P.O. Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

Item No. 15.2ii
Transportation Standing Committee
June 20, 2019

TO: Chair and Members of Transportation Standing Committee

Original Signed

SUBMITTED BY:

Brad Anguish, P. Eng., Director Transportation & Public Works

Original Signed

Denise Schofield, Acting Chief Administrative Officer

DATE: June 7, 2019

SUBJECT: **Strategic Road Safety Framework Annual Information Report**

INFORMATION REPORT

ORIGIN

Item 14.2.2 of the July 17, 2018 session of Halifax Regional Council; MOVED by Councillor Nicoll, seconded by Councillor Cleary THAT Halifax Regional Council direct staff to provide annual information reports to Transportation Standing Committee regarding the implementation of the Strategic Road Safety Framework.

Item 14.3.4 of the April 10, 2018, session of Halifax Regional Council; MOVED by Councillor Nicoll, seconded by Councillor Mancini THAT Halifax Regional Council:

1. Direct staff to amend the Traffic Control Practices & Warrants document as appropriate to remain consistent with the principles of the Integrated Mobility Plan and to support the Complete Streets policy and revisions to the Municipal Design Guidelines (Red Book); and
2. That staff prepare bi-annual reports for the Transportation Standing Committee respecting updates or amendments to the Traffic Control Practices and Warrants document.

LEGISLATIVE AUTHORITY

Section 4(g) of the Terms of Reference for the Transportation Standing Committee provides that the duties and responsibilities of the Committee include “providing input and review of road and pedestrian safety”.

BACKGROUND

On average, there are over 1400 personal injuries and 14 fatalities per year on HRM roadways. There are multiple agencies throughout HRM that facilitate numerous safety programs and initiatives; however, greater coordination can be used to improve the effectiveness of these programs.

The need for a road safety strategy was identified in the Transportation & Public Works (TPW) 2016/17 Business Plan. The objective was to create an overall road safety strategy to encompass all road users, including pedestrians, bicyclists and motorists. As a result, a consultant was selected through a competitive RFP process and the project began in March 2017. At the July 17, 2018, meeting of Halifax Regional Council, the Strategic Road Safety Framework was adopted.

The Strategic Road Safety Framework (Framework) is a five-year (2018-2023) framework that focuses on reducing transportation related fatalities and injuries on HRM's roadways. The Framework has adopted a Towards Zero approach with the ambition to reduce transportation fatalities and injuries to zero by the year 2038. The Framework sets a short-term goal of a 20% reduction of fatal and injury collisions within 5 years.

The Framework identifies seven emphasis areas that have the greatest opportunity to improve road safety from a technical, political and social perspective. These include intersection related collisions, the young demographic, pedestrian collisions, aggressive driving, distracted driving, impaired driving, and bicyclist collisions.

Countermeasures are actions taken to reduce the occurrence or severity of a collision. As part of the Framework, countermeasures will be chosen for implementation based on the likelihood of reducing collision frequency or severity within an individual emphasis area, and with the affirmation that one or more stakeholders can support and deliver the countermeasure.

The Framework identifies five overall action items:

1. Form a safety task force;
2. Obtain and implement a data analysis system;
3. Implement an outreach program;
4. Evaluate existing road safety programs;
5. Implement and evaluate the success of countermeasure programs.

Strategic road safety programs, in general, are data driven. Therefore, the creation of the data analysis system is a critical component to the Framework. This system needs to be in place and populated with historical data before the implementation of action plans can commence, in order to support ongoing evaluation. The task force can be created simultaneously to develop working relationships and establish a regular meeting schedule. These two items are the focus in year one of the Framework.

Following year five, the current Strategic Road Safety Framework will be evaluated and the next iteration of the plan will be developed.

DISCUSSION

The following information identifies specific Framework actions during the first year of implementation, along with the next steps and ongoing initiatives.

Year One Actions

- Road Safety Steering Committee

  The HRM Road Safety Steering Committee (RSSC) was formed in early 2019. The committee held its first meeting on March 5, 2019. The RSSC will have scheduled quarterly meetings, with meetings being added or withdrawn depending on items for discussion.

