

Item No. 11.1.10
Halifax Regional Council
March 18, 2014

TO: Mayor Savage and Members of Halifax Regional Council

SUBMITTED BY: Original Signed by
Mike Labrecque, Acting Chief Administrative Officer and
Acting Director, Transportation and Public Works

DATE: February 24, 2014

SUBJECT: 2014/2015 Pedestrian Safety Action Plan

ORIGIN

Item 11.3 raised at the January 29, 2013 meeting of Halifax Regional Council.

Item 11.4.1 of the March 4, 2014 meeting of Halifax Regional Council, a report submitted by the Transportation Standing Committee entitled “Making Our Communities Safer – Crosswalk Safety Work Plan” as prepared by the Crosswalk Safety Advisory Committee.

LEGISLATIVE AUTHORITY

Part I, Section 21 “Standing, special and advisory committees”, of the Halifax Regional Municipality Charter.

RECOMMENDATION

It is recommended that Halifax Regional Council:

1. Adopt the 2014/2015 Pedestrian Safety Action Plan, included as Attachment 1 to this report; and
2. Direct staff to return, through the Transportation Standing Committee, not later than December 2014, with the annual Pedestrian Safety Action Plan for consideration in the 2015/2016 fiscal year.

BACKGROUND

During the January 29, 2013 meeting of Halifax Regional Council, it was moved by Councillor Craig, seconded by Councillor Outhit that Halifax Regional Council request a staff report which:

1. Prior to the end of fiscal 2012-2013, to provide an interim report that:
 - Provides the current understanding of how HRM focuses and performs all factors related to pedestrian safety – HRM engineering, public education, law enforcement, public engagement and evaluation;
 - Identifies HRM pedestrian safety statistics and how HRM statistics compare relative to other municipalities; and
 - Identifies a short-term HRM action plan to address pedestrian safety and any impacts on the 2013-2014 budget.
2. During fiscal 2013-2014, to develop and present for consideration by Halifax Regional Council, a long-term comprehensive pedestrian safety action plan to help ensure, and to be seen as ensuring, overall pedestrian safety for HRM residents based on:
 - The analysis of factors which may be contributing to pedestrian accidents;
 - Provides options considering both process and organization structure that focuses on engineering, education, enforcement, public engagement, such as a Crosswalk Safety Advisory Committee, overall evaluation, policy and legislation, interagency/departmental coordination and cooperation elements;
 - Provides a mechanism for continuous reporting and evaluation of the foregoing; and
 - Identifies ongoing budget impacts to the proposed action plan.

In addition, that the Mayor, on behalf of Halifax Regional Council, correspond immediately with the provincial Minister of Transportation and Infrastructure Renewal to request an update regarding a recommendation from the 2007 Crosswalk Safety Task Force which stated that “the departments responsible for collecting and analyzing collision data do so in a timely, comprehensive, consistent and accurate manner.”

DISCUSSION

Within the past year there has been a renewed focus and concern for pedestrian safety. As a result, Council and staff have placed an emphasis on ensuring that pedestrian safety and awareness is a priority when considering projects or carrying out various programs.

The first part of the Motion was addressed in a report to Council on March 26, 2013 (Attachment 2). The items outlined in the second part of the Motion will be addressed through implementation of the attached 2014/2015 Pedestrian Safety Action Plan.

The first point in part two of the Motion focuses on causal factors associated with vehicle/pedestrian collisions and indicates that the plan be developed in order to provide for, and be based on:

“-The analysis of factors which may be contributing to pedestrian accidents.”

After a collision has occurred there are many factors to be considered in order to determine the potential cause or identify underlying trends. Some of these factors include, but are not limited to:

- Speed
- Visibility
- Time of Day
- Travel Direction
- Intersection Control
- Weather
- Roadway Geometry
- Roadway Conditions
- Type of Collision
- Driver / Pedestrian Impairment
- Driver / Pedestrian Age

The ability to provide meaningful evaluations and draw reasonable conclusions related to the potential cause of a collision relies heavily on the availability of accurate and up to date data. Because of past limitations with availability and detail associated with collision information, it was not possible to provide statistics with confidence. However, processes have changed. Short-comings associated with the available data were recognized as a roadblock to providing a focused and proactive approach to addressing pedestrian safety issues by both engineering and enforcement staff. This has led to a major modification to the Halifax Regional Police (HRP) Records Management System (January 2014), implementation of an electronic Accident Support Services Incorporated System and on-going tracking of pedestrian/vehicle collisions by Divisional Crime Analysts. This will allow for easier and more accurate collection and analysis of collision data to help identify potential trends and contributing factors.

The second item outlined in the Motion indicated that the plan should:

“-Provide options considering both process and organization structure that focuses on engineering, education, enforcement, public engagement, such as a Crosswalk Safety Advisory Committee, overall evaluation, policy and legislation, interagency/interdepartmental coordination and cooperation elements.”

The Pedestrian Safety Action Plan does not provide for any changes to organization structure, policy or legislation. As the document was being produced, it was evident that what was in place already provided the necessary pieces; Traffic and R.O.W. leads the engineering component, HRP/RCMP are responsible for enforcement and Corporate Communications leads the education piece. A level of interdepartmental coordination/cooperation already exists since each area relies, to some extent, on interaction with the others in order to exchange the information necessary to achieve desired outcomes.

Some changes to process were identified in order to align resources in a more effective manner. HRP have made changes to their data management system and processes surrounding the collection and analysis of vehicle/pedestrian collision information. This data will be provided to Traffic & R.O.W. on a monthly basis for assessment in order to identify if there are any trends or contributing factors that may require mitigating measures (engineering, enforcement or education). Currently, Traffic & R.O.W. holds bi-monthly operations meetings with HRP/RCMP. On a go-forward basis pedestrian safety will be included as a standing item on the agenda.

HRP and RCMP have formed an Integrated Traffic Unit. Although this unit was formed prior to 2013, it has provided a successful and integrated approach to enforcement of traffic laws throughout HRM. Because different areas of HRM are patrolled by either HRP or RCMP, it was identified that a coordinated effort would be beneficial in providing a consistent approach to enforcement across HRM.

Over the course of producing The Pedestrian Safety Action Plan, our review identified that each group undertakes public education activities to differing degrees. Therefore, a new group will be formed, consisting of staff from HRP/RCMP, Corporate Communications and Traffic & R.O.W. that will meet on

a quarterly basis, to coordinate public education campaigns so that messages are consistent and to leverage resources.

The recently formed Crosswalk Safety Advisory Committee (CSAC) provides the key public engagement piece. Staff from both Police and Engineering provide support and advice to the Committee and with its extended mandate, will continue to interact with the Committee on an on-going basis which will ensure a timely and open exchange of ideas and information. The intent is that any recommendations brought forward by CSAC will be considered as one of the inputs when preparing the annual Pedestrian Safety Action Plan.

Council recently received the work plan and goals document produced by CSAC as part of their mandate. The document was approved by Council and forwarded to staff for review. The 2014/2015 Pedestrian Safety Action Plan considers the general themes outlined in the CSAC document.

Information contained within 2014/2015 Pedestrian Safety Action Plan outlines the programs and processes focusing on pedestrian safety covering the three E's (engineering/education/enforcement) that took place over the past year (2013) and moving forward for the upcoming year (2014) and also outlines engagement and evaluation activities from the previous year and plans for moving forward.

Key points outlined in The Pedestrian Safety Action Plan are summarized in the following table:

Engineering	
2013	2014
<ul style="list-style-type: none">• Installation of pedestrian count-down signals• Installation of accessible pedestrian signals• Adjustment of traffic signal timings to provide additional pedestrian crossing time• Review of 2013 capital projects to identify opportunities to incorporate geometric design changes to improve pedestrian access and/or reduce crossing distances• Crosswalk assessments• RA-5 crosswalk upgrades	<p><i>Signalized Intersections</i></p> <ul style="list-style-type: none">• Complete installation of pedestrian count-down signals at remaining intersections with crossing distances of 14 m or greater• Complete adjustment of signal timings to increase pedestrian crossing time at all signalized intersections <p><i>RA-5 Crosswalks</i></p> <ul style="list-style-type: none">• Assess all RA-5 crosswalk locations (approximately 180) to identify upgrades, adjustments or removals (pole locations, pedestrian ramps, advance yield to pedestrian lines, adjustment to flash/walk time, etc.) The assessment will also identify the remaining RA-5 locations where equipment upgrades (beacons, controllers and down-lighting) are required. Staff will develop an implementation plan with costing. <p><i>All Uncontrolled, Marked Crosswalks (Including RA-5)</i></p> <ul style="list-style-type: none">• Installation of zebra markings (approximately 500 locations). Funding for this item has been approved by Council.• Visually assess the retro-reflectivity of all side mounted RA-4 crosswalk signs and replace as required• Assess location of crosswalk signs to ensure optimal location for visibility and adjust as required

	<ul style="list-style-type: none"> Assess all 2014 capital projects to identify opportunities to incorporate geometric design changes to improve pedestrian access and/or reduce crossing distances (pedestrian ramps, bump-outs, median refuge, etc.)
Education	
2013	2014
<ul style="list-style-type: none"> Distractions Kill three-week (March) print, radio, online, transit, TV and social media ad campaign Two-week radio campaign (December) that also included on-street activation using Police/RCMP mascots Distractions Kill three-week (January-February 2014) print, radio, online, transit, TV and social media ad campaign 	<ul style="list-style-type: none"> Major on-going campaign to run over two separate six-week periods (February/March and November/December) and intended to include evaluation to determine effectiveness. Sustained funding has been provided in the operating budget for this initiative.
Enforcement	
2013	2014
<ul style="list-style-type: none"> Implementation of Traffic Safety Plan Proactive education and enforcement initiatives Targeted enforcement initiatives 	<ul style="list-style-type: none"> Continue to implement Traffic Safety Plan Continue proactive education and enforcement initiatives as done in previous years Continue targeted education and enforcement initiatives as done in previous years.
Engagement	
2013	2014
<ul style="list-style-type: none"> Formation of the Crosswalk Safety Advisory Committee. HRP/RCMP Integrated Traffic Unit on-going collaboration. Police/Traffic Engineering coordination meetings. On-going interdepartmental coordination. 	<ul style="list-style-type: none"> Crosswalk Safety Advisory Committee mandate extended and will provide key public engagement component to future updates of The Pedestrian Safety Action Plan. Police/Traffic Engineering coordination meetings to include pedestrian safety as standing item. Interdepartmental coordination expanded with a new group to better coordinate public education. Seek opportunities to collaborate with Dalhousie's Transportation Research group (DalTRAC).
Evaluation	
2013	2014
<ul style="list-style-type: none"> Identified issues with available collision information and short-comings with data collection. RCMP adopted new approach to track and map collision information to help direct enforcement efforts. 	<ul style="list-style-type: none"> HRP implement new Records Management System and tracking of vehicle/pedestrian collisions by Divisional Crime analysts. HRP implement new electronic Accident Support Services Incorporated System to allow for better data collection, input and analysis. Traffic & R.O.W. to receive monthly collision data reports from HRP for analysis. Creation and annual update of The Pedestrian Safety Action Plan.

