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**Item No. 12.1.1**  
**Transportation Standing Committee**  
**April 28, 2016**

**TO:** Chair and Members of Transportation Standing Committee

**SUBMITTED BY:** Original Signed  
Bruce Zvaniga, P.Eng., Director of Transportation and Public Works

**DATE:** March 21, 2016

**SUBJECT:** Devonshire Avenue Pedestrian and Bicycle Improvements

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**ORIGIN**

When making decisions about potential trade-offs needed to establish bicycle lanes in the Regional Centre, recommendation #23 of the Halifax Active Transportation Priorities Plan 2014-2019 states there should be:

1. More detailed review of each corridor under criteria listed in Appendix E of the plan;
2. Public engagement; and
3. Regional Council approval.

**LEGISLATIVE AUTHORITY**

HRM Charter section 79(1) Power to expend money: The Council may expend money required by the Municipality for... (aa) streets, culverts, retaining walls, sidewalks, curbs and gutters;

Section 322(1) of the Halifax Regional Municipality Charter states that "Council may design, lay out, open, expand, construct maintain, improve, alter, repair, light, water, clean and clear streets in the Municipality."

Section 90 of the Motor Vehicle Act authorizes the Traffic Authority to mark lanes on a street and control their use.

**RECOMMENDATION**

It is recommended that Halifax Regional Council approve the installation of 1.3 km of bicycle lanes and related pedestrian improvements as described in this report, on both sides of Devonshire Avenue and on Duffus Street between Novalea Drive and Isleville Street.

**BACKGROUND**

Devonshire Avenue, as well as a short section of Duffus Street between Isleville Street and Novalea Drive are identified as candidates for proposed bicycle lanes in the 2014 Active Transportation Priorities Plan. The bicycle lanes are proposed to connect the north end of the Halifax peninsula with major employment destinations on Barrington Street (Irving Shipbuilding and HMC Dockyard) and with origins and destinations in the community (e.g. Needham Centre). In the future, the route may continue to downtown Halifax via an extension of the Barrington Greenway from North Street to Niobe Gate. Options for this extension will be studied in 2016.

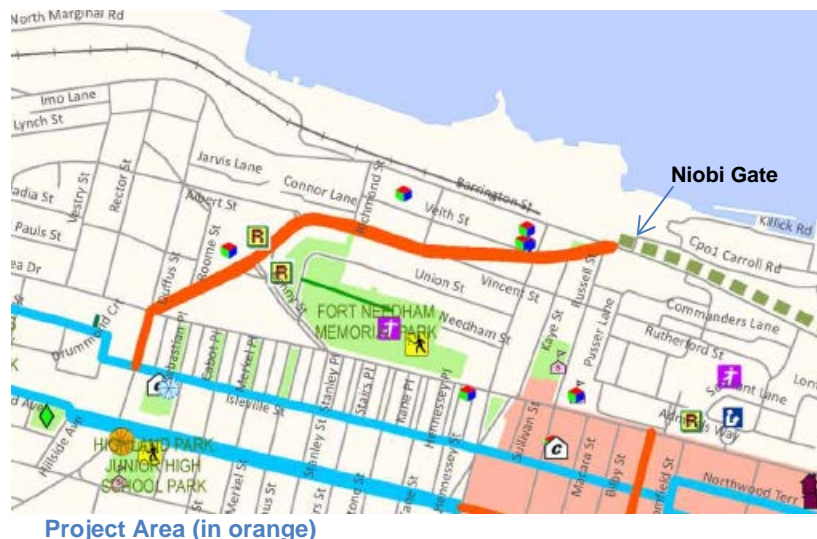
Devonshire Avenue is a four lane collector with a narrow median island and traffic volumes of less than 4,000 vehicles per day and a speed limit of 50km/h. It is scheduled for maintenance paving in 2016 (milling the existing asphalt surface to 50mm, and resurfacing with a layer of asphalt). A repaving project is a good opportunity to add other needed or desired elements to a street due to the ability to achieve project integration efficiencies.

