

Vision Zero

Road Safety Strategic Plan

2018 – 2022



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Message from the Regional Chair

I am pleased to share the Region of Peel’s first Road Safety Strategic Plan which reflects our commitment to Vision Zero - the philosophy that no one should be killed or seriously injured as the result of a collision within the road network.

Road safety has been and continues to be a top priority in the Region of Peel. As our population continues to grow, so do the number of citizens who walk, cycle, and drive on our roadways. With this growth and an awareness of the benefits of sustainable modes of transportation, the Region of Peel recognizes the need to evolve how we address road safety and that – **no loss of life is acceptable.**

The development of the Road Safety Strategic Plan could not have been completed by the Region of Peel alone. The plan has been made possible through a collaborative effort from a number of key stakeholders including Peel Public Health, Peel Regional Police, the Ontario Provincial Police, local municipalities, partner agencies, and community groups that share a common interest in improving road safety.

The Road Safety Strategic Plan provides a holistic list of measures comprised of education, engineering and enforcement solutions with the objective of protecting all road users in the Region.

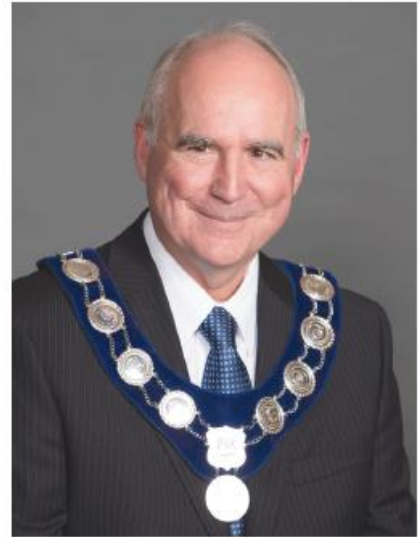
We begin this journey towards our vision by acknowledging that life and health should never be placed at risk in exchange for other benefits.

I wish to thank our stakeholders and members of the community for their commitment in working with us to make Peel safer and healthier for all citizens in support of creating a *community for life.*

Sincerely,



Frank Dale
Chair, Region of Peel



Acknowledgements

We would like to thank the Region of Peel stakeholders, Peel Public Health, Peel Regional Police, Ontario Provincial Police – Caledon Detachment, City of Brampton, Town of Caledon, City of Mississauga, and CIMA+ for all of their efforts in creating this Road Safety Strategic Plan to help improve health and safety for citizens within the Region.

Executive Summary

The Region of Peel has developed a Road Safety Strategic Plan (RSSP) to address the approximate 1000 annual roadway collisions on Regional roads that result in injury or death. The framework of Vision Zero, under which no loss of life or injury from a collision is considered acceptable, has been formally adopted by Region of Peel Council, and the RSSP is based on this philosophy.

The RSSP aims to address a number of priorities outlined in the Region of Peel's 2015-2035 Strategic Plan by promoting healthy and age-friendly built environments and building a community that promotes safe mobility, walkability, healthy living, and various modes of transportation. The RSSP is one of the three component studies of the Region's Long-Range Transportation Plan and serves as the implementation plan for achieving the Region's objective of safe mobility.

The Region of Peel has formally adopted the framework of Vision Zero.

Recognizing that the road safety vision is idealistic and ambitious, the RSSP has set a goal for the first five years of the RSSP as a 10% reduction in injury and fatal collisions. These goals will act as intermediate steps towards reaching Vision Zero.

The Region and its safety partners have developed the RSSP based on three sets of inputs: collision data, public input, and Regional priorities. In order to have the greatest chance of success, the plan is targeted toward those types of fatal and injury collisions occurring in the largest numbers, as validated by input from partners, the public, and in alignment with the Region's plans and policies. These target groups are called emphasis areas.

Trucks and school zones are recognized in the RSSP as well, known as awareness areas. Awareness areas are different than emphasis areas as they were not determined by collision data; they were identified by the public as safety concerns and are consistent with the Region's Strategic Plan and Long-Range Transportation Plan. The awareness areas were taken into consideration during the development of the action plan for the RSSP.

The action plan to address fatal and injury collisions within each emphasis area is made up of general actions and specific safety programs called countermeasures. To implement the RSSP action plan, it is necessary to assemble a Task Force to direct the program and to deliver the actual safety program elements. This group is comprised of key stakeholder members and is

responsible for: developing a common brand for the RSSP; working together to best deliver the program; and for working to develop a culture within the various agencies that consider road safety as part of decision-making. A key first step will be in-depth data analysis by several of the agencies, to determine the exact nature, location, time, demographics, etc. of the various collision types so the countermeasures can be more precisely tailored to the collisions.

The action plan delivered by the Task Force will be comprised of: existing countermeasures that the Region and its partners are already utilizing; existing countermeasures that will be expanded in scope to have greater effect; and new programs. For most emphasis areas, countermeasures have been developed that fall into all four of the following categories:

- Engineering and physical changes,
- Enforcement of rules of the road,
- Educational programs, and
- Empathy programs.

In total, the action plan is comprised of over 100 countermeasures to be delivered over the next five years, with programs ranging from one-time to being continuous over the entire time period.

The capital and operating cost for the full implementation (2018 to 2022) of existing and future safety improvement programs and action items recommended in the Road Safety Strategic Plan is estimated to be \$47.2M. Of this amount, \$21.3M consists of new projects and initiatives and the remaining \$25.9M is a part of the Region's existing and reoccurring, operating and capital budgets. Funding for individual projects will be presented to Council for consideration as part of the annual budget process.

Additional staff and staff time may be required, as significant effort will be required to analyze safety data, develop specific programs, implement countermeasures and monitor results, with the exact details to be determined after the Task Force is assembled and the RSSP is developed in further detail.

1 Introduction

The Region of Peel (ROP) is the second largest municipality in Ontario, after Toronto, with over 1.4 million people living in Brampton, Mississauga, and Caledon. With seven 400-series highways, two intermodal facilities, and the Toronto Pearson International Airport within its boundaries, Peel Region has a complex road network supporting high volumes of traffic that move within and through the Region each day. These volumes will continue to rise with increasing population and expanding employment opportunities in the Region.

An annual average of approximately 1000 injury collisions and 9 fatal collisions occur on Regional roads. **Figure 1** shows the collision trends for 2010 through 2014 for Regional and local municipal roads. It should be noted that in 2014 the collision reporting system in Ontario changed from a paper based system to an electronic reporting system, also referred to as e-collisions. The drop in 2014 collisions is estimated to be a result of the migration to the new e-collision system. The noted drop in collision applies to each graph throughout this report.

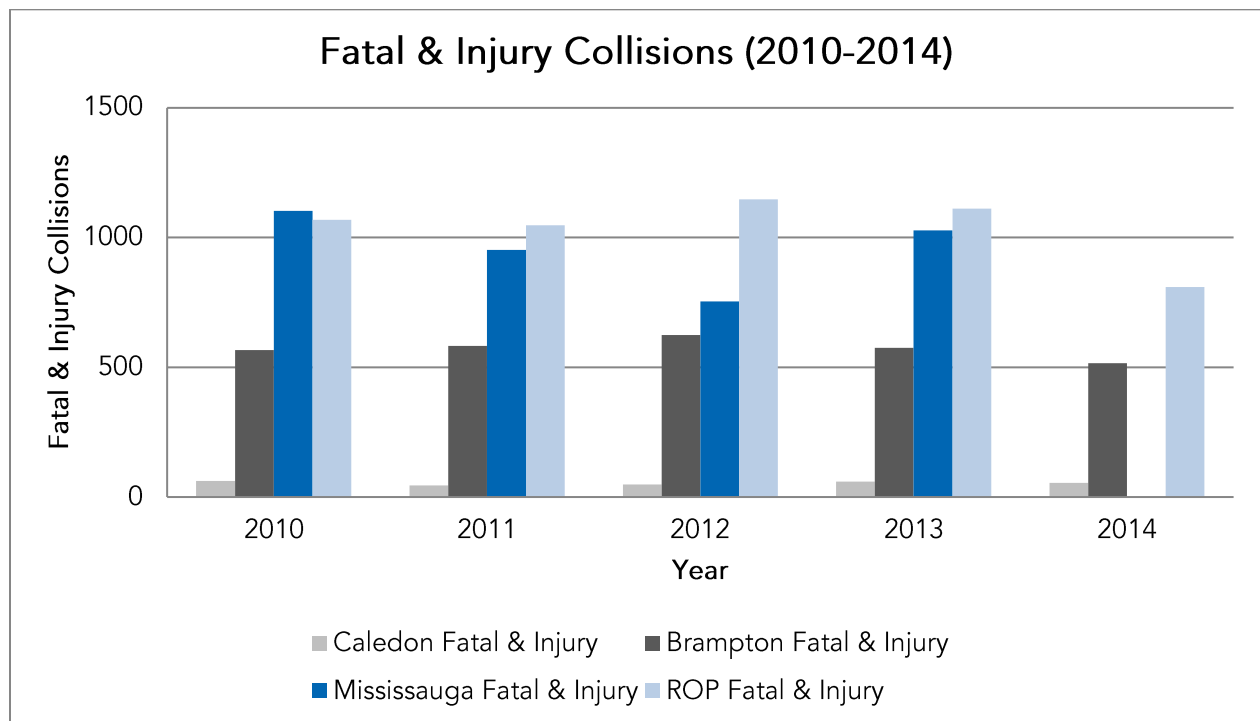


Figure 1: Fatal and Injury Collisions for Local Municipalities and the Region of Peel
NOTE: City of Mississauga data was unavailable for 2014.

The Region, along with its partner agencies, has developed the Road Safety Strategic Plan (RSSP). The RSSP is based on the Regional Council approved concept of Vision Zero, which

holds that no loss of life is acceptable as a result of a motor vehicle collision. The Plan sets out the vision, goals, objectives, and action plans to create safer roads, with the intent to reduce and ultimately eliminate motor vehicle collisions causing injury and death. The Region and its partner agencies have committed to implementing the actions outlined in the Plan to continually improve road safety for all road users. The RSSP is a component of the Long Range Transportation Plan (LRTP) for the Region (see Figure 2).

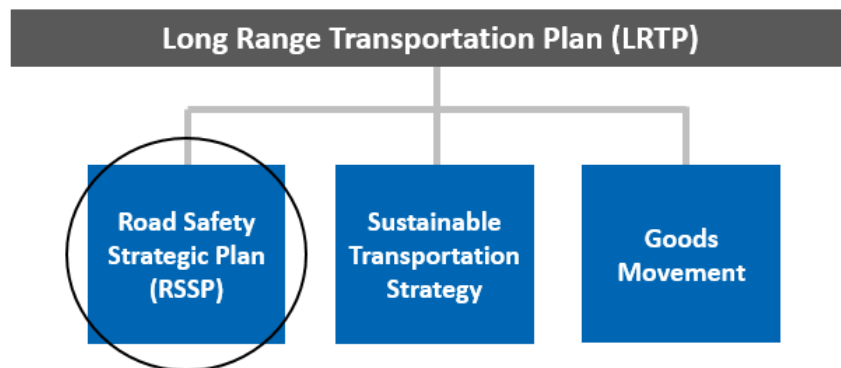


Figure 2: Long Range Transportation Plan Breakdown

The purpose of a RSSP is to improve safety for road users through a data-driven effort by:

- Identifying and prioritizing the key safety needs addressing engineering, enforcement, and education;
- Taking advantage of all the resources available from the Region and its partners and aligning them to meet identified safety needs, addressing the common goal; and
- Guiding the safety investment decisions in a coordinated fashion to maximize the effectiveness of expenditures.

The RSSP addresses a number of priorities outlined in the Region of Peel's 2015-2035 Strategic Plan by promoting healthy and age-friendly built environments and building a community that promotes safe mobility, walkability, healthy living, and various modes of transportation. The RSSP builds on the Region's existing road safety programs by determining the key areas for which safety can be enhanced and by developing a set of countermeasures that are, and will be, most effective in reducing fatal and injury collisions for each key emphasis area. This strategic document explains the process by which the Region of Peel's RSSP was developed and provides details on the elements of the action plan that will lead towards the Plan's vision.

2 Process and Methodology

Road safety is a shared responsibility. A wide range of organizations contribute to increased road safety in a jurisdiction including those whose mandates are engineering, law enforcement, public health, education, or advocacy. The development of the RSSP was a collaborative process where feedback and input of the partners were critical to the success of the study. The RSSP is a coordinated effort among partner agencies who contribute to road safety in Peel. **Figure 3** shows the key steps in the development of the RSSP.

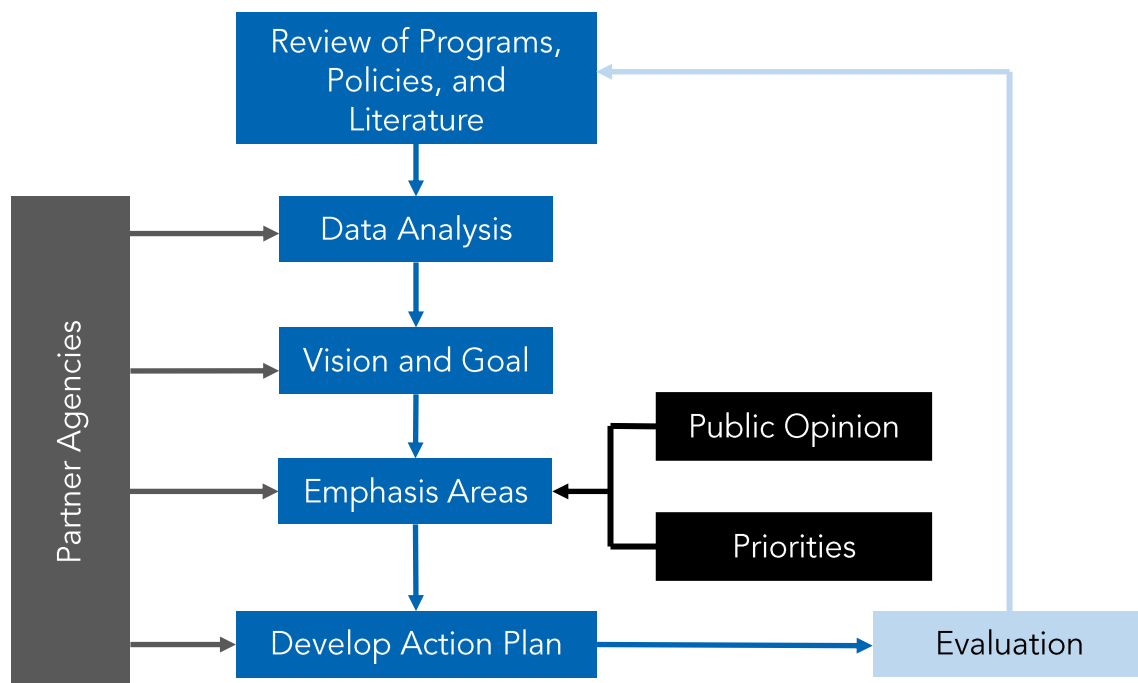


Figure 3: RSSP Development Process

The first step of the study was to review similar plans developed by other jurisdictions to have a better understanding of lessons learned in those jurisdictions. To understand best practices in the development of strategic safety plans, guides developed by the Federal Highway Administration (FHWA) to help State Departments of Transportation develop their strategic plans were reviewed. This helped guide the development of the RSSP. Additionally, the Region’s policies and existing safety programs were reviewed.