The next item outlined in the Motion requires that The Pedestrian Safety Action Plan:

“-Provides a mechanism for continuous reporting and evaluation of the foregoing.”

Staff is recommending The Pedestrian Safety Action Plan will be the primary document for reporting, evaluating and directing HRM's pedestrian safety programs. It will be updated annually and is intended to

provide the mechanism for on-going monitoring and assessment of the issues that arise where pedestrians and vehicles interact. The document will provide a report on progress achieved in the previous year and identify the plan for moving forward in the upcoming year. As indicated earlier in this report and as outlined in document, new systems and processes associated with collection and analysis of collision information will enable staff to review and provide statistics related to pedestrian collisions and evaluate any potential patterns or factors that may be contributing to pedestrian/vehicle collisions. Identification of such trends or factors, if they exist, will help to direct how engineering, education and enforcement programs are implemented and their effectiveness, which will in turn be reported in future revisions of the document.

The 2014/2015 Pedestrian Safety Action Plan is not intended to be a formal response to the recently approved report by the Crosswalk Safety Advisory Committee (*Making Our Communities Safer – Crosswalk Safety Work Plan*). Staff will be reviewing that document to determine the most appropriate actions to be taken on the CSAC recommendations.

The final item identified in the Motion requires that The Action Plan:

“-Identifies ongoing budget impacts to the proposed action plan.”

As previously indicated, The Pedestrian Safety Action Plan will be updated annually. It is anticipated that future updates will take place in December with the revised version of the document being submitted to the Transportation Standing Committee, and then Regional Council in January of the following year so that any budget requirements can be dealt with in a timely manner. In order to ensure the most efficient allocation of funds and identification of coordination opportunities, some action items may require time for assessment so that accurate estimates can be provided.

FINANCIAL IMPLICATIONS

The HRM costs associated with carrying out the Pedestrian Safety Action Plan can be accommodated within HRM's proposed 2014/2015 Operating Budget. The proposed 2014/2015 operating budget will include \$170,000 to sustain a pedestrian safety education campaign.

COMMUNITY ENGAGEMENT

Community engagement was not undertaken as part of this report as the document produced provides plans for on-going engagement with the public through education campaigns, enforcement programs and participation with the Crosswalk Safety Advisory Committee.

ENVIRONMENTAL IMPLICATIONS

Implications not identified.

ALTERNATIVES

There are no recommended alternatives.

ATTACHMENTS

Attachment 1 – 2014/2015 Pedestrian Safety Action Plan

Attachment 2 – March 26, 2013 Pedestrian Safety Interim Report

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

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2014/2015 Pedestrian Safety Action Plan

Halifax Regional Municipality
February 2014

HALIFAX
REGIONAL MUNICIPALITY



INTRODUCTION

When pedestrian/vehicle collisions occur, it is a catastrophic event for all those involved. For the pedestrian, the consequences can physically be very serious or even fatal. For the driver, the consequences can be very serious psychologically and have long lasting effects. The effects of pedestrian/vehicle collisions are also far reaching and can have a profound and long-lasting effect on the family and friends of those involved.

There are many factors that influence pedestrian safety. The key to improving pedestrian safety is through a multi-pronged approach that considers the influence of Engineering, Education and Enforcement (the three “E’s”) along with mechanisms for Engaging all stakeholders and Evaluating the various applications and programs used. This action plan is intended to look back on what has been accomplished by the Halifax Regional Municipality (HRM) and its partners in the previous year – specifically with regards to each of the three “E’s” listed above, along with the approaches taken to engage all stakeholders and evaluate the progress and successes accomplished. The plan will also identify what is planned for the upcoming year based on information obtained from the previous year. The plan will be updated annually in order to provide an on-going account of past accomplishments and identify future requirements.

Regardless of the measures identified through application of the three “E’s”, the responsibility for pedestrian safety ultimately lies with all road users. Both drivers and pedestrians need to be attentive and accountable for their actions.

ENGINEERING

Pedestrian safety relies on the application of sound engineering as a critical component. How we experience the streets in HRM on a day-to-day basis is very closely tied to decisions related to traffic engineering and design. Such decisions have a direct impact on things like access and travel speed, and also affect our ability to use the roadway system safely and comfortably.

LOOKING BACK ON 2013

Pedestrian Countdown Signals – These signals provide a visual “clock” indicating the amount of time a pedestrian has to cross a roadway at a signalized intersection and are generally favoured by pedestrians, especially the elderly and those who are mobility impaired. HRM Traffic Services has adopted the use of these signals at signalized locations where the crossing distance is 14 metres or greater. All signalized intersections with a pedestrian crossing of 14 metres or greater are being upgraded with the countdown timers as part of on-going maintenance projects. The majority of HRM signalized intersections have been upgraded, with only a portion of Dartmouth to be completed. The use of pedestrian countdown timers is now the standard for all new signalized intersections with long pedestrian crossings.

Accessible Pedestrian Signals (APS) – These devices produce an audible cue to assist blind and visually impaired pedestrians to safely cross a street. HRM Traffic Services assesses locations where new traffic signals are installed or existing signals upgraded to determine if installation of APS would be beneficial. In 2013, six intersections were upgraded with accessible pedestrian signals and included Connaught Ave. at Chebucto Rd., Quinpool Rd. at Chebucto Rd., Jubilee Rd. at Robie St., Portland St. at Eisner Blvd., Herring Cove Rd. at Dentith Rd. and Main St. at Hartlen Ave. Traffic Services has an existing budget for upgrading existing intersections with APS and can typically upgrade approximately five locations per year.

Pedestrian Crossing Time – In the past, pedestrian crossing time at a signalized intersection was calculated using a pedestrian walking speed of 1.2 metres per second (m/s). Recognizing the issues faced with an aging population, persons who have mobility issues and other environmental factors, Traffic Services participated in a study undertaken by the Transportation Association of Canada (TAC) to review factors affecting the time required for pedestrians to cross at a signalized intersection and identify an approach to calculating appropriate signal timing to accommodate pedestrian crossings. The study was completed in the spring of 2013 and one of the recommendations was that 1.0 m/s was a more appropriate walking speed to be used when calculating pedestrian crossing times. Based on the recommendations of the study, Traffic Services has begun implementing signal timing changes with pedestrian crossing time calculated using a walking speed of 1.0 m/s. Approximately 10 intersections had the signal timing changes implemented in 2013 with additional intersections being adjusted on an on-going basis.

Geometric Design – As part of HRM's capital projects, Traffic Services works in conjunction with Design and Construction Services to identify opportunities to improve pedestrian facilities by introducing pedestrian ramps and/or other infrastructure to

reduce pedestrian crossing distances at intersections where work is being undertaken. Pedestrian ramps are required to be included at all locations, but assessment is also done to determine where measures such as curb bump-outs or refuge islands can be used to reduce the crossing distance and exposure for a pedestrian. A recent example of this can be seen at the intersection of Devonshire Ave/Duffus St/Novalea Dr where both a curb bump-out and a refuge island were installed during a traffic signal upgrade project. The current North Park Roundabout project is also incorporating opportunities during the design phase to include bump-outs at the entries in order to minimize pedestrian crossing distances.

Assessment of Existing Crosswalk Locations – Traffic Services assesses existing crosswalk locations as part of the capital works program and other projects to determine if there is a need to upgrade infrastructure, relocate or remove a crosswalk based on the conditions at the location. For example, an existing marked crosswalk on Lower Water Street at Sackville Street was assessed and it was determined that this location should be relocated to the south side of the intersection to eliminate the potential conflict between pedestrians and left-turning vehicles as well as upgraded to include an RA-5 with pedestrian activated overhead beacons.



RA-5 Crosswalk Upgrades –

Originally started in conjunction with the Province, HRM began upgrading the flashing beacons on RA-5 crosswalks from 200 mm incandescent lenses to 300 mm LED lenses, increasing the visibility of the beacons. Also, in conjunction with the beacon upgrades, the controller for the RA-5 was upgraded as well to allow the flash time to be extended if the button is pushed additional times after the initial activation. This ensures that a second or subsequent pedestrian who arrives at the crosswalk after a

portion of the initial activation time has passed can press the button and extend the flash time to the original full crossing time. These features are standard on all RA-5 locations that were installed since 2007 and 44 of the older installations were upgraded through the original HRM/Provincial project. The remaining locations are upgraded as they require maintenance and to date, approximately 40 per cent have been completed.

MOVING FORWARD IN 2014

Signalized Intersections – Traffic & R.O.W. will continue with the installation pedestrian count-down signals at intersections where the pedestrian crossing distance is 14 m or greater. The majority of existing signalized intersections with long pedestrian crossings have been upgraded with the count-down signals and it is anticipated that the remaining intersections requiring this upgrade will be completed in 2014.

Implementation of traffic signal timing changes to increase pedestrian walk times will continue in 2014. The remainder of intersections requiring signal timing adjustments to incorporate the reduced pedestrian walking speed (1.0 m/s) will be completed in 2014.

RA-5 Crosswalks – Several measures to improve accessibility and safety at a number of older RA-5 crosswalk locations have been identified including, but not limited to:

- Relocation of poles to improve visibility
- Installation/adjustment of pedestrian ramps
- Relocation push-buttons on poles
- Increased flash/walk time
- Improved down-lighting
- Upgrades to smaller (200 mm) incandescent beacons
- Installation of a hard surface right up to the pole/button
- Installation of flashing beacons where only illuminated RA-5 sign exists
- Ability for pedestrian extension of flash/walk time

Traffic Services will assess and prioritize all 180 RA-5 locations in 2014 in order to identify which are still warranted and which may require removal. For those locations that are shown to still be warranted, an evaluation will be done to determine what changes may be required at the crossing locations. Staff will be identifying the need for such things as the addition of pedestrian activated beacons, accessibility upgrades (relocation of the push-button lower on the pole, addition/modification of pedestrian ramps, ensuring a hard surface exists right up to the pole), relocation of poles to improve visibility or potentially relocation of the entire crosswalk.

