

STRATEGIC ROAD SAFETY PLAN

2022 ANNUAL REPORT

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The [Strategic Road Safety Framework](#), adopted by Regional Council in July 2018, is Halifax Regional Municipality's initial road safety framework (2018-2023) that aims to reduce fatalities and injuries on roadways within the Region. The Framework incorporates a Towards Zero approach with the aim to reduce transportation fatalities and injuries to zero by the year 2038. The Framework also sets a short-term goal of a 20% reduction of fatal and injury collisions by the end of 2023. In 2021, combined fatal and injury collisions were 13% lower than the baseline. At the time of this report, 2022 collisions are on track to potentially show a further reduction from 2021 values, with fatal collisions in particular showing a significant reduction compared against the same period in 2021. The next iteration of the Framework will be prepared for 2024-2028.

The progress achieved within the 2021/22 fiscal year, as well as the planned actions and countermeasures which form the Strategic Road Safety Plan for 2022/2023 are presented herein.



1. Road Safety Update

In 2021 there were 15 fatal collisions and 724 injury collisions which occurred on roadways within the Halifax region, including roadways under provincial jurisdiction. Fatal and injury collisions have been reduced by 13% in comparison to the baseline statistics. **Table 1** presents the annual fatal and injury collision statistics from 2018 to 2021.

TABLE 1: FATAL AND INJURY COLLISIONS (2018 - 2021)

YEAR	TOTAL COLLISIONS	FATAL COLLISIONS	INJURY COLLISIONS	FATAL + INJURY COLLISIONS	FATAL + INJURY COLLISIONS PER 100,000 POPULATION	% REDUCTION FATAL + INJURY FROM BASELINE	% TRAFFIC REDUCTION DURING COVID-19 PANDEMIC**
2018	6,057	18	750	768	178.6	-	-
BASELINE*				806	185.2		
2019	6,225	18	825	843	191.8	-	-
2020	4,575	8	634	642	143.1	22.7%	21.4%
2021	5,031	15	724	739	160.7	13.2%	11.7%

* Baseline is average of 2018 and 2019 data

** Annual traffic volume reduction in comparison to 2019 traffic volumes on the Halifax Harbour Bridges.

Data is drawn from closed collision files received from Halifax Regional Police and Royal Canadian Mounted Police as of June 17, 2022.

Future reports may vary.

Figure 1 compares the 2020 and 2021 combined fatal and injury collision values to the baseline and target values. It is assumed that the lower number of fatal and injury collisions in the year 2020 was influenced by changes to travel behaviour and reduced traffic volumes resulting from the Covid-19 pandemic.

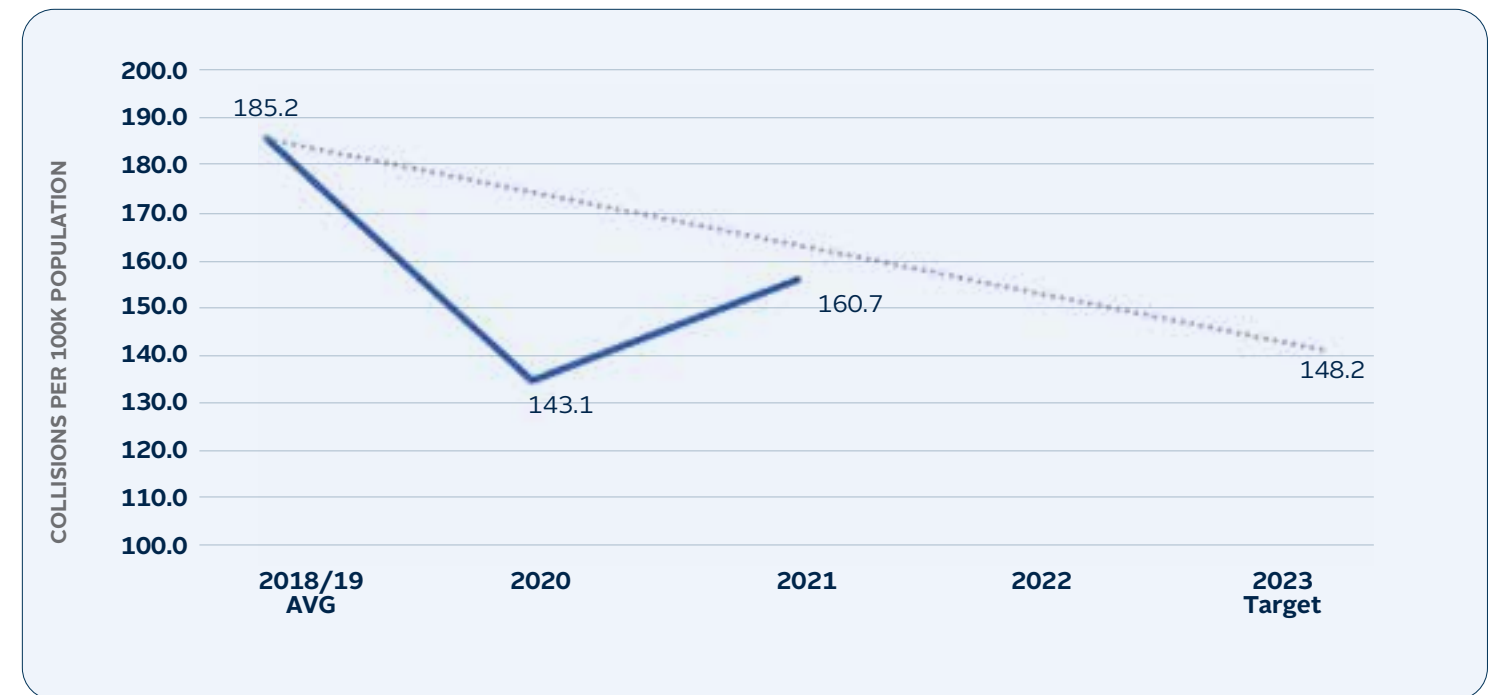


FIGURE 1: ROAD SAFETY PROGRESS, COLLISION RATE PER 100K POPULATION

Within HRM exists a broad range of road types and contexts, from urban and suburban streets operated by the Municipality; to rural roads and controlled access highways operated by Nova Scotia Public Works. Figure 2 compares where collisions occurred in 2021, based on collision severity and road ownership in 2021.



FIGURE 2: BREAKDOWN OF 2021 COLLISIONS BY MUNICIPAL AND PROVINCIAL OWNED ROADS
 - Road ownership based on 2006 NSPW HRM Service Exchange Boundary, prior to the 2022 road transfer

For comparison purposes, available public data was obtained from a selection of Canadian jurisdictions. Figure 3 provides fatal and injury collisions for 2018 through 2021, normalized by 100,000 population.

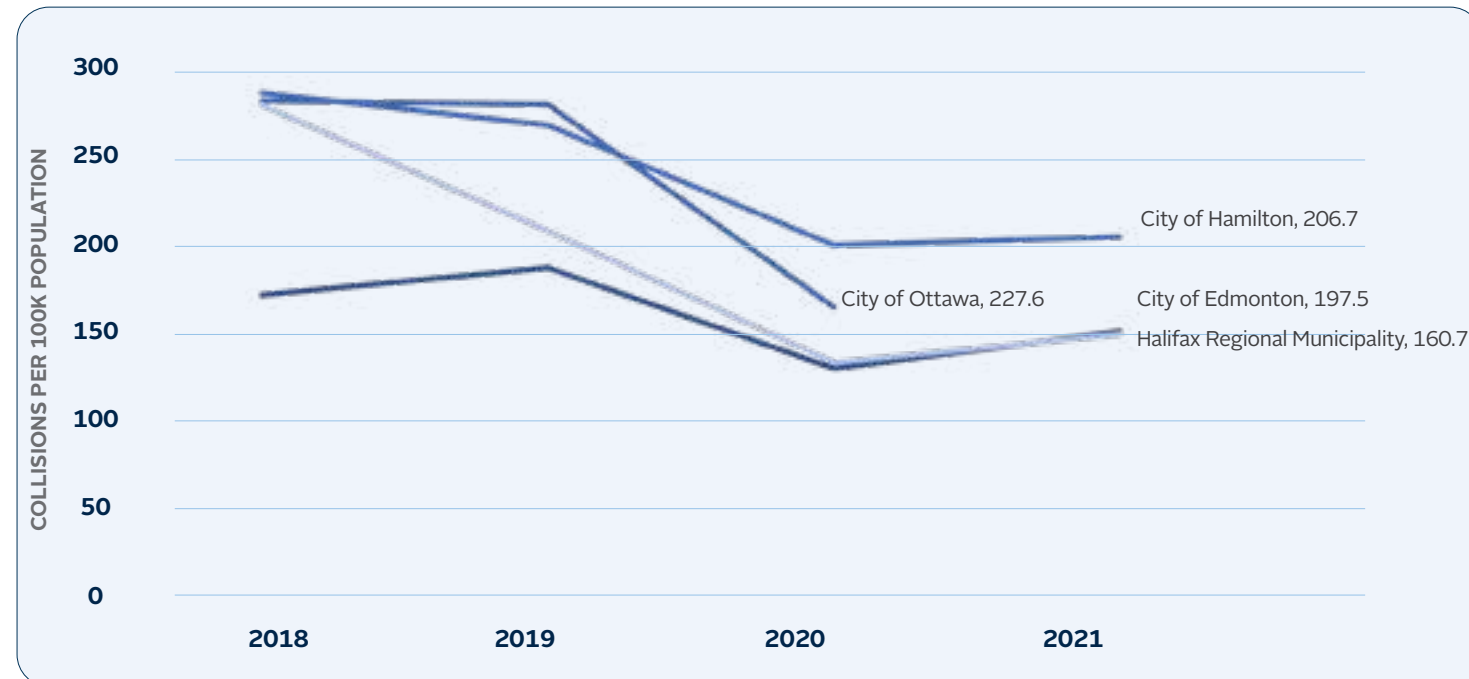


FIGURE 3: RATE OF FATAL & INJURY COLLISIONS PER 100K POPULATION; COMPARISON OF CANADIAN CITIES
 - Fatal and Injury collision rates include all injury collisions, including major and minor injuries
 - HRM collision rate include collisions which occurred on provincially owned roads within the municipality



2. Breakdown of Collisions by Emphasis Area

The Strategic Road Safety Framework identifies seven emphasis areas which were based on the highest collision frequencies from historical data. Collisions in these seven emphasis areas are tracked to determine trends and to help identify where more resources may be needed to have the greatest impact on road safety.

Of the seven emphasis areas, intersection collisions, aggressive driving, and collisions involving the young demographic (< 25 years of age), continue to be the most represented emphasis areas in both the number of total collisions and the number of injury collisions. This is consistent with previous years since the inception of the framework.

Figure 4 below shows the 2020 and 2021 combined fatal and injury collision values, compared to the 2018/2019 baseline, by emphasis area. The emphasis areas show the same pattern as the overall collision numbers, with an increase in fatal and injury collisions from 2020 to 2021. Again, it is assumed that the lower number of fatal and injury collisions in the year 2020 was influenced by changes in travel behaviour and reduced traffic volumes resulting from the Covid-19 pandemic. All emphasis areas except impaired driving show a reduction from the 2018/2019 baseline, however from a statistical perspective it is difficult to draw conclusions based on the limited data at this time.

It is important to note there is crossover between emphasis areas (i.e. one collision could occur at an intersection, as well as involve aggressive driving and a pedestrian), therefore these values do not add up to the total number of fatal and injury collisions presented above. Similarly, countermeasures targeting one emphasis area may have an impact on others as well.