Parking is permitted on both sides of most of Devonshire Avenue, but is restricted at peak hours to provide two travel lanes in the peak direction. Parking is limited on weekdays to a one hour maximum, and unlimited on weekends. Parking occupancy was observed to be very low (all of the abutters have off-street parking for their regular needs).

The combination of a wide street with low parking and low traffic volumes has the potential to encourage speeding. A recent speed study on Devonshire revealed an average motor vehicle speed of 55km/h and an 85<sup>th</sup> percentile speed of 66km/hr. The 85<sup>th</sup> percentile speed represents the speed at or below which the majority of drivers tend to travel based on roadway design / conditions.

Bicycle traffic was not counted but it is generally understood to be low. The street was identified in the AT plan because of its favourable slopes for cycling in this part of the city, as well as because of the potential future bikeway connections on a proposed bicycle route on Isleville and proposed greenway extension on Barrington.

Devonshire Avenue is fronted by a number of institutional uses (Veith House, Needham Centre, Family Law Courts, Bethel Church etc.). There are at least three daycare facilities in the immediate vicinity and crossing Devonshire is part of pedestrian route between the Mulgrave Park neighbourhood and the schools, parks and other community destinations on the other side of the street. There are three existing uncontrolled marked crosswalks on Devonshire with overhead beacons. A recent re-assessment of the crosswalk warrants revealed each to be well used by pedestrians.

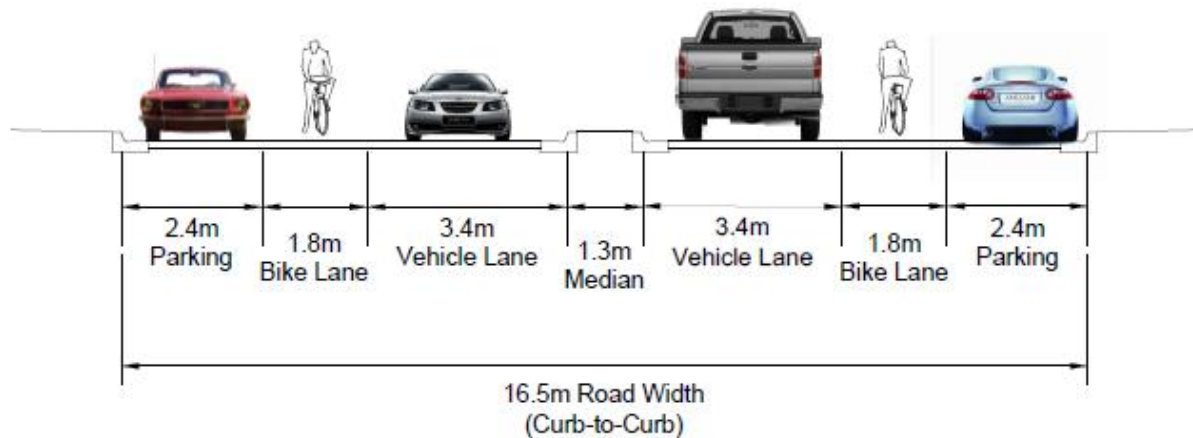


## **DISCUSSION**

The combination of low traffic volume and a wide roadway on Devonshire Avenue presented opportunities to remove unneeded vehicle travel capacity and maintain existing opportunities for on-street parking while achieving three main goals:

1. Adding a designated space for cycling;
2. Decreasing pedestrian crossing distances; and,
3. Reducing incidences of speeding.