Evaluations will also identify those locations where equipment upgrades may be required such as replacing 200 mm incandescent beacons with 300 mm LED beacons, timing adjustments to accommodate 1.0 m/s pedestrian walking speed, controller upgrades to allow for pedestrian extension of flash/walk time and replacement of internal/down-lighting with LED technology to improve visibility.

As part of the assessment program, staff will develop an implementation program that will include funding requirements for future budgets.

All Uncontrolled, Marked Crosswalks (Including RA-5) – In conjunction with the 2014 pavement marking reinstatement program, Traffic Services will be installing zebra crosswalk markings at all 500 (approx.) uncontrolled, marked crosswalks. Zebra crosswalk markings are recognized in the Transportation Association of Canada (TAC) Pedestrian Crossing Control Manual as a desired treatment for enhancing marked crosswalks.

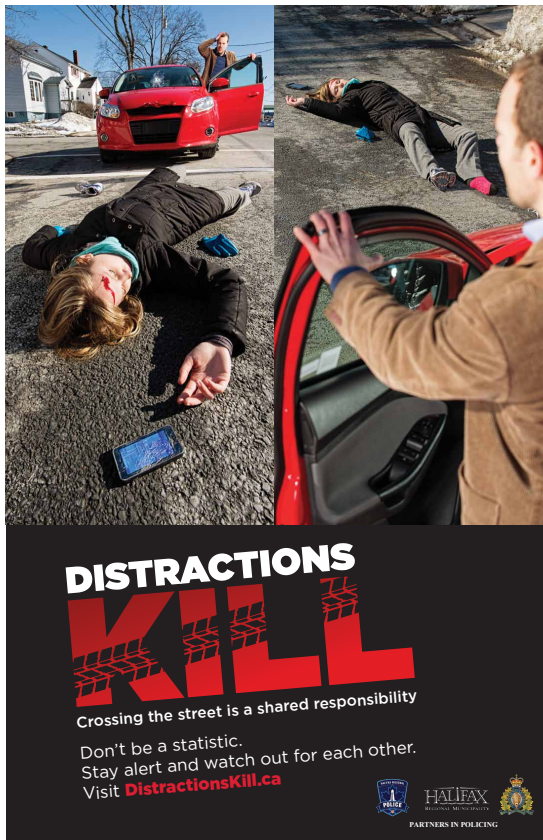
Staff will also assess the location of the side mounted RA-4 crosswalk signs at all uncontrolled, marked crosswalk locations to ensure optimal location for visibility as well as visually assess the retro-reflectivity of the signs. Adjustment or replacement of signage will be done where required.

Geometric Improvements – Traffic & R.O.W. staff will review all 2014 capital works projects to identify opportunities to incorporate geometric design changes to improve pedestrian access and/or reduce crossing distances through the inclusion of measures such as pedestrian ramps, bump-outs, median refuges, etc.

EDUCATION

Driver and pedestrian knowledge of the rules of the road and their understanding of the consequences associated with disregard for these rules are keys to the effectiveness of the design of a roadway and crosswalk installation. Education campaigns are an essential piece to pedestrian safety since the information they provide helps to ensure all road users are aware of the rules of the road, their responsibilities as both driver and pedestrian and the consequences of their behaviour. Education campaigns are also effective tools in bringing about changes to perceptions and attitudes.

LOOKING BACK ON 2013



The following public awareness campaigns – many delivered through collaboration among various partners and business units – were aimed at raising awareness about pedestrian safety, with a focus on the shared responsibility between motorists and pedestrians.

March 2013 – Transportation and Public Works (TPW), the Halifax Regional Police (HRP)/RCMP Integrated Traffic Unit and HRM Corporate Communications collaborated on a \$71,992 campaign including print, radio, online, transit and television ads which ran from March 4-22, 2013. Media relations and social media channels were leveraged and a dedicated microsite was developed www.DistractionsKill.ca housing stories, tips and videos specific to the message: “Distractions Kill. Crossing the street is a shared responsibility”. Survey results conducted by Corporate Research Associates (CRA) indicated that although the campaign was relatively short in duration, it performed well with strong recall and message awareness.

December 2013 – TPW, HRP, RCMP, Metro Transit, the Mayor’s Office and Corporate Communications collaborated on a \$9,300

campaign consisting of a radio spot which ran from December 13-24 and 27-31, 2013 as well as on-street activation December 16-20. HRP and RCMP mascots walked several crosswalks in HRM with a handler – well identified with safety vests – to heighten awareness. Motorists who failed to yield were issued tickets. This campaign supported the Distractions Kill initiative by focusing on shared responsibility and the need for drivers and pedestrians to be alert.

January/ February 2014 – TPW, HRP, RCMP and Corporate Communications collaborated on a \$38,000 campaign including print, radio, online, transit and television ads which ran from January 13 – February 7, 2014. Also leveraged were the partner’s social media channels and a dedicated microsite www.DistractionsKill.ca housing stories, tips and videos.

MOVING FORWARD IN 2014

The goal is twofold: to increase awareness of shared responsibility by drivers and pedestrian and thereby influence behaviour change. Recommendations from the 2013 CRA post-campaign survey stated that running the campaign longer and more frequently would directly contribute to achieving the goal.

Staff is seeking commitment to a sustained awareness campaign extending through 2018. Specifically, a six-week campaign would run twice a year – once in February/March and again November/December. This would comprise print, radio, online, TV and transit ads as well as social media channels and media relations. The extended commitment will ensure a more sustained, strategic and ultimately impactful campaign. It will also incorporate evaluation with pre and post-campaign surveys. Research conducted in 2013 will serve as a benchmark for ongoing survey results.

Budget Requirements:

\$160,000 for annual media buy

\$10,000 for annual pre/post-campaign surveys

Note: These estimates do not include any production costs; opportunity exists to leverage current videos until rights expire in 2018.

ENFORCEMENT

Expectations regarding compliance with various traffic signals, signs and roadway designs are identified by traffic laws. Although application of sound design and traffic engineering principles can play a significant role in guiding road users to operate responsibly and make safe decisions, some issues need to be addressed through the strict enforcement of traffic law. Since not all road users understand some of the intricacies of these laws or recognize the consequences associated with non-compliance, law enforcement officers are often required to assume two very important roles, enforcer and educator.

LOOKING BACK ON 2013

Traffic Safety Plan – In 2013, the Halifax Regional Police/RCMP Integrated Traffic Unit continued to implement the HRM HRP-RCMP Traffic Safety Plan. The plan is based on 12 monthly safety themes which align with the provincial plan with targeted enforcement and education for each theme for each month. These themes included crosswalks, seatbelts, cell phone distracted driving, driving for conditions, speeding, and other violations which can contribute to pedestrian/vehicle collisions at crosswalks and other places. All patrol members are aware of the theme of the month and are asked to assist with enforcement. Police also were flexible in adjusting the monthly traffic safety theme if circumstances warranted it.

Pro-active Education/Enforcement – For the period of January to the end of March, 2013, the HRP/RCMP Integrated Traffic Unit conducted a crosswalk enforcement and education campaign at six major intersections in HRM.

Normally this campaign would take place in September where the theme is crosswalks and seatbelts, but with an increase to the number of collisions in the winter months, police decided to put a plan in place earlier in the year which involved visits to crosswalks over the three month period. The intersections were chosen based on the data that could be collected to determine possible problem intersections for pedestrian/vehicle collisions. For example, RCMP began tracking hotspots of road safety issues, particularly those within a one kilometre radius of each other. These hotspots were monitored on a regular basis and although the number of pedestrian/vehicle collisions was not excessive, it enabled a more proactive approach to issues that may be evolving. This enhanced the ability to implement the proper type of enforcement or proactive work, in a real time manner, at the right time to the right location.

The program took place at the following intersections:

- Spring Garden Road at South Park Street
- Spring Garden Road at Robie Street
- South Park Street at University Avenue
- Joseph Howe Drive at Scot Street
- Cole Harbour Road at Forest Hills Parkway
- Sackville Drive at Beaver Bank Road

Targeted Enforcement – Halifax Regional Police Divisional Commanders reviewed concerns submitted by HRM Councillors and/or citizens related to pedestrian/vehicle issues at specific areas or crosswalks. In addition, Halifax District RCMP began tracking and mapping any road safety event, such as MVAs, injury MVAs, impaired/suspension, public driving complaints and all pedestrian and intersection events. The HRP/RCMP Integrated Traffic Unit and the Community Response Officers were advised of the street and specific times when the majority of issues were occurring and were tasked out for targeted enforcement. Depending on the nature of the complaint, Watch Members were also advised.

MOVING FORWARD IN 2014

Traffic Safety Plan – In 2014, the HRP/RCMP Integrated Traffic Unit and patrol officers will continue with the current HRM HRP-RCMP Traffic Safety Plan with the monthly theme paying particular attention to violations such as cell phone use, texting, failing to stop at stop signs and other violations which contribute to pedestrian/vehicle collisions with the flexibility to adjust to ongoing issues.

Targeted Education/Enforcement – Divisional Commanders will continue to examine concerns about specific crosswalks received from Councillors and citizens and assign resources for follow up. Targeted enforcement and education campaigns involving crosswalks will continue through both Halifax Regional Police and Halifax District RCMP. HRP's initiative of 2,500 reflective arm bands for pedestrians will be distributed by the integrated traffic unit in March, 2014. The wording is: I see you. Do you see me?

ENGAGEMENT

Pedestrian safety relies on the ability to identify and assess many different issues while at the same time manage, coordinate and implement a wide range of programs. Successfully accomplishing all of this could not possibly be undertaken by a single person, group or agency. In order to achieve the best possible results, all parties must be involved in the process through a collaborative approach where ideas, information and resources are shared, thus engaging all stakeholders.

LOOKING BACK ON 2013

Crosswalk Safety Advisory Committee – The committee was formed in 2013 in response to concerns surrounding a number of pedestrian/vehicle collisions. Membership consists of a cross-section of stakeholders in crosswalk safety including Councillors, transportation professionals, academics, school board, law enforcement and the general public. The aim of the committee was to bring together all stakeholders in order to discuss the issues surrounding crosswalk safety including engineering, legislation and education and to produce a report outlining recommendations for HRM to consider in moving forward with improving crosswalk safety. The report was produced and submitted to HRM's Transportation Standing Committee where it was approved and submitted to Regional Council for review and approval. Council recently received the work plan and goals produced by CSAC. The document was approved and forwarded to staff for review. The general themes outlined in the CSAC document were considered in producing the 2014/2015 Pedestrian Safety Action Plan.