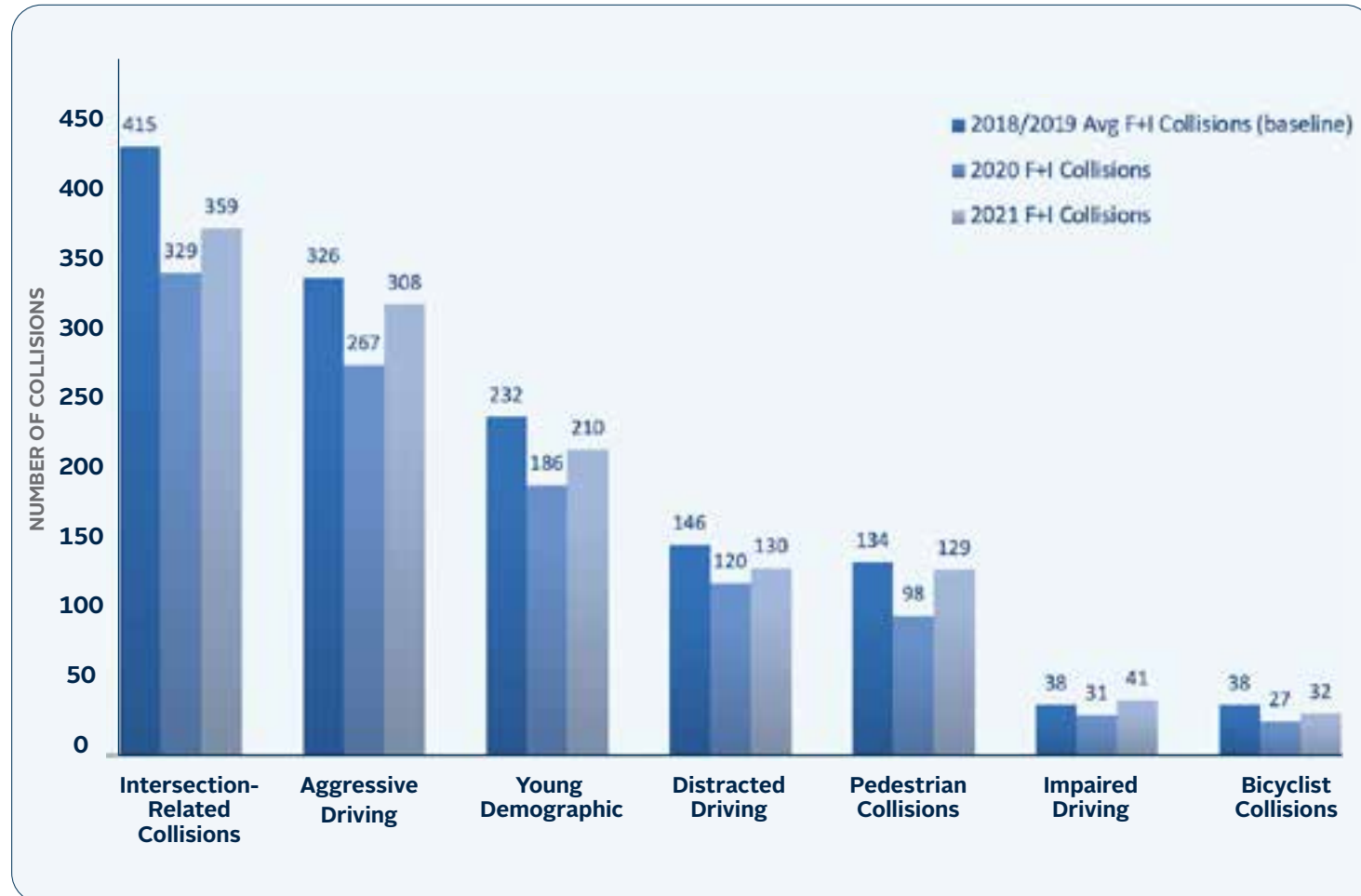


FIGURE 4: FATAL AND INJURY COLLISIONS - ALL EMPHASIS AREAS (2018-2021)

While collisions involving pedestrians only make up about 3% of total reported collisions, they represent 17% of injury collisions and 20% of fatal collisions. This supports the need to focus resources on countermeasures which support pedestrian safety. Furthermore, two-thirds (101/153) of pedestrian-related collisions occurred at intersections, highlighting the need to continue a focus on pedestrian safety at intersections.

The emphasis areas related to enforcement, aggressive driving, distracted driving, and impaired driving, are identified as contributing factors in 51% of fatal and injury collisions in 2021. These behaviours also contribute to pedestrian and intersection related collisions. This is a significant percentage attributed to factors that can not solely be mitigated through engineering measures.

Figure 5 breaks down the 15 fatal collisions which occurred in 2021 by the type of collision based on the types of road users involved.

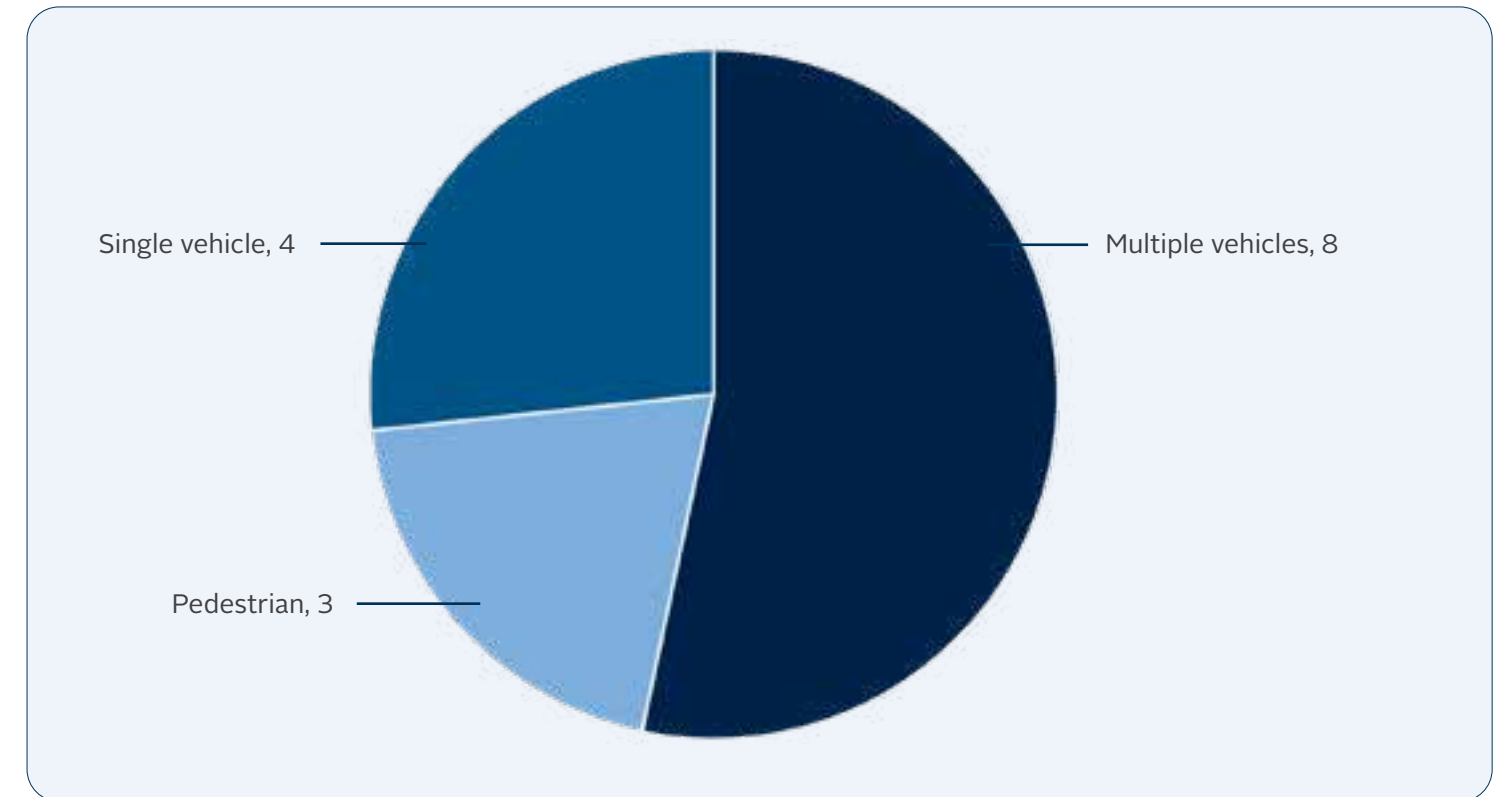


FIGURE 5: 2021 FATAL COLLISIONS, ROAD USER TYPE INVOLVED



Figure 6 breaks down 2021 fatal and injury collisions by the contributing driver behaviours and actions which were identified in the collision report.

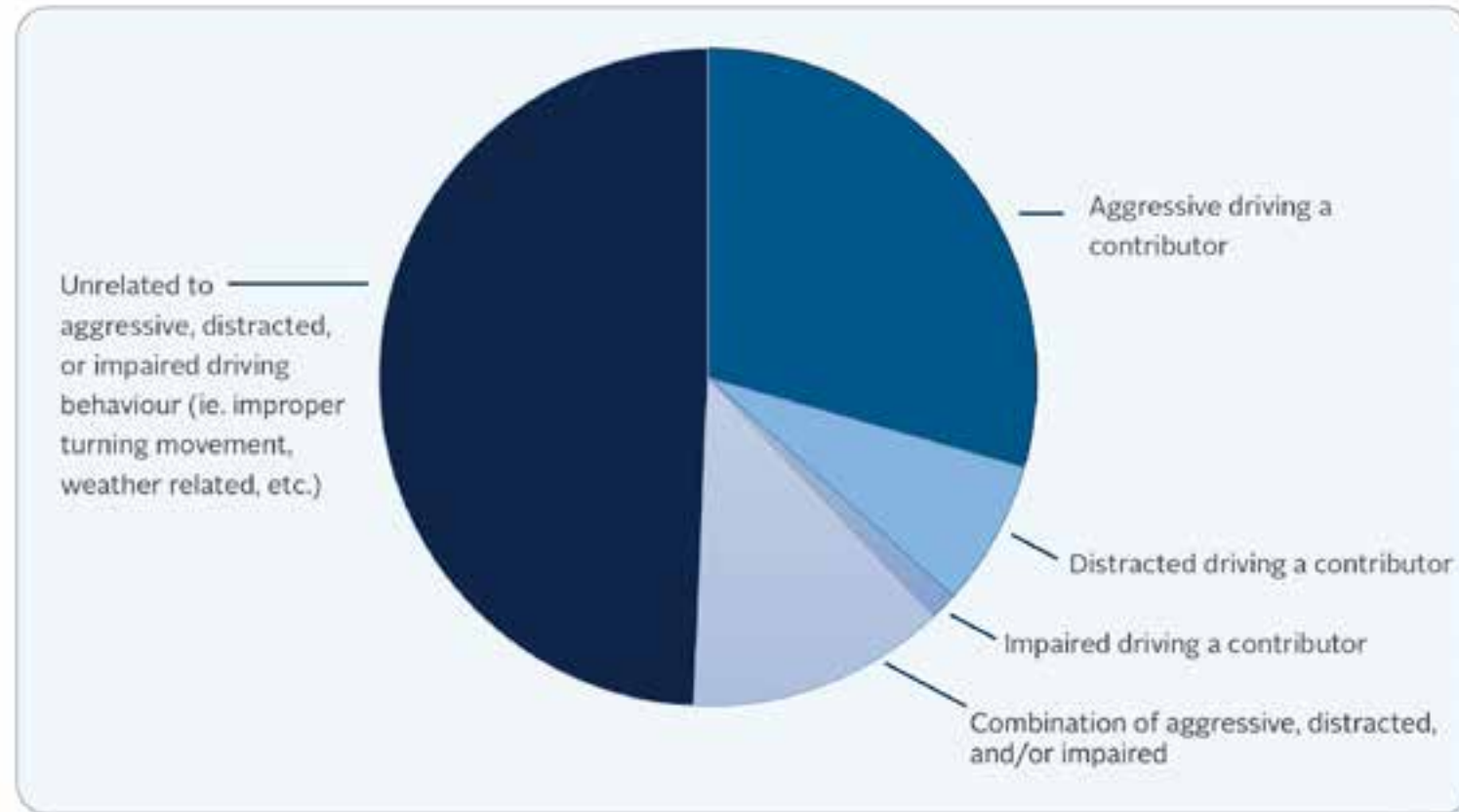


FIGURE 6: FATAL AND INJURY COLLISIONS – AGGRESSIVE, DISTRACTED, AND IMPAIRED EMPHASIS AREAS (2021)

3. Strategic Road Safety Plan, 2021/22

The Road Safety Team and partners form the basis of the Road Safety Steering Committee (RSSC) which is a vital component of the Framework. The RSSC consists of groups that have the ability to implement and monitor the success of road safety countermeasures and advance toward the long-term vision and short-term goals of the Framework. Quarterly meetings are held with the Road Safety Steering Committee (RSSC) to keep critical stakeholders informed of staff activities, and to identify opportunities to integrate programs with partner agencies. In 2021/22, the RSSC was comprised of members representing HRM Traffic Management, Design Engineering, Active Transportation Planning, Transportation Planning, and Corporate Communications; Nova Scotia Public Works; Halifax Regional Police; RCMP; and Halifax Regional Centre for Education. Minutes from each meeting of the RSSC are posted publicly to the Road Safety website | halifax.ca/transportation/streets-sidewalks/road-safety.