WSP consultants were engaged by city staff in 2015 to carry out preliminary design work and traffic impact analysis for a new roadway configuration that includes two full time vehicle travel lanes, two full time vehicle parking lanes (except in places where there is 'no parking' today), two painted bicycle lanes, and a number of pedestrian "bump-outs" (curb extensions that reduce the crossing distance for pedestrians who are crossing the road). The preliminary plans for the corridor are online at [www.halifax.ca/cycling](http://www.halifax.ca/cycling) and the proposed cross section is generally as follows:



**Devonshire Avenue Proposed Cross Section**

### **Pedestrian Improvements and Speed Reduction**

The 'bump-outs' (extensions of the curb that make the roadway narrower) are proposed at Barrington, Young/ Veith, Vincent, Richmond, Albert, Kenny, and Roome. The addition of the 'bump-outs' and bicycle lanes is expected to reduce average vehicle speeds by making the roadway physically and visually narrower. Bump-outs will also improve the visibility of pedestrians waiting to cross by restricting parking near crosswalks. Finally, bump-outs will reduce pedestrian crossing distances which reduces the amount of time pedestrians are 'exposed' to traffic.

Some of the bump-outs will also improve the pedestrian realm by limiting turning speed around existing obtuse angles by making them closer to 90 degree turns. While each corner will be designed to allow all existing turning movements, people habituated to faster turning speeds will need to adjust the way they drive.

The bump-outs will also include opportunities for trees, grass and possibly other streetscape elements. For example, the bump-out opposite Richmond Street is at the base of the commemorative path and stairs to the Fort Needham memorial to the Halifax Explosion.

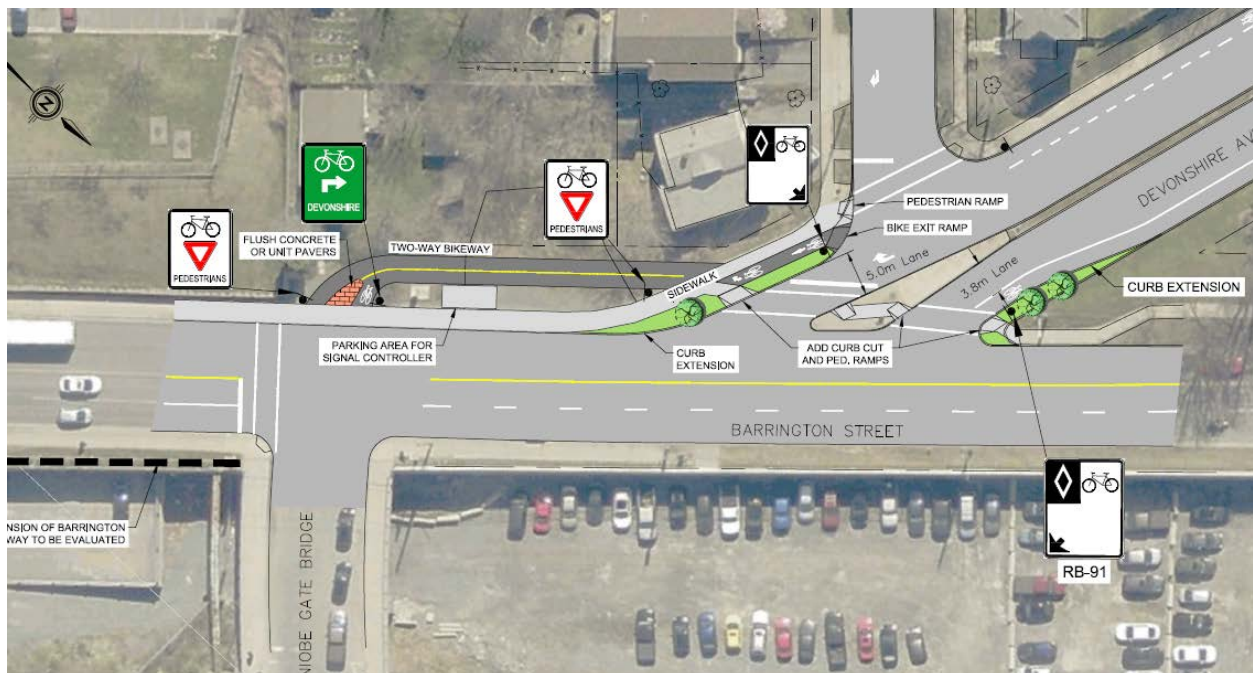
Other pedestrian improvements include the addition of pedestrian curb ramps at Barrington Street to make this sidewalk accessible for people in wheelchairs and strollers.