HRP/RCMP Integrated Traffic Unit – Although this unit was formed prior to 2013, it has provided a successful and integrated approach to enforcement of traffic laws throughout HRM. Because different areas of HRM are patrolled by either HRP or RCMP, it was identified that a coordinated effort would be beneficial in providing a consistent approach to enforcement across HRM.

Police/Traffic Engineering Meetings – This group was also formed prior to 2013, but is an on-going collaboration between the police agencies (Halifax Regional Police and RCMP) and HRM Traffic Services. Because the activities of these groups are interconnected and impact each other, regular meetings are held in order to exchange information and identify issues in a timely manner so they can be addressed properly and promptly.

Interdepartmental Coordination – Within HRM, there is continuous engagement among the different business units and sections. Traffic Services regularly engages and is engaged by staff from Design & Construction, Planning & Development, Strategic Transportation Planning, Corporate Communications and others to provide and share advice and technical knowledge. This helps to ensure projects and programs are incorporating information and infrastructure that support pedestrian safety.

MOVING FORWARD IN 2014

Crosswalk Safety Advisory Committee – The committee's mandate has been extended and will operate as a long-term venue for on-going engagement among all stakeholders concerned with crosswalk safety. Traffic Services staff, Police and Councillors will continue to collaborate with the committee members in advancing the goal of crosswalk safety.

Recommendations outlined in the 2014 report produced by the Crosswalk Safety Advisory Committee will be reviewed by Police and Traffic Services staff to identify opportunities to modify existing programs or practices, where appropriate, or to implement new programs which could include education components in addition to engineering and enforcement.

The CSAC provides the key public engagement piece. The intent is that any recommendations brought forward by CSAC will be considered as one of the inputs when preparing future revisions of The Pedestrian Safety Action Plan.

Police/Traffic Engineering Meetings – In moving forward with this initiative, Traffic Services will place “Pedestrian Safety” as a standing item to remain on all meeting agendas. This way, pedestrian issues will be kept in the forefront of discussions during each meeting and will enable a proactive approach to identifying issues and determining appropriate actions to be taken.

Interdepartmental Coordination – In order to ensure effective programs and efficient use of resources associated with public education surrounding pedestrian safety, staff will form a group with representatives from the various HRM departments who typically provide pedestrian safety campaigns. This group is anticipated to engage representatives from Traffic Services (engineering), HRP/RCMP (enforcement) and Corporate Communications (education) and will help to ensure a coordinated and consistent approach to providing public education programs aimed at pedestrian safety.

Dalhousie Transportation Collaboratory (DalTraC) – Traffic Services will be seeking opportunities to engage with Dalhousie University's newly formed transportation research group to identify areas where resources and ideas can be shared in support of the desire for a safe, efficient and sustainable transportation system for all users.

EVALUATION

Many consider evaluation to be the fourth “E” alongside engineering, education and enforcement. It is nearly impossible to identify the effectiveness of a safety program without evaluation to determine if the program is meeting the desired objectives or what the strengths and weaknesses of the program are. Although evaluation is extremely important, more often than not, formal evaluations are not carried out. There are many challenges to performing evaluations which arise mainly from the collection of accurate, reliable and timely data and information. One of the major factors that affect an agency’s ability to effectively collect and analyze the data required to perform meaningful evaluations is resources. This would include both personnel and equipment.

LOOKING BACK ON 2013

In past years, availability of up-to-date and accurate data has been limited. HRM Traffic Services (engineering) has relied on Service Nova Scotia and Municipal Relations (SNSMR) for collision data. At this point, data from SNSMR is more than five years old because of problems with their database and a backlog of un-entered data. Assistance has been provided by Halifax Regional Police and RCMP whereby collision information is supplied upon request and used to assess problem locations.

There were limitations on data entry in the HRP’s Records Management System as a result of the traffic accident report (58-A) being a paper-based document. There are a number of data fields but the document is a handwritten form, of which only a portion of the data can be transcribed into the Records Management System. Past years are currently being examined to validate the data.

In the fiscal year 2012-2013 the Halifax District RCMP adapted a new approach to motor vehicle collisions within the HRM. The Halifax District RCMP gathered data from the last year which provided the highest collision areas and times when the highest amount of collisions occurred within these areas. These areas and times became a policing priority to the RCMP. Considerable enforcement efforts were placed at these locations during specified times with the goal to reduce motor vehicle collisions resulting in injury by five percent for the fiscal year. The majority of locations selected based on the previous year data were at intersections allowing RCMP to increase their enforcement at intersections as well.

Because of the limitations associated with collision information up to this point, the ability to accurately determine potential trends and causal factors associated with pedestrian/vehicle collisions has been difficult. As a result, the majority of action taken to address problem locations tended to be reactive in nature and very general in its approach.

MOVING FORWARD IN 2014

HRP’s Records Management System has undergone modification since January 1, 2014 which now allows for data on pedestrian/vehicle collisions to be captured and collected much easier, and Divisional Crime Analysts are responsible for tracking pedestrian/vehicle collisions on an on-going basis. Also this year, police will be implementing an Accident Support Services Incorporated System which will eliminate the need for paper collision reports (Form 58-A) and allow direct electronic entry of collision reports and electronic analysis. This data will be electronically transferred and shared with Access Nova Scotia and the potential for HRM Traffic Services (engineering) to have direct access to this data is also being investigated.

Both the changes to the Record Management System and the Accident Support Services Incorporated System, along with the monitoring by analysts, will allow for easier collection and analysis of the data. This will give staff the ability to recognize if pedestrian/vehicle collisions develop at a specific location, have a better understanding of what the contributing factors are at an early stage, and take the steps necessary to reduce the problem through the appropriate application of enforcement, education, or engineering. The past data at this point has not identified any particular intersection with an excessive number of pedestrian/vehicle collisions, however on-going monitoring is now possible to accurately track and assess collisions to identify trends and contributing factors.

With the changes implemented by both HRP and RCMP to incident reporting, recording and analysis, a more proactive approach will be possible for dealing with problem locations. Traffic Services will continue to work closely with the HRP/RCMP Integrated Traffic Unit and take advantage of the newly implemented incident recording and analysis methods. It is planned that police will provide Traffic Services with monthly reports related to pedestrian/vehicle collisions. The continuous availability of this up-to-date and detailed data will improve our ability to guide engineering designs through collaboration with HRM's Design and Construction Services and help to provide more focused public education campaigns through work with Corporate Communications.

This document itself is intended to provide a mechanism for the on-going evaluation of all aspects of pedestrian safety (engineering, education, enforcement, engagement and evaluation) through annual updates that will take place at the end of each year. Similar to what has been provided in this first action plan, subsequent plans will outline the activities and identify progress that took place in the previous year and provide information on plans for the up-coming year. With the improvements related to data collection and analysis identified above, it will be possible for future "editions" of the report to include more detailed information related to statistics and causal factors, ultimately enabling for more focused plans moving forward.

Item No. 3
Halifax Regional Council
March 26, 2013

TO: Mayor Savage and Members of Halifax Regional Council

Original Signed by Director

SUBMITTED BY:

Ken Reashor, P. Eng., Director, Transportation and Public Works

Original Signed

Deputy Chief Bill Moore, A/Chief of Police

DATE: March 4, 2013

SUBJECT: Pedestrian Safety Interim Report

INFORMATION REPORT

ORIGIN

Item 11.3 raised at the January 29, 2013 meeting of Halifax Regional Council.

MOVED by Councillor Craig, seconded by Councillor Outhit that Halifax Regional Council request a staff report which:

1. Prior to the end of fiscal 2012-2013, to provide an interim report that:
 - provides the current understanding of how HRM focuses and performs all factors related to pedestrian safety – HRM engineering, public education, law enforcement, public engagement and evaluation;
 - identifies HRM pedestrian safety statistics and how HRM statistics compare relative to other municipalities; and
 - identifies a short-term HRM action plan to address pedestrian safety and any impacts on the 2013-2014 budget.
2. During fiscal 2013-2014, to develop and present for consideration by Halifax Regional Council, a long-term comprehensive pedestrian safety action plan to help ensure, and to be seen as ensuring, overall pedestrian safety for HRM residents based on:
 - the analysis of factors which may be contributing to pedestrian accidents;
 - provides options considering both process and organization structure that focuses on engineering, education, enforcement, public engagement, such as a Crosswalk Safety Advisory Committee, overall evaluation, policy and legislation, interagency/departamental coordination and cooperation elements;
 - provides a mechanism for continuous reporting and evaluation of the foregoing; and
 - identifies ongoing budget impacts to the proposed action plan.

In addition, that the Mayor, on behalf of Halifax Regional Council, correspond immediately with the provincial Minister of Transportation and Infrastructure Renewal to request an update regarding a recommendation from the 2007 Crosswalk Safety Task Force which stated that “the departments responsible for collecting and analyzing collision data do so in a timely, comprehensive, consistent and accurate manner.”

LEGISLATIVE AUTHORITY

Section 21 (1) of the Halifax Regional Municipality Charter regarding the establishment of special committees.

BACKGROUND

In 2007 a Crosswalk Safety Task Force was appointed jointly by the Minister of Transportation and Infrastructure Renewal and the Mayor of Halifax Regional Municipality. The objective of the Task Force was to identify strategies and measures to improve crosswalk safety. The Task Force released a report which outlined a series of 42 recommendations.

Those recommendations will be used as the framework to respond to how HRM focuses and performs all factors related to pedestrian safety (PART I of this report).

PART II of this report details a pedestrian collision statistics comparison.

PART III of this report will identify the short-term HRM action plan to address pedestrian safety and the impacts on the 2013-2014 Budget.

DISCUSSION

PART I – Progress and Results

The recommendations of the Task Force and the achievements are listed by category below:

Road Safety

1. The Road Safety Advisory Committee must support the Department of Health Promotion and Protection’s (HPP) alcohol strategy by dedicating a member to assist with the development and implementation of an alcohol impaired driving strategy.

Defer to the Road Safety Advisory Committee

Pedestrian Collision Statistics

2. Government must undertake a review of the current method of collision data collection to improve the accuracy and reliability of that data.

HRM Traffic Services relies on Service Nova Scotia (SNS) for its collision data. As the collision data from SNS is over five years old, Halifax Regional Police and the RCMP are assisting HRM Traffic Services by providing collision data upon request. Also, see point 26.

Engineering

3. Provincial and Municipal Traffic Authorities should meet on a regular basis to discuss among other traffic engineering topics, pedestrian and crosswalk safety.

Since the Pedestrian Crosswalk Safety Task Force, there have been three meetings between the Provincial and Municipal Traffic Authorities. Any further meetings between the Provincial and Municipal Traffic Authorities would need to be arranged by the Provincial Traffic Authority.