As the next step, the project team identified a wide range of partners who are able to contribute to road safety and informed them about the project objectives, processes, and their roles and responsibilities. The RSSP partner agencies are shown in **Figure 4**.



Figure 4: Partner Agencies

The next step of the project was to establish the long-term vision and short-term goal of the plan in collaboration with the partners.

The RSSP is a data-driven study and collision analysis of Regional and local roads was an important step of the project. The analysis of collision data creates a better understanding of how and where the collisions are happening in the Region. The collision data was analyzed based on various criteria (e.g. age groups, types of collisions, cause of collisions, etc.) so that the largest groups of collisions were identified. The collision data analysis was important input to the identification of emphasis areas – areas with the largest groups of collisions (discussed in Section 4).

A questionnaire was developed to obtain feedback from people who work or live in Peel on their perception of safety issues in the Region. The questionnaire was distributed to the public via various media including Public Information Centres and online surveys.

The collision data, the public opinion survey, and discussions with partners resulted in the identification of emphasis areas. The emphasis areas include the largest groups of collisions, illustrated in Figure 5, and the Region needs to allocate resources to these areas, to reduce the collision frequencies, and achieve the goal identified in the RSSP.

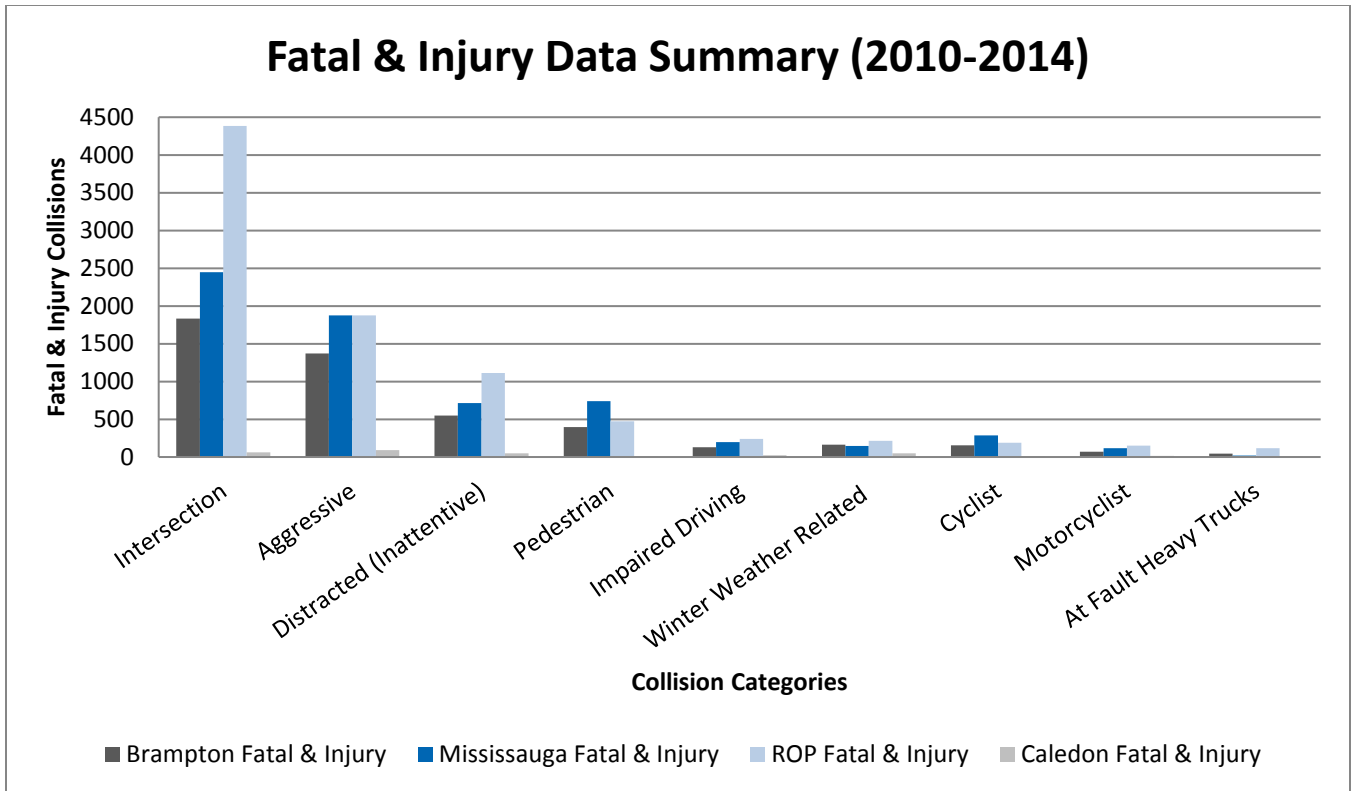


Figure 5: Collision Data Summary

After the identification of the emphasis areas, the project team and partners developed an action plan which was centered on countermeasures (actions taken to reduce the incidence or severity of motor vehicle collisions), the timelines to implement the countermeasures, and the cost associated with the implementation of countermeasures. The complete action plan is intended to improve safety in the Region of Peel and achieve the goal set out in the RSSP.

3 Vision and Goal

Vision Zero is an approach to road safety thinking that originated in Sweden in 1994 and has been adopted in various forms around the world. It can be summarized in one sentence: **No loss of life is acceptable as a result of a motor vehicle collision.** It is based on the simple fact that we are human and make mistakes. The road system needs to keep us moving, but it must also be designed to protect us at every turn. This can take one of two forms: preventing collisions from occurring in the first place, but also designing to minimize the consequences of collisions that do occur (sometimes referred to as the “forgiving roadside”). In order to prevent serious injury or fatalities from collisions, it is essential for the roads, and the vehicles they carry, to be adapted to match the capabilities of the people that use them. In December 2017, the Region of Peel Council adopted the Vision Zero framework. Vision Zero acts as the foundation and driving force for the RSSP.

Vision Zero is a framework that holds that no loss of life is acceptable as a result of a motor vehicle collision is acceptable.

The Vision Zero approach requires significant cultural and legislative changes in regard to the approach taken towards traffic and road safety, road design, enforcement, and the education of road users. In a Vision Zero jurisdiction, safety is prioritized over other factors such as cost, speed, delay, level of service, and convenience based on which decisions were traditionally made. The adoption and implementation of Vision Zero in a jurisdiction requires cultural changes in the way the decisions are made.

The RSSP partners developed vision and goal statements for the RSSP. The vision reflects the Region’s adoption of the Vision Zero framework. The vision statement is:



Zero fatal and injury collisions for all road users.

The vision of the RSSP is consistent with Vision Zero. It is recognized by the partners that this is an idealistic and ambitious vision and it will take some time to achieve it. The ultimate goal is that no one should be injured or killed in Peel Region resulting from a collision. In the RSSP, a realistic goal has been set to be:



10% reduction in fatal and injury collisions by 2022.

It is expected that the program will revisit its goal every five years, but may do so more frequently, based on the success of the implementation of the action plan.

4 Emphasis Areas and Awareness Areas

An emphasis area is a type or group of collisions that is a priority safety concern for which actions will be developed and implemented to improve road safety. The selection of emphasis areas is the foundation of achieving the RSSP goal. Typically, four to eight emphasis areas are selected in strategic road safety programs. The number of emphasis areas needs to be limited to ensure that enough resources are allocated to the emphasis areas most requiring action to improve safety.

The development of emphasis areas for the RSSP required input from the public, input from partner agencies, and collision data analysis. Regional priorities, namely the Sustainable Transportation Strategy, also played a role in selecting emphasis areas.

The final selection of emphasis areas and their relative collision magnitudes on an annual basis are shown in Figure 6. The graph shows that the municipal and regional collision data followed similar trends. The public survey produced results that were very similar to the collision data analysis. This shows that the public have a good understanding of the safety concerns within the Region of Peel.

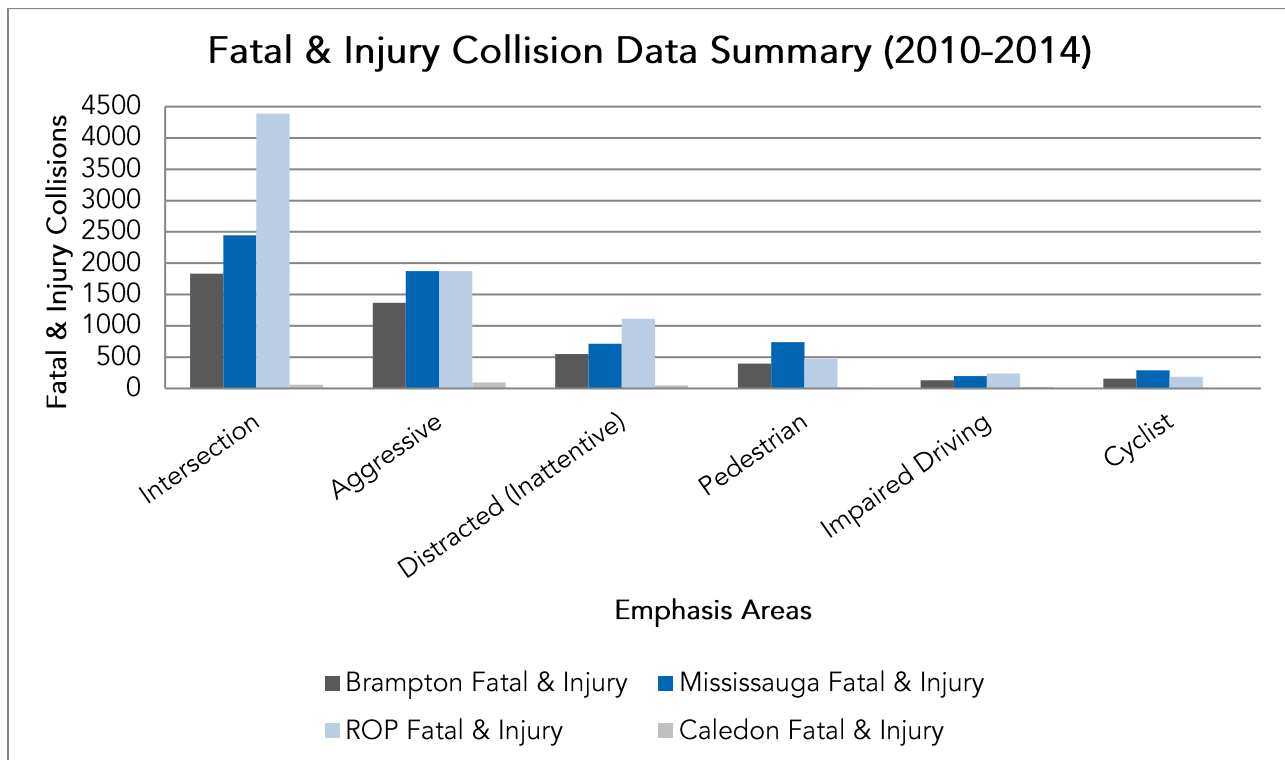


Figure 6: Emphasis Area Collision Frequencies
 NOTE: City of Mississauga data was unavailable for 2014.

The six emphasis areas are described below:



- **Intersections:** All collisions occurring within an intersection.



- **Aggressive Driving:** Includes any of the following: following too close, exceeding the speed limit, speed too fast for conditions, disobeying a traffic control, failing to yield the right of way, and improper passing.



- **Distracted Driving:** Distracted driving collisions are those coded as inattentive on the motor vehicle collision report (example: texting, eating, etc.). Recent research on the human factors of driving has identified distracted driving as having a much larger role in collisions than has been previously thought.



- **Impaired Driving:** All collisions involving at-fault drivers who are impaired or under the influence of drugs and/or alcohol.



- **Pedestrian Collisions:** A pedestrian collision involves any person that is not riding in or on a vehicle or bicycle. Pedestrian collisions include the following collision types: intersection, midblock, pedestrian crossover (PXO), on the sidewalk or shoulder, at driveway, parking lot, and other (where the pedestrian is walking with or without the right-of-way).



- **Cyclist Collisions:** A cyclist collision is any collision that involves someone riding a bicycle.

A single collision might involve multiple emphasis areas, so there are overlaps among emphasis area totals. For example, if a pedestrian were involved in a collision with a truck at an intersection, this collision would be represented in the emphasis areas: pedestrian collisions, truck collisions, and intersection related collisions.

The efforts of the RSSP will be focused on reducing the number of injury and fatal collisions in the defined emphasis areas. Collisions involving heavy trucks and collisions in school zones were not necessarily supported by the collision data analysis but were publicly perceived as areas of concern. These two types of collisions will be considered as “awareness areas”, that is, while developing the action plan for the six primary emphasis areas, these areas were kept in mind and responses were structured to include the awareness areas, which are described below:



- **Truck Collisions:** Any collision involving a heavy truck.



- **School Zones:** A collision involving a pedestrian and a vehicle that occurs within the vicinity of a school.

As the RSSP grows and action plans are implemented, emphasis and priorities will change. The list of emphasis areas will be revisited with each update of the RSSP as collisions are reduced and the plan will adapt to future road safety concerns.

5 Action Plan (Countermeasures)

The action plan to deliver improved road safety in the Region through the RSSP is comprised of a large number of individual initiatives called “countermeasures”.

5.1 Countermeasure Development

A countermeasure is an action taken to reduce the frequency or severity of motor vehicle collisions. The countermeasures chosen for the RSSP have two characteristics:

- 1) They have a high likelihood of contributing to the reduction of collision frequency or severity of one or more of the chosen emphasis areas; and
- 2) Either the Region or a partner agency is prepared to support and deliver the countermeasures.

The countermeasures were identified and selected by the partner group to reduce the severity and frequency of collisions for each emphasis area.

5.2 Countermeasure Categories

Transportation safety is a diverse and complex field that requires involvement of partners with various backgrounds. The four “E”s of road safety provide a complete range of different approaches which may be taken to address road safety issues. Using the full range of diverse approaches will result in short-term to long-term actions, and will address a range of possible roadway issues and road user perception and behavior.