As of 2021/22, the Road Safety Team and partners have completed, initiated, or adopted as standard practice, 57 of the 59 potential countermeasures proposed in the Strategic Road Safety Framework as shown in **Figure 7**. Appendix 2 presents details of the 59 proposed potential countermeasures, with status updates on each item.

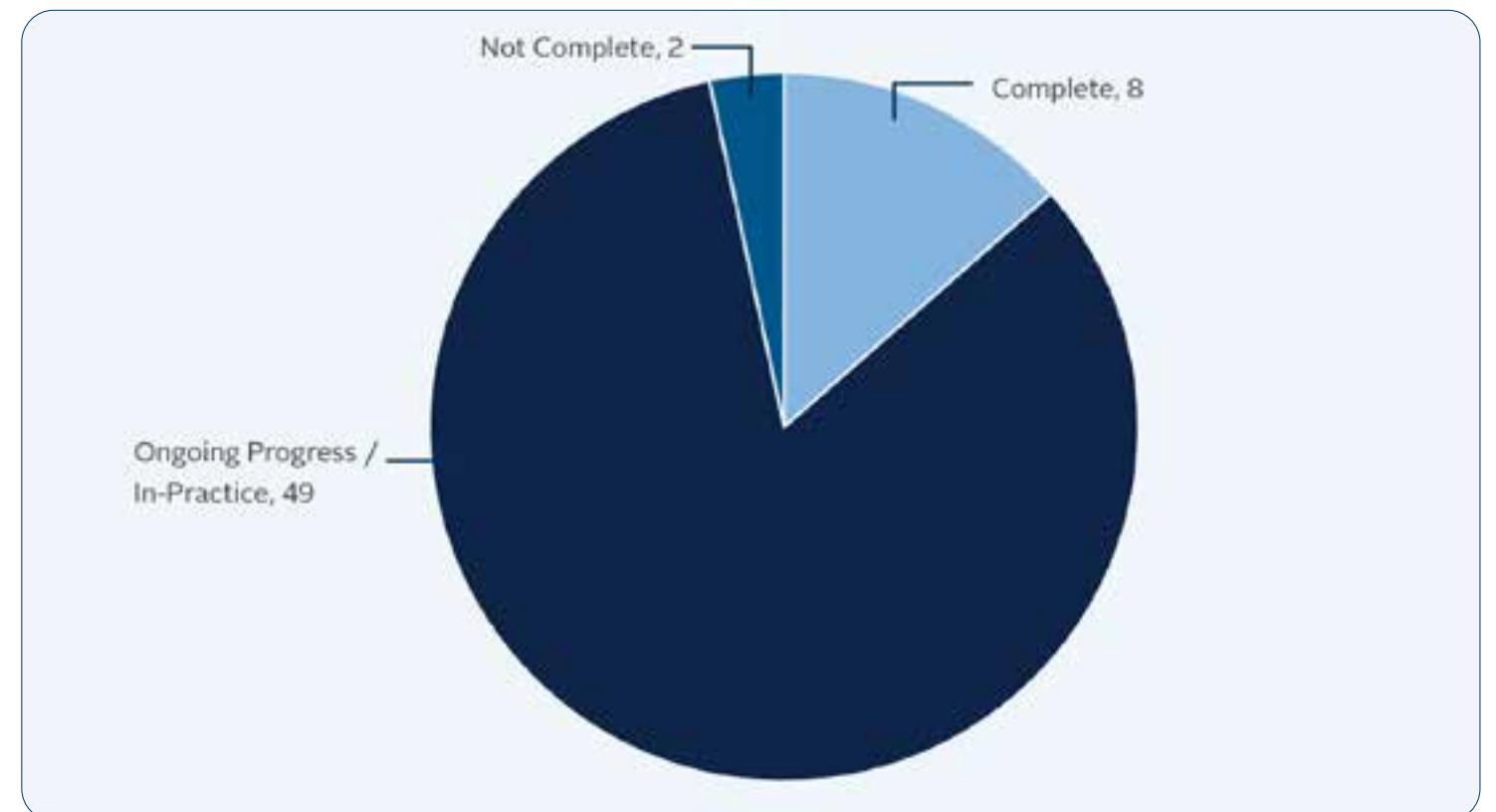
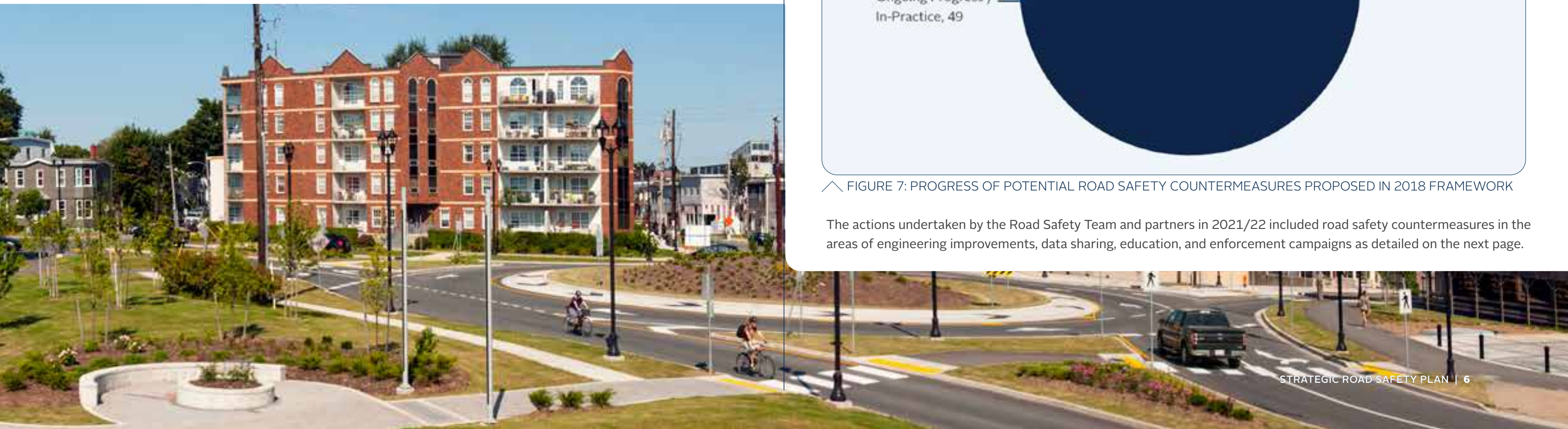


FIGURE 7: PROGRESS OF POTENTIAL ROAD SAFETY COUNTERMEASURES PROPOSED IN 2018 FRAMEWORK

The actions undertaken by the Road Safety Team and partners in 2021/22 included road safety countermeasures in the areas of engineering improvements, data sharing, education, and enforcement campaigns as detailed on the next page.



3.1 Engineering Countermeasures

Progress on engineering countermeasures in 2021/22 continued to build and expand on existing programs and practices. **Table 2** presents the target and completion values of engineering countermeasures in 2021/22.

TABLE 2: ENGINEERING COUNTERMEASURES, TARGET AND COMPLETED (2021/22)

ACTION ITEM	2021/22 TARGET	2021/2022 COMPLETED	COMMENTS
LEADING PEDESTRIAN INTERVALS (LPI)	20	20	
RECTANGULAR RAPID FLASHING BEACONS (RRFB)	19	19	
ACCESSIBLE PEDESTRIAN SIGNALS (APS)	5	6	
TRAFFIC CALMING INSTALLATIONS	117	109	109 traffic calming projects were built during the 2021 construction season, with 8 additional deferred to spring 2022 due to cold weather at the end of the 2021 construction season.
40 KM/H NEIGHBOURHOODS	6	7	New neighbourhoods in 2021/22 included: <ul style="list-style-type: none"> Lake Charles (including Charles Keating Dr, Craighburn Dr) Belmont on the Arm (including Belmont on the Arm, Marlborough Woods) Creighton - Maynard (including Creighton, Maynard, Charles, Buddy Daye, Falkland) West End (including Cork, Liverpool, London, Edinburgh, Vienna, Summit) Kearney Lake Beach (including Hamshaw Dr, Saskatoon Dr) Lower Sackville (including McGee Dr, Chandler Dr, Nelson Dr, Johnson Cres.) Cowie Hill (including Ridge Valley Rd, Bromley Rd, Cavendish Rd)
ADVANCE YIELD LINES (EXPANDED PILOT)	5	5	Expanded Pilot includes five new locations: <ul style="list-style-type: none"> Kearney Lake Rd at Wedgewood Pleasant Street at Civic 352 Woodlawn Rd at Belle Vista Dr Quinpool Rd at Quinn St Portland St at Jersey St
CURB EXTENSIONS	40	43	
PROTECTED BIKE LANES (KM)	1.4	1.4	
MULTI-USE PATHWAYS (KM)	0.7	2.1	
SIDEWALK - RENEWAL (KM)	4.2	3.3	Target was not met due to constructability issues, increased project scopes, and staff resourcing.
SIDEWALK - NEW (KM)	2.7	1.1	Target was not met due to constructability issues, increased project scopes, and staff resourcing.

Figure 8 shows the annual and cumulative progress of the posting of 40km/hr speed limits in residential neighbourhoods. In 2021/22 the posted speed limit was lowered on 31.4 kilometers of residential streets, in seven neighbourhoods.

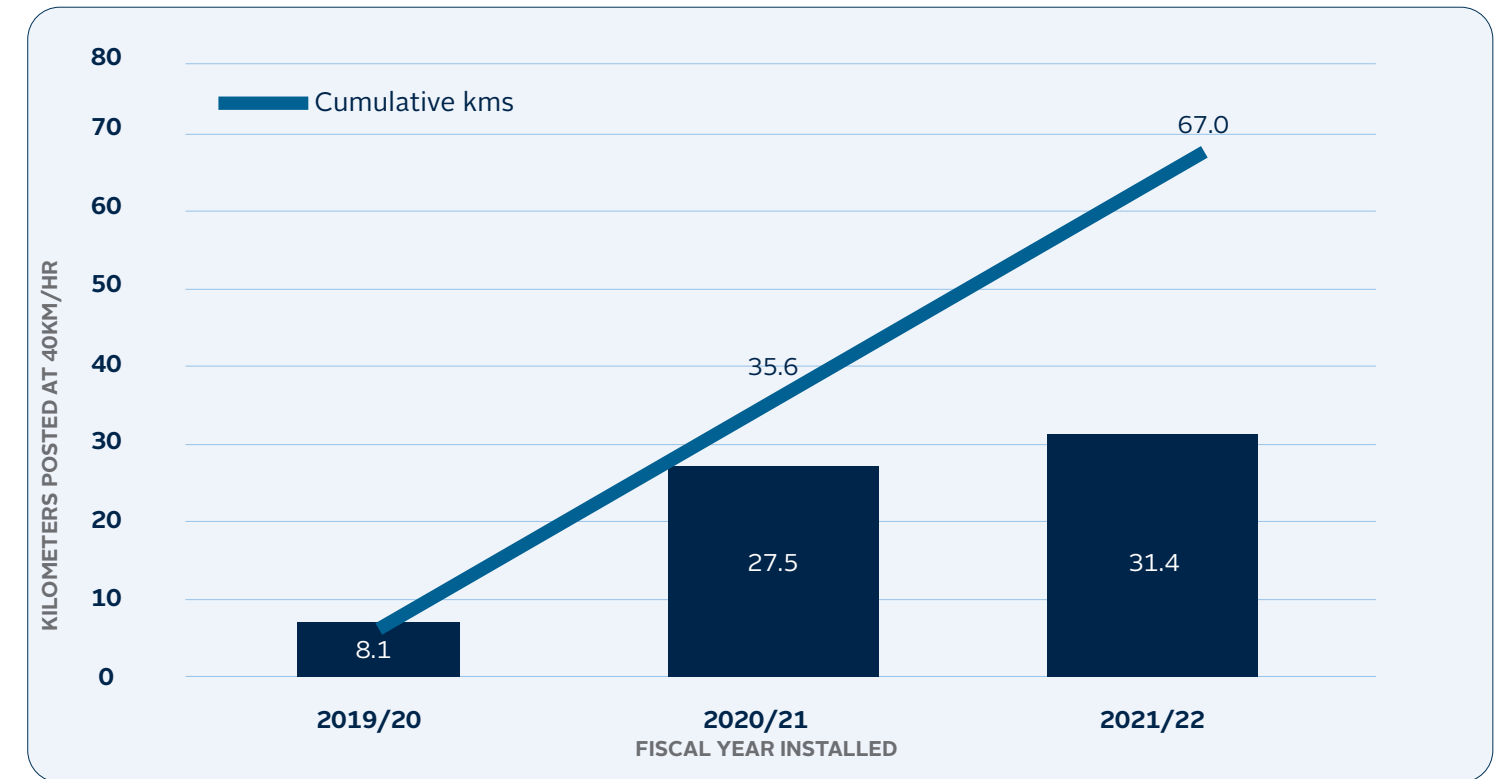


FIGURE 8: KILOMETERS OF MUNICIPAL STREETS POSTED WITH 40KM/HR SPEED LIMIT, BY YEAR



In addition to the engineering countermeasures presented in Table 2, the Road Safety team and partners worked on the following additional engineering countermeasures:

Near-miss Study at Signalized Intersections

A study was completed with an engineering consultant (MicroTraffic) to analyze video at 10 intersections, as shown in **Figure 9**, for near-miss events - where collisions did not occur, but road users experienced “close-calls”.

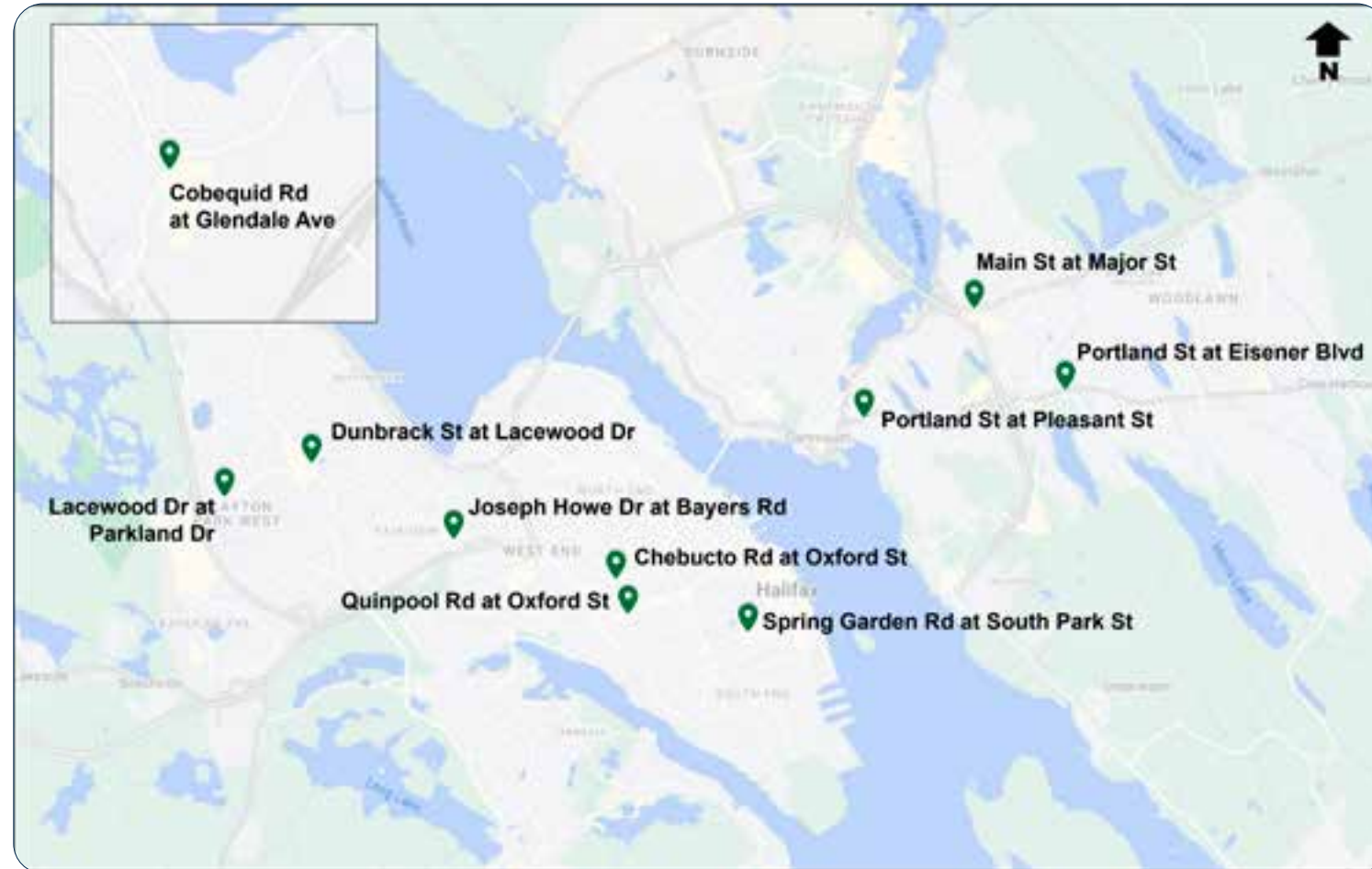


FIGURE 9: LOCATIONS INCLUDED IN NEAR-MISS STUDY

The study provided a wide range of [recommendations](#), ranging from minor signage changes to full corridor-level interventions. The recommendations were reviewed by Traffic Management staff and categorized into short-term and long-term implementations. Some recommendations required additional review, modelling, research, and planning to determine the full impacts of the recommendations prior to implementation. As a result, new countermeasures have been identified in the 2022/23 Strategic Road Safety Plan.

Speed Display Signs

Road Safety staff evaluated a list of all previous requests for speed display signs to identify the highest priority locations for new installations. As a result, 15 speed display signs were relocated to new priority locations. An [open data map](#) was created and launched to show the current locations of speed display signs.

Pedestrian Crossing Gaps Review

As identified in the 2021/22 annual report, Road Safety staff committed to identifying corridors where additional marked crosswalks may be required to improve connectivity. This project was separate from typical marked crosswalk assessments by Traffic Services where pedestrian crossing volumes generally have a higher weight in the warrant system. Corridors with increased spacing between existing marked crosswalks were reviewed, with supporting factors such as local destinations and transit services being considered. As a result, new marked pedestrian crossings were recommended for implementation within the 2022/23 Capital Budget, including:

- Dentith Road at the west side shopping centre – RA-5 crosswalk
- Herring Cove Road at McIntosh Street – RRFB crosswalk

Connectivity will continue to be considered for all new marked crosswalk assessments.

In-Service Safety Reviews

Following through on a commitment made in the 2021/22 road safety annual report presentation, safety reviews were performed for five intersections with the highest overall number of pedestrian related collisions since 2018:

- Herring Cove Road and Dentith Road
- Inglis Street and Tower Road
- Albro Lake Road and Victoria Road
- Albro Lake Road and Wyse Road
- Baker Drive and Norm Newman Drive

This action item ties back to one of the original proposed countermeasure items in the SRSF titled “Highest Frequency/Rate Collision Locations”. Due to data constraints, staff are unable to identify the highest rate collision locations or the worst ten types of collisions. Therefore the five highest frequency pedestrian collision locations were identified for initial review.

Recommendations from the reviews included signage and pavement marking changes, further analysis of protected turn implementations, future geometry modifications, and continued monitoring of previously implemented leading pedestrian intervals.

Photo Enforcement Report

Staff engaged an external consultant, Stewart Solutions, to produce a [feasibility study](#) and recommendations for the implementation of automated speed enforcement in HRM. The report provided 62 recommendations, including 13 key recommendations for HRM to develop an automated speed enforcement program. A motion to develop a program of photo enforcement, in anticipation of the eventual proclamation of the Traffic Safety Act, was passed by Regional Council on March 1, 2022.

RA-5 Crosswalks

A new RA-5 crosswalk with pedestrian activated beacons was installed on Barrington St between Young St and Hanover St. The existing RA-5 crosswalk on Dunbrack St at Clayton Park Drive was upgraded to reduce the pedestrian crossing distance and improve visibility of the pedestrian activated flashing beacons.

Corridor speed management

Posted maximum speed limits were lowered on Ross Road, Cow Bay Road and Dyke Road, based on speed limit reviews for corridor consistency.

Municipal Design Guidelines

Road Safety partners contributed to AO 2021-003-OP, *Respecting Amendments to Municipal Design Guidelines – Municipal Design Guideline* (Red Book) Update, which was adopted by Regional Council in November 2021. The Municipal Design Guidelines, also known as the “Red Book”, specify how streets and related public infrastructure must be built. The changes implemented with AO 2021-003-OP include a focus on Complete Streets, and considers road safety and traffic calming in the design of new streets.