The RSSC is comprised of groups that can implement and monitor the success of countermeasures and advance towards the vision and goal of the Framework. This includes: HRM staff from Traffic Management, Project Planning and Design, Active Transportation, Strategic Transportation Planning, and Corporate Communications; Halifax Regional Police (HRP); Royal Canadian Mounted Police (RCMP); Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR); Halifax Regional Centre for Education (HRCE); Nova Scotia Health Authority (NSHA); and the IWK Health Centre.

Other external subject matter experts and stakeholders will be brought in on an as-needed basis to investigate specific road safety issues.

- Collision Database

A collision data analysis system was identified as a top requirement in the development of the Framework. This database needs to be in place and populated with historical data before any action plans are identified, and to support ongoing evaluation.

Staff from HRM Information, Communication and Technology (ICT), HRP, and Traffic Management have been working on the creation of an internal HRM collision database since the Fall of 2018. At the time of this report, collision data from August 2016 to January 2019 is available for preliminary analysis. Staff is continuing to work on gaining access to the remaining 2019 files, with the goal of automated daily updates once all the requirements are approved and signed-off.

The collision database solution is being developed by internal ICT staff. This solution will allow Traffic Management staff to analyze and report on the data, both spatially and non-spatially, specifically under the emphasis areas in the Framework. The solution is still under development, as staff work out details on data collection, profiling the quality of the data, and refining business rules so that the data can be used to support reporting and analytics. The first release of the solution is expected to be available for Traffic Management staff during Summer 2019.

In addition to the collision database, ICT staff are currently upgrading our internal traffic count database. The ultimate solution will enable the collision database to overlay with the traffic count database. This will facilitate assessment by collision rates rather than collision frequencies.

- Top 10 Fatal and Injury Collision Locations at Signalized Intersections

As the internal collision database is still under development, staff from HRM Traffic Management has committed to completing road safety audits of the top ten fatal and injury collision locations at signalized intersections in HRM. From the August 2016 to January 2019 data that was exported from HRP, ICT was able to sort the data based on fatal and injury collisions at signalized intersections only. The database is not yet equipped to sort by any intersection type or roadway corridor (this will be addressed in the final database solution).

Ten locations will be assessed in Summer 2019 to identify any traffic operational issues, geometric design concerns, and specific road environment characteristics that contribute to increased road safety risk. This will enable staff to plan and design for engineering upgrades to be considered by Regional Council for funding in the 2020/21 Capital Budget.

Future Actions

- Evaluation Metrics

Once the collision database is finalized, staff will have the ability to establish a baseline to measure overall progress towards achieving the goal of the Framework (20% reduction of fatal and injury collisions within five (5) years). The evaluation metrics are based on recommendations from the

consultant involved in the original Framework development, other jurisdictional practices, and consultation with the RSSC:

1. The baseline collision frequencies for reference to the 20% reduction will be the average of the last three calendar years prior to the start of implementing countermeasures (2017-2019).
2. Annual statistics from 2020 will be compared to the previous three-year average.
3. Continued annual comparisons moving forward.

- Data Analysis Focused on Emphasis Areas

As mentioned previously, the completion of the collision database will enable staff to analyze and report on the data, specifically under the emphasis areas in the Framework. Review of the data under these emphasis areas may identify site specific locations for engineering countermeasures, or larger patterns that need to be addressed municipality-wide. Detailed review of this data will also identify topics and target audiences for education campaigns. These items will form HRM's action plans.

With these action plans identified, the Framework will then be referred to as the original Strategic Road Safety Plan.

The collision database will also provide a resource to evaluate the success of any existing and future implemented countermeasures. If a countermeasure is deemed ineffective, then its resources will be reallocated to another countermeasure and the action plans adjusted.

Ongoing Initiatives

- Reduced Speed Limits

In January of 2019, the HRM Traffic Authority sent a request to the Provincial Traffic Authority for permission to post reduced speed limits of 40 km/h on local residential streets. The Provincial Traffic Authority did not approve this request as is; however, they did recommend that HRM submit individual requests for small groups of local streets that have similar characteristics (neighbourhoods), and speed studies on a representative sample indicating that existing travel speeds are at or near 40 km/h.