4. To ensure consistent and uniformity across the Province in the installation of marked crosswalk treatments, the province and municipalities must use a consistent approach, based on technical merit.

HRM Traffic Services uses the Transportation Association of Canada's (TAC) Manual of Uniform Traffic Control Devices for Canada (MUTCDC) and the TAC Pedestrian Crossing Control Manual. These manuals are the nationally accepted guidelines and standards for installation of traffic control devices including marked crosswalks.

5. The road authority must require the assessment of existing marked crosswalks when refurbishing highways and roadways to ensure they reflect current traffic situations, guidelines and standards. Where existing marked crosswalks are not warranted they must be removed due to potential safety hazards.

Various roadways are refurbished every year through a series of micro-surfacing, road repaving and asphalt overlay capital contracts. Traffic Services receives a list of proposed roadway resurfacing projects from the TPW Design and Construction Services in winter prior to the construction season. The candidate roadways are reviewed to determine if any pavement marking changes are required. If a marked crosswalk is identified on a candidate roadway Traffic Services will conduct a pedestrian and vehicle count for one hour during the AM and PM peak. Results of the traffic count are evaluated with the criteria for a marked crosswalk found in the TAC Pedestrian Crossing Control Manual. If the pedestrian and vehicle volume requirements are not met the crosswalk is evaluated based on engineering judgement. The crosswalk would be removed if the technical and engineering criteria were not met.

For example, in 2011, prior to the resurfacing of Pleasant Street there were eight marked crosswalks within 800 metres between Cameron Street and Acadia Street. Following a review of the eight crosswalks it was determined that four should be removed and one relocated. Staff took the opportunity to include these changes as part of the resurfacing project. Marked crosswalks were not reinstated on Pleasant Street at Prince Arthur Avenue, Cuisack Street, Chadwick Street and Renfrew Street. As well, the existing crosswalk at the North Woodside Community Centre was relocated to Marvin Street where sight distance and lighting was better and where improvements to pedestrian ramps were made.

6. Prior to construction, designers of highways, roadways, and streetscapes must examine the needs of all road users to ensure that the final product provides appropriate and safe facilities for all road users.

All road users including pedestrians and cyclists are considered in the planning and design of roadways.

HRM's Design and Construction Services follows these guidelines during preliminary design of all projects. In addition, they provide their pre-tender drawings for review by HRM Traffic Services who provides feedback and/or guidance on pavement markings, lane widths, signage, traffic signal placement, sidewalks, pedestrian facilities, and bike lanes.

For example, on sidewalk renewal projects HRM Traffic Services recommends that two (2) pedestrian ramps are installed at every intersection where space permits. It is also our policy to maintain a sidewalk on one side of the street during construction where both sides are being rebuilt. Where an intersection is being rehabilitated, sidewalks are reviewed to determine if they can be reconfigured to improve pedestrian/motorist safety. For example, sidewalks were reconfigured at Bedford Highway and Windsor Street to become more consistent with other sidewalks at channelized right turns and to improve safety for pedestrians.

Two recent capital projects included upgrades to improve pedestrian facilities. On Main Street in Dartmouth, the pedestrian activated beacons and marked crosswalk were relocated from mid-block Main Street to the intersection of Cherry Brook Road. The new location is a more direct route across Main Street from Graham Creighton Junior High School. On Cole Harbour Road the pedestrian activated beacons and marked crosswalk were relocated from John Stewart Drive to Bissett Road and a right turn median constructed for Cole Harbour Road at Bissett Road. This enhanced pedestrian safety by shortening the crossing distance while at the same time improving the pedestrian and cyclist connection to the Shearwater Trails further south on Bissett Road.

Bicycle facilities are considered on all road resurfacing projects if the roadway is wide enough to support vehicle and bicycle traffic and the roadway is designated as a bicycle route in the Active Transportation Plan. Bicycle facilities have been installed at various on-road locations including on Lower Water Street, Bedford Highway, Caldwell Road, Main Street in Dartmouth, Waverley Road, Herring Cove Road, Purcells Cove Road, Washmill Lake Drive, Dunbrack Street and the Hammonds Plains Road. Where traffic volumes and speed are not consistent with on-road bicycle facilities or where road widths are not adequate; bicycle facilities are considered off road. A shared off-road pathway was recently constructed on Burnside Drive from Highway 111 to Commodore Drive and is planned to be extended towards Akerley Drive over the next construction season. Another shared pathway was recently completed on Barrington Street and various pathways were constructed in the Portland Hills subdivision.

7. The Province and municipalities must stay current in their knowledge of new crosswalk and pedestrian control devices and monitor the success of these devices. The Province must encourage and approve pilot projects prior to the use of the device to determine its durability, installation and maintenance requirements, effectiveness and feasibility.

In 2013 a new TAC Pedestrian Crossing Control Manual was released. As part of its development, jurisdictional surveys and research of several devices were conducted and results are published in the technical report. Also, see point 9.

8. Municipalities interested in conducting a pilot project must seek approval from the Office of the Provincial Traffic Authority, as all pilot projects must be subject to an approval process.

As part of the consultation process during the development of the Crosswalk Safety Task Force Report, HRM received approval to conduct a pilot project to add side mounted flashing lights to some existing Ra-5 locations.

9. The Province and municipalities provide fixed funding to be allocated for the purposes of research and pilot testing of crosswalk devices.

In 2010, Nova Scotia Transportation and Infrastructure Renewal (NSTIR) previously allocated funding for 50% of the cost to upgrade pedestrian activated beacons from 200 mm lenses to 300 mm lenses and to test side mounted amber flashers at several crosswalks with existing overhead pedestrian activated beacons. See point 34 for more details.

The results from the side mounted amber flasher study are included as an attachment to this report (Attachment A-1).

HRM also permitted local residents to pilot test crosswalk flags at various crosswalks along Waverley Road. Based on TAC's response that crosswalk flags were not a traffic control device and would not be considered for inclusion in the MUTCDC, the Traffic Authority was not prepared to endorse or allow continuation of the program within the HRM right-of-way. The flags were to be removed by July 31, 2009.

In addition, Halifax Regional Municipality provided funding and had a member on the TAC Project Steering Committee for the development of the new Pedestrian Crossing Control Manual released in 2013.

33. a) The Province and municipalities must remain consistent with the Manual of Uniform Traffic Control Devices for Canada (MUTCDC) and install crosswalk treatments according to MUTCDC practices.

b) Municipalities in Nova Scotia using signs other than those prescribed by the MUTCDC for crosswalks should change those signs to conform to the manual.

HRM Traffic Services follows the guidelines in the MUTCDC for installation of all traffic control devices. All crosswalk signage in HRM currently meets those prescribed by the MUTCDC and the TAC Pedestrian Crossing Control Manual.

34. Pedestrian activated beacons continue to follow the national standard. In an effort to add conspicuity to pedestrian activated beacons, municipalities and the Province should consider introducing a program to upgrade amber pedestrian beacons to 300 mm (12") LED lenses.

Prior to 2010, all pedestrian activated beacons at overhead flashing crosswalks were 200 mm (8") incandescent lenses. The MUTCDC indicates that a 300 mm lens yields a maximum

luminance in the centre of the lens, which is two or more times higher than that of a 200 mm lens. NSTIR allocated funding for 50% of the cost of upgrading pedestrian activated beacon installations on Provincial Highways and former cost shared streets. As a result, HRM and NSTIR established a three year funding program to upgrade the pedestrian activated beacons at 44 locations to 300 mm LED lenses (Attachment A-2 contains the list of 44 locations). The remaining beacons will be upgraded to 300 mm lenses when regular maintenance is required at each location.

35. Municipalities and the Province should undertake a program to update pedestrian activated beacon installations to enable the extension of the signal when the pedestrian button is re-activated. Priority should be given to those installations where frequent pedestrian crossings are anticipated.

Pedestrian activated beacons at marked crosswalks must be manually activated by push button. Once activated, the typical flasher timing is based on a calculation using width of the roadway and the average walking speed of 1.2 metres per second, plus an additional 6 or 7 seconds allowance for perception/reaction time. Where seniors constitute a significant proportion of pedestrian crossings, a slower walking speed of one metre per second is used in the calculation. If another pedestrian re-activates the push button while the beacons are flashing, the crossing time is not extended and the beacons will cease flashing at the original calculated time interval. In this situation a pedestrian may be unaware that the beacons are inactive while they attempt their crossing.

Since 2007, all new pedestrian activated beacon locations permit extension of the flasher timing when a pedestrian re-activates the push button. Forty-four (44) locations were upgraded as part of the NSTIR/HRM joint funded project. Older locations without this feature require a traffic signal controller upgrade. These older locations are upgraded as regular maintenance is required at each location. Of the remaining RA-5 crosswalk light locations that require this upgrade, approximately 40% have been completed.

36. Further pilot studies should be conducted to determine the long term effects of advance yield markings and signs on driver yielding distance and the compliance at crosswalks on multi-lane approaches.

An advance yield line is pavement marking which indicates the point at which drivers approaching a crosswalk must yield to pedestrians in the crosswalk. It is used in advance of a marked and signed crosswalk that crosses multiple travel lanes as a means of discouraging motorists from yielding too closely to the crosswalk. Motorists yielding too closely to a crosswalk can place pedestrians at risk by blocking the view of drivers approaching in other lanes. Previously, a small study in Dartmouth noted a small increase in driver yielding behaviour where advance yield markings and signage was present (Van Houten, 2001 "*Advance Yield Markings: Reducing Motor Vehicle-Pedestrian Conflicts at Multilane Crosswalks with Uncontrolled Approach*"). The new TAC Pedestrian Crossing Control Guide released in 2013 indicates advance yield lines are a desirable component of a marked crosswalk location as they have the potential to improve the overall system performance, however; they are not essential for effective system operation.

Traffic Services will review multi-lane crossings to determine if advance yield lines would be appropriate based on developed criteria. It should be noted neither the MUTCDC nor the Pedestrian Crossing Control Guide indicate or prescribe signage for advance yield lines.

37. Crosswalk markings should be maintained by the Municipality and/or the Province to keep them as legible as is practical.

HRM service standards dictate that all pavement markings are repainted once per year. The traffic paint and glass beads used by HRM and their pavement marking contractors must meet the Canadian General Standards Board (CGSB) standards.

38. Pedestrian specific signs should be considered to provide pedestrians with feedback and reminders to cross safely. These devices should only be installed where there are pedestrian control devices (i.e., walk/don't walk signals, pedestrian activated beacons) and where they have been determined to have technical merit.

HRM installs pedestrian specific signage at traffic signals and at locations with flashing beacons with push button activation. The basic sign used at locations with flashing beacons simply indicates to the pedestrian to push the button in order to cross. At new traffic signals, improved signage is being installed which explains the walk, flashing don't walk and don't walk indicators. At older locations, the improved signage may be installed as each signal undergoes regular maintenance checks. (Attachments A-3 for signage images).

39. Municipalities and TIR should consider installing raised pedestrian refuges for new and redesigned highways when those highways have more than two lanes in each direction. Refuges should be constructed to allow ample space to wheelchairs, etc. to wait for a crossing opportunity.

Installations of raised medians have been shown to improve pedestrian safety when crossing multi-lane facilities high traffic volume and where there are high volumes of senior and children pedestrians. Raised medians have been found to reduce motor vehicle crashes by 15%, decrease delays for motorists while demonstrating a 46% reduction in crashes at marked crosswalks (US Department of Transportation Federal Highway Administration, 2010 "*Safety Benefits of Raised Medians and Pedestrian Refuge Areas*"). During intersection rehabilitation, medians are constructed where feasible. For example, a raised median was constructed at Connaught Ave and Almon Street and Horseshoe Lake Drive at the Chain of Lakes Trail.

There are certain situations where raised medians are not recommended or possible. At some intersections the constraint is the lack of space available for adding a raised median. Raised medians are typically 2m in width which may only be possible with property acquisition or by removing or narrowing a travel lane. At locations with high volumes of trucks, raised medians are not recommended as they may interfere with turning movements which causes safety and maintenance concerns.

40. The Province and municipalities must adopt HRM's current pedestrian ramp design as a provincial standard.

No action required.

41. Municipalities and the Province must follow the Transportation Association of Canada (TAC) Guidelines for Understanding, Use and Implementation of Accessible Pedestrian Signals (APS) when considering accessible pedestrian signals to ensure uniformity and consistency.

When a new traffic signal is proposed, it is evaluated against the TAC guidelines for APS which is based on factors including: pedestrian usage, proximity to pedestrian trip generators and transit, traffic conditions, vehicle speeds, intersection layout and if pedestrians would have difficulty crossing the road without APS. In addition, HRM consults with The Canadian National Institute for the Blind (CNIB) and the Visually Impaired Safe Travel Advocates (VISTA) committee, to assist in determining where accessible devices would be beneficial.

Traffic Services has a budget for upgrading existing intersections with APS and can typically upgrade four to six intersections per year.

Education

10. Parents, family members, and others who help care for young children need support through the provision of appropriate educational resources to help them develop and encourage safe crosswalk behaviour in this vulnerable age group.

HRM has completed the following crosswalk safety and educational programs:

- 2005 – Produced and aired TV ads on Global.
- 2006 – Produced and aired new TV ads on Global.
- 2007 – Produced and aired new TV ads on Global, produced radio ads aired on all Metro Radio Group radio stations, produced crosswalk safety booklet which was sent to EVERY household in HRM.
- 2008 – Re-aired television ads on Global.
- 2009 – Partnered with the Province (NSTIR) on a safety campaign that included re-airing existing TV ads on both Global / CTV and production and airing of new radio ads.
- 2010 – Partnered with the Province (NSTIR) on a safety campaign that included production and airing of new radio ads, Easlink TV guide channel ads, newspaper ads and posters for busses (inside the bus, outside the bus and bus shelters).
- 2011 – Crosswalk safety booklet updated and reissued to HRM Customer Service Centres, Libraries, Community Centres and organizations requesting copies.
- 2012 – Halifax Regional Police created a social media presence dedicated to traffic safety, with an officer from the HRP/RCMP Integrated Traffic Unit managing the social media sites and serving as the voice of traffic safety in our community. This social media presence serves to provide spaces for citizens to post questions about traffic laws, discuss traffic-related issues and talk about ways to keep our

roadways safe. This campaign is bolstered by the HRP/RCMP Integrated Traffic Unit providing both education and enforcement at intersections which have the highest number of pedestrian-involved collisions based on a six-year picture from the Computer Aided Dispatch system.

- 2012 – Social media focussed campaign on HRM website, Facebook page, Twitter feed and HRM Parent on-line blog.

Additionally, HRP and RCMP issue monthly news releases with a traffic theme of the month, monthly news releases with impaired driving statistics, handout literature at traffic points about pedestrian safety and other road safety initiatives. This material is also provided on the HRP website and HRP social media sites. School Officers also deliver traffic safety presentations to school-aged youth in schools across HRM.

11. The Department of Education (DOE) designate a person to join the Road Safety Advisory Committee (RSAC) to provide support and expertise on road safety education issues related to school age children and youth to ensure the curriculum incorporates crosswalk safety education.

Defer to Department of Education.

12. The Departments of Transportation and Infrastructure Renewal (TIR) and Health Promotion and Protection (HPP) should support DoE in revising existing areas of curriculum where injury and safety is a focus, and where crosswalk safety education is an area of concern.

Defer to Departments of Transportation and Infrastructure Renewal and Health Promotion and Protection.

13. Review Nova Scotia's Crossing Guard training program to create a standard program that clarifies the crossing guards' role in crosswalk safety education for children.

Halifax Regional Police provides annual training to School Crossing Guards. Training personnel use the following manuals - Crosswalk Safety in HRM: Take Charge of Your Own Safety (published by HRM) and Nova Scotia Crossing Guard Handbook (published by Province of Nova Scotia).

14. The RSAC member departments should consider age-related changes to driving ability and driver competency when developing a provincial road safety strategy.

Defer to RSAC.

15. The RSAC member departments should consult with the Department of Seniors, and other seniors organizations to identify opportunities for driver-education to support older adults to continue to drive safely and reinforce the rules of crosswalk safety

Defer to RSAC.

16. The RSAC member departments continue to research crosswalk safety and conduct pilot projects for crosswalk safety education where promising practices exist.

Defer to RSAC.

17. Service Nova Scotia and Municipal Relations (SNSMR) and TIR should examine existing education resources for new drivers, particularly youth, around areas of driver behaviour that relate to pedestrian safety.

Defer to Service Nova Scotia and Municipal Relations and Department of Transportation and Infrastructure Renewal.

18. SNSMR ensure driving school instructors are knowledgeable about crosswalk safety, and that it be made a mandatory component of their classroom curriculum and in their in-vehicle instruction.

Defer to Service Nova Scotia and Municipal Relations.

Enforcement

19. The provincial police service (RCMP) Traffic Services Division and Municipal Police Agencies, are encouraged to meet on a regular basis to discuss traffic enforcement matters; ensuring front-line law enforcement officers are represented.

The Nova Scotia Department of Justice hosts monthly traffic related meetings, known as the Minister's Forum on Traffic Safety Initiatives, with agencies that include, but are not limited to: RCMP, Military Police, Cape Breton Regional Police, Halifax Regional Police (HRP), HRP/RCMP Integrated Summary Offence Ticket Services, Registry of Motor Vehicles, The Department of Justice, New Glasgow Police Service, Motor Vehicle Inspections for vehicles and the commercial inspectors for buses.

Additionally, HRP, RCMP and the Registrar met in December 2012 to discuss the collection of traffic accident data and potential options to improve the quality and analysis. A potential option to improve the data collection from source and provide enhanced analytics is presently being scoped out.

The HRP and the RCMP maintain an HRM Integrated Traffic Unit and work together daily.

Further, Halifax Regional Police Divisional Commanders and the HRM Integrated Traffic Unit Traffic Sergeant and RCMP members meet every second month with HRM Traffic Services representatives to discuss traffic related issues in HRM to identify possible solutions which can be implemented with resources from Police and Traffic Services.

20. The Province is encouraged to identify a department and assign an individual responsible for coordinating traffic service division forums and maintaining regular communication with law enforcement officers regarding road safety matters, including pedestrian and crosswalk safety.

Defer to Provincial Authorities.

21. TIR, SNSMR, and the Department of Justice (DOJ) should explore and take any opportunities to enhance and clarify the Motor Vehicle Act (MVA) to enable law enforcement officers to enforce the Act effectively. The Task Force is advancing two areas of priority:
- a) TIR and SNSMR should jointly pursue amendments to legislation and regulations to reintroduce all vehicles (personal and commercial) to require both front and rear license plates.
 - b) TIR and DOJ should jointly pursue amendments to the legislation and regulations to enable law enforcement officers to issue summary of offence tickets based on license plate identification alone.

Defer to TIR, SNSMR and DOJ.

22. TIR, DOJ and SNMR explore the feasibility of amending legislation and regulations to provide legislative authority for Electronic Summary Offence Tickets (E-SOT).

Electronic Summary Offence tickets (eSOTS) went live for the HRP and the RCMP Halifax District in late October 2012.

23. The RCMP and municipal police agencies publicly and formally identify speeding as a public safety priority and explore methods of enhancing their enforcement efforts.

Halifax Regional Police Divisional Commanders review speeding concerns submitted by HRM Councillors and/or citizens and utilize the Speed Sentry to gather data on the number of vehicles, speeds and specific times vehicles are traveling on the roadway to determine if vehicles are actually speeding or whether it is a perception of speeding. When data support that vehicles are speeding, the HRP/RCMP Integrated Traffic Unit and the Community Response Officers are advised of the street and specific times when the majority of the speeding is occurring and follow up with targeted enforcement. Depending on the nature of the speeding complaints, Watch Members are also advised.

Chronic speeding area complaints are monitored on a periodic basis with radar by members in the HRP/RCMP Integrated Traffic Unit, Community Response Officers and Watch Members.

HRP Divisional Commanders also assign school zone speeding, stop sign complaints, red light running complaints, not stopping for school buses, crosswalk safety, and other traffic concerns identified by HRM Councillors and/or citizens to the HRP/RCMP Integrated Traffic Unit, Community Response Officers or the Watch Members depending on the complaint. This list of concerns is amended on a continual basis based on feedback from both citizens and Councillors.

In 2012, Halifax Regional Police officers wrote a total of 11, 035 tickets for speeding infractions. The breakdown is as follows:

4,604 tickets for exceeding posted speed limit by 1 to 15 km/h
5,535 tickets for exceeding posted speed limit by 16 to 30 km/h
812 tickets for exceeding posted speed limit by 31 km/h or more
84 tickets for other speeding related offences (eg. speeding in a temporary work area)

In the fiscal year 2012-2013 the Halifax District RCMP adapted a new approach to motor vehicle collisions within the HRM. The Halifax District RCMP gathered data from the last year which provided the highest collision areas and times when the highest amount of collisions occurred within these areas. These areas and times became a policing priority to the RCMP. Considerable enforcement efforts were placed at these locations during specified times with the goal to reduce injury motor vehicle collisions by 5% for the fiscal year. The majority of locations selected based on the previous year data were at intersections allowing RCMP to increase their enforcement at intersections as well.