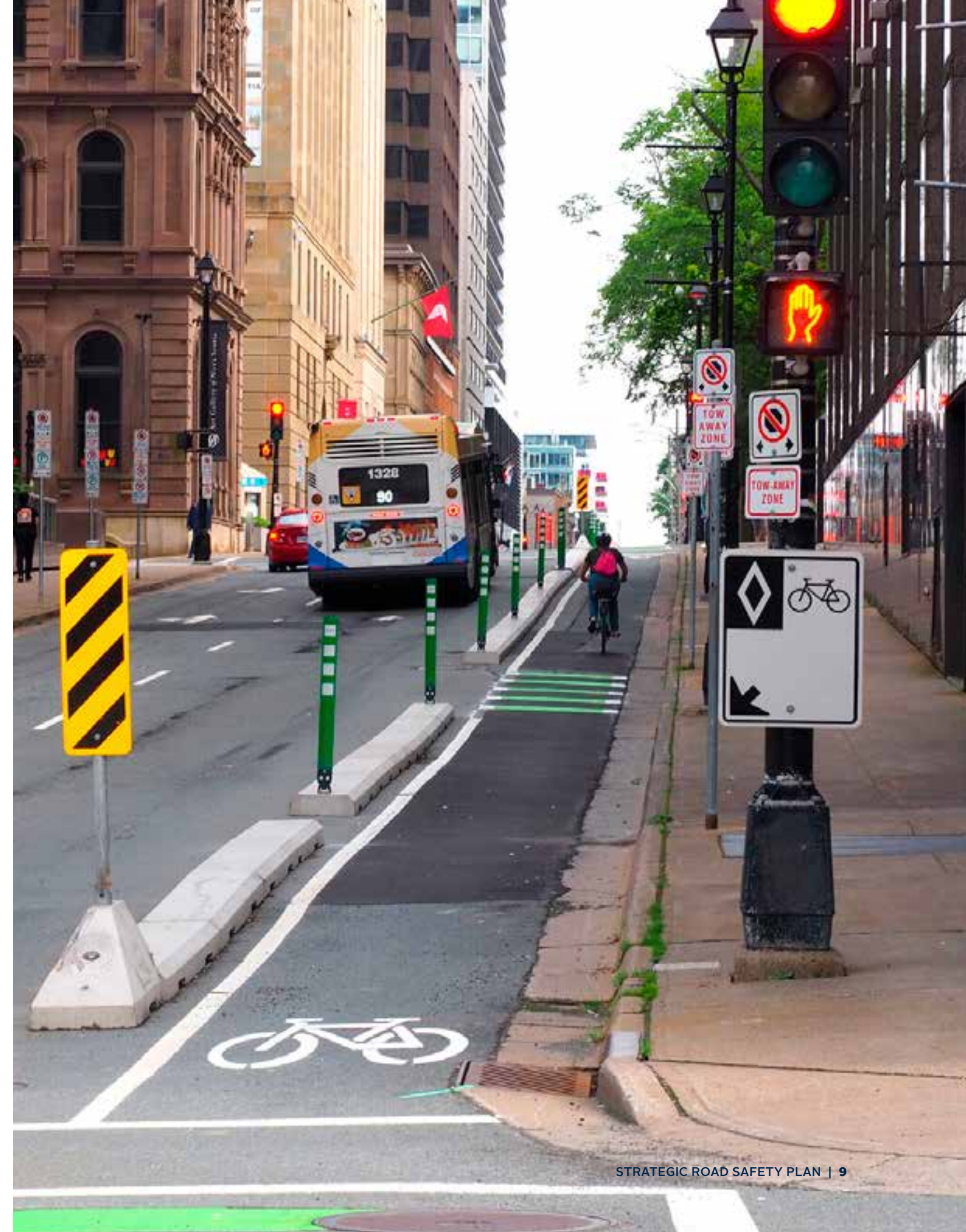
3.2 Road Safety Data

Traffic Management staff worked with staff in IT to implement a new iteration of the Road Safety Dashboard which launched at the end of the 2021 calendar year. Previously the Dashboard included standard tables which displayed collision stats and number of engineering countermeasure installations. The upgraded version is now an interactive tool with improved aesthetics and automation of data that is pulled from Open Data sources. **Figure 10** shows a snapshot of the newest iteration of the Road Safety Dashboard | halifax.ca/roadsafety.



FIGURE 10: ROAD SAFETY DASHBOARD, 2021

Multiple Open Datasets were released in 2021/22, supporting increased access for public awareness. These included [traffic studies](#), [traffic calming infrastructure](#), [speed display signs](#), [traffic control locations](#), and [road safety countermeasures tracking](#). [Traffic collisions](#) were previously made available in 2020. All Open Datasets can be found in Halifax Open Data | catalogue-hrm.opendata.arcgis.com.



3.3 Education

The 2021/22 communications strategy for the Heads Up Halifax campaign was informed by best practice, research, metrics from the campaign's communications efforts, the latest data from the Road Safety Dashboard and monthly themes set by the Province of Nova Scotia.

The 2021/22 campaign included five key strategic considerations:

- **A diverse communications mix:** The campaign used a mix of digital, social, print, radio, out-of-home advertising, and community events to reach the target audience and achieve the objectives. Ongoing assessment of metrics and audience feedback from digital and social platforms were used to inform adjustments within the fiscal period as well as future iterations of the campaign.
- **Target audiences and areas most at-risk:** The campaign strategically targeted audience demographics and geographic areas within the municipality that are most at-risk of road safety violations, based on the data in the Strategic Road Safety Framework. This included males in the 18-30 age range, with a focus on urban, high-volume traffic areas in Halifax and Dartmouth. In addition, the campaign focused on promoting safe commuting behaviours for all modes of travel, including walking, cycling, rolling, and driving.
- **Direct, yet friendly calls-to-action:** The campaign's creative assets used strategies and calls-to-action to increase awareness and influence behaviour.
- **Leveraged strategic opportunities to amplify road safety:** In addition to ongoing communications throughout the year, the campaign focused on key times when road safety is top-of-mind for residents. At these times, residents are more motivated to learn about road safety and to visit the website for additional resources. This included the back-to-school period, Halloween night, and the days leading up to, and following, daylight saving time with a focus on the importance of visibility.
- **Profiled new data from the Road Safety Dashboard:** The campaign shared updates to residents when new road safety data was available. This helps encourage revisitation of the website to access relevant content, increasing awareness of the most up-to-date road safety data.

3.4 Enforcement

Enforcement plays a critical role in achieving road safety goals in the municipality. Members of both the RCMP and HRP are active members on the Road Safety Steering Committee and have committed to moving the priority of road safety forward. Enforcement is a pillar of the Framework, addressing the behavioural emphasis areas such as aggressive driving, impaired driving, and distracted driving, which make up 38% of total collisions, and 51% of fatal and injury collisions in 2021.

Halifax District RCMP

In 2021 and still under the Covid-19 state of emergency, the Halifax District RCMP observed more vehicles on the roads in comparison to 2020 which lead to more charges being laid. In 2021, RCMP conducted 13,438 traffic stops in HRM and issued 5,437 Summary Offence Tickets (SOTs) for traffic offences.

RCMP officers conducted 259 roadside checkpoints to check for cell phone use, impaired driving, seatbelt use, and speeding.

Impaired driving behaviours were targeted, conducting 697 Approved Screening Device (ASD) tests, 9 Drug Recognition Expert (DRE) evaluations, and 5 Standard Field Sobriety Tests (SFST). These efforts resulted in:

- 225 impaired suspensions,
- 251 impaired operation (alcohol) charges,
- 7 impaired operation (drug) charges, and
- 45 refusal charges.

In September 2021, Halifax District RCMP implemented Zone Policing within RCMP service areas. With the implementation of Zone Policing, RCMP members are assigned to specific policing zones, increasing their presence throughout the district. This enables a greater police presence over a greater area, including more rural and remote areas that traditionally may not have seen police as frequently. The goal of Zone Policing is to reduce response times, increase police visibility, focus on their strategic road safety priorities and ultimately to improve relationships between the communities served and the RCMP through a Community Policing model.

Halifax Regional Police

Halifax Regional Police takes a multi-pronged approach to improving road safety within HRM, and different functions within HRP are integral to providing an overall response based on proactive and reactive enforcement. While traffic enforcement is led by the Traffic Unit, other teams including patrol members, community resource officers and school liaison officers regularly work together to plan for and respond to road safety issues. This happens through a combination of specialized enforcement, stakeholder liaison, providing a divisional geographic focus and utilizing knowledge of community concerns gained from day-to-day policing.

The inputs that drive these collective enforcement efforts are informed by a variety of sources including officer observations, intelligence and evidence-led efforts as well as citizen concerns. The traffic unit follows the provincial monthly road safety themes to design various proactive enforcement activities in addition to conducting checkpoints, ensuring traffic safety at a myriad of public events that take place in Halifax every year, school area safety, officer visibility across neighbourhoods, patrols and by supporting a variety of existing and emerging municipal road safety initiatives.

While the municipal road safety themes all have tie-ins with HRP's enforcement activities, the most significant priority areas where traffic enforcement is conducted are as follows - distracted driving, aggressive driving and impaired driving. HRP also relies on community feedback and officer observations to enforce other areas including pedestrian collisions and intersection safety. Through media interviews, news releases, and social media, enforcement activities in these areas are regularly highlighted.

2021 presented significant challenges for HRP, as resources had to be redeployed for both public and officer safety as well as to ensure operational continuity during Covid-19.

SOTs for aggressive driving, including speeding and stunting, were down 20% in 2021 compared to 2020. Charges for distracted and impaired driving remained relatively unchanged over the year.

4. Strategic Road Safety Plan 2022/23

The Strategic Road Safety Plan 2022/23 will continue to build on the success of the SRSP 2021/22 by expanding the data-driven engineering countermeasures and collaborating with partners to educate and enforce strategic initiatives.

4.1 Engineering

The new capital budget approved by Regional Council for Road Safety Improvements in 2022/23 is \$4,700,000, representing the largest investment in the Road Safety Improvements budget to date. **Figure 11** shows the Road Safety Improvements budget allocations over the last several years of the Plan.

The 2022/23 Road Safety Improvements budget is currently projected to be fully utilized. There have been challenges with inflation of materials however costs have been offset due to the deferral of traffic signal projects.

The 2023/24 Road Safety Improvements budget is currently projecting towards \$5.5 million, an increase of \$800,000 from 2022/23. The increase is anticipated to offset costs for inflation and an increase in the number of signalization projects.

In conclusion, significant efforts have been made towards HRM's road safety goals with a 13% reduction in fatal and injury collisions after the first two years of dedicated road safety countermeasure installations

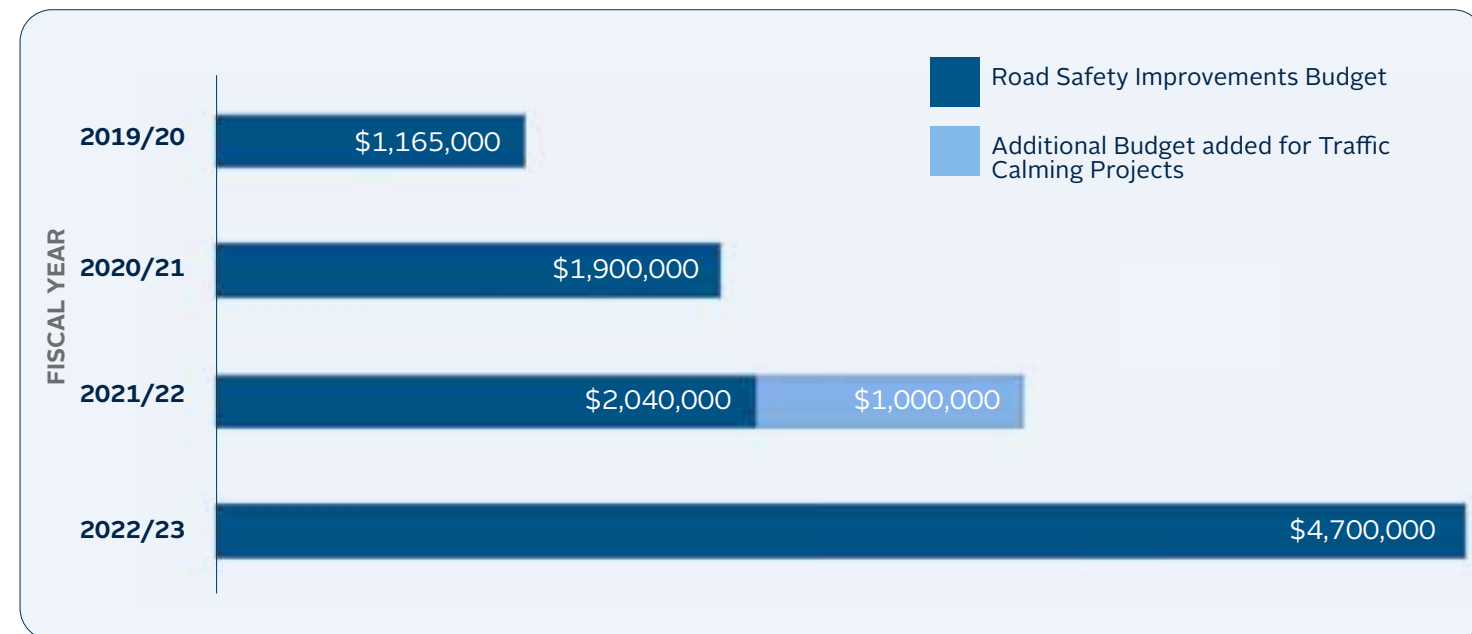


FIGURE 11: ROAD SAFETY IMPROVEMENTS APPROVED BUDGETS, 2019/20 - 2022/23
Detail on the 2022/23 Road Safety Improvements capital budget can be found in the [2022/23 Capital Plan](#).