The HRM Traffic Authority plans to develop a set of criteria regarding the posting of 40 km/h speed limits within HRM roadways. Policies and warrants from other Canadian jurisdictions will be reviewed to help inform these criteria. A new request will then be submitted to the Province, identifying an initial proposed location for a 40 km/h posted speed limit. If approved, it is anticipated that the installation will be completed this Fall. Regional Council will be updated accordingly throughout the process.

- Fluorescent Yellow-Green Strips at Basic Marked Crosswalks

In response to concerns received by staff to make basic marked crosswalks (locations with only four side-mounted static signs) more visible, 53 locations were equipped with vertical fluorescent yellow-green strips on the crosswalk sign posts in 2018 as a pilot program. The approximate cost was $32 per location, which included materials and labour. Staff monitored the durability of the product over the winter months and were satisfied with the performance. The remaining basic marked crosswalk locations (approximately 300 locations) will be outfitted with the fluorescent strips in 2019.

- Fluorescent Yellow-Green Crosswalk Sign Pilot

As currently defined in the regulations under the Nova Scotia Motor Vehicle Act (MVA), all crosswalk signs must have a black symbol on a white background.

HRM Traffic Management participated with partners in the Transportation Association of Canada (TAC) on a volunteer project to evaluate the effectiveness of fluorescent yellow-green pedestrian crosswalk signs at uncontrolled marked pedestrian crosswalks. The study objective was to determine if the yellow-green signs should be recommended for inclusion in the Manual of Uniform Traffic Control Devices for Canada (MUTCDC).

Results from the study were compiled with the data collected by multiple jurisdictions. It was found that the installation of these signs did not have a significant impact on driver yielding behaviour. Therefore, the TAC project did not recommend inclusion into the MUTCDC.

Where the Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR) follows TAC Guidelines and the MUTCDC, it is therefore, unlikely that NSTIR would change the regulations under the MVA. As a result, Halifax Regional Council passed a motion on May 21, 2019, that the Mayor send a letter to NSTIR expressing a desire to amend the regulations under the MVA to add fluorescent yellow-green as a background color for crosswalk signage to improve visibility and pedestrian safety.

- Rectangular Rapid Flashing Beacons (RRFB)

RRFBs are pedestrian activated crosswalk treatment systems which consist of two rapidly and alternately flashing rectangular amber beacons mounted above side mounted pedestrian signs. HRM began piloting these crosswalk treatments in 2016 and have since adopted their use as part of standard practice. The 2019/20 Capital Budget includes funding for six (6) new RRFB installations.

Staff is currently proceeding with the procurement of a standing offer for the direct purchase of RRFB equipment. This is intended to reduce costs and timeframes associated with RRFB upgrades when they are determined to be an appropriate installation.

- Leading Pedestrian Interval (LPI)

At signalized intersections, LPIs begin the pedestrian walk signal ahead of the corresponding vehicle green phase. This gives pedestrians a head start before the adjacent vehicle traffic is permitted to move. Depending on the intersection and signal operations, this type of signal timing can help improve driver yielding for turning vehicles as the pedestrian is able to better establish their presence in the crosswalk.

Eight (8) signalized intersections throughout the city core were chosen for initial pilot implementation locations in 2018. The intent is to gain insight into how the LPI impacts pedestrian and driver behaviour as well as determining what impacts and constraints there are regarding the programming of the traffic signals. Depending on the existing signal configuration and/or phasing, implementation of an LPI may not be appropriate or it may require more in-depth programming changes that could have widespread impacts beyond a specific location.

Public feedback to date has been generally positive. Staff is currently working on a methodology to determine where LPIs are most appropriate. Information on warrant criteria will be provided in the next update to the Traffic Control Practices and Warrants. Any potential LPI implementations will be included as part of assessments carried out under the Road Safety Framework.

- Durable Pavement Markings

HRM's current practice is to re-paint all pavement markings within HRM owned streets at least once per year. Crosswalks in the downtown cores (Halifax and Dartmouth) are painted a second time in the Fall. Crosswalks along other arterial streets and major collectors where there is a high level of pedestrian activity may also be painted a second time, depending on the timeline for the

initial paint application (if the crosswalk was only first painted at the end of the Summer, it may not require new paint in the Fall).