## Bicycle Improvements

The most appropriate type of bicycle facility for Devonshire Avenue has been determined to be the establishment of painted bicycle lanes. This determination was made using the City of Ottawa's *Bicycle Facility Selection Decision Support Tool* which recommends a particular type of bicycle facility ranging from a shared street to physically separated bicycle lanes. The determination is based on the speed and volume characteristics of a given roadway. On streets with characteristics of Devonshire Avenue, standard painted bicycle lanes can increase comfort and confidence for people on bicycles by creating separation, increasing predictability of bicyclist and motorist positioning and interaction, and visually alerting motorists to the potential presence of people bicycling on the street.

Protected bicycle lanes (i.e. reversing the bike lane with the parking lane) were considered; however, it was not wide enough between the curb and the median to accommodate a buffer between the parking lane and the bicycle lane that is required by the National Association of City Transportation Officials (NACTO). Protected bicycle lanes could only be established by removing the on-street parking entirely, or removing the median. Removing the median to establish a completely new cross section was considered too ambitious at this time as it contains drainage as well as all of the street lighting.

There is a large emphasis in the 2014 Halifax Active Transportation Priorities Plan on building connected bicycle facilities and on first glance this facility does not appear to be connected as it ends at Barrington Street where traffic speeds and volumes create a high stress cycling environment. However, there is an opportunity to create connectivity by constructing a 60m long, two-way bicycle lane on city property west of the Barrington Street sidewalk (see below). This feature will connect the Devonshire bicycle lanes to the signalized intersection at Niobe Gate without having to mix with traffic on Barrington Street itself. Instead of being another fragment, the addition of this feature means the Devonshire bicycle lanes can serve as a useful connector between approximately 3,000 households north of Duffus and Lady Hammond to approximately 6000 jobs at two of the largest employers in the city (Niobe Gate is the main entrance to the Irving Shipyard and HMC Dockyard). Driveway access for the two properties fronting this segment will be addressed in the detailed plans.



Proposed Bikeway Connection to Niobe Gate (access to HMC Shipyard and Irving Shipbuilding)

### **Traffic and Intersection Performance Analysis**

Two lanes are sufficient for the volume of existing and future traffic on Devonshire Avenue. An analysis of left turn lane warrants was carried out for left turns from Devonshire onto Young Avenue and Kenny Street to ensure that the proposed two lane configuration would not create any operational or safety problems. The intersection performance analysis indicated that impacts to the intersection are expected to be minimal and it is expected to continue to operate within HRM acceptable limits.

The analysis also revealed that even though Devonshire has a two lane approach to Barrington, there were zero left turns from Devonshire onto Barrington observed during the am and pm peaks. Even though left turns are not restricted, the angle of the approach has effectively eliminated demand for this maneuver. Reducing this to a single lane approach will therefore have no impact on operations.

One of three eastbound vehicle approach lanes on Duffus Street will need to be removed in order to install a bicycle lane on the south side of this street. The traffic impact analysis by WSP concluded that the impact of doing this would be negligible.

### **Parking Impact Analysis – Devonshire Avenue**

On Devonshire, all of the existing on-street parking is proposed to remain virtually unchanged in terms of location. In fact, 29 on-street parking spaces will be added between Hanover and Young where it is currently signed 'no parking' on the west side of the street. This is because the addition of a 'bump-out' at Young Street essentially defines the end of a parking bay.

In terms of duration, parking will no longer be subject to peak hour restrictions and staff will consider a request from a resident to change the duration of existing time-limited parking from one hour to two hours. Also, the parking in front of the Bethel Church currently signed 'Sunday Only' will be available Monday to Saturday as well.

### **Parking Impact Analysis – Duffus Street**

On Duffus Street, between Novalea and Isleville, parking would need to be removed from the south side of the street in order to stripe bicycle lanes on both sides and connect the Devonshire bicycle lanes with a future proposed local street bikeway on Isleville Street. All of the abutting residences appear to have access to off street parking from a rear alley. Approximately 13 spaces would be removed.