Engineering



Education



Enforcement



Empathy

The definition of the four “E”s of road safety are:

Engineering countermeasures are changes to the physical format of the roadway, such as traffic calming measures; changes to traffic control devices such as traffic signal timing, warning devices or pavement markings; policy and practice changes; or changes to regulations, such as traffic flow or parking rules. Most engineering actions are site specific or limited to a group of similar sites. Often, engineering countermeasures can be implemented fairly quickly.

Enforcement countermeasures include both police manned and automated enforcement. They emphasize attempting to gain better compliance with existing rules of the road, with the secondary aim of educating drivers about the consequences of their actions. Enforcement can be continuous or specific campaigns and can be limited to specific locations or be widespread in nature.

Education countermeasures aim to change road user behaviour so that road users are more aware of their surroundings and avoid risky actions. Currently, there are many options for disseminating information are many, and the type of communications medium chosen depends largely on the target audience. Education campaigns tend to be more broad-based and reach more users than a specific engineering countermeasure. They may also take longer to develop and take longer to create real change than engineering or enforcement measures, but have a significant overall impact to establishing a road safety culture.

Empathy is a concept that means trying to put one road user in the position of another, so that they understand the consequences of their actions. For instance, a driver turning at an

intersection may not appreciate how difficult it is for an elderly pedestrian to cross through that stream of turning traffic. Generally, Empathy will be part of the Education portion of the countermeasure program, but it is particularly noted as it should be emphasized throughout the process.

Countermeasures are presented in the following sections. Not all the countermeasures can be implemented immediately as some will require funding or formal approvals, while others are tied to the time frame of other larger projects, such as road construction or provincial outreach campaigns. The action plan below is intended for the five-year time frame 2018-2022, but also shows long-term measures that will likely be implemented outside the first five years of the RSSP. Long-term countermeasures still require planning and approvals to be undertaken sooner, to ensure these programs are ready to go in the future.

The proposed countermeasure program is comprised of three types of countermeasures:

- Existing actions to be retained at the current level of effort,
- Existing programs to be expanded, and
- New initiatives.

Most countermeasures are directed at specific emphasis areas. However, there are a few general actions required at the outset of the program to provide a sound basis on which the RSSP will operate.

5.3 Emphasis Area Specific Countermeasures

Countermeasures have been selected with an initial emphasis area in mind, but may often impact multiple emphasis areas. For example, a countermeasure designed to prevent vehicle-to-vehicle collisions at an intersection may also prevent collisions involving pedestrians or cyclists at the intersection. Countermeasures are listed only once and they are connected to the emphasis area for which the countermeasure is expected to have the most impact, but secondary emphasis areas are also listed in the sections below.

In many cases, the required magnitude of the countermeasure will only be determined through detailed investigation. For engineering measures, the data will indicate the number of potential sites which may be candidates. For enforcement, the duration and number of

officers required will be subject to an in-depth review. Similarly, the size and cost of educational programs will depend on the approach to reaching the target audience in terms of the medium and the duration of the messaging. Ultimately, the degree of success of the RSSP at reducing collisions will be one of the most important factors in determining cost and effort. If the numbers are not dropping as fast as the goal requires, more resources will have to be applied.

There are varying time frames for countermeasures to be initiated. The countermeasures were categorized into three groups in terms of timelines for implementation:

- Short-Term (less than one year to implement),
- Medium-Term (1-5 years to implement), and
- Long-Term (greater than 5 years to implement).

For some measures, the time frame is only an estimate, as the countermeasure is tied to another, larger Regional initiative, such as road reconstruction. If so, the countermeasure is dependent on the associated project timing. The countermeasures that are being implemented as a part of the RSSP action plan are listed below (by identification (ID), title, and type) and are described in detail in the following sections.

Intersections

INT1	Traffic Signal Network Progression	Engineering
INT2	Advance Traffic Management System (ATMS) Control Video Monitoring	Engineering
INT3	Fully Protected Phasing	Engineering
INT4	Dedicated Signal Phase for Bus Movements	Engineering
INT5	Change or Implement Traffic Control	Engineering
INT6	Beacons/Actuated Advance Warning Beacons	Engineering
INT7	Hazard Marker at Bullnose	Engineering
INT8	Prohibition of Specific Movements	Engineering
INT9	Right Turn on Red Prohibition	Engineering
INT10	U-turns for Access Control	Engineering
INT11	U-turns Prohibition	Engineering
INT12	Parking and Stopping Restrictions	Engineering
INT13	Signage Enhancements	Engineering
INT14	Advance Signals Signage	Engineering
INT15	Ladder Crosswalks	Engineering

INT16	Pavement Marking Improvements	Engineering
INT17	Yield Pavement Markings at Roundabouts and Right Turn Channels	Engineering
INT18	Queue Jump Lanes	Engineering
INT19	Raised Intersections	Engineering
INT20	Roundabouts	Engineering
INT21	Street Lighting Improvements	Engineering
INT22	Sightline Clearing/Sight Distance Improvements	Engineering
INT23	At-Grade Rail Crossing Audits	Engineering
INT24	High Friction Pavement	Engineering
INT25	Analysis of Data for Selective Enforcement	Enforcement/Engineering
INT26	Enforcement of HTA - Traffic Signal Violations	Enforcement
INT27	Roundabout Education and Outreach	Education/Empathy
INT28	Worst Intersection Campaign	Education/Empathy

Aggressive Driving

AGG1	Design Policies Incorporating Road Safety	Engineering
AGG2	Speed Limit Reviews	Engineering
AGG3	Traffic Calming - Short Term Enhancements	Engineering
AGG4	Traffic Calming - Infrastructure	Engineering
AGG5	Community Safety Zone	Engineering
AGG6	Mobile Changeable Message Signs	Engineering
AGG7	Electronic Radar Speed Signs	Engineering
AGG8	On-Street Parking	Engineering
AGG9	Lawn Signs	Engineering
AGG10	Identify Locations of Aggressive Driving for Police Enforcement	Engineering/Enforcement
AGG11	Red Light Cameras	Engineering/Enforcement
AGG12	Automated Speed Enforcement	Engineering/Enforcement
AGG13	Enforcement of HTA – Aggressive Driving	Enforcement
AGG14	ERASE	Enforcement
AGG15	Canada Day Long Weekend Traffic Initiative	Enforcement
AGG16	Canada Road Safety Week	Enforcement
AGG17	Operation Corridor	Enforcement
AGG18	Aggressive Driving Targeted Media Messaging	Education
AGG19	Commercial Fleet Aggressive Driving Awareness and Information Sessions	Education
AGG20	Promotion of Road Watch	Education
AGG21	Implementation of Truck Safety Initiatives	Education/Empathy

Distracted Driving

DIS1	Safety Edge	Engineering
DIS2	Enforcement of HTA - Distracted Driving	Enforcement
DIS3	Operation Impact	Enforcement
DIS4	Distracted Driving Campaign	Education/Empathy
DIS5	Distracted Driving Targeted Media Messaging	Education/Empathy
DIS6	Heads Up! Intersection Safety Programing	Education/Empathy
DIS7	Enhanced Outreach Program(s)	Education/Empathy

Pedestrian Collisions

PED1	Pedestrian Infrastructure	Engineering
PED2	Implementing Components of the Region's Streetscaping Tool Box	Engineering
PED3	Pedestrian Countdown Signals and Pedestrian Signal Facilities	Engineering
PED4	Exclusive Pedestrian Phasing (Scramble Crossing)	Engineering
PED5	Leading Pedestrian Intervals	Engineering
PED6	Accessibility for Ontarians with Disability Act (AODA)	Engineering
PED7	Enhanced Pedestrian Signage	Engineering
PED8	Enhanced Pedestrian Pavement Markings	Engineering
PED9	Smart Channels	Engineering
PED10	Pedestrian Refuge Islands	Engineering
PED11	Midblock Pedestrian Crossings	Engineering
PED12	Multi-use Trails	Engineering
PED13	Crossing Guards	Engineering
PED14	Advocate for the Area around the School as a School Zone	Engineering
PED15	Walking Audit Tool	Engineering
PED16	Public Education Campaigns	Education/Empathy
PED17	Pedestrian Targeted Media Messaging	Education/Empathy
PED18	Project Safe Streets	Enforcement
PED19	Interactive Programing with School Boards	Education/Empathy
PED20	Walk to School Week Programing	Education/Empathy
PED21	Ontario Road Safety Resources	Education/Empathy
PED22	School Travel Planning (STP) and Active and Safe Routes to School	Education/Empathy
PED23	Peel Safe and Active Routes to School (PSARTS)	Engineering/Education
PED24	Safe Crossings for Senior Pedestrians	Education/Empathy

Cyclist Collisions

CYC1	Cycling Infrastructure	Engineering
CYC2	Bicycle Signals and Cross-Rides	Engineering
CYC3	Bicycle Signal Detection	Engineering
CYC4	Enhanced Bicycle Signage	Engineering
CYC5	Enhanced Cyclist Pavement Markings	Engineering
CYC6	Urban Shoulders	Engineering
CYC7	Bike Boxes	Engineering
CYC8	Identify Locations of Cyclist Collisions for Police Enforcement	Engineering/Enforcement
CYC9	Cyclist Targeted Media Messaging	Education/Empathy
CYC10	Bike Rodeos	Education/Empathy
CYC11	Community Bike Rides	Education/Empathy
CYC12	Bike to School/Work Programming	Education/Empathy
CYC13	Bike Basics Education Program	Education/Empathy
CYC14	Education and Outreach for Cyclists	Education/Empathy
CYC15	Walk + Roll Peel Outreach	Education/Empathy
CYC16	Cycling Skills Training - CAN-BIKE	Education/Empathy
CYC17	Identification of Cycling Infrastructure Enhancement Opportunities	Education/Empathy
CYC18	Community Active Transportation / Transportation Demand Management Social Marketing Programs	Education/Empathy

Impaired Driving

IMP1	Identify Locations of Impaired Driving	Engineering/Enforcement
IMP2	Regular and Festive Enforcement / R.I.D.E. Spot Checks	Enforcement
IMP3	Enforcement of HTA - Impaired Driving	Enforcement
IMP4	Labour Day Long Weekend Traffic Initiative	Enforcement
IMP5	Last Drink Program	Enforcement
IMP6	Enhanced Outreach Program(s)	Education/Empathy
IMP7	Impaired Driving Targeted Media Messaging	Education/Empathy
IMP8	MADD 911 Campaign	Education/Empathy
IMP9	DriveSafe Campaign	Education/Empathy
IMP10	Free Transit after Midnight on New Year's Eve	Education/Empathy
IMP11	Ontario's Road Safety Challenge	Education/Empathy

5.3.1 INTERSECTIONS

Intersection collisions form the emphasis area with the highest number of collisions. Figure 7 shows the nature of intersection collisions. Rear-end collisions likely overlap with aggressive and distracted driving. Turning movement and angle collisions best lend themselves to engineering solutions which can often directly address the issues.

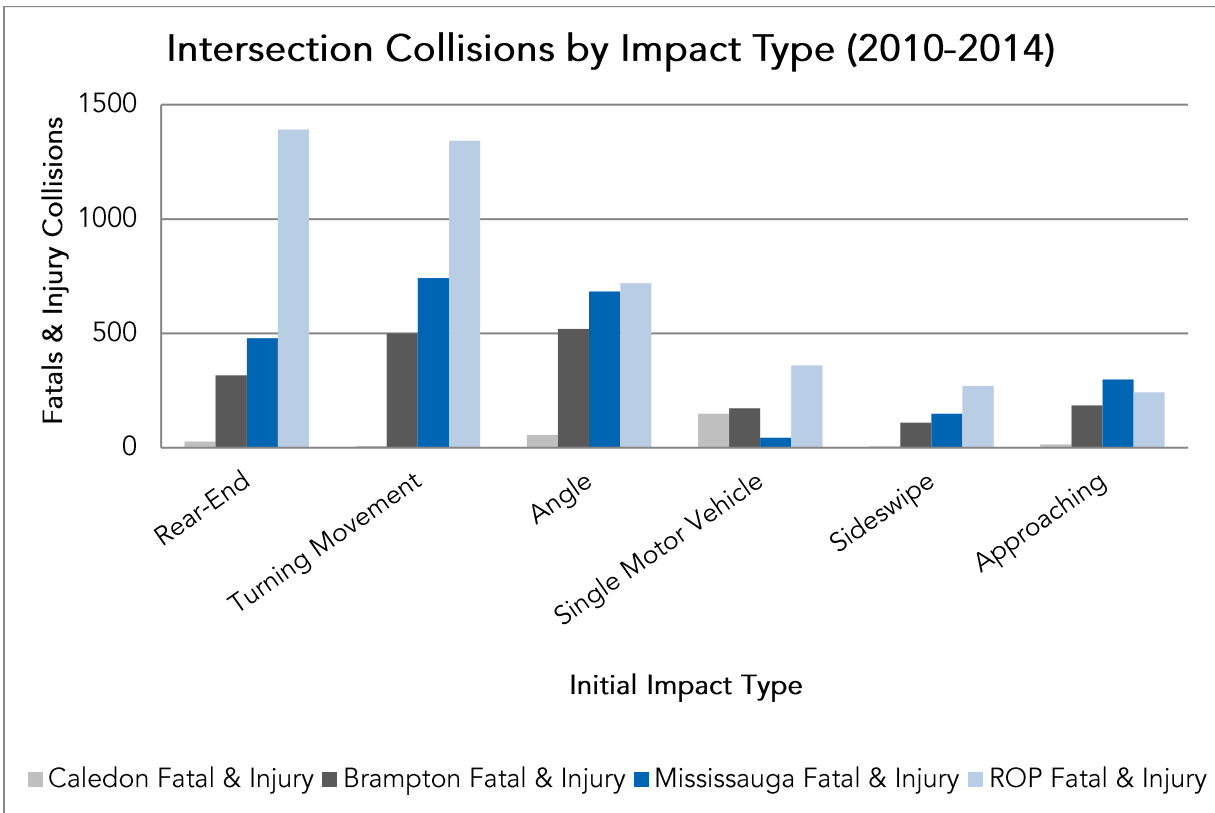


Figure 7: Intersection Collisions by Impact Type for Local Municipalities and Region of Peel
 NOTE: City of Mississauga data was unavailable for 2014.