In this way, the RCMP endeavours to determine problem locations and increase enforcement at these locations during specific times. This process is still underway and will be evaluated in April 2013 to determine whether or not it has been effective.

24. Speeding counter measures should be developed and include public awareness campaigns combined with concentrated enforcement of speeding with the objective of reducing the average traveling speed, incidents of speeding, and zero tolerance for speeding in school zones.

The Integrated Traffic Unit (ITU) focuses enforcement on speeding and a number of other traffic-related issues each month. Other themes include: driver distraction and the illegal use of cell phones; speed in school zones and crosswalk safety; safe sharing of our roadways by motorists, cyclists and pedestrians; driving for weather conditions; school bus safety, etc. Citizens are made aware of these themes via media releases which are posted on ITU's website and on social media sites.

At the beginning of the 2012-2013 school year, the RCMP conducted a campaign to ensure drivers were aware of the new 30 km/h speed limits in school zones. During the first month, RCMP police officers were placed at various schools throughout the HRM at the beginning and end of the school day with the primary goal to educate drivers on the new school zone speeds that were implemented. Pamphlets were handed out and many drivers were spoken to personally when either dropping off or picking up their kids.

25. The Province and municipalities identify the staffing of traffic services positions as a provincial road safety priority.

HRP and Halifax District RCMP have jointly created an Integrated Traffic Unit to focus solely on traffic enforcement within HRM boundaries.

26. The RCMP and Municipal Police Agencies communicate to frontline law enforcement officers the importance of completing pedestrian collision reports in an accurate and timely manner.

The limitation on data entry is a result of the traffic accident report (58-A) being a paper based document. There are a number of data fields but the document is a handwritten form, of which only a portion of the data is transcribed into the Records Management System. This limits the ability to analyze. Options are presently being explored by the Halifax Regional Police to improve data accuracy at source, reduce input time and improve analytical capability.

Pedestrian collision reports for collisions in RCMP territory are monitored by the RCMP Sergeant (Sgt) on each watch whose role is quality assurance. Each Sgt from each watch is responsible to review every file in Halifax District RCMP. Pedestrian motor vehicle incidents are part of the monitoring that is conducted by the Watch Sgt. who ensures that the collision reports are done in a timely and accurate manner.

Once the collision reports are entered, the RCMP use the data to determine problem locations (see number 23). All collision reports are sent to the Motor Vehicle Branch in Nova Scotia.

27. The RCMP and Municipal Police Agencies review the role of their school liaison officers in traffic and crosswalk safety education to determine the most efficient use of their abilities and time.

The Halifax area RCMP employs both school liaison officers and community liaison officers within their districts. These liaison officers oversee numerous programs throughout the year to educate people of all ages with respect to crosswalk and traffic safety. Some examples of these programs include Stop on Red Kids Ahead, Reduction of speed in school zones, assisting with the pace car program.

In the calendar year of 2012, the Community Relations / Crime Prevention office of Halifax Regional Police was involved in delivering 25 presentations on pedestrian safety. Some of these presentations were delivered strictly as “crosswalk safety”; however, many of them were presentations in which crosswalk safety was one of the topics covered along with other safety topics such as Halloween safety, general traffic safety, etc.

28. Policing agencies must explore the feasibility of publishing a reference manual that consolidates all speeding and crosswalk violations.

Each year the uniformed police officers of Halifax Regional Police and Halifax District RCMP receive a small booklet, produced by HRP/RCMP Integrated Summary Offence Ticket Services, which summarizes all Summary Offence Violations in Nova Scotia allowing police officers to have a quick and easy reference guide providing them with the required information to issue the proper summary offence ticket to the violator.

Halifax Regional Police Officers are provided instruction and direction on an ongoing basis.

29. The government, RCMP and municipal police agencies must dedicate funding towards traffic enforcement to promote, educate and enforce traffic and crosswalk safety effectively.

The HRP/RCMP Integrated Traffic Unit was launched in 2005. The Unit consists of ten officers from both HRP and RCMP, patrols six divisions throughout HRM (Central, East, West, Lower Sackville, Cole Harbour and Tantallon) in patrol vehicles and on motorcycles. The primary goals of the Traffic Unit are to improve traffic safety in HRM and address chronic traffic complaints. These goals are achieved by identifying the primary concerns of HRM residents and focussing on education and direct enforcement. Its mandate is to educate through enforcement. The Traffic Unit develops campaigns during the year when traffic violations may increase such as 'Operation School Zone' in September, 'Operation Slowdown' in the summer months and 'Operation Christmas' during the holiday season.

HRP has created a social media presence dedicated to traffic safety. The sites are managed by a member of Traffic Unit, and are spaces for citizens to post questions about traffic laws, discuss traffic-related issues and talk about ways to keep our roadways safe.

The Halifax District RCMP contribute to this by providing two police officers to the Integrated Traffic Unit, by dedicating resources to education and prevention through the use of Community Liaison Officers, School Liaison Officers and General Duty Patrol Officers. Further, it creates a monthly theme and targets education and enforcement surrounding that particular rule of the road. This monthly theme is communicated to media, public and elected officials at the beginning of each month.

Halifax Regional Police and Halifax District RCMP both assign officers to the Integrated Traffic Unit (8 HRP officers and 2 Halifax District RCMP officers) and also dedicate resources to education and prevention through the use of Community Liaison Officers, School Liaison Officers and General Duty Patrol Officers.

The greatest enforcement tools available to police are photo radar and red light cameras. At a recent meeting of the HRM Board of Police Commissioners, Halifax Regional Police and Halifax District RCMP were asked to explore the feasibility of the implementation of photo radar and red light cameras in HRM. This feasibility study will begin forthwith.

Evaluation

30. The RSAC member departments and relevant agencies improve their systems and processes to collect, analyze, and share the data critical to understand and address crosswalk safety.

Defer to RSAC.

31. RSAC ensure formal evaluations of programs, policies and strategies related to crosswalk safety are conducted.

Defer to RSAC.

32. RSAC ensure an annual report regarding the implementation status of the recommendations is released to the public; and after five years, a formal review of crosswalk safety programs, policies, and strategies is conducted.

Defer to RSAC.

Concluding Observations

42. The departments responsible for enhancing road safety must develop a comprehensive road safety strategy that is evidence-based and combines engineering, education, and enforcement countermeasures. The Province must dedicate funding and resources to enhance, support, and maintain road safety initiatives and encourage Nova Scotians to accept road and crosswalk safety as a shared responsibility.

HRM Traffic Services is currently enhancing road safety through engineering and education. See items 4, 5, 6, 7, 8, 9, 10, 33, 34, 35, 36, 37, 38, 39, 40 and 41.

HRP and RCMP are currently enhancing road safety through enforcement measures and education. See items 19, 22, 23, 24, 25, 26, 27, 29 and 29.

PART II

Pedestrian Collision Statistics Comparison

The table below is taken from a presentation by the City of Toronto and shows the pedestrian collision rates for several major cities in Canada in 2011. The HRM collision rate shown is from 2005 because an accurate number of recent pedestrian collisions is not available at this time from the Province of Nova Scotia.

City	Population	Pedestrian Collisions	Pedestrian Collision Rate/100,000 Population
Vancouver	642,843	532	83
Toronto	2,712,900	2,167	80
Montreal	1,978,066	1,435	73
Calgary	1,090,936	506	46
Halifax (2005)	370,000(est)	~160	43.31 ¹
Hamilton	519,949	221	43
Edmonton	793,000	316	40
Ottawa	923,000	350	38
Winnipeg	691,800	241	35

(Source: City of Toronto http://www.toronto.ca/transportation/publications/brochures/2011_ped.pdf Accessed Feb 12, 2013)

¹ Source: April 4, 2007 presentation to Halifax Regional Council.

PART III

Action Plan

Currently, Transportation and Public Works, the Integrated Traffic Unit (HRP/RCMP) and HRM Corporate Communications are involved in a marketing campaign to address crosswalk safety. The campaign will focus on the shared responsibility between motorists and pedestrians and involve print ads, radio ads, transit ads and television ads. The campaign will run from March 4th to March 22nd with one element (bus boards) running until from March 11th to April 17th.

Print ads will appear in the Metro, The Chronicle Herald and The Coast. Ads will be ¼ page and will appear weekly in the Metro and The Coast while appearing once on a Saturday in section A of the Chronicle Herald. Print ads will also appear on Metro Transit buses and posters will be placed at high schools and universities. See Attachment A-4 for preliminary print ad designs.

Television ads will appear on CBC and CTV during a mix of day and night times.

Radio ads will run during drive times and appear on C100, The Bounce 101.3, Q104 and Kool 96.5.

Digital ads will run on HRM's YouTube channel and on The Chronicle Herald website. A specific website; www.DistractionsKill.ca will remain online for some months during and after the campaign. The website will have stories, tips and videos specific to the message: "Distractions Kill. Crossing the street is a shared responsibility".

The ad campaign is aiming to change motorist and pedestrian behaviour, not just to bring awareness to pedestrian safety issues. A before and after survey will be performed to determine the effectiveness of the campaign.

HRP began a pedestrian safety campaign on February 6, 2013.

FINANCIAL IMPLICATIONS

The estimated budget for the campaign is \$75,000. Funds are available in the 2012/13 Operating budget from the following cost centres:

Transportation and Public Works - \$63,000 from R100 - 6919

Halifax Regional Police - \$2,000 from P120- 6912

Corporate Communications - \$10,000 from A620- 6912

COMMUNITY ENGAGEMENT

Community engagement was not deemed to be necessary in this process because decisions were based on operational procedures.

ATTACHMENTS

- A-1 Side-mount flashers memo
- A-2 List of 44 upgraded RA-5 locations
- A-3 Signage installed for pedestrians at signals
- A-4 Examples of print ads

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

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Financial Approval by: _____
 Greg Keefe, Director of Finance & ICT, 490-6308

PO Box 1749

Halifax, Nova Scotia

B3J 3A5 Canada

MEMORANDUM

TO: Ken Reashor, P.Eng., Manager of Traffic and Right of Way

FROM: Alan Taylor, P.Eng., Transportation Planner

DATE: June 1, 2009

SUBJECT: Side Mounted Flashing Beacons for RA-5 Crosswalks Trial Installations Report

One of the recommendations of the Crosswalk Safety Task Force was to look at ways to increase the conspicuity of RA-5 crosswalks. Public comment has been that the flashing lights mounted overhead are out of the line-of-sight of approaching drivers and lower-level side-mounted flashing lights would add conspicuity and driver compliance to these crosswalks. Therefore a trial of five locations within Halifax Regional Municipality was done.

Another recommendation of the Crosswalk Safety Task Force was to increase to size of the existing standard flashing beacons from 200mm diameter to 300mm diameter. Halifax Regional Municipality has adopted this recommendation therefore so that a change from 200mm to 300mm beacons not affect the results of a trial of side-mounted beacons, the trial locations were all converted to the new size at least a month before any measurements of driver compliance were made.

The procedure was to measure driver compliance by actuating the flashing beacons at a known minimum distance from the crosswalk, in both the before (no side-mounts) and after (with side-mounts) condition. Fifty approaching drivers were tested in each direction at each location.

In Nova Scotia generally, and in the Halifax area particularly, driver compliance is already quite good, so to achieve a meaningful difference required that drivers be stressed in their responses. Pre-trial testing showed that activating the beacons at the stopping sight distance resulted in a 100 percent compliance with the existing 200 mm overhead beacons. Thus, any new crosswalk arrangements could never show any improvements. It was decided to try one-half the stopping sight distance to see if that showed some drivers not stopping and yet not require extreme driver maneuvers and make the potential for rear-end collisions.

The tests were all done on dry pavement in daylight, non-peak hours. Only drivers of automobiles and light trucks (pickups, vans) were tested. Four of the test sites had 50 kph speed limits, so the one-half stopping sight distance there was 35 metres. One site had a 60 kph speed limit so the one half stopping sight distance there was 42.5 metres. (Stopping sight distance is applicable to wet pavement but was used in this test to give some guidance in choosing comparable numbers between two different speed limit locations. The tests were done on dry pavement.)

The surveyors were in teams of two persons, one observer and one pedestrian. Before the tests began, the test distances were inconspicuously marked or noted on the street. The pedestrian would loiter near the crosswalk but attempt to appear not about to cross until the approaching target driver was at the test distance when the pedestrian would actuate the signal by pressing the button. The pedestrian would then

stand at the curbside as if to cross. Once drivers had stopped, the pedestrian would cross the road. After that group of stopped drivers had cleared, as well as any nearby drivers who had seen the actuation, the pedestrian would repeat the test for the other approach direction. (The purpose of waiting was so drivers in the distance would not see a steady cycle of actuations and be primed to stop.)

The tests were done before the side-mounted beacons were installed, and then at least four weeks after they were installed.

The compliance results were as follows:

	compliance	compliance
location	before	after
Bedford Highway at Mount St Vincent University (north)	71%	88%
Dunbrack Street at Clayton Park Drive (60 kph)	96%	98%
Herring Cove Road at Drysdale Road	91%	96%
Titus Street at Evans Avenue	96%	95%
Pleasant Street at Dartmouth General Hospital (midblock)	92%	89%

The Bedford Highway at Mount St. Vincent location showed a large increase in compliance while the other locations showed either relatively small increases or essentially no change. It should also be noted that at all these locations, the compliance when the pedestrian actuation was when the driver was further away, or in other words, if compliance was measured applicable to drivers further away when the beacons were actuated was essentially 100%. At the Mount Saint Vincent location, compliance was retested at 75 metres. The compliance results were 97 percent compliance, slightly less than the expected 100 percent.

An interesting sidelight was noted at every location. Lone drivers, i.e. drivers of vehicles not part of platoons, were more likely not to stop than the lead drivers of platoons.

Ra-5 Locations (Eligible for cost sharing)**Region**

Bedford Highway/MSVU	West
Nantucket Avenue/Green Road	East
Titus Street Evans Avenue	West
Dunbrack Street/Clayton Park Drive	West
Herring Cove Road/Drysdale Road	West
Pleasant Street/Dartmouth General Hospital	East
Young Street/Monaghan Drive	West
Bedford Highway/McDonald's Civic 1496	Central
Bedford Highway/Nelsons Landing Boulevard	Central
Dartmouth Road/North Street/Wardour Street	Central

Year 1 (2009/2010)

Alderney Drive/Alderney Manor/Park Avenue	East
Alderney Drive/Prince Street	East
Waverley Road/Maple Street	East
Pleasant Street/Mayfield Drive	East
Pleasant Street/Mount Hope Avenue	East
Prince Albert Road/Lakeview Point Road	East
Prince Albert Road/Sinclair Street	East
Windmill Road/Jamieson Street	East
Wyse Road/Dawson Street	East
Wyse Road/Faulkner Street	East
Wyse Road/Sportsplex	East
Wyse Road/Thistle Street	East
Bedford Highway/Tremont Drive	West
Bedford Highway/Seton Drive	West
Chebucto Road/Connolly Street/Elm Street	West
Chebucto Road/Phillip Street	West
Cogswell Street/Central Commons	West

Year 1 (2010/2011)

Connaught Avenue/Chisholm Avenue	West
Connaught Avenue/Regent Street	West
Connaught Avenue/Liverpool Street	West
Dunbrack Street/Ross Street	West
Dunbrack Street/Birkdale Crescent	West
Herring Cove Road/Arthur Street	West
Herring Cove Road/McMullen Drive	West
Herring Cove Road/Spry Avenue/Circle Drive	West
Herring Cove Road/Sussex Street	West
Herring Cove Road/Purcells Cove Road	West
Kearney Lake Road/Wedgewood Avenue/Grosvenor Road	West
Purcells Cove Road/Anchor Drive	West
Quinpool Road/Northwest Arm	West
Quinpool Road/Quinn Street	West
Robie Street/Charles Street	West
Robie Street/Cherry Street	West
Robie Street/Shirley Street	West

SIGNAGE AT TRAFFIC SIGNALS AND FLASHING BEACONS

SIGNAGE AT RA-5s (PEDESTRIAN ACTIVATED BEACONS) SOME TRAFFIC SIGNALS

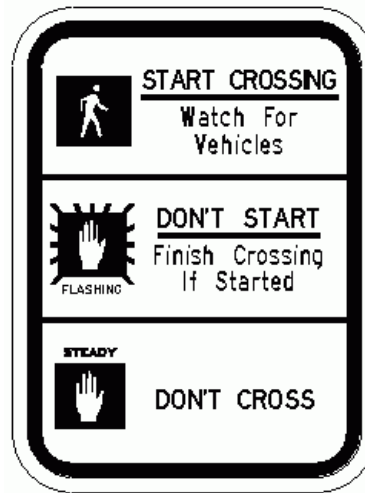


SIGNAGE AT NEW TRAFFIC SIGNALS

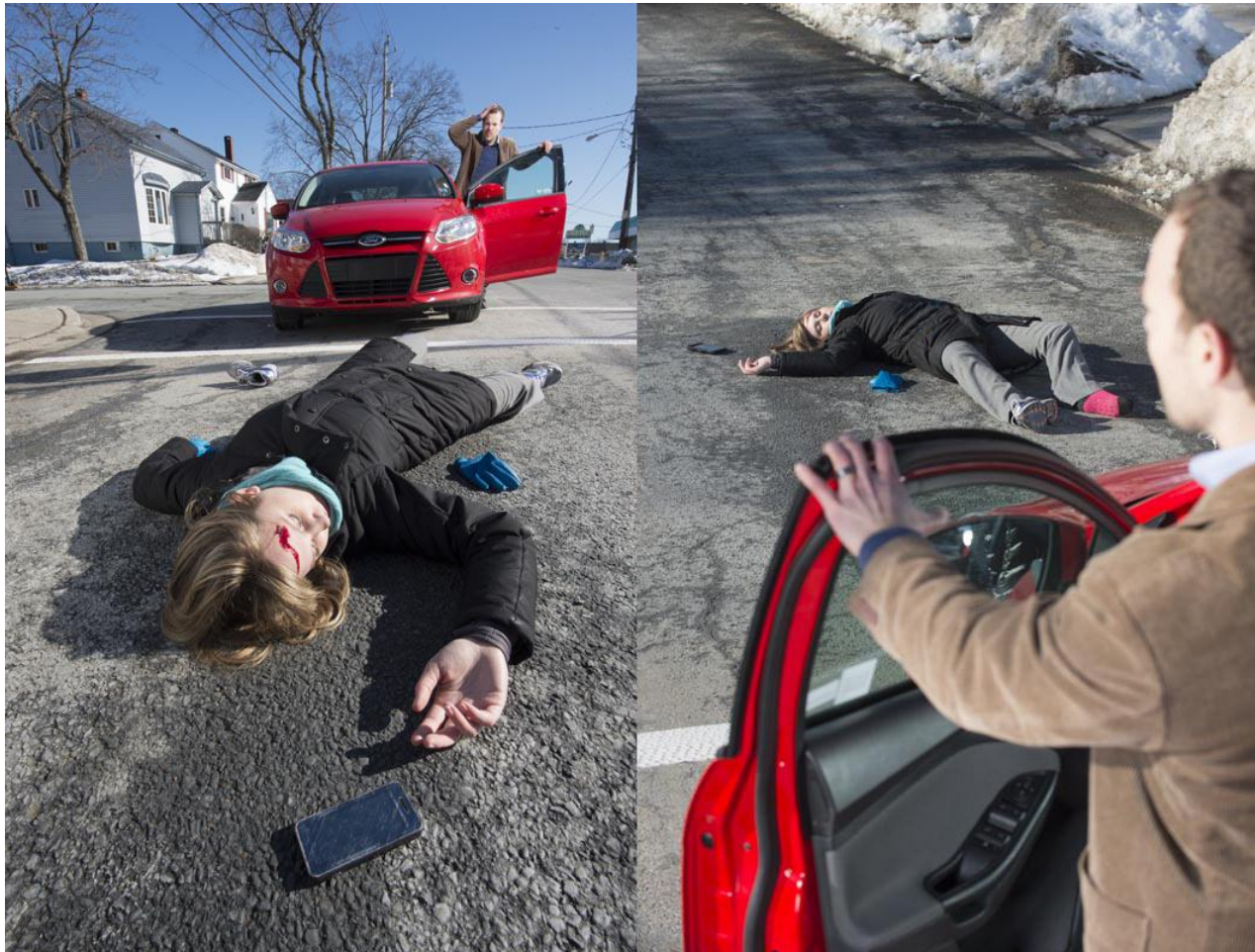
SIGNALS WITH PUSH BUTTONS



SIGNALS WITHOUT PUSH BUTTONS



Print Ads



Busboard

