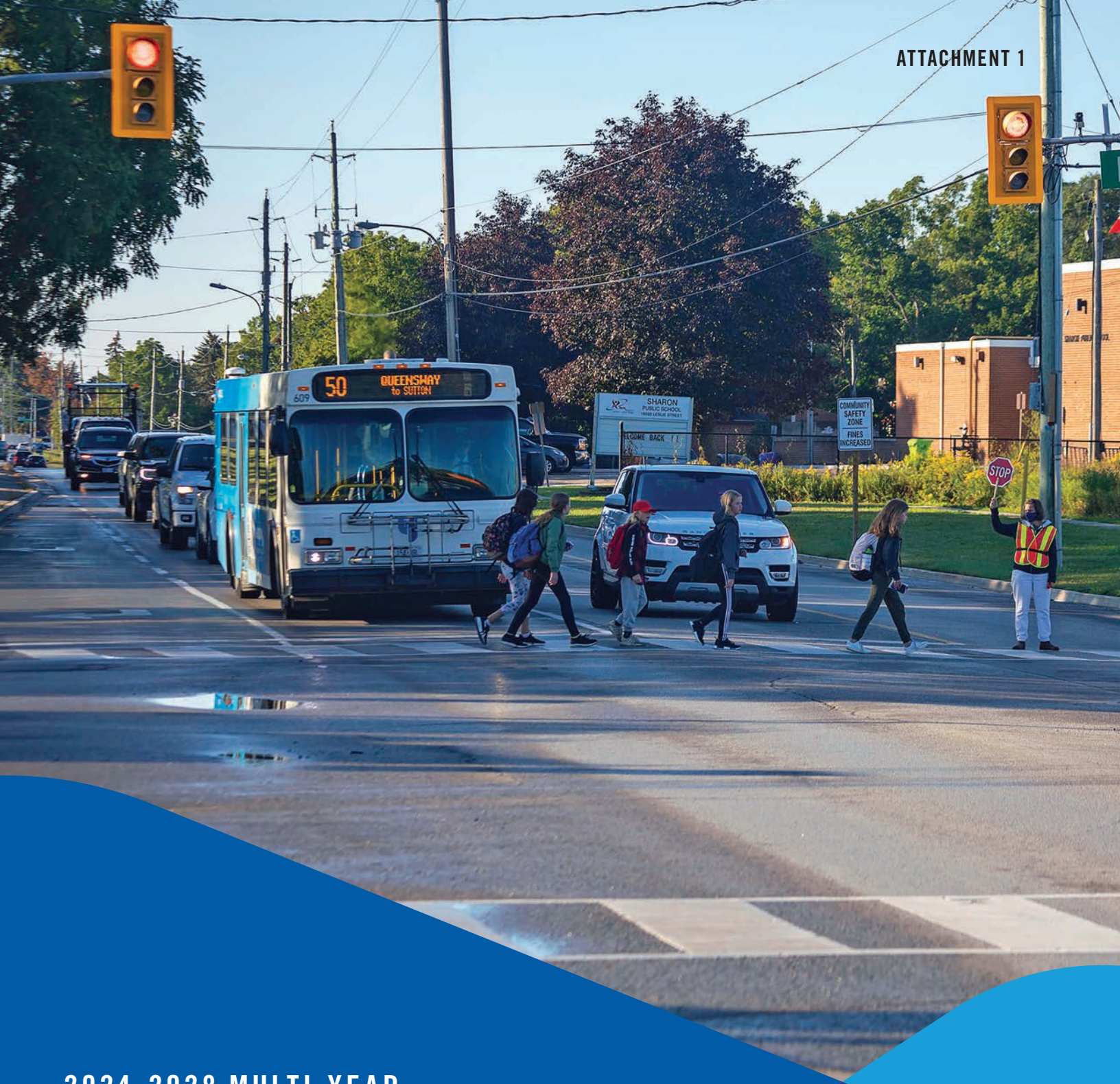
ATTACHMENT 1



2024-2028 MULTI-YEAR

YORK REGION VISION ZERO TRAVELLER SAFETY PLAN

Public Works

York Region

Contents

A MESSAGE FROM YORK REGION CHAIRMAN AND CEO AND MEMBERS OF REGIONAL COUNCIL

DRAFT

Chairman & CEO
Wayne Emmerson

York Regional Council is committed to the health, safety and well-being of all York Region residents. This includes ensuring those who visit, live or work in York Region have access to safe and reliable transportation options.