The countermeasures developed for intersection collisions are listed below:

COUNTERMEASURE TITLE: Traffic Signal Network Progression		ID: INT1
Countermeasure Type: Engineering	Existing/ Future: Existing Expanded	
Countermeasure Description: Review of traffic signal system operation to improve flow of traffic, therefore reducing stops and rear end collisions.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton	Support Agencies: Town of Caledon	
Timelines: Medium-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Advance Traffic Management System (ATMS) Control Video Monitoring		ID: INT2
Countermeasure Type: Engineering	Existing/ Future: Future	
Countermeasure Description: Real time incident management system through video monitoring.		
Lead Agency: Region of Peel, City of Brampton	Support Agencies: Town of Caledon	
Timelines: Medium-term	Secondary Emphasis Areas: Aggressive Driving	

COUNTERMEASURE TITLE: Fully Protected Phasing		ID: INT3
Countermeasure Type: Engineering	Existing/ Future: Existing Expanded	
Countermeasure Description: Provide a designated left turn signal phase where vehicles can only make a left turn on a green arrow.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Aggressive Driving, Pedestrians, Trucks	

COUNTERMEASURE TITLE: Dedicated Signal Phase for Bus Movements		ID: INT4
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: Transit-only or transit-priority signal phase; improves transit schedule and reduces conflicts with other users.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: Brampton Transit, MiWay	
Timelines: Medium-term	Secondary Emphasis Areas: Pedestrians	

COUNTERMEASURE TITLE: Change or Implement Traffic Control		ID: INT5
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: Range of measures such as changes from two-way stop to all-way stop, or stop control to signal control.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Aggressive, Pedestrians, Cyclist	

COUNTERMEASURE TITLE: Beacons/ Actuated Advance Warning Beacons		ID: INT6
Countermeasure Type: Engineering	Existing/ Future: Existing Expanded	
Countermeasure Description: Use to indicate to motorists that they are approaching an intersection and they should do so with caution.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: Town of Caledon	
Timelines: Short-term	Secondary Emphasis Areas: Aggressive Driving, Distracted Driving	

COUNTERMEASURE TITLE: Hazard Marker at Bullnose		ID: INT7
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: Installation of an object marker sign at the bullnose of medians for positive guidance.		
Lead Agency: Region of Peel, City of Brampton, Town of Caledon, City of Mississauga	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Prohibition of Specific Movements		ID: INT8
Countermeasure Type: Engineering	Existing/ Future: Existing Expanded	
Countermeasure Description: Restriction of specific movements at or near intersections such as: no left turn, no through movements.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Pedestrians, Trucks	

COUNTERMEASURE TITLE: Right Turn on Red Prohibition		ID: INT9
Countermeasure Type: Engineering	Existing/ Future: Existing Expanded	
Countermeasure Description: Prohibit right-turn-on-red at signalized intersections where collision reduction potential is predicted or due to geometrics.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: Caledon OPP, Peel Regional Police	
Timelines: Short-term	Secondary Emphasis Areas: Aggressive, Pedestrians, Trucks	

COUNTERMEASURE TITLE: U-turns for Access Control		ID: INT10
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Create median openings with signed or signalized U-turns permitted locations away from congested intersections.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton	Support Agencies: Peel Regional Police, Caledon OPP, Education and Outreach	
Timelines: Long-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: U-turns Prohibition		ID: INT11
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: Prohibit U-turns at locations where the data shows they are causing collisions.		
Lead Agency: Region of Peel, City of Brampton, of Mississauga	Support Agencies: Peel Regional Police	
Timelines: Medium-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Parking and Stopping Restrictions		ID: INT12
Countermeasure Type: Engineering	Existing/ Future: Existing Expanded	
Countermeasure Description: Add or extend parking or stopping restrictions to improve pedestrian and vehicle visibility.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Pedestrians, Cyclists	

COUNTERMEASURE TITLE: Signage Enhancements		ID: INT13
Countermeasure Type: Engineering	Existing/ Future: Existing Expanded	
Countermeasure Description: Installation of enhanced signage such as: trail blazer signs, auxiliary advance signs, overhead signs, larger signs, special needs signage, pedestrian obey signals sign, street name signage, etc.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton, Town of Caledon	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Distracted Driving, Trucks, Pedestrians, Aggressive Driving	

COUNTERMEASURE TITLE: Advance Signals Signage		ID: INT14
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: Installation of signals ahead and/or prepare to stop when flashing signs.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Aggressive Driving, Distracted Driving, Trucks	

COUNTERMEASURE TITLE: Ladder Crosswalks		ID: INT15
Countermeasure Type: Engineering	Existing/ Future: Existing Only	
Countermeasure Description: Replace traditional 2 line crosswalks with ladder design crosswalks.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: Pedestrians, Distracted Driving	

COUNTERMEASURE TITLE: Pavement Marking Improvements		ID: INT16
Countermeasure Type: Engineering	Existing/ Future: Existing Expanded	
Countermeasure Description: Enhanced pavement markings such as guidelines at intersections, 3D lane reduction arrows, 3D right/left turn arrows, and yield pavement markings.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: Aggressive Driving, Pedestrians, Cyclists, Trucks, School Zones	

COUNTERMEASURE TITLE: Yield Pavement Markings at Roundabouts and Right Turn Channels		ID: INT17
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Installation of sharks teeth pavement markings at roundabouts and right-turn channels to bring conspicuity to the pedestrian in the crosswalk.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton	Support Agencies: Town of Caledon	
Timelines: Medium-term	Secondary Emphasis Areas: Aggressive Driving, Pedestrians, Cyclists, Distracted Driving	

COUNTERMEASURE TITLE: Queue Jump Lanes		ID: INT18
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Dedicated lanes, which allow transit vehicles to by-pass existing traffic stopped at a red traffic signal.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: Brampton Transit, MiWay	
Timelines: Long-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Raised Intersections		ID: INT19
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: Center of intersection is raised above normal street level to facilitate speed management.		
Lead Agency: City of Brampton, City of Mississauga	Support Agencies: N/A	
Timelines: Long-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Roundabouts		ID: INT20
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Assess potential conversions of existing intersections to roundabouts or installation of new roundabouts.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton	Support Agencies: N/A	
Timelines: Long-term	Secondary Emphasis Areas: Aggressive Driving,	

COUNTERMEASURE TITLE: Street Lighting Improvements		ID: INT21
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Provide street lights for increased night time illumination.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: Pedestrians, Cyclists, Trucks	

COUNTERMEASURE TITLE: Sightline Clearing/Sight Distance Improvements		ID: INT22
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Improve visibility at intersecting roadways.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: Pedestrians, Aggressive Driving, Cyclists, School Zones, Trucks	

COUNTERMEASURE TITLE: At-Grade Rail Crossing Audits		ID: INT23
Countermeasure Type: Engineering	Existing/ Future: Future	
Countermeasure Description: Inspection of level railway crossings to ensure they meet safety regulations and standards.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Pedestrians, Cyclists, Trucks, Distracted Driving	

COUNTERMEASURE TITLE: High Friction Pavement		ID: INT24
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Implementation of high friction pavement to reduce collisions at locations based on "run off the road" Single Motor Vehicle collisions on curves, or rear-end collisions at stop or signal locations.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton	Support Agencies: Town of Caledon	
Timelines: Long-term	Secondary Emphasis Areas: Aggressive Driving, Trucks, Distracted Driving	

COUNTERMEASURE TITLE: Analysis of Data for Selective Enforcement		ID: INT25
Countermeasure Type: Enforcement/Engineering	Existing/ Future: Future	
Countermeasure Description: Prepare a list of behaviors and locations to best apply police resources in a way that might reduce collisions.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton, Town of Caledon	Support Agencies: Peel Regional Police, Caledon OPP	
Timelines: Short-term	Secondary Emphasis Areas: Aggressive Driving, Distracted Driving, Impaired Driving, Pedestrians, Cyclists, Trucks, School Zones	

COUNTERMEASURE TITLE: Enforcement of HTA – Traffic Signal Violations		ID: INT26
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: Enforcement of the Highway Traffic Act as it relates to traffic signal violations such as red light running and illegal U-turns.		
Lead Agency: Caledon OPP, Peel Regional Police	Support Agencies: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	
Timelines: Short-term	Secondary Emphasis Areas: Aggressive Driving, Distracted Driving, Pedestrians, Cyclists, Trucks	

COUNTERMEASURE TITLE: Roundabout Education and Outreach		ID: INT27
Countermeasure Type: Education/Empathy	Existing/ Future: Existing Expanding	
Countermeasure Description: Public education and outreach to inform road users of the correct ways to use a roundabout.		
Lead Agency: Region of Peel, City of Mississauga	Support Agencies: City of Brampton	
Timelines: Short-term	Secondary Emphasis Areas: Pedestrians, Cyclists, Trucks	

COUNTERMEASURE TITLE: Worst Intersection Campaign		ID: INT28
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: An annual campaign where road users across Ontario are provided an opportunity to nominate roads they believe are in urgent need of repair.		
Lead Agency: CAA – South Central Ontario	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

5.3.2 AGGRESSIVE DRIVING

Aggressive driving consists of driver actions which include speeding, speeding too fast for conditions, following too close, disobeying traffic control and failing to yield the right-of-way.

The breakdown of collisions in this category are shown in Figure 8 below.

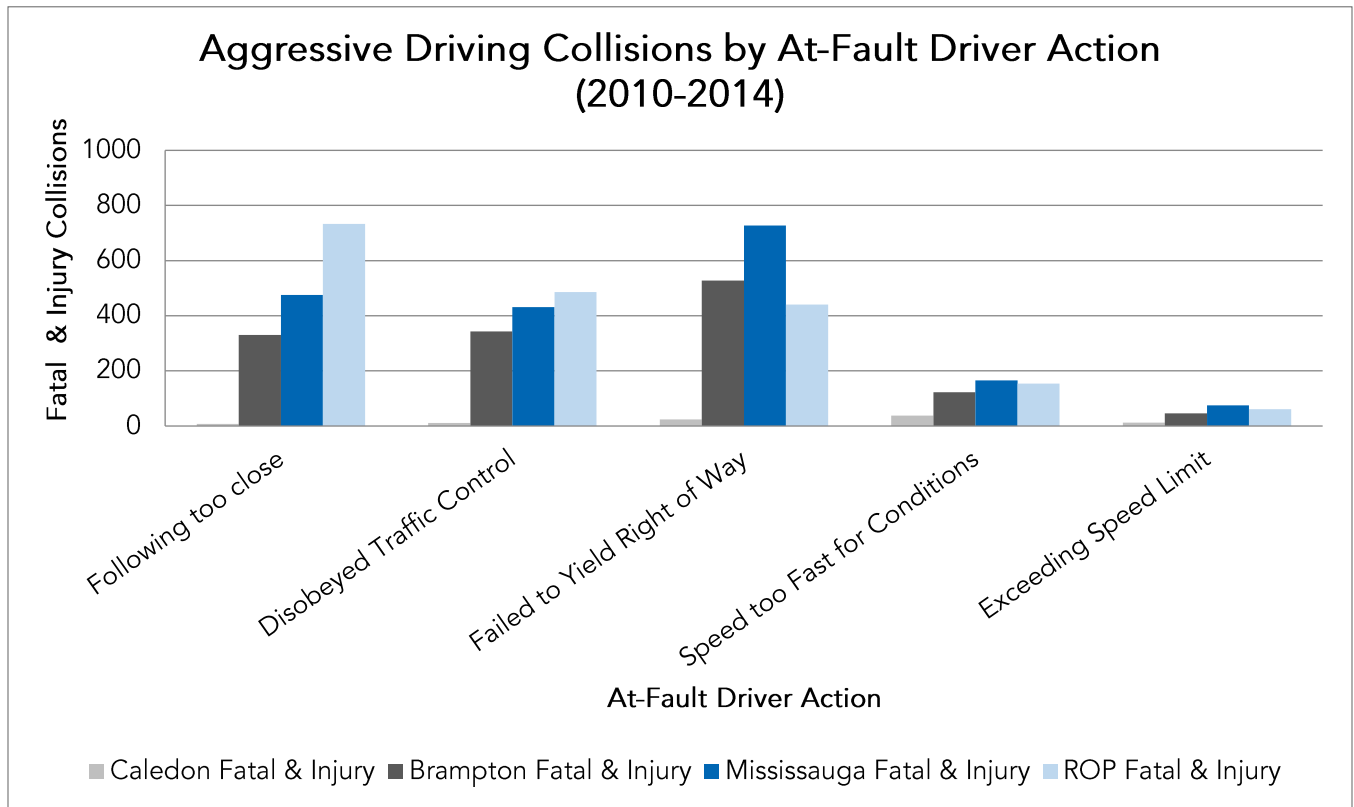


Figure 8: Aggressive Driving Collisions for Local Municipalities and Region of Peel
 NOTE: City of Mississauga data was unavailable for 2014.

The response to aggressive driving is a balanced package of engineering measures, increased and/or better targeted enforcement, and education campaigns. The proposed countermeasure are listed below:

COUNTERMEASURE TITLE: Design Policies Incorporating Road Safety		ID: AGG1
Countermeasure Type: Engineering	Existing/ Future: Future	
Countermeasure Description: Develop policy or policies for design that incorporate lower design speeds, traffic calming, etc. to improve safety at the design stage (i.e. EA process).		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: Pedestrians, Cyclists, School Zones, Intersection, Trucks	

COUNTERMEASURE TITLE: Speed Limit Reviews		ID: AGG2
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Develop a speed limit policy and implement speed limit reviews in all areas.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton	Support Agencies: Peel Regional Police, Caledon OPP	
Timelines: Short-term	Secondary Emphasis Areas: Pedestrians, School Zones, Trucks	

COUNTERMEASURE TITLE: Traffic Calming - Short Term Enhancements		ID: AGG3
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Short term traffic calming enhancements such as SLOW pavement markings, permanent/temporary speed cushions, bollards, lane reduction arrows, narrow width of road, enhanced signage, and pavement markings.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Intersections, Pedestrians, Cyclists, School Zones, Trucks	

COUNTERMEASURE TITLE: Traffic Calming – Infrastructure		ID: AGG4
Countermeasure Type: Engineering	Existing/ Future: Future	
Countermeasure Description: Long term traffic calming enhancements such as curb works, rumble strips, reduced lane widths, bump-outs, islands, chicanes, speed cushions.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: N/A	
Timelines: Long-term	Secondary Emphasis Areas: Pedestrians, School Zones, Trucks, Cyclists	

COUNTERMEASURE TITLE: Community Safety Zone		ID: AGG5
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanding	
Countermeasure Description: Develop policy and implement community safety zones in areas where there is a risk for pedestrians.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: Peel Regional Police and Caledon OPP	
Timelines: Medium-term	Secondary Emphasis Areas: School Zones, Distracted Driving, Pedestrians, Trucks	

COUNTERMEASURE TITLE: Mobile Changeable Message Signs		ID: AGG6
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: Mobile changeable signs with road safety messaging.		
Lead Agency: Region of Peel	Support Agencies: Peel Regional Police, Caledon OPP, Mississauga Road Safety Committee, City of Brampton	
Timelines: Medium-term	Secondary Emphasis Areas: School Zones, Trucks, Pedestrians, Cyclists, Intersection, Impaired Driving	