Duffus Street is not within the scope of work of the 2016 repaving project, but for the purposes of approving the bicycle lane, it has been included in the consultation for this project as well as this Council report. If approved by Council, it will be painted in 2016 if the existing pavement markings are sufficiently worn by Spring to allow for complete repainting without significant grinding of old markings. Otherwise the bicycle lanes will be painted the next time the road is repaved (expected in 17/18 or 18/19).

### **Summary**

Devonshire Avenue has excess space. Allowing full time parking on both sides of the street where it is restricted today means that full time bicycle lanes can be painted without impacting the number of available on-street parking spaces or the capacity of the street to handle existing and future motor vehicle traffic. They will also be an improvement for people who currently ride on the street. The bump-outs can define the full time parking areas while minimizing pedestrian crossing distances and improving the visibility of people crossing. The combination of physically narrowing the road with bump-outs and visually narrowing it with painted bicycle lanes has the potential to reduce the incidences of speeding on this roadway.



The approach taken to developing this project is aligned with the objectives of the Transportation and Mobility Chapter of the Regional Plan, to “design complete streets for all ages, abilities, and modes of travel.”

### **FINANCIAL IMPLICATIONS**

The AT improvements are included in the Approved 2016/17 Capital Budget along with the street recapitalization work. Class ‘C’ cost estimates currently put the AT enhancements at \$300,000 and this has been identified in the Approved 2016/17 Capital Budget in Project Account No. CTU00420 – Active Transportation Strategic Projects. This amount is primarily for the bump-outs where curb and drainage adjustments are required. The street recapitalization (repaving and sidewalk renewal) is estimated at \$940,000 and has been identified in the Approved 2016/17 Capital Budget in Project Account No. CR000005 – Street Recapitalization (\$855,000) and Project Account No. CKU01084 – Sidewalk Renewals (\$85,000).

### **RISK CONSIDERATION**

As per the risk consideration guidelines, the risk associated with this project is considered to be low.

### **COMMUNITY ENGAGEMENT**

Preliminary plans for this project were shared with the public online ([www.halifax.ca/cycling](http://www.halifax.ca/cycling) ) on Tuesday November 24, 2015. The website invites readers to send comments and questions via email to the Active Transportation Coordinator.

Advertising related to the information on the website and a scheduled Open House on Thursday December 3rd, 2015 at Needham Centre, was posted in The Coast and in Metro Halifax newspapers (Thursday Nov 27, 2015). Mail-outs to abutting residents were delivered on Tuesday December 1st, 2015, and a PSA was released on December 2nd, 2015. The proposal and an interview with the Active Transportation Coordinator were covered by CBC (radio & online) on December 3, 2015.

Staff received three comments via email, and the open house was attended by about 20 people. Attendees of the open house were invited to share feedback via a Q&A session following the staff presentation. The responses of municipal staff to comments raised at the Open House and received via email were posted at <http://www.halifax.ca/cycling/documents/EngagementResponse-Dec2015.pdf> .

There was strong support for this project among the public and abutting residents who provided feedback to staff.

### **ENVIRONMENTAL IMPLICATIONS**

Improving the pedestrian and bicycle realm supports and encourages active transportation which produces no emissions and is good for the environment.

### **ALTERNATIVES**

There are two potential alternatives:

- 1) Council may recommend that staff not proceed with the Active Transportation improvements and direct staff to carry out the street and sidewalk recapitalization that is part of the normal paving program. This alternative is not recommended because it does not advance the Council approved Active Transportation Priorities Plan and the Regional Plan direction to design “complete streets”; or,
- 2) Council may recommend that staff not proceed with the Active Transportation improvements proposed in favour of delaying the project to consider a comprehensive street redesign incorporating

protected bicycle lanes. This option is not recommended because it would have significant financial implications (preliminary estimates for full street reconstruction are greater than \$2,000,000) and may delay indefinitely the improvement of walking and bicycling facilities on Devonshire.