Traffic Management will continue to expand the installation of traffic safety countermeasures such as leading pedestrian intervals (LPI), rectangular rapid flashing beacons (RRFB), accessible pedestrian signals (APS), advanced yield lines at multi-lane marked crosswalks, neighbourhood speed limit reductions, and traffic calmed streets. The municipality will also continue to make improvements to pedestrian and bicycle facilities through the implementation of the Integrated Mobility Plan (IMP), the Active Transportation Priorities Plan, and the adoption of a complete streets design philosophy. The Tactical Urbanism program will test pilot projects to enhance the pedestrian and bicycle realms in advance of street recapitalization projects. Specific installation targets for 2022/23 are identified in **Table 3**.

TABLE 3: PLANNED ENGINEERING COUNTERMEASURES 2022/23

ACTION ITEM	2022/23 TARGET
LEADING PEDESTRIAN INTERVALS (LPI)	20
RECTANGULAR RAPID FLASHING BEACONS (RRFB)	20
ACCESSIBLE PEDESTRIAN SIGNALS (APS)	15
TRAFFIC CALMING INSTALLATIONS	91
40 KM/H NEIGHBOURHOODS	7
ADVANCE YIELD LINES	5
CONCRETE CURB EXTENSIONS*	18
TACTICAL TEMPORARY CURB EXTENSIONS*	19
PROTECTED BIKE LANES (KM)	2.11
MULTI-USE PATHWAYS (KM)	1.39
SIDEWALK - RENEWAL (KM)	3.98
SIDEWALK - NEW (KM)	3.59

*Includes Traffic Calming and Active Transportation projects only at this time.



Further to the countermeasures and improvements presented in **Table 3**, work will be undertaken on the following road safety projects:

Strategic Road Safety Plan 2024-2028

Initiate the development of the next 5-year iteration of the Road Safety Plan, to be presented at the end of fiscal 2023/24.

Key Actions:

- Action plans will be included for the next Top 10 high frequency collision intersections. These will be based on all modes of transportation and all potential intersection configurations. Action plans will identify improvements to be made with associated implementation timelines, budgets, and evaluation timeframes.
- Evaluation of previous countermeasure implementations will also be given dedicated resources in the next iteration of the Plan.

Intersection improvements

Implement improvements at signalized intersections based on ongoing safety reviews and studies.

Key Actions:

- [Left-turn traffic calming](#) pilot project to reduce vehicle turning speeds at six intersections, shown in **Figure 12**, based on previous road safety study recommendations. This project will include the seasonal installation of temporary speed bumps, which extend from the road centerline in a manner to encourage slower speeds when making left turns.

FIGURE 12: BEFORE AND AFTER LEFT-TURN TRAFFIC CALMING

*Scale of speed bumps exaggerated for clarity

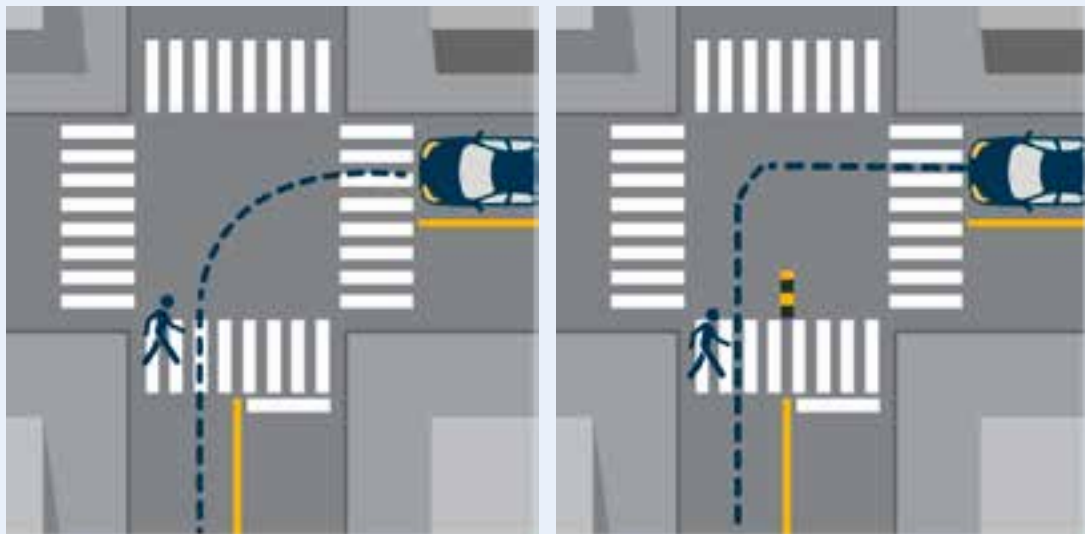
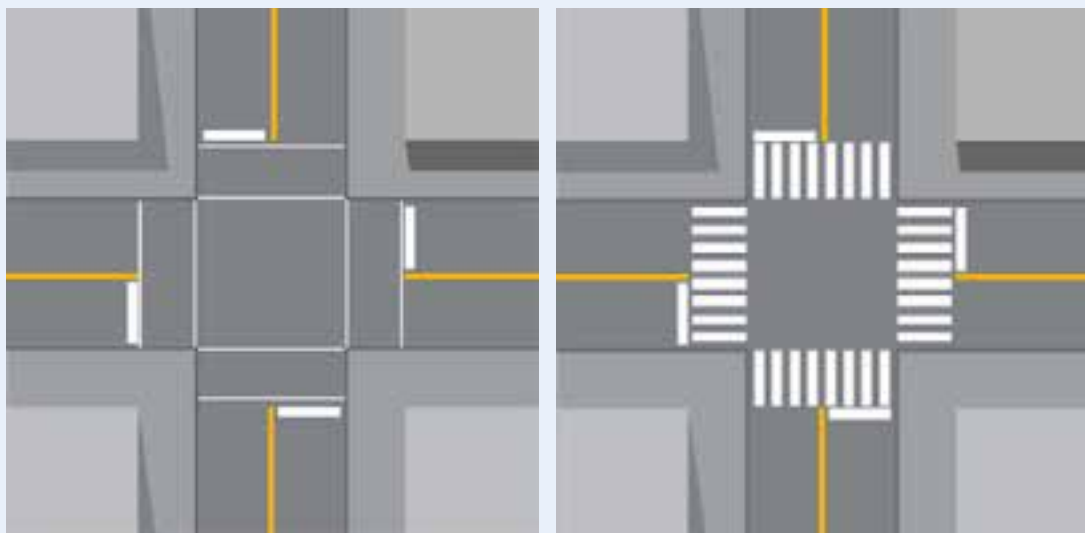


FIGURE 13: BEFORE AND AFTER HIGH VISIBILITY CROSSWALK MARKINGS



Intersection Improvement (continued)

Key Actions:

- High visibility crosswalk markings (zebra markings, identified the corresponding **Figure 13**.) will be piloted at six signalized intersections, shown in **Figure 14**. Locations were chosen based on previous road safety study recommendations.
- Traffic signal backboards will be included on primary traffic signal heads for all new traffic signal installations and full traffic signal upgrades. Staff will also investigate the feasibility of retrofitting existing primary signal heads with backboards where evidence indicates red-light running and / or other behavioral evidence indicates that signal head visibility / conspicuity may be an issue.
- Traffic Management staff will continue to evaluate the potential for other countermeasures at signalized intersections to help enhance pedestrian safety. These could include signal timing and phasing adjustments, and turn restrictions where appropriate and feasible. Work plans will be created for future capital budgets.

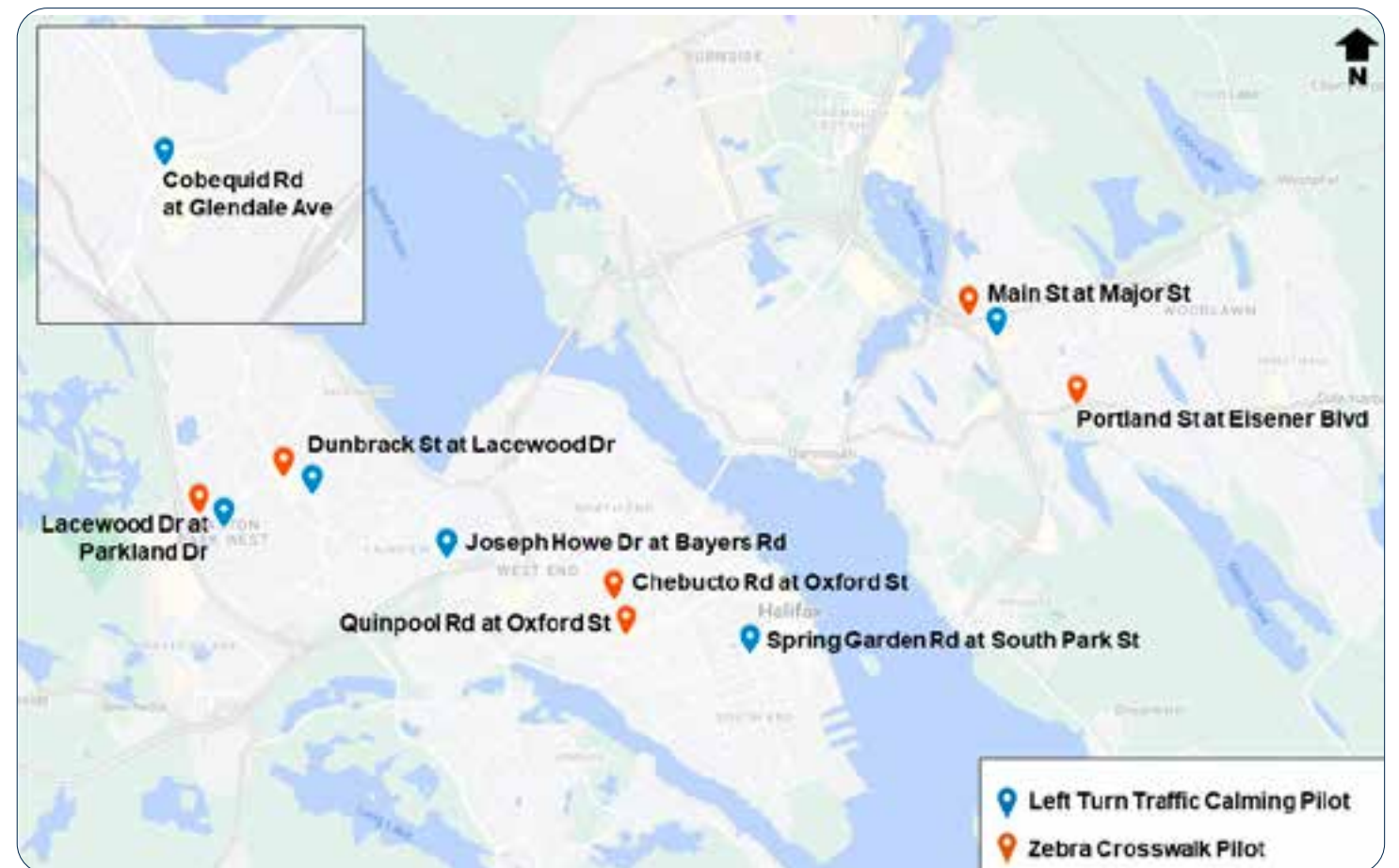


FIGURE 14: PLANNED 2022 INTERSECTION SAFETY IMPROVEMENT PILOT PROJECTS, MAP



School Zone Traffic Calming

Traffic Management will continue to prioritize traffic calming in school zones.

Key Actions:

- Complete a review of applicable school zones within the municipality and develop an implementation plan for the installation of traffic calming measures at outstanding locations. Locations not appropriate for speed humps or speed tables will be considered for new measures which may include flashing beacons or speed display signs.
- Select school zone locations will be prioritized for pilot installations in 2022 as the review progresses.