COUNTERMEASURE TITLE: Electronic Radar Speed Signs		ID: AGG7
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: The use of electronic radar speed signs to remind motorists about the posted speed or the speed they are travelling at such as Vehicle Activated Traffic Calming Signs (VATCS), feedback speed signs, or speed trailers.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: School Zones, Trucks	

COUNTERMEASURE TITLE: On-Street Parking		ID: AGG8
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: The allowance of on-street parking as a traffic calming measure.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Lawn Signs		ID: AGG9
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanding	
Countermeasure Description: Provide signs to public encouraging slower, more respectful driving in neighborhoods.		
Lead Agency: City of Mississauga, Town of Caledon	Support Agencies: Mississauga Road Safety Committee	
Timelines: Short-term	Secondary Emphasis Areas: School Zones, Pedestrians	

COUNTERMEASURE TITLE: Identify Locations of Aggressive Driving for Police Enforcement		ID: AGG10
Countermeasure Type: Engineering/ Enforcement	Existing/ Future: Future	
Countermeasure Description: Prepare a list of behaviors and locations to best apply police resources in a way that might reduce collisions.		
Lead Agency: Region of Peel	Support Agencies: Peel Regional Police, Caledon OPP	
Timelines: Short-term	Secondary Emphasis Areas: Intersections, Pedestrians, Cyclists, School Zones, Trucks	

COUNTERMEASURE TITLE: Red Light Cameras		ID: AGG11
Countermeasure Type: Engineering/ Enforcement	Existing/ Future: Existing and Expanded (Region of Peel); Future (City of Mississauga and City of Brampton)	
Countermeasure Description: Installation of a camera at an intersection to discourage red light running.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton	Support Agencies: MTO, City of Toronto, City of Mississauga, City of Brampton	
Timelines: Medium-term	Secondary Emphasis Areas: Intersections, Trucks	

COUNTERMEASURE TITLE: Automated Speed Enforcement		ID: AGG12
Countermeasure Type: Engineering/ Enforcement	Existing/ Future: Future	
Countermeasure Description: An electronic device that photographs the license plate of a speeding vehicle and sends the registered owner a citation. This countermeasure is to be implemented in school zones and community safety zones only.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: Ontario Traffic Council, MTO, City of Toronto	
Timelines: Long-term	Secondary Emphasis Areas: School Zones, Trucks	

COUNTERMEASURE TITLE: Enforcement of HTA – Aggressive Driving		ID: AGG13
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: Enforcement of the Highway Traffic Act as it relates to Aggressive Driving.		
Lead Agency: Caledon OPP, Peel Regional Police	Support Agencies: Region of Peel, Town of Caledon, City of Brampton	
Timelines: Short-term	Secondary Emphasis Areas: Intersection, School Zones, Trucks	

COUNTERMEASURE TITLE: ERASE		ID: AGG14
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: Eliminate Racing Activities on Streets Everywhere program.		
Lead Agency: Peel Regional Police	Support Agencies: City of Mississauga, City of Brampton	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Canada Day Long Weekend Traffic Initiative		ID: AGG15
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: Increased enforcement and visibility of police during the Canada Day long weekend.		
Lead Agency: Caledon OPP	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Trucks, Impaired Driving, Distracted Driving, Intersections	

COUNTERMEASURE TITLE: Canada Road Safety Week		ID: AGG16
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: Canada Road Safety Week is an enforcement-driven initiative led by the Canadian Association of Chiefs of Police (CACP), and more specifically by the CACP's Traffic Safety Committee. It is designed to increase public compliance with safe driving measures in order to save lives and reduce injuries on our roads.		
Lead Agency: Caledon OPP, Peel Regional Police	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Operation Corridor		ID: AGG17
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: 24 hour high visibility enforcement and education campaign that focuses on the aggressive driving of trucks.		
Lead Agency: Caledon OPP and MTO	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Trucks	

COUNTERMEASURE TITLE: Aggressive Driving Targeted Media Messaging		ID: AGG18
Countermeasure Type: Education	Existing/ Future: Existing	
Countermeasure Description: Media highlight to public dangers and consequences of aggressive driving.		
Lead Agency: Caledon OPP	Support Agencies: Town of Caledon	
Timelines: Short-term	Secondary Emphasis Areas: Intersection	

COUNTERMEASURE TITLE: Commercial Fleet Aggressive Driving Awareness and Information Sessions		ID: AGG19
Countermeasure Type: Education	Existing/ Future: Existing	
Countermeasure Description: Education and outreach for commercial vehicles.		
Lead Agency: Caledon OPP	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Trucks	

COUNTERMEASURE TITLE: Promotion of Road Watch		ID: AGG20
Countermeasure Type: Education	Existing/ Future: Existing Expanded	
Countermeasure Description: Promotion of the Road Watch program through website, social media, promotional literature, and road signage.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: Peel Regional Police and Caledon OPP, Mississauga Road Safety Committee	
Timelines: Short-term	Secondary Emphasis Areas: Pedestrians, Cyclists, School Zones, Impaired Driving, Trucks, Distracted Driving, Intersections	

COUNTERMEASURE TITLE: Implementation of Truck Safety Initiatives		ID: AGG21
Countermeasure Type: Education/Empathy	Existing/ Future: Existing and Expanded	
Countermeasure Description: Implementation of the recommendations in the Goods Movement Strategic Plan (2017-2021) such as: Off-peak deliveries, education and outreach, truck blind spot awareness, and road sharing.		
Lead Agency: Region of Peel	Support Agencies: Region of Peel Goods Movement Task Force	
Timelines: Medium-term	Secondary Emphasis Areas: Trucks	

5.3.3 DISTRACTED DRIVING

Distracted driving has become one of the leading causes of injury and death on Ontario roads. It is considered by the OPP as the leading cause of roadway deaths in Ontario for roads under their jurisdiction. Collisions involving distracted driving are coded by the police as the driver being “inattentive”, but police officials note that it is still likely that this type of collision is underreported, as it is difficult to ascertain this action in many cases.

The history of reported distracted driving collisions in the Region is as shown in Figure 9.

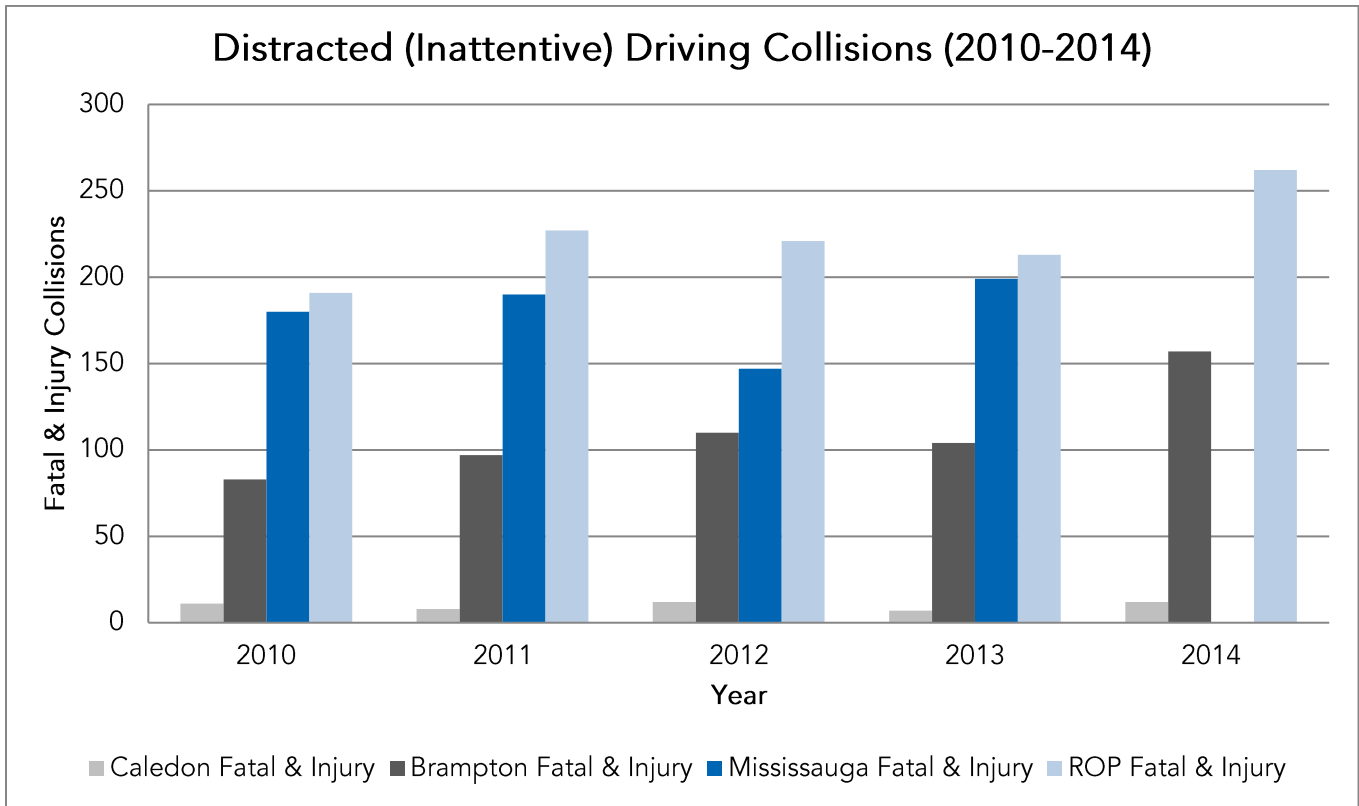


Figure 9: Distracted Driving Collisions for Local Municipalities and Region of Peel

NOTE: City of Mississauga data was unavailable for 2014.

The response to distracted driving is primarily education and enforcement in nature, and the countermeasure program is listed below:

COUNTERMEASURE TITLE: Safety Edge		ID: DIS1
Countermeasure Type: Engineering	Existing/ Future: Future	
Countermeasure Description: Angled slope at the edge of pavement on rural roads, which allows easier transition from gravel shoulder to paved roadway.		
Lead Agency: Region of Peel	Support Agencies: N/A	
Timelines: Long-term	Secondary Emphasis Areas: Impaired Driving, Cyclist, Trucks	

COUNTERMEASURE TITLE: Enforcement of HTA – Distracted Driving		ID: DIS2
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: Enforcement specifically aimed at distracted driving such as cell phone use, eating, etc.		
Lead Agency: Peel Regional Police, Caledon OPP	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Operation Impact		ID: DIS3
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: Peel Regional Police and Ontario Provincial Police – Caledon Detachment focus their efforts on various traffic initiatives to increase traffic safety. Reduces serious injuries and fatalities through increased public awareness and compliance with traffic safety laws.		
Lead Agency: Peel Regional Police, Caledon OPP	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Aggressive Driving, Impaired Driving	

COUNTERMEASURE TITLE: Distracted Driving Campaign		ID: DIS4
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: Education and enforcement campaign targeted at distracted driving.		
Lead Agency: Caledon OPP, Peel Regional Police	Support Agencies: Mississauga Road Safety Committee	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Distracted Driving Targeted Media Messaging		ID: DIS5
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: Public information campaign focused on risks and consequences of distracted driving.		
Lead Agency: Caledon OPP, Peel Regional Police	Support Agencies: Mississauga Road Safety Committee	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Heads Up! Intersection Safety Programming		ID: DIS6
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: Educational program aimed at reminding drivers to keep their "heads up" and remain attentive.		
Lead Agency: Caledon OPP, CAA - South Central	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Pedestrians, Intersections, Cyclists, School Zones	

COUNTERMEASURE TITLE: Enhanced Outreach Program(s)		ID: DIS7
Countermeasure Type: Education/Empathy	Existing/ Future: Future	
Countermeasure Description: Expand education/empathy program for distracted driving based on best practices in other North American municipalities.		
Lead Agency: Region of Peel, Peel Regional Police	Support Agencies: Mississauga Road Safety Committee, City of Brampton	
Timelines: Medium-term	Secondary Emphasis Areas: Pedestrians, Cyclists	

5.3.4 PEDESTRIAN COLLISIONS

The term “pedestrian collision” refers to a collision between a motor vehicle and a pedestrian. About 84% of all pedestrian collisions occur at signalized intersections. In over 65% of pedestrian collisions, the pedestrian is walking with the right-of-way. Pedestrian collisions almost always result in injury, often serious. In addition, 80% of all walking trips in Peel Region during the AM peak period are from home to school, making this emphasis area critical to enhancing safety across the Region. Figure 10 shows the history of pedestrian fatal and injury collisions in the Region.

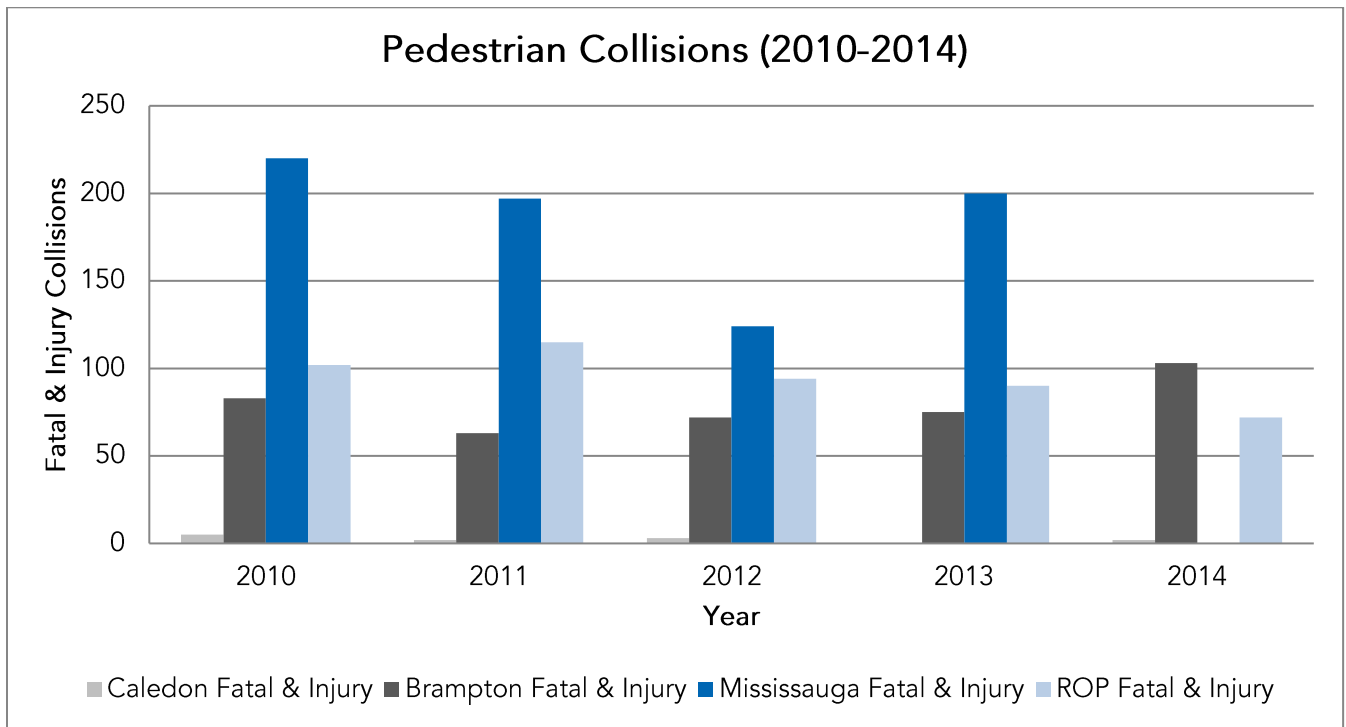


Figure 10: Pedestrian Collisions for Local Municipalities and Region of Peel

NOTE: City of Mississauga data was unavailable for 2014.