**ATTACHMENTS**

Appendix A: Summary of Evaluation of Devonshire Ave. for a Bicycle Lane as per the Active Transportation Priorities Plan

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A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.php> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 902.490.4210, or Fax 902.490.4208.

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## Appendix A: Summary of Evaluation of Devonshire Ave. for a Bicycle Lane as per the Active Transportation Priorities Plan

Appendix E of the Active Transportation Priorities Plan establishes evaluation criteria that staff should use when planning new bicycle facilities. The criteria and staff evaluation for the Devonshire Street Bicycle Lane follow in the table below.

Evaluation Criteria	Staff Comments
<b><i>Potential for Use/ Connectivity - High density of existing/ planned origins and destinations</i></b>	
Residences	There are approximately 3,000 households north of Duffus Street and Lady Hammond Road that would have good access to these bicycle lanes.
Workplaces	Employee numbers are high at several major employers near Devonshire: HMC Dockyard (about 5000); Irving Shipyard (about 1300)
Shops	Neighbourhood retail/ services at Novalea/ Devonshire.
Community Facilities	Needham Centre; Veith House; Daycares
Schools	NSCC Leeds Campus (700 full time students) (connected to Duffus via residential streets and proposed local street bikeway)
Other destinations	Family Courts; Devonshire Arena;
Other AT infrastructure (bicycle lanes, local street bikeways, AT greenways)	Isleville proposed LSB Barrington Greenway extension from North St. to Niobi Gate to be planned in 2016.



<b>Street Characteristics</b>	
Favourable grades (preferably 6% or less)	Average slope between Novalea and Kenny 5.8%; between Kenny and Albert 3.2% Between Albert and Richmond 4.6% Between Richmond and Hanover 3% Between Hanover and Young 5% Between Young and Barrington 5.5%
Low volume of motor vehicle traffic	Approx. 3500 vehicles per day.
Low volume of large vehicles	Devonshire is a daytime truck route and Halifax Transit is contemplating peak hour service under the Moving Forward together plan.
High volume of existing cyclists	Bicycle counts have not been done but they are assumed to be low
Speed of traffic	Average speed is 55km/h and 85 <sup>th</sup> percentile speed is 66km/h.
Few complex intersections	A number of streets intersect with Devonshire at obtuse angles permitting relatively high speed turn movements. This project contemplates make many of these into right angle turns.
Safety issues	The project is not addressing any specific safety issue. Rather it is creating dedicated space for bicycling, while jointly addressing speeding issues and improving conditions for walking.
Impact on traffic (i.e. of reducing vehicle travel or turn lanes to add a bike facility).	No significant impact
Impact on green space	No impact.
Impact on commercial or residential parking	13 spaces on Duffus one space on Devonshire would be removed.
The ability to mitigate losses to on-street parking	There is no need. Parking occupancy on street is very low as all uses have sufficient off-street parking for their regular needs.
<p><b>Alternative Route Analysis:</b> There is no viable alternative, Devonshire is a unique street in this very hilly part of the peninsula and cuts across the grade making it the only east west connector in this part of town with anything approaching reasonable slopes for an average person to be able to ride.</p>	
Public Feedback	Generally, there was strong support for this project among the public and the abutting residents who provided feedback to staff. There is a detailed list of all issues raised and staff responses at: <a href="http://www.halifax.ca/cycling/documents/EngagementResponse-Dec2015.pdf">http://www.halifax.ca/cycling/documents/EngagementResponse-Dec2015.pdf</a>

Stakeholder feedback	Active transportation stakeholders were consulted as part of a presentation at the Active Transportation Advisory Committee meeting on November 19, 2015. They supported the project.
Internal (HRM) review of the facility	Halifax Transit identified the need for one additional bus stop. The bike lane is compatible with an existing time point on Duffus west of Novalea. Tree planting will be considered on the bump-outs in support of the Urban Forest Master Plan; Streetscaping of the Richmond bump out may be considered in consultation with staff overseeing implementation of Needham park masterplan.