In order to comply with current federal environmental regulations, HRM must use water-based paint with low volatile organic compounds (VOC) between May 15 – October 15. Other Canadian jurisdictions must also abide by these regulations and are experiencing difficulties with the durability through our challenging winter climates.

A durable pavement marking was applied to a location on Barrington Street as a trial installation in the Fall of 2017. That application has withstood conditions over the past two winter seasons and is showing good potential. Additional monitoring and a cost/benefit analysis will be required to determine whether the use of this type of marking should be expanded.

- Advance Yield Lines at Crosswalks

Advance yield to pedestrian pavement markings feature a line of solid white triangles, parallel to a marked crosswalk. The markings are used as a means to discourage drivers from stopping too close to a crosswalk when yielding to pedestrians. Traffic Management will be proceeding with a pilot project in 2019 to test advance yield lines at mid-block, multi-lane crosswalks. The study will observe yielding behaviour of drivers at these locations. The results of the study will inform a future decision on the use of these markings in HRM.

- Traffic Calming

Several amendments were made to the Traffic Calming Administrative Order (the AO) in 2018. Key items to note are the addition of separate evaluation criteria for school zones, the eligibility of transit routes, and the reduction of speed thresholds to 40 km/h and 30 km/h within residential areas and school zones respectively. With these changes, approximately 30% more streets are now eligible for the implementation of traffic calming measures.

There are currently over 400 requests for traffic calming that have been or are in the process of being reviewed under the AO. A total of sixteen (16) locations have been constructed with traffic calming measures since the development of the AO.

A total of thirteen (13) locations were implemented with traffic calming measures in 2018 alone. This was through a combination of integration with other HRM Capital projects and with an exclusive traffic calming project. The majority of treatments included the installation of speed humps. One location was included as part of a local street bikeway which implements multiple curb modifications to create a road narrowing effect.

Seven (7) streets will be included in the first phase of traffic calming projects for 2019 with a second phase to be tendered later in the year. Six (6) additional locations are scheduled to be included as integration projects with other HRM Capital projects.

Over 200 locations are confirmed to qualify for traffic calming measures and are placed on the ranked list for implementation. Approximately 80 locations are within the data collection stage and have the potential to qualify for traffic calming and be added to the ranked list.

- Integrated Mobility Plan (IMP)

TPW has incorporated the principles brought forward through the IMP as part of their standard practice. As implementation of the IMP progresses, Traffic Management continues to provide support through various initiatives including, but not limited to: installation of several new rectangular rapid flashing beacon (RRFB) crosswalks; implementation of leading pedestrian interval phasing at a sample of intersections; and the installation of reflective strips on sign posts at basic marked crosswalks. Other initiatives that TPW is supporting is the review of capital projects

through the Complete Street lens, implementation of the all ages and abilities bicycle network; implementation of transit priority measures, closing the gap in the sidewalk network, etc.

- Tactical Urbanism Program

Staff is currently developing a Tactical Urbanism Program intended to identify a toolbox of materials and designs that can be implemented on a temporary basis to test new infrastructure designs until permanent infrastructure can be built. This new program will directly support Actions 38 and 48 of the Integrated Mobility Plan, which state:

> Action 38: Rehabilitate streets based on their intended functions and using the Complete Streets approach, with first priority given to improving safety and comfort for pedestrians through design treatments such as barrier free routes, visual and sensory cues, curb extensions, widened sidewalks, street trees, traffic calming and benches in mixed use commercial areas or adjacent parks.
>
> Action 48: Support pilot projects for creative street uses, such as community events or temporary infrastructure to test new ideas for how streets can function.

The Tactical Urbanism Program has the potential to be used to address identified road safety issues on a short-term basis, until permanent solutions can be constructed. Upon completion of the road safety audits for the top ten fatal and injury collision locations at signalized intersections, tactical urbanism treatments will be reviewed for applicability, based on the recommendations from the safety audits. This could enable staff to take quick action while HRM plans and budgets for design and construction.