Many of the countermeasures for pedestrian safety are secondary to other emphasis areas, such as intersections or distracted driving. Several countermeasures proposed that specifically address pedestrian issues are listed below:

COUNTERMEASURE TITLE: Pedestrian Infrastructure		ID: PED1
Countermeasure Type: Engineering	Existing/ Future: Future	
Countermeasure Description: Implementation of pedestrian Infrastructure such as sidewalks, improved pedestrian crossings.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton, Town of Caledon	Support Agencies: N/A	
Timelines: Long -term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Implementing Components of the Region's Streetscaping Tool Box		ID: PED2
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Implementation of tools from the Region's Streetscaping Tool Box which provides methods for creating a comfortable and safe walking environment.		
Lead Agency: Region of Peel	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: Cyclists, School Zones	

COUNTERMEASURE TITLE: Pedestrian Countdown Signals and Pedestrian Signal Facilities		ID: PED3
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: Install countdown timers showing pedestrian time remaining to cross the street.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: Intersections	

COUNTERMEASURE TITLE: Exclusive Pedestrian Phasing (Scramble Crossing)		ID: PED4
Countermeasure Type: Engineering	Existing/ Future: Existing (City of Brampton); Future (Region of Peel)	
Countermeasure Description: A specific signal phase which allows pedestrians to cross in every direction at the same time.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: N/A	
Timelines: Long-term	Secondary Emphasis Areas: Intersections	

COUNTERMEASURE TITLE: Leading Pedestrian Intervals		ID: PED5
Countermeasure Type: Engineering	Existing/ Future: Future	
Countermeasure Description: A specific signal phase which allows pedestrians to start walking before vehicular movements begin.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Intersections, School Zones	

COUNTERMEASURE TITLE: Accessibility for Ontarians with Disability Act (AODA)		ID: PED6
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Installation of infrastructure to comply with the AODA such as accessible pedestrian pushbutton, signal units, and tactile warning strips.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton, Town of Caledon	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: Intersections	

COUNTERMEASURE TITLE: Enhanced Pedestrian Signage		ID: PED7
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Installation of enhanced pedestrian signage to warn motorists of the presence of pedestrians such as watch of children signs and watch for senior signs.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton, Town of Caledon	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Intersections, School Zones, Distracted Driving	

COUNTERMEASURE TITLE: Enhanced Pedestrian Pavement Markings		ID: PED8
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Installation of unconventional pavement markings to increase pedestrian visibility.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton	Support Agencies: Town of Caledon	
Timelines: Medium-term	Secondary Emphasis Areas: School Zones, Intersections, Distracted Driving	

COUNTERMEASURE TITLE: Smart Channels		ID: PED9
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: A right turn channel designed to reduce the driver's entry angle to improve visibility of pedestrians and reduce vehicular speed.		
Lead Agency: Region of Peel, City of Brampton	Support Agencies: N/A	
Timelines: Long-term	Secondary Emphasis Areas: Intersections, Aggressive Driving	

COUNTERMEASURE TITLE: Pedestrian Refuge Islands		ID: PED10
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: A raised median in the center of the roadway to shorten pedestrian crossings.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: N/A	
Timelines: Long-term	Secondary Emphasis Areas: Intersections, School Zones	

COUNTERMEASURE TITLE: Midblock Pedestrian Crossings		ID: PED11
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: A controlled pedestrian crossing between two intersections.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Long-term	Secondary Emphasis Areas: School Zones	

COUNTERMEASURE TITLE: Multi-use Trails		ID: PED12
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: Multi-use pathways that are utilized by bicyclists, walkers, and runners for both transportation and recreation.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Long-term	Secondary Emphasis Areas: Cyclist, School Zones	

COUNTERMEASURE TITLE: Crossing Guards		ID: PED13
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: A person whose job it is to help pedestrians, especially school children, to cross roadways safely.		
Lead Agency: City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Intersections, School Zones	

COUNTERMEASURE TITLE: Advocate for the Area Around the School as a School Zone		ID: PED14
Countermeasure Type: Engineering	Existing/ Future: Future	
Countermeasure Description: Advocate for a school zone which considers the area around a school as a school zone as opposed to only the street that the school is on.		
Lead Agency: Region of Peel, Town of Caledon	Support Agencies: Ontario Traffic Council, City of Brampton	
Timelines: Medium-term	Secondary Emphasis Areas: School Zones	

COUNTERMEASURE TITLE: Walking Audit Tool		ID: PED15
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: The Walking Audit is used to evaluate neighbourhoods and encourage the development of more walkable communities.		
Lead Agency: Region of Peel	Support Agencies: City of Brampton, City of Mississauga, Town of Caledon, Brampton School Traffic Safety Council	
Timelines: Short-term	Secondary Emphasis Areas: Cyclists, School Zones, Intersections	

COUNTERMEASURE TITLE: Public Education Campaigns		ID: PED16
Countermeasure Type: Education/Empathy	Existing/ Future: Existing Expanded	
Countermeasure Description: Education and outreach on pedestrian safety topics for all road users through safety campaigns and education on how to use and behave around pedestrian facilities.		
Lead Agency: Region of Peel, Peel Regional Police, Caledon OPP, MTO	Support Agencies: Mississauga Road Safety Committee, School Boards, Brampton School Traffic Safety Council	
Timelines: Short-term	Secondary Emphasis Areas: Cyclists, School Zones	

COUNTERMEASURE TITLE: Pedestrian Targeted Media Messaging		ID: PED17
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: Social media messaging on pedestrian safety topics.		
Lead Agency: Caledon OPP, Town of Caledon, City of Brampton	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Project Safe Streets		ID: PED18
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: A traffic campaign focused on road safety through education and enforcement strategies.		
Lead Agency: Peel Regional Police	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Cyclists, School Zones, Distracted Driving, Impaired Driving, Aggressive Driving	

COUNTERMEASURE TITLE: Interactive Programming with School Boards		ID: PED19
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: Interactive programs at the Peel Children’s Safety Village for grade 1-5 students on topics such as pedestrian and cyclist safety consisting of both a classroom component as well as a hands-on component.		
Lead Agency: Peel Regional Police	Support Agencies: Region of Peel, City of Brampton, Brampton School Traffic Safety Council	
Timelines: Short-term	Secondary Emphasis Areas: Cyclists, School Zones, Intersections	

COUNTERMEASURE TITLE: Walk to School Week Programming		ID: PED20
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: A collaborative program between law enforcement and educational institutes to promote walking to school during a specified week.		
Lead Agency: Caledon OPP, Peel Regional Police, City of Brampton	Support Agencies: School Boards	
Timelines: Short-term	Secondary Emphasis Areas: Cyclists, School Zones, Intersections	

COUNTERMEASURE TITLE: Ontario Road Safety Resources		ID: PED21
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: The provision of teaching materials for parents and teachers to use to provide school aged children with lessons on road safety.		
Lead Agency: CAA South Central	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Cyclists, School Zones, Intersections	

COUNTERMEASURE TITLE: School Travel Planning (STP) and Active and Safe Routes to School		ID: PED22
Countermeasure Type: Engineering/Education	Existing/ Future: Existing and Expanded	
Countermeasure Description: School Travel Planning (STP) is a proven cost effective way to make the streets around schools safer and get more children walking and cycling to school.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: Peel Regional Police, School Boards, Mississauga Traffic Safety Council, Brampton School Traffic Safety Council	
Timelines: Medium-term	Secondary Emphasis Areas: School Zones, Intersection, Cyclists	

COUNTERMEASURE TITLE: Peel Safe and Active Routes to School (PSARTS)		ID: PED23
Countermeasure Type: Engineering/Education	Existing/ Future: Existing and Expanded	
Countermeasure Description: The Peel Safe and Active Routes to School Committee meets regularly to support education and outreach strategies, polices, and programs that encourage students, families and school staff to choose active, healthy, sustainable, and safe options when traveling to and from school.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: Peel Regional Police, School Boards, Mississauga Traffic Safety Council	
Timelines: Medium-term	Secondary Emphasis Areas: School Zones, Intersection, Cyclists	

COUNTERMEASURE TITLE: Safe Crossings for Senior Pedestrians		ID: PED24
Countermeasure Type: Education/Empathy	Existing/ Future: Existing Expanded	
Countermeasure Description: A program for educating seniors on safe crossings at intersections and mid-block controlled locations.		
Lead Agency: Region of Peel, City of Brampton	Support Agencies: Peel Regional Police	
Timelines: Short-term	Secondary Emphasis Areas: Intersections, Cyclists	

5.3.5 CYCLIST COLLISIONS

Cyclist collisions include collisions between a cyclist and a motor vehicle, as well as single cyclist collisions, although the latter tend not to be reported to police and are therefore not well represented in the Region’s collision database. As with pedestrian collisions, many of the countermeasures are secondary to other emphasis areas, such as intersections or aggressive driving. Also, as with pedestrian collisions, injury almost always occurs in a cycling collision. The history of cycling collisions in the Region is shown in Figure 11.

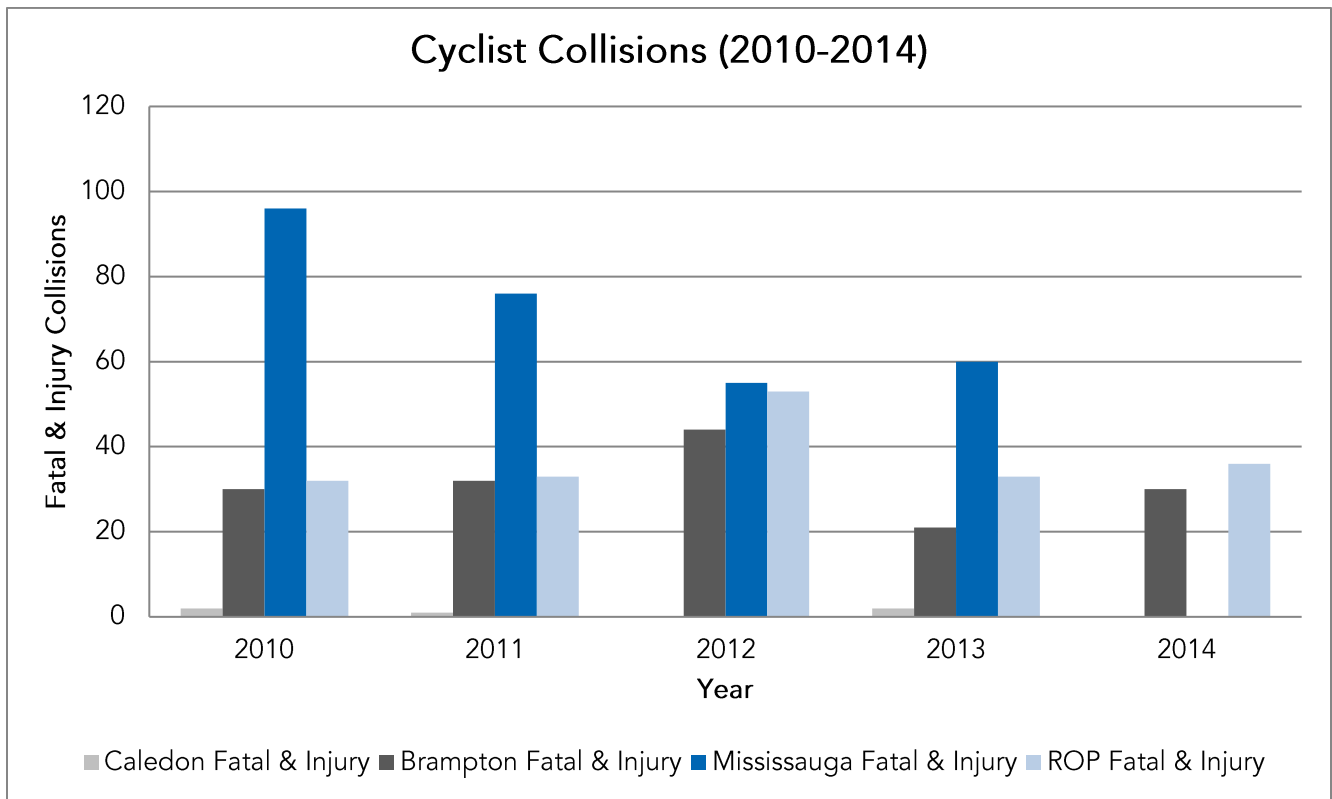


Figure 11: Cyclist Collisions for Local Municipalities and Region of Peel
 NOTE: City of Mississauga data was unavailable for 2014.