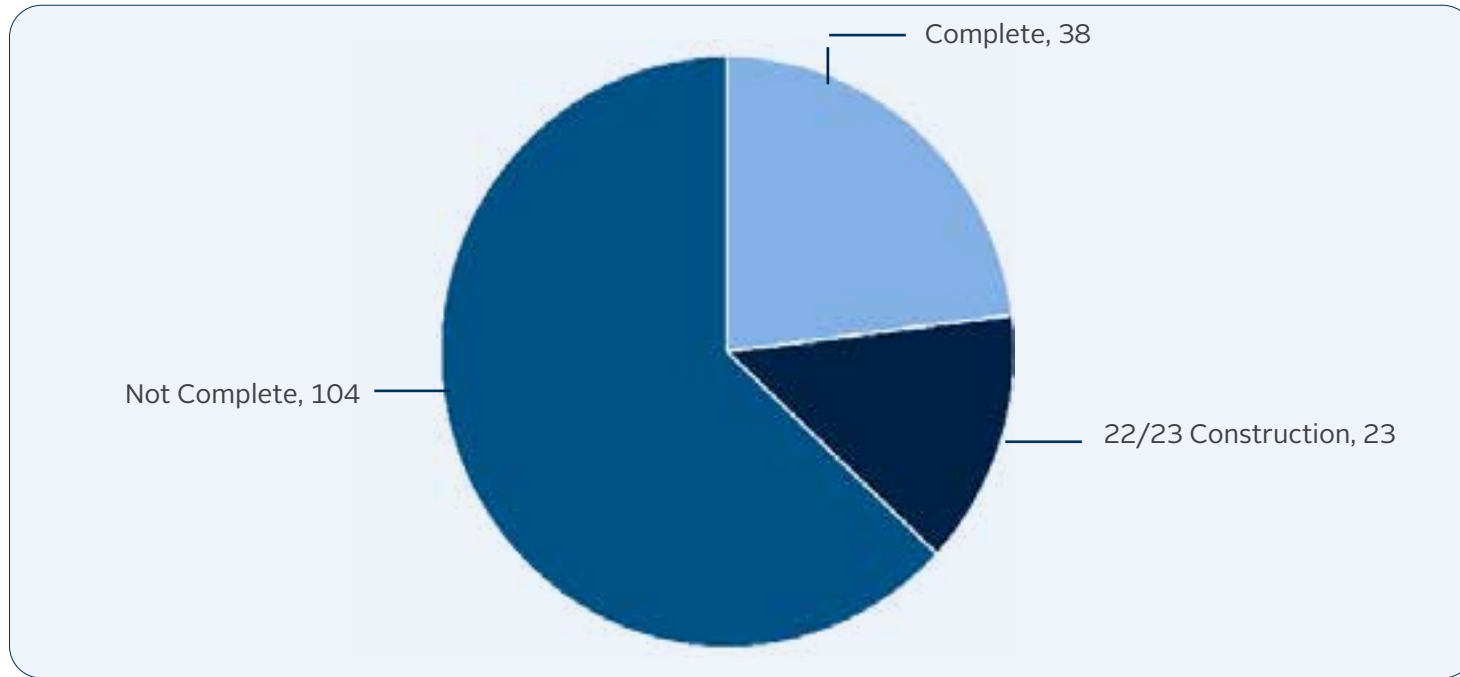


FIGURE 15: SCHOOL ZONE TRAFFIC CALMING

Speed Cushions:

Speed cushions consist of a series of raised asphalt pads or “cushions” across the road which are spaced to accommodate the larger wheelbases of emergency and transit vehicles while still creating a vertical deflection for passenger vehicles. Similar to speed tables, speed cushions create a traffic calming effect for passenger vehicles, while reducing the impacts to emergency and transit vehicles. Staff built prototype speed cushions on municipal property in the spring of 2022, shown in **Figure 16**, to trial particular designs with municipal emergency and transit vehicles.

Key Actions:

- The first on-street installation of speed cushions is planned to take place during the 2022/23 construction season on Robie Street between Livingstone Street and Lady Hammond Road/Duffus Street.



FIGURE 16: HALIFAX FIRE TRUCK TESTS A TRIAL SPEED CUSHION, SPRING 2022

Automated Speed Enforcement

Traffic Management will begin working with the recommendations from the 2021/22 Photo Enforcement Feasibility Study as approved by Regional Council on March 1, 2022. The implementation of automated speed enforcement in HRM is subject to the establishment of the required legislation/regulations by the Province of Nova Scotia.

Key Actions:

- Initiate discussions with the Province to collaborate on the preparation of the appropriate legislation/regulation to permit a program of automated speed enforcement.

Speed Display Signs (SDS)

Traffic Management will continue to install speed display signs, or speed feedback signs, in applicable locations. The 2022/23 Road Safety Improvement capital budget accounts for 12 new SDS to be added to the program inventory, with an additional 5 SDS allocated specifically towards traffic calming projects.

Key Actions:

- Staff will continue to evaluate locations for future speed display signs based on municipal and TAC guidelines, and move signs as required based on ongoing evaluation of data, and as staffing resources permit.
- Staff will continue to refine the speed display sign program model, and investigate potential alternative program models, in order to improve the efficiency and responsiveness of the speed display sign program.

4.2 Road Safety Data Evolution

Data is fundamental to planning and staff are investigating ways to enable more efficient data collection and analysis. Some of the technology being explored include:

- Big Data for traffic counts
- Traffic calming public dashboard
- Collision analysis platform

4.3 Education

The 2022/23 communications strategy will leverage internal resources such as municipally-owned communications channels. The strategy will focus on generating awareness of new infrastructure that contributes to road safety and highlighting specific road safety behaviours. Road Safety staff heavily rely on assistance from the Corporate Communications team to facilitate educational components as we do not have the expertise or staffing capacity to manage campaigns.

4.4 Engagement

Staff acknowledge that there is a desire of road safety advocates to increase the level of engagement between municipal staff and members of the public. The Road Safety Team does not currently have the expertise within the team to lead extensive engagement campaigns or the staffing capacity to take this on. Key road safety stakeholders, such as the CNIB, Walk n’ Roll, etc., will be consulted for input on educational content, relevant infrastructure projects and any potential policy advisement. Staff will investigate future opportunities to engage other stakeholders, advocates, and the community at large.

4.5 Enforcement

RCMP will continue with Zone Policing with the same priority areas. Efforts will be focused on the causal factors that lead to injury and fatal collisions: impaired driving, distracted driving, aggressive driving, and seatbelt usage.

HRP expects resource levels to normalize, but also acknowledge and continue to make a case for enhanced traffic resources for HRP’s specialized Traffic Unit. This would enable better coverage and increased proactive enforcement consistent with the community’s growing population, complexity, and road safety needs.

HALIFAX



Appendix 2: Strategic Road Safety Framework (2018) Potential Countermeasures

	EMPHASIS AREA	COUNTERMEASURE TYPE	COUNTERMEASURE TITLE	COUNTERMEASURE DESCRIPTION	STATUS CATEGORY 2022	STATUS DESCRIPTION 2022
1	Initial Actions	Overall	Creation of a Road Safety Team	<p>Create a team including all leading agencies and other stakeholders primarily committed to greater safety for all road users. Create team now and use team to more effectively deliver current programs, develop safety branding and develop safety culture.</p> <p>Team will then be in place and ready to take on action items of SRSP when data becomes available.</p> <p>SRSP team will: develop actions, lead and ensure implementation, secure funds, measure effectiveness (output and outcomes) at pre-established timelines, modify and adapt action plan to meet the goal and objectives, be responsive and responsible, collaborate with all partners, be the voice of the vision and traffic safety culture in the Region - a role model to others. Need to appoint Chair, Secretary, Coordinator, and person responsible for ambassadors.</p>	Complete	RSSC team created and meets quarterly throughout the year.
2	Initial Actions	Overall	Implement data analysis system	<p>Develop plan and acquire resources to implement an enduring approach to motor vehicle collision data management.</p> <p>Three components: 1) regular data acquisition 2) data validation (quality control) and 3) development of analysis tools and techniques</p>	Complete	Internal collision database created. Staff exploring additional analytical capabilities with other software.
3	Initial Actions	Engineering	Recalibrated and Expanded Safety Performance Functions and Network Screening	<p>Once data system is in place, develop SPFs. SPF (Safety Performance Functions) is used to estimate the average crash frequency for a specific site type based on traffic volume and roadway segment length. Network screening allows HRM to identify high priority areas.</p>	Not Complete	More data resources are required in order to develop Safety Performance Functions.

4	Initial Actions	Engineering	Development of Network Screening and High Collision Location Identification	Once data analysis system is in place, build filters into collision data system identifying abnormally high collision locations based on type of collision	Not Complete	More data resources are required in order to develop Safety Performance Functions.
5	Initial Actions	Overall	Assess current programs	Assess current collision countermeasure programs for 1) degree of success; and 2) opportunity for further growth/expansion	Ongoing / In-Practice	
6	Initial Actions	Overall	Enhance current programs	Where evidence suggests and opportunity exists, increase size or frequency of existing safety programs	Ongoing / In-Practice	
7	Initial Actions	Overall	Reduce or eliminate current programs, applying resources to more effective programs	Where evidence suggests or no further opportunity exists, decrease size or frequency of existing safety programs, or eliminate entirely	Ongoing / In-Practice	
8	Outreach Program Development	Overall	Development of an Outreach and Communications Program, including Branding	Create an overall communications program including branding for the SRSP. The intent of the program will be to change driver/ pedestrian/ bicyclist behaviours. Within the umbrella will be a number of specific initiatives aimed at specific age groups and risky (collision-causing) actions using media appropriate for best reaching the age groups. This program is more effective if done as one program than individual items. The program components should also be coordinated with media and outreach from the province and other team members.	Ongoing / In-Practice	Note : Heads Up Halifax Campaign was cancelled in 2022/23
9	Emphasis Area 1: Intersections	Engineering	Optimizing signals	Implementing new signal control system to optimize and coordinate signal timings along corridors.	Ongoing / In-Practice	Coordination/progression reviewed as needed. INet system in implementation phase.
10	Emphasis Area 1: Intersections	Engineering	Develop Multi-Modal Level of Service (MMLOS)	Develop MMLOS to better assess road designs and impact of proposed developments for all road users	Complete	

11	Emphasis Area 1: Intersections	Engineering	Update municipal guidelines	Update municipal design guidelines (Red Book) to incorporate best practices for complete streets, intersections, roundabouts, and roadway design	Complete	
12	Emphasis Area 1: Intersections	Engineering	Intersection improvements for bicycles	Intersections with bikeways will change. Bike traffic signals, crossrides. Pavement markings.	Ongoing / In-Practice	Intersection improvements are ongoing for life of plan.
13	Emphasis Area 1: Intersections	Engineering	Address Signalized Intersections with Poorest Collision Histories	Identify 10-20 worst intersections on an EB or other statistical basis. Build customized plan for each intersection based on collision patterns	Ongoing / In-Practice	Implementation of road safety countermeasures are ongoing for life of plan.
14	Emphasis Area 1: Intersections	Engineering	Traffic Signal Enhancements	Traffic signal enhancements may include: Add 3-inch yellow retroreflective sheeting to signal backboards, install signal backboards, add additional signal heads, replace signal lenses with optically programmable traffic control signal lenses, add fully protected left turn phasing, revise left turn phasing by extending duration or eliminating TOD operation, setback loops, increased signal conspicuity, RTOR prohibition, Prohibit left or U-turns.	Ongoing / In-Practice	Implementation of various traffic signal enhancements are ongoing for life of plan.
15	Emphasis Area 1: Intersections	Engineering	Address Stop-controlled Intersections with Poorest Collision Histories	Identify 10-20 worst intersections on an EB or other statistical basis. Build customized plan for each intersection based on collision patterns	Ongoing / In-Practice	Addressing top intersections with highest collision frequencies. Stop controlled intersections have not reached top of list to date.
16	Emphasis Area 1: Intersections	Engineering	Stop Sign Enhancements	Implement stop sign enhancements as appropriate. Stop sign enhancements may include: Sight distance improvements, Add more or larger signs, Convert two-way to all-way stop, Add flashing beacons, Increase retroreflectivity of STOP signs, install larger or left side stop signs.	Ongoing / In-Practice	Implementation of enhancements ongoing as needed based on site specific reviews and collision history.

