Effectiveness of the Armdale Rotary-  
to-Roundabout Conversion**

**Halifax & West Community Council Report - 4 -**

**March 25, 2014**

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**ATTACHMENTS**

There are no attachments for this report.

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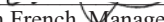
A copy of this report can be obtained online at <http://www.halifax.ca/commcoun/cc.html> then choose the appropriate Community Council and meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

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**Original Signed**

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