The list of countermeasures for cyclist collisions is listed below:

COUNTERMEASURE TITLE: Cycling Infrastructure		ID: CYC1
Countermeasure Type: Engineering	Existing/ Future: Future	
Countermeasure Description: Implementation of active transportation infrastructure such as multi-use trails, cycle tracks, and bike lanes.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Long-term	Secondary Emphasis Areas: Intersections, School Zones, Pedestrians	

COUNTERMEASURE TITLE: Bicycle Signals and Cross-Rides		ID: CYC2
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: A dedicated space identified by unique pavement markings, for cyclists to legally ride their bicycle across a roadway without dismounting.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Long-term	Secondary Emphasis Areas: Intersections, School Zones, Pedestrians	

COUNTERMEASURE TITLE: Bicycle Signal Detection		ID: CYC3
Countermeasure Type: Engineering	Existing/ Future: Existing (Brampton); Future (Region of Peel)	
Countermeasure Description: A method to detect cyclists at signalized locations.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: Intersections, School Zones	

COUNTERMEASURE TITLE: Enhanced Bicycle Signage		ID: CYC4
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Install enhanced signage such as stop and dismount signs and oversized regulatory and warning signs.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: Town of Caledon	
Timelines: Short-term	Secondary Emphasis Areas: Intersections, School Zones, Distracted Driving, Trucks	

COUNTERMEASURE TITLE: Enhanced Cyclist Pavement Markings		ID: CYC5
Countermeasure Type: Engineering	Existing/ Future: Existing and Expanded	
Countermeasure Description: Install enhanced pavement markings such as green paint, sharrows, etc.		
Lead Agency: Region of Peel, City of Mississauga, City of Brampton, Town of Caledon	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: Intersections, School Zones	

COUNTERMEASURE TITLE: Urban Shoulders		ID: CYC6
Countermeasure Type: Engineering	Existing/ Future: Existing	
Countermeasure Description: Urban shoulders are the same width as a bicycle lane, but are not used just for bicycles – they can also be used for on-street parking. Urban shoulders are typically implemented as an interim measure to provide a local cycling connection to area schools, businesses, trails and recreation centres.		
Lead Agency: City of Brampton, City of Mississauga, Town of Caledon	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: School Zones, Intersections	

COUNTERMEASURE TITLE: Bike Boxes		ID: CYC7
Countermeasure Type: Engineering	Existing/ Future: Future	
Countermeasure Description: The bike box is a space in the intersection (often painted a different color, like green) that allows cyclists to position themselves ahead of vehicle traffic at an intersection.		
Lead Agency: Region of Peel, City of Brampton, City of Mississauga	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: Intersections, Distracted Driving	

COUNTERMEASURE TITLE: Identify Locations of Cyclist Collisions for Police Enforcement		ID: CYC8
Countermeasure Type: Engineering/ Enforcement	Existing/ Future: Future	
Countermeasure Description: Prepare a list of behaviors and locations to best apply police resources in a way that might reduce cycling collisions.		
Lead Agency: Region of Peel, Town of Caledon	Support Agencies: Peel Regional Police, Caledon OPP, City of Brampton	
Timelines: Short-term	Secondary Emphasis Areas: Aggressive Driving, Distracted Driving, Impaired Driving, Intersection, School Zones, Trucks	

COUNTERMEASURE TITLE: Cyclist Targeted Media Messaging		ID: CYC9
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: Safety information outreach targeted at cyclists and motorists.		
Lead Agency: Region of Peel, Caledon OPP, City of Mississauga	Support Agencies: Mississauga Cycling Advisory Committee, Caledon Cycling Club, Town of Caledon, Brampton Cycling Advisory Committee	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Bike Rodeos		ID: CYC10
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: A rodeo is a bicycle skills event which provides an opportunity for cyclists to practice and develop skills that will help them to cycle safely and with confidence.		
Lead Agency: Caledon OPP, Peel Regional Police	Support Agencies: Region of Peel, Mississauga Cycling Advisory Committee, Brampton Cycling Advisory Committee	
Timelines: Short-term	Secondary Emphasis Areas: School Zones	

COUNTERMEASURE TITLE: Community Bike Rides		ID: CYC11
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: Free series of casual cycling tours.		
Lead Agency: Caledon OPP, Bike Brampton, Mississauga Cycling Advisory Committee	Support Agencies: Town of Caledon, City of Brampton, City of Mississauga	
Timelines: Short-term	Secondary Emphasis Areas: School Zones	

COUNTERMEASURE TITLE: Bike to School/Work Programming		ID: CYC12
Countermeasure Type: Education/Empathy	Existing/ Future: Existing and Expanded	
Countermeasure Description: Promotional campaigns to encourage the use of biking to school and work.		
Lead Agency: Region of Peel, City of Brampton	Support Agencies: Caledon OPP, Peel Regional Police, School Boards, Mississauga Cycling Advisory Committee, Town of Caledon, Brampton Cycling Advisory Committee	
Timelines: Short-term	Secondary Emphasis Areas: School Zones	

COUNTERMEASURE TITLE: Bike Basics Education Program		ID: CYC13
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: Short courses of a few hours in length, directed primarily towards children and youth, to teach basic cycling skills and safety. Aspects of these courses are being incorporated into pre-ride instructions at community rides		
Lead Agency: Brampton Cycling Advisory Committee	Support Agencies: City of Brampton	
Timelines: Short-term	Secondary Emphasis Areas: School Zones	

COUNTERMEASURE TITLE: Education and Outreach for Cyclists		ID: CYC14
Countermeasure Type: Education/Empathy	Existing/ Future: Existing and Expanded	
Countermeasure Description: Educational Campaigns and outreach events aimed at informing cyclists of road safety and cycling resources.		
Lead Agency: Region of Peel, CAA South Central, Peel Regional Police	Support Agencies: Caledon OPP, Town of Caledon, City of Brampton, City of Mississauga, Brampton Cycling Advisory Committee, Mississauga Cycling Advisory Committee, Caledon Cycling Club	
Timelines: Short-term	Secondary Emphasis Areas: School Zones, Aggressive Driving	

COUNTERMEASURE TITLE: Walk + Roll Peel Outreach		ID: CYC15
Countermeasure Type: Education/Empathy	Existing/ Future: Existing and Expanded	
Countermeasure Description: "Walk + Roll" Peel is the brand for the outreach work done at the Region of Peel to encourage active transportation. It educates Peel residents about how to interact with pedestrians and cyclists as a driver, as well as from the perspective of those using active transportation.		
Lead Agency: Region of Peel	Support Agencies: Peel Regional Police, Caledon OPP, City of Brampton, Town of Caledon, City of Mississauga, School Boards, Brampton Cycling Advisory Committee	
Timelines: Short-term	Secondary Emphasis Areas: Pedestrian School Zones, Intersections	

COUNTERMEASURE TITLE: Cycling Skills Training – CAN-BIKE		ID: CYC16
Countermeasure Type: Education/Empathy	Existing/ Future: Existing and Expanded	
Countermeasure Description: The CAN-BIKE program is a series of progression courses taught on all aspects of cycling, to ride safely, effectively, and enjoyably on the road.		
Lead Agency: Region of Peel, City of Mississauga	Support Agencies: Mississauga Cycling Advisory Committee, Brampton Cycling Advisory Committee	
Timelines: Short-term	Secondary Emphasis Areas: Intersections, School Zones, Trucks, Aggressive Driving, Distracted Driving	

COUNTERMEASURE TITLE: Identification of Cycling Infrastructure Enhancement Opportunities		ID: CYC17
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: Identify locations where problems are identified to Brampton staff, supporting agencies, and organization representatives.		
Lead Agency: Brampton Cycling Advisory Committee	Support Agencies: City of Brampton	
Timelines: Short-term	Secondary Emphasis Areas: Intersection	

COUNTERMEASURE TITLE: Community Active Transportation / Transportation Demand Management Social Marketing Program		ID: CYC18
Countermeasure Type: Education/Empathy	Existing/ Future: Future	
Countermeasure Description: The Region of Peel is partnering with community organizations to deliver a suite of programs to support cycling, including a cycling mentorship program, bicycle repair, and bike loan services. Building cycling and repair skills not only encourages cycling, but also improves safety of cycling.		
Lead Agency: Region of Peel	Support Agencies: N/A	
Timelines: Medium-term	Secondary Emphasis Areas: School Zones	

5.3.6 IMPAIRED DRIVING

Collisions defined as impaired driving include one or more involved drivers who were: recorded with a blood alcohol level over .08; identified as “impaired”; or identified as “had been drinking”. The latter category may include some drivers who receive an administrative suspension for exceeding .05 blood alcohol. The history of impaired driving collision in the Region is shown in Figure 12.

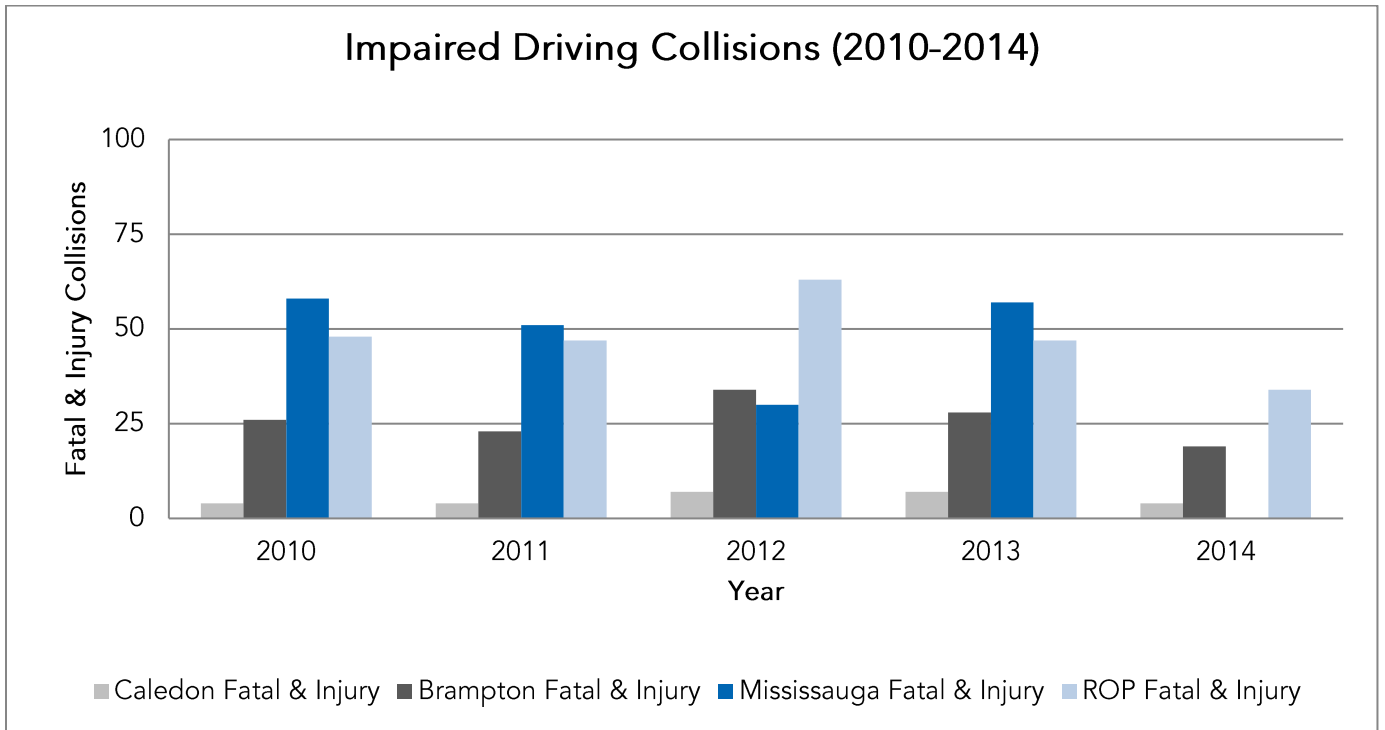


Figure 12: Impaired Driving Collisions for Local Municipalities and Region of Peel
 NOTE: City of Mississauga data was unavailable for 2014.

The countermeasures for impaired driving fall primarily under the categories of enforcement and education. The countermeasures are listed below:

COUNTERMEASURE TITLE: Identify Locations of Impaired Driving		ID: IMP1
Countermeasure Type: Engineering/ Enforcement	Existing/ Future: Future	
Countermeasure Description: Prepare a list of behaviors and locations to best apply police resources in a way that might reduce collisions caused by impaired drivers.		
Lead Agency: Region of Peel	Support Agencies: Peel Regional Police, Caledon OPP	
Timelines: Short-term	Secondary Emphasis Areas: Intersections	

COUNTERMEASURE TITLE: Regular and Festive Enforcement / R.I.D.E. Spot Checks		ID: IMP2
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: A program to “Reduce Impaired Driving Everywhere”. In addition to the yearly R.I.D.E. program, the department also operates a Festive Season R.I.D.E., which operates every day from the end of November to the beginning of the New Year.		
Lead Agency: Caledon OPP, Peel Regional Police	Support Agencies: Town of Caledon	
Timelines: Short-term	Secondary Emphasis Areas: Aggressive Driving, Distracted Driving	

COUNTERMEASURE TITLE: Enforcement of HTA – Impaired Driving		ID: IMP3
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: Enforcement of the Highway Traffic Act as it relates to impaired driving.		
Lead Agency: Peel Regional Police, Caledon OPP	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Labour Day Long Weekend Traffic Initiative		ID: IMP4
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: Increased visibility and enforcement of impaired and aggressive driving infractions over the Labour Day Long Weekend.		
Lead Agency: Caledon OPP	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Distracted Driving, Aggressive Driving	

COUNTERMEASURE TITLE: Last Drink Program		ID: IMP5
Countermeasure Type: Enforcement	Existing/ Future: Existing	
Countermeasure Description: The Last Drink Program is a public safety initiative designed to reduce impaired driving on Ontario highways. If any driver charged with impaired driving names a licensed establishment as the last place they drank alcohol, the police must inform the Alcohol and Gaming Commission of Ontario (AGCO). The AGCO then has the opportunity to work with the establishment to enforce regulation of its policies.		
Lead Agency: Peel Regional Police, Caledon OPP	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Enhanced Outreach Program(s)		ID: IMP6
Countermeasure Type: Education/Empathy	Existing/ Future: Future	
Countermeasure Description: Expand education/empathy programs targeted at impaired driving key age groups, based on best practices in other North American municipalities.		
Lead Agency: MADD, Peel Regional Police, Caledon OPP	Support Agencies: Region of Peel	
Timelines: Medium-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: Impaired Driving Targeted Media Messaging		ID: IMP7
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: Media highlight to public dangers and consequences of impaired driving.		
Lead Agency: Caledon OPP, Peel Regional Police	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: MADD 911 Campaign		ID: IMP8
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: Campaign 911 is a Canada-wide campaign to encourage and empower the Canadian public to report suspected impaired driving by calling 911.		
Lead Agency: MADD (Mothers Against Drunk Driving)	Support Agencies: Peel Regional Police, Caledon OPP	
Timelines: Short-term	Secondary Emphasis Areas: N/A	

COUNTERMEASURE TITLE: DriveSafe Campaign		ID: IMP9
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: A yearly campaign initiated by the Ontario Association of Chiefs of Police on a specific road safety issue. The 2018 DriveSafe campaign warns the public that the legalization and regulation of cannabis requires motorists to take extra care on the roads.		
Lead Agency: Caledon OPP, Peel Regional Police	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Intersections, Aggressive Driving, Distracted Driving, Pedestrians, Cyclists	

COUNTERMEASURE TITLE: Free Transit after Midnight on New Year's Eve		ID: IMP10
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: The provision of free transit after midnight on New Year's Eve to reduce the likelihood of impaired driving.		
Lead Agency: MiWay, Brampton Transit	Support Agencies: City of Mississauga, City of Brampton	
Timelines: Short-term	Secondary Emphasis Areas: Intersections, Pedestrians, Cyclists	

COUNTERMEASURE TITLE: Ontario's Road Safety Challenge		ID: IMP11
Countermeasure Type: Education/Empathy	Existing/ Future: Existing	
Countermeasure Description: A challenge to engage the participation of road safety groups and community members to work together to make Ontario's roads safer.		
Lead Agency: Ontario Ministry of Transportation	Support Agencies: N/A	
Timelines: Short-term	Secondary Emphasis Areas: Intersections, Aggressive Driving, Distracted Driving, Pedestrians, Cyclists	

6 Action Plan Costs and Budgeting

It is difficult to predict the relationship between safety expenditure and collision reduction. However, the RSSP has set an ambitious goal and to achieve it, it will likely be necessary to initiate as many countermeasures as possible from the proposed list to meet the goal.