17	Emphasis Area 1: Intersections	Engineering	Signage enhancements	Implement enhanced signage as appropriate. Changes may include: adding regional road number and/or symbol, auxiliary advance street name sign, overhead signs, review street name signage process (criteria for advance street name signs)	Ongoing / In-Practice	Implementation of enhanced signage ongoing as needed based on site specific reviews and collision history.
18	Emphasis Area 1: Intersections	Engineering	Pavement Marking Enhancements	Enhance pavement markings as appropriate. Improvements may include: Guide lines Yield lines at roundabouts and turn channels	Ongoing / In-Practice	Implementation of enhanced pavement markings ongoing as needed based on site specific reviews and collision history.
19	Emphasis Area 1: Intersections	Engineering	Intersection Review	Continue to assess potential conversions of existing intersections to roundabouts. Convert signalized intersections into single- or multi-lane roundabout - based on overall poor safety performance of existing locations where appropriate. Continue to consider roundabouts for new intersections.	Ongoing / In-Practice	Adopted as standard practice.
20	Emphasis Area 1: Intersections	Engineering	High friction pavement	Improve pavement friction (High Friction Surfacing) - Urban / Rural Roadway Segments based on run off the road single motor vehicle (SMV) collisions on curves or rear-end collisions at stop or signal locations.	Ongoing / In-Practice	High friction pavement is in use. Identification of locations where pavement condition may contribute to collision patterns in-practice.
21	Emphasis Area 1: Intersections	Engineering	Geometric Improvements	Engineering improvements may include revised intersection left turn lane offset and left turn signal phases	Ongoing / In-Practice	Ongoing practice to assess intersections for geometric improvements.
22	Emphasis Area 1: Intersections	Engineering	Street lighting improvements at high collision intersections	Assess locations based on unusual numbers of night collisions. Develop or review policy for illumination of intersection, signalized and unsignalized; urban and rural. Provide or upgrade intersection illumination at sites not meeting criteria and having target collisions.	Ongoing / In-Practice	Ongoing practice to assess illumination as needed when performing site specific reviews.
23	Emphasis Area 1: Intersections	Enforcement	Stop Sign Compliance	Enhance current data analysis by assisting definition of key locations by TOD/DOW for police enforcement by using network screening and other statistical tools	Ongoing / In-Practice	Enforcement informed by data driven evidence, along with officer observations and citizen concerns.

24	Emphasis Area 1: Intersections	Enforcement	Traffic Signal Compliance	Enhance current data analysis by assisting definition of key locations by TOD/DOW for police enforcement by using network screening and other statistical tools. Develop a program to integrate actions with the engineering program	Ongoing / In-Practice	Enforcement informed by data driven evidence, along with officer observations and citizen concerns.
25	Emphasis Area 1: Intersections	Education	Outreach Program	Please see separate description on item #8..	Ongoing / In-Practice	
26	Emphasis Area 2: Young Demographic	Education	Active Transportation: supporting skills and safety training programs for children, teenagers, and young adults	Develop relationship with school boards and post-secondary institutions to promote active transportation, supporting skills and safety training programs for teenagers and young adults.	Complete	Partnership between HRM, HRCE, Police that addresses safety concerns and supports AT. Sub-committee formed, however ended shortly after in favour of a less formal approach.
27	Emphasis Area 2: Young Demographic	Education	Transit: supporting skills and safety training programs for teenagers and young adults	Develop relationship with school boards and post-secondary institutions to promote transit use, supporting skills and safety training programs for teenagers and young adults.	Complete	Student pass program created.
28	Emphasis Area 2: Young Demographic	Education	Young Drivers Education Campaign- Distracted and Impaired	Focus on education related to distracted driving, impaired driving by alcohol and drug in secondary schools.	Ongoing / In-Practice	Police work directly with schools in addition to media releases.
29	Emphasis Area 2: Young Demographic	Education	Young Drivers Education Campaign- Skill Building	Engage Young Drivers of Canada to provide training for skill building, cognitive assessment and development, training for Co-drivers and resources for beginner drivers - will YDC add materials relevant to the local strategic plan to provide local awareness of local issues?	Ongoing / In-Practice	Curriculum under review.
30	Emphasis Area 2: Young Demographic	Education	Outreach Program	Please see separate description on item #8..	Ongoing / In-Practice	

31	Emphasis Area 3: Pedestrian Collisions	Engineering	Sidewalk modifications	Ensure sidewalks, crosswalks, and transit stops are aligned and connected	Ongoing / In-Practice	Addressed through new construction and rehab projects.
32	Emphasis Area 3: Pedestrian Collisions	Engineering	Complete Streets	Adopt "Complete Streets" guiding principles, giving walking, bicycling, and transit priority when allocating road right-of-way. Improve pedestrian safety through design treatments including visual/sensory cues, bump outs, or traffic calming, where appropriate. Applies to both new sidewalks and filling in gaps in existing network.	Ongoing / In-Practice	New Municipal Design Guidelines support the Complete Streets approach.
33	Emphasis Area 3: Pedestrian Collisions	Engineering	New Sidewalk Program		Ongoing / In-Practice	Investments identified in annual Capital Budget.
34	Emphasis Area 3: Pedestrian Collisions	Engineering	New Multi-Use Pathways		Ongoing / In-Practice	Investments identified in annual Capital Budget.
35	Emphasis Area 3: Pedestrian Collisions	Engineering	Rural pedestrian infrastructure approach	Commitment to establish approach to providing ped. infrastructure in rural communities.	Ongoing / In-Practice	AT Priorities Plan. New standards within Municipal Design Guidelines.
36	Emphasis Area 3: Pedestrian Collisions	Education	Walkability Program	Improve pedestrian safety through design treatments including visual/sensory cues, bump outs, or traffic calming, where appropriate. Applies to both new sidewalks and filling in gaps in existing network.	Ongoing / In-Practice	Adopted as standard practice.
37	Emphasis Area 3: Pedestrian Collisions	Engineering	Highest Frequency/Rate Collision Locations	Develop action plan for worst 10 types of collisions. Consider rates/frequencies, consistency of collision patterns and crosswalk specific assessments.	Ongoing / In-Practice	Review complete on top 5 highest ped collision frequency locations. Inadequate data analytic tools to complete for "worst types of collisions" or "rates".
38	Emphasis Area 3: Pedestrian Collisions	Engineering	Traffic Signal Enhancements	Install leading pedestrian intervals, pushbuttons, countdown timers, and accessible pedestrian signals where collision data suggests a need.	Ongoing / In-Practice	Ongoing practice to assess locations for pedestrian traffic signal enhancements.
39	Emphasis Area 3: Pedestrian Collisions	Engineering	RA-5 Conversion to Traffic Signals	Replacement of RA-5 crossing control with partial or full signalization where collision data suggests a need.	Ongoing / In-Practice	Considered based on site-specific reviews.

40	Emphasis Area 3: Pedestrian Collisions	Engineering	Enhanced pavement markings	Install higher visibility or specialized pavement markings where collision data suggests a need.	Ongoing / In-Practice	Considered based on site-specific reviews. Pilot program initiated for signalized intersections.
41	Emphasis Area 3: Pedestrian Collisions	Engineering	Smart Channels or eliminate right turn slip lanes	Convert traditional channelized right-turn to smart channel or eliminate where collision data suggests a need. See white paper for specific recommendations about design details, bus lanes, use of RA-5 protection, etc. See also Intersection Improvements	Ongoing / In-Practice	Considered for geometric improvements.
42	Emphasis Area 3: Pedestrian Collisions	Engineering	Pedestrian refuge islands	Identify locations - midblock pedestrian collisions on multilane roads. Install raised median with marked crosswalk where collision data suggests a need.	Ongoing / In-Practice	Considered based on site-specific reviews.
43	Emphasis Area 3: Pedestrian Collisions	Education	Outreach Program	Please see separate description on item #8.	Ongoing / In-Practice	
44	Emphasis Area 4: Aggressive Driving	Engineering	Traffic Calming for Local Bikeways	Curb works, speed humps, pavement markings, and permanent speed cushions where collision data suggests benefit.	Ongoing / In-Practice	Adopted as standard practice.
45	Emphasis Area 4: Aggressive Driving	Enforcement	Enhanced program of identifying locations of aggressive driving causing collision for police enforcement	Prepare a list of behaviours and locations to best apply police resources in a way that might reduce collisions. Tie programs to provincial or other initiatives to maximize publicity	Ongoing / In-Practice	Enforcement informed by data driven evidence, along with officer observations and citizen concerns. Aggressive driving ties into Provincial monthly themes, supported by Police.
46	Emphasis Area 4: Aggressive Driving	Engineering / Enforcement	Electronic feedback back signs including positive reinforcement	Vehicle Activated Traffic Calming Signs, feedback speed signs, positive feedback signs. Use justification criteria being developed by TAC	Ongoing / In-Practice	Adopted as standard practice.
47	Emphasis Area 4: Aggressive Driving	Education	Outreach Program	Please see separate description on item #8.	Ongoing / In-Practice	

48	Emphasis Area 5: Distracted Driving	Enforcement	Distracted Driving Location Identification	Identify worst locations for "inattentive" driver action in collisions for police enforcement	Ongoing / In-Practice	Enforcement informed by data driven evidence, along with officer observations and citizen concerns.
49	Emphasis Area 5: Distracted Driving	Education	Outreach Program	Please see separate description on item #8.	Ongoing / In-Practice	
50	Emphasis Area 5: Distracted Driving	Education	Driver Education Campaign-Tweets	Look where you are driving- can be done by police media tweets	Ongoing / In-Practice	Shared through Police social media/news releases.
51	Emphasis Area 6: Impaired Driving	Enforcement	Legislation and Enforcement	Future legislation and enforcement strategies to address impaired driving.	Complete	Legislation and enforcement efforts in place.
52	Emphasis Area 6: Impaired Driving	Education	Outreach Program	Please see separate description on item #8.	Ongoing / In-Practice	
53	Emphasis Area 7: Cyclist Collisions	Engineering	"All ages and abilities" bicycle network	Implement an "all ages and abilities" bicycle network, with priority on connecting the regional center and transit terminals	Ongoing / In-Practice	In progress. 57km proposed in total with 40% complete by Spring of 2022.
54	Emphasis Area 7: Cyclist Collisions	Engineering	Monitor winter maintenance	Monitor winter maintenance of dedicated bicyclist facilities, and use data to improve winter maintenance strategies	Ongoing / In-Practice	Routine winter maintenance along with addressing citizen concerns.
55	Emphasis Area 7: Cyclist Collisions	Engineering	New Multi-Use Pathways under IMP	7km total. These are ped/bike infrastructure by either 2020 or 2022	Complete	As of 2021, 211.5km of multi-use pathways in HRM. Adopted as standard use.
56	Emphasis Area 7: Cyclist Collisions	Enforcement / Education	Define locations of cyclist collisions for police enforcement	Assess locations based on unusual frequency/rate of collisions. Prepare a list of behaviours and locations to best apply police resources in a way that might reduce collisions. Tie programs to provincial or other initiatives to maximize publicity.	Ongoing / In-Practice	High-frequency collision locations reviewed however limited number of collisions occurring at single intersections.
57	Emphasis Area 7: Cyclist Collisions	Engineering	Bicycle signals and crossrides	Identify locations with vehicle-bicycle or pedestrian-bicycle collisions of a type that would be prevented by bike signals or crossrides. Add separate phasing and/or bicycle signals. Install crossrides.	Ongoing / In-Practice	Bicycle signals now permitted in NS. HRM to adopt as standard practice where warranted.

58	Emphasis Area 7: Cyclist Collisions	Engineering	Enhanced signage and pavement markings	Identify roadways with bicycle/vehicle collisions Install enhanced regulatory or warning signs or markings. Review and enhancement of current signage and pavement markings.	Ongoing / In-Practice	Implementation of enhancements ongoing as needed based on site specific reviews and collision history.
59	Emphasis Area 7: Cyclist Collisions	Education	Outreach Program	Please see separate description on item #8.	Ongoing / In-Practice	