A recent example of a tactical urbanism project includes the temporary bump-out at Ochterloney Street and Wentworth Street with the use of concrete barriers. This was installed to address concerns of pedestrian safety crossing Ochterloney Street. The bump-out narrows the available width for vehicles on the street, while creating a shorter crossing distance for pedestrians. In the Summer of 2019, it is anticipated that the concrete barriers will be removed and replaced with paint and bollards.

Following last years success, HRM has reinstalled the Spring Garden Road “stoplet”. This tactical urbanism project will be used prior to the construction of the streetscaping project to continue to gather public input and test ideas. It is a wooden platform that stretches approximately 20m between Dresden Row and Birmingham Street.

At the April 16, 2019, meeting of Halifax Regional Council, staff was directed to undertake data collection and an assessment of Winter Street under the new Tactical Urbanism Program in order to consider potential treatments that may be appropriate for the street. The review is intended to specifically address the absence of sidewalk on the street and the potential for pedestrian space within the existing roadway.

The 2019/20 Capital Plan includes budget for several potential tactical urbanism projects. In addition to the above projects, the intersection of Agricola Street and Charles Street is currently being reviewed as a possible project. Other opportunities will be explored throughout the year.

- Traffic Control Practices and Warrants Update

Traffic Management continues to work closely with staff from the Active Transportation group, Halifax Transit and Strategic Transportation Planning to implement projects and support the goals of the Integrated Mobility Plan. Existing practices and warrants related to the use of various traffic control measures (i.e., traffic signal installation/operation, installation of crosswalks, etc.) are supporting staff efforts to implement projects.

At the December 13, 2018, meeting of the HRM Transportation Standing Committee (TSC), a motion was approved to request a staff report regarding the elimination of the requirement to press a pedestrian push button to trigger a walk signal at fully signalled intersections for pedestrians throughout HRM. This report is scheduled for the November meeting of TSC.

The next update to the Traffic Control Practices and Warrants document will include information about the operation of traffic signals specific to items such as pedestrian push buttons, leading pedestrian intervals, traffic signal actuation, protected vehicle phases, etc.

- Heads Up Halifax Campaign

For the 2018/19 Heads Up Halifax initiative, the successful bidder to a campaign marketing RFP proposed a new approach which saw community members invited to submit proposals that focus on innovative ways to encourage safer behaviour or improve the ways in which people currently use crosswalks. To be eligible for consideration and funding, proposals needed to comply with official rules and be submitted by a qualifying association that would implement the proposal. The initiative was open to submissions from November 19, 2018 until January 17, 2019.

Eleven proposals were submitted by a qualifying association and were therefore eligible to be considered by the evaluation panel. In late May, the municipality announced awards were granted for five successful proposals submitted by the following four organizations:

- Ecology Action Centre
    - $5,000 award towards the *Safety for All* education effort for newcomers. Focusing on those whose first language is Arabic, Mandarin or French, this initiative will use translated materials and icon-focused graphics to convey safe pedestrian practices.
- Saint Mary's University Entrepreneurship Centre
    - $5,000 award towards the coordination and facilitation of a crosswalk safety hackathon for students/youth and community members. The hackathon will aim to develop innovative solutions to challenges associated with crosswalk safety focusing on root cause analysis, ideation and solution development.
- Nova Scotia Community College
    - $5,000 award towards the development of a crossblock lighting prototype. This is a self-sustaining, solar powered system that will use small light beams to create a simulated barrier when someone is crossing.
- Crosswalk Safety Society of Nova Scotia
    - $5,000 award towards the creation of fridge magnets which will serve as a daily reminder of behaviour tips for drivers and pedestrians to contribute to crosswalk safety.
    - $1,000 award towards the development and distribution of a brochure that educates both drivers and pedestrians about crosswalk rules and suggestions for behaviour to improve everyone's safety.

Each successful proponent is required to apply the funding towards the implementation of their awarded proposals, with any unused funds returned to the municipality. The proponents have been asked to report on the use of the funds, and their impact on changing the behaviours of pedestrians, cyclists and drivers with respect to crosswalk safety. The municipality has also requested a full accounting of expenditures and a final report regarding the impact of each proposal be submitted on or before May 1, 2020.

Staff will continue to assess the success of this year's campaign to help inform the approach to be adopted for 2019/20. Next steps must align with the Strategic Road Safety Framework to ensure key objectives are supported through the campaign.

- Presentations to ATAC & RSAC

  Staff was requested to provide presentations to the HRM Active Transportation Advisory Committee (ATAC) on April 18, 2019 and to the Provincial Road Safety Advisory Committee (RSAC) on May 1, 2019. An overview of the Framework and an update on current actions will be provided. Participation within these committees promotes the Framework and initiates conversations with additional parties.

- Enforcement monthly themes

  Consistent with the Nova Scotia Road Safety Calendar, HRP and RCMP conduct targeted enforcement efforts towards specific areas each month. Many of these focus areas directly align with the emphasis areas included in the Strategic Road Safety Framework.

January & October	Intersection Safety	Failing to yield right of way, illegal turns, red light violations, stop sign compliance.
February & June	Distracted Driving	Cell phone use, careless/imprudent driving, interfering with passenger/driver.
March	Occupant Restraints	Improper wearing of seat belts for drivers, passengers and children under 16 years old.
April	Speeding / Aggressive Driving	Obeying traffic signs/signals, speeding in posted speed limits.
May	Motorcycle Safety	Several motorcycle checkpoints, information talks and safety council course appearances made.
July	Construction Zone Driving	Speeding in construction zones, etc.
August & December	Impaired Driving	Criminal code charges, suspensions, dangerous driving, stunting, cannabis.
September	Back to School Safety	Members high profiled at schools and with crossing guards. Presence and parking issues were priority.
November	Winter Road Safety	Snow/ice obstructions on windshields, bald tires.

As a result of these targeted enforcement efforts by HRP & RCMP in 2018:

- 4546 tickets were issued, directly related to the monthly themes;
- 14 criminal charges were laid in relation to driving offences;
- 16 provincial 7-day suspensions were given.

In addition to the above initiatives, HRP Traffic Services completed the following proactive work:

- Several Traffic Talks to community groups including driver training classes, Heritage Gas fleet drivers, traffic symposiums, high schools, etc.;
- Partnering with NSTIR and other police agencies to combat vehicle equipment issues that cause or contribute to significant collisions. Some examples of these defects that have been found include, bald tires, missing or lack of brakes, broken frames held together with 2x4 wood and bailing wire, missing exhaust systems venting carbon dioxide in the cabin of vehicles, illegal lighting, suspended/revoked licences, and prohibited drivers;
- Enhanced detection skills for Officers to identify fake MVI stickers that hide larger equipment problems. Also enhancing knowledge of safety equipment so that vehicle checks are more robust and result in enforcement that is in line with public safety, expectations and collision prevention;

- Partnering with groups such as MADD Canada, Special Olympics, Christmas Daddies, Ford Canada Driving Clinic for Teens and several other key event groups to promote road safety through escorts and awareness;
- Resources were enhanced in terms of speed related and impaired driving detection equipment to further enhance our efforts.

Overall statistics for the 2018 year include:

Summary Offence Tickets - MVA	7,162
Impaired Driving – Criminal Code	37
7-Day suspensions for alcohol – Provincial	16
Criminal Code Charges other than Impaired	4
Dangerous Driving under Criminal Code	4
Stunting (over 50km/h above speed limit)	6
Bald Tires	89
Cannabis in vehicle/illegal possession/smoke in vehicle	9
Revoked/Suspended Drivers	51
Compliance/Equipment Checkpoints	126

FINANCIAL IMPLICATIONS

There are no new financial implications associated with this report. All activities are anticipated to be carried out as part of existing capital and operating budgets.

COMMUNITY ENGAGEMENT

Community engagement was not undertaken as part of this report as there are ongoing engagement initiatives with the public through education campaigns and enforcement programs.

ATTACHMENTS

No attachments.

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Sam Trask, P.Eng., Transportation & Road Safety Engineer, 902.490.5525