Cost estimates have been developed for the implementation of the Road Safety Strategic Plan for 2018-2022.

The capital and operating cost for the implementation (2018 to 2022) of existing and future safety improvement programs and action items are estimated to be \$47.2M. Of this amount, \$21.3M consists of new projects and initiatives and the remaining \$25.9M is a part of the Region's existing and reoccurring, operating and capital budgets. Funding for individual projects will be presented to Council for consideration as part of the annual budget process. The amount proposed for expenditure in each year will be dependent on how the program is rolled out, based on the development and readiness of individual countermeasures.

Additional staff and staff time may be required, as significant effort will be required to analyze safety data, develop specific programs, implement countermeasures and monitor results, with the exact details to be determined after the Task Force is assembled and the RSSP is developed in further detail. Staff will review resource requirements through the annual budget process.

7 Implementation and Monitoring Plan

The steps required to fully implement the RSSP in Peel Region are shown in the flow chart below in Figure 13.

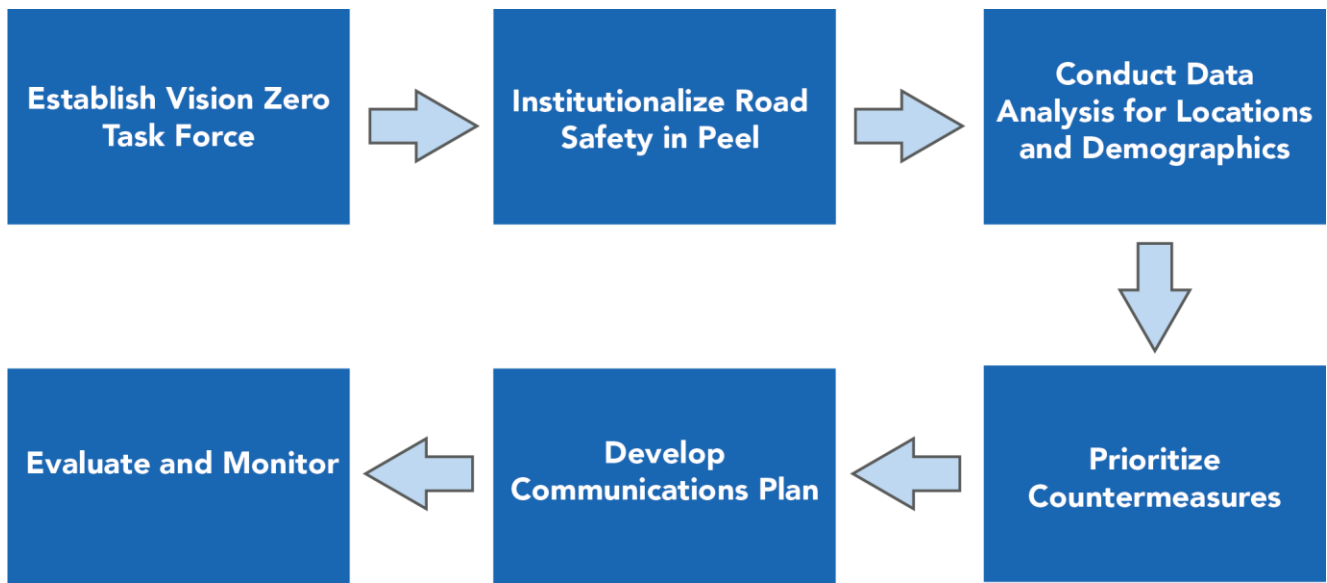


Figure 13: RSSP Process

7.1 Vision Zero Task Force

The first step in implementing the RSSP will be to establish a Vision Zero Task Force that will be responsible for guiding the program, delivering the countermeasures, and be directly responsible for the management and success of the RSSP. As much commitment, informal or formal, as possible, will be obtained from the leadership of each of the partner agencies, understanding that the RSSP is a long-term project and a significant commitment. This Task Force will initially include the same partner agencies (shown in **Figure 4**) that helped develop the RSSP, including representatives from the Region, Public Health, Peel Regional Police, OPP, and Transit. The Task Force should continue to seek out additional members, such as the school boards, who can have a significant impact on road safety, to encourage their active participation. The Task Force will encourage attendance at the meetings by representatives of

other agencies, but if those agencies are not delivering safety programs, then it is understood they will be observers only.

The Task Force should develop a formal Terms of Reference, including mandate, membership, meeting times and roles and responsibilities. The mandate may include some or all of the following actions:

- Implementing countermeasures,
- Securing approvals and funding,
- Measuring effectiveness of existing and new programs,
- Adjusting the overall action plan to meet goals and/or adjusting the goals,
- Encouraging additional partners to join the task force and contribute,
- Researching emerging safety technologies and advancements in road safety, and
- Being the voice of the Vision Zero and the road safety culture in the Region of Peel.

7.2 Institutionalizing Safety in Peel

While road safety is recognized as a top priority for the Region of Peel and the involved RSSP partner agencies, this is not sufficient. Road safety must be integrated into the decision-making process throughout the Region, local municipalities and agencies that are involved with the road system. Developing a traffic safety culture means to create a social climate in which traffic safety is highly valued and rigorously pursued. In addition, the RSSP helps institutionalize changes in the transportation safety culture through the following actions:

- Interaction, collaboration, and liaison between safety partners;
- Use of data-driven goals and emphasis area objectives and strategies;
- The incorporation of safety into existing plans and programs; and
- Funding sources and allocation, and safety investment delivery by a lead agency from the partnership.

One of the efforts of the Vision Zero Task Force will be to work to develop a culture across the supporting agencies that values road safety highly. The Task Force for the RSSP will be a role model to others. The goal of implementing a traffic safety culture is to start changing people's values and attitudes towards traffic safety so that it is a part of every transportation decision. Part of this process will be to invite members of groups not directly involved with the RSSP, for example from road construction, or functional planning, to participate and to take back the philosophy of Vision Zero and the RSSP to their respective agencies or departments. This will be done as outlined in the four initiatives below:

ROAD SAFETY AMBASSADORS**ID: VZTF1**

Existing/ Future: Future

Description: Create a network of road safety ambassadors at the communities/agencies to promote Vision Zero, and the Vision Zero Traffic Safety Culture.

Lead Agency: Vision Zero Task Force**Timelines:** Short-term

VISION ZERO TRAFFIC SAFETY CULTURE**ID: VZTF2**

Existing/ Future: Future

Description: Create a social climate in which traffic safety is highly valued and rigorously pursued. It includes changing values and attitudes so that safety is part of every transportation decision. This would involve disseminating information and consistent messaging to ambassadors. This countermeasure plan forms the core, but a concerted outreach program is needed as well. Ideally, all road engineering decision-making, such as construction and planning, should have a safety component as a core value. At a higher level, the Task Force could consider proposing how road safety should be treated in the upcoming Transportation Regional Official Plan Amendment.

Lead Agency: Vision Zero Task Force**Timelines:** Short-term

MULTIMODEL LEVEL OF SERVICE (MMLOS)**ID: VZTF3**

Existing/ Future: Future

Description: Performance measures for roadways are typically based on the level of service provided to motorized vehicles only. MMLOS gives consideration to the comparable levels of service offered to pedestrian, cyclists and transit users.

Lead Agency: Region of Peel**Timelines:** Short-term

Existing/ Future: Future

Description: The Healthy Development Assessment aims to assist planning and development partners in creating healthy, supportive environments for Peel residents. It measures the health-promoting potential of a planning or development proposal, or an environmental assessment for capital projects and includes criteria including safety and comfort for all road users.

Lead Agency: Region of Peel

Timelines: Short-term

7.3 Countermeasure Prioritization

The Region and its partners have identified many countermeasures in the RSSP. Factors that affect the prioritization of countermeasures include:

- Time frame,
- Planned projects and strategies, and
- Budget and staff availability.

It is imperative that a prioritization of countermeasures be undertaken by the Vision Zero Task Force. The implementation strategy should focus first on the “low-hanging fruit”, the projects that can be easily and quickly (in less than one year) implemented. The easiest of these are expanded versions of existing programs. Once those programs are underway, the Task Force can move to planning and approvals for the medium-term (1-5 years to implement) and the long-term (greater than 5 years) projects respectively. Factors that impact project timing include design and engineering or other program development; requirement for approvals and/or specific funding; need to coordinate with one or more other RSSP partners or with other partner initiatives; appropriate weather to implement; and waiting to coordinate with major capital projects such as road construction. It is expected that almost all of the initiatives listed will be initiated in the first five years of the project, but many will not be implemented in the first year or two.

The effect of the RSSP countermeasures on road safety will not always be immediate. Engineering countermeasures can often be implemented in the short term, but the physical area impacted by changes are often small. The time frame to implement engineering countermeasures may be short in the case of simple pavement marking or signage changes (e.g. flashers over a stop sign), or may take a number of years if capital budgeting and/or public consultation is required (e.g. substantive changes to the configuration of a signalized intersection). Enforcement countermeasures can often be organized relatively quickly if a short, high-profile campaign is the intent. However, consistent, targeted, long-term efforts are more difficult to sustain and may require longer-range budgeting and planning. The effects of enforcement are largely dependent on the consistency and degree of effort. Educational efforts typically have the longest period of change, but also hold the greatest opportunity for widespread and permanent change. Changing road user behaviours is not easy, but it goes directly to the cause of the collision and holds great possibilities for collision reduction.

7.4 Data Analysis for Location Identification

As a typical road safety strategic plan, the RSSP is data-driven. Decisions on site-specific countermeasures, such as engineering actions; and decisions on countermeasures based on demographic groups, such as educational programs, need to be based on detailed analysis. Several data analysis steps will be required, and the analyses may be ongoing throughout the terms of the RSSP, as new questions are asked by the Task Force in terms of: where to implement the engineering measures; where/when for enforcement measures; and which age groups/actions for education measures. This analysis is one of the first steps and may lead to adjustment of the countermeasure program after the data trends are viewed in detail.

As well, the Region should update its Network Screening plan, as this provides a rigorous approach to comparing locations, based on a strong statistical component, to help choose countermeasures. This will also provide good methodology for evaluation of site-specific measures such as engineering and enforcement countermeasures.

COLLISION DATA ANALYSIS		ID: VZTF5
Existing/ Future: Existing Expanded		
Description: Data analysis to determine where collisions are happening and the type of collisions and demographic of the road users involved in order to better allocate and plan resources. Example: analyze a specific age group, time of day, driver behaviour, etc.		
Lead Agency: Region of Peel; Peel Regional Police; Caledon OPP	Timelines: Short-term	

SAFETY PERFORMANCE FUNCTIONS (SPF) AND NETWORK SCREENING		ID: VZTF6
Existing/ Future: Future		
Description: Network screening allows municipalities to proactively review the road network to identify locations that have a high potential for safety improvement.		
Lead Agency: Region of Peel	Timelines: Short-term	

7.5 Communications Strategy

Many aspects of the countermeasure program depend on communications and outreach. At present these initiatives, both existing and proposed, are stand-alone efforts from many of the partner agencies. Some may be currently coordinated in their timing.

Better coordination of all programs, including communications, education, and enforcement, will make them more effective. Using a common brand and emphasizing that they are all being delivered to help improve road safety in Peel will add to that effectiveness.

An ideal structure would be for all communications efforts to be totally coordinated, perhaps even centralized, in one comprehensive communications program. This would allow for optimizing the use of resources in terms of which emphasis areas and which demographics are targeted, as well as tight coordination with the province and adjoining jurisdictions on timing and messaging, to get the maximum impact. This would also allow for better measurement and evaluation.

7.6 Evaluation and Monitoring

One of the key program elements will be monitoring and evaluation. The goal has been established for the first five years of the program, and the Task Force will be monitoring its progress and degree of success.

While it is often possible to measure the actual effect of engineering changes to the road environment on road user safety, the same is not true for enforcement and education. It may be possible to measure outputs, that is, the extent of the actions taken, but it is more difficult to predict the expected degree of success of enforcement and education countermeasures in terms of actual safety reductions. The longer timeframes and many other factors influencing changes in road user behaviours make it difficult to separate out the effect of specific road safety programs. It is possible to measure whether the message reached the intended recipients and it is possible to ask whether the road user intends to change his/her behaviour as a result. With engineering countermeasures, the prediction tools are more accurate, but still only provide an estimate of the expected outcome. Therefore, it is difficult to produce a list of programs and state with precision that a suite of programs will produce the desired overall traffic safety improvement.

The Vision Zero Task Force will be monitoring the RSSP's progress and degree of success.

The longer timeframes on both implementation and program impacts mean that short-term or initial results cannot be considered truly indicative of the effect of the program. Further, it takes several years of data after the countermeasure has been implemented to accurately determine, statistically, if a change has really occurred. Therefore, it will be a number of years (likely four or five) before valid evaluations of the program's overall effects can be stated.

8 Conclusions

The Region of Peel Vision Zero Road Safety Strategic Plan provides a strategy to address the Region of Peel’s specific road safety challenges and builds partnerships with partners to work towards the common goal of improving road safety.

The RSSP process has developed an action plan comprised of many individual safety countermeasures. These actions are designed to provide success in achieving the immediate RSSP goal and making progress toward the ultimate vision for injury/fatal collision elimination. The target areas chosen for collision reduction were derived mainly from data analysis, but also reflect public opinion and Regional priorities.

The RSSP is a living strategy for guiding the safety management process. For the RSSP to have an impact on road safety, regular meetings of the partners are needed, where decisions can be made with respect to budgets, priorities, and goals. These meetings provide an opportunity to evaluate progress and make sure all partners are delivering on their promises. As part of the countermeasures, the establishment of a Vision Zero Task Force was recommended and agreed to by all partners. The Plan also includes an evaluation and monitoring component to ensure its success and progress towards Vision Zero.

The RSSP is a living strategy for guiding the safety management process.