Prioritizing traveller safety and reducing collisions resulting in injury or death on roads throughout York Region are the shared responsibility of all levels of government, community partners, law enforcement and residents. In collaborating with these stakeholders, the *York Region Vision Zero Traveller Safety Plan 2024 to 2028* has been developed with an aspirational Vision Zero goal of achieving an end to severe collisions.

The plan is ambitious and will require a strong commitment from local municipalities, York Regional Police and all travellers to achieve an interim reduction target of 10% over the next five years in collisions causing injury or death. This is one of Ontario's first multi-tier road safety plans that incorporates innovation, data driven strategies, engineering and technology solutions, education, enforcement and community engagement to create a safer traveller experience across York Region.

In alignment with Regional Council's commitment to community health and well-being and the York Regional Police Road Safety Strategy, initiatives outlined in this plan focus on vulnerable road users and reducing speeding, aggressive, distracted and impaired driving to create a better, safer York Region for all.

Mayor
Frank Scarpitti
City of Markham

Regional Councillor
Michael Chan
City of Markham

Regional Councillor
Jim Jones
City of Markham

Regional Councillor
Joe Li
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Godwin Chan
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Virginia Hackson
Town of East Gwillimbury

Mayor
Steve Pellegrini
Township of King

Mayor
Iain Lovatt
Town of Whitchurch-Stouffville

Land Acknowledgement

We acknowledge that York Region is located on the traditional territory of many Indigenous peoples such as the Anishinaabeg, Haudenosaunee, Huron-Wendat and Métis peoples and the treaty territories of the Haudenosaunee, Mississaugas of the Credit First Nation and Williams Treaties First Nations.

This land is now home to many diverse Indigenous peoples. York Region is located within the boundaries of the Nanfan Treaty, Treaty 13 and the Williams Treaties. There are also other land claims and treaty rights involving portions of York Region that have not been resolved. The Chippewas of Georgina Island First Nation is a Williams Treaty First Nation and the closest First Nation community to York Region.

1. Executive Summary

▲ PHOTO: Highway 7 corridor in the City of Markham

As The Regional Municipality of York continues to grow, its road network becomes even more vital to continued prosperity. With an increasing number of travellers and complex network, York Region recognizes operational and safety measures are needed to change traveller behaviour and improve safety for everyone.

Between 2015 and 2019 severe collisions in York Region remained constant at approximately 25% to 27%. Even accounting for reduced traffic during the height of the COVID-19 pandemic, the trend continued through to 2023. This is unacceptable.

York Region Vision Zero Traveller Safety Plan (Plan) aims to reduce severe collisions (those involving injury or death) by 10% over five years. This ambitious target requires bold action supported by our partners and York Regional Police. The aspirational goal is to end all severe collisions, which is supported by the Vision Zero approach to road safety.

The Plan uses a 'Safe System Approach', which prioritizes safety in the road network and recognizes all parties involved have a role in improving safety. An update of the Plan will be completed every five years.

Recognizing road safety is everyone's responsibility, the Plan was developed collaboratively with local cities and towns, various partners, stakeholders and residents. The plan aligns with the York Regional Police Road Safety Strategy 2023-2025. Consultations and workshops informed the Plan and feedback was used to further refine it.

▲ PHOTOS (Top to bottom):
01 Vulnerable Road User : Woman crossing at a crosswalk
02 Intersections: An intersection
03 Aggressive Driving: A frustrated driver
04 Distracted Driving: A driver holding a cell phone
05 Impaired Driving: Driver's blurred vision of a stop sign while under the influence

Protecting people means understanding who is most at risk and where. This Plan identifies five emphasis areas, where countermeasures (actions by York Region and its partners) will have the greatest impact on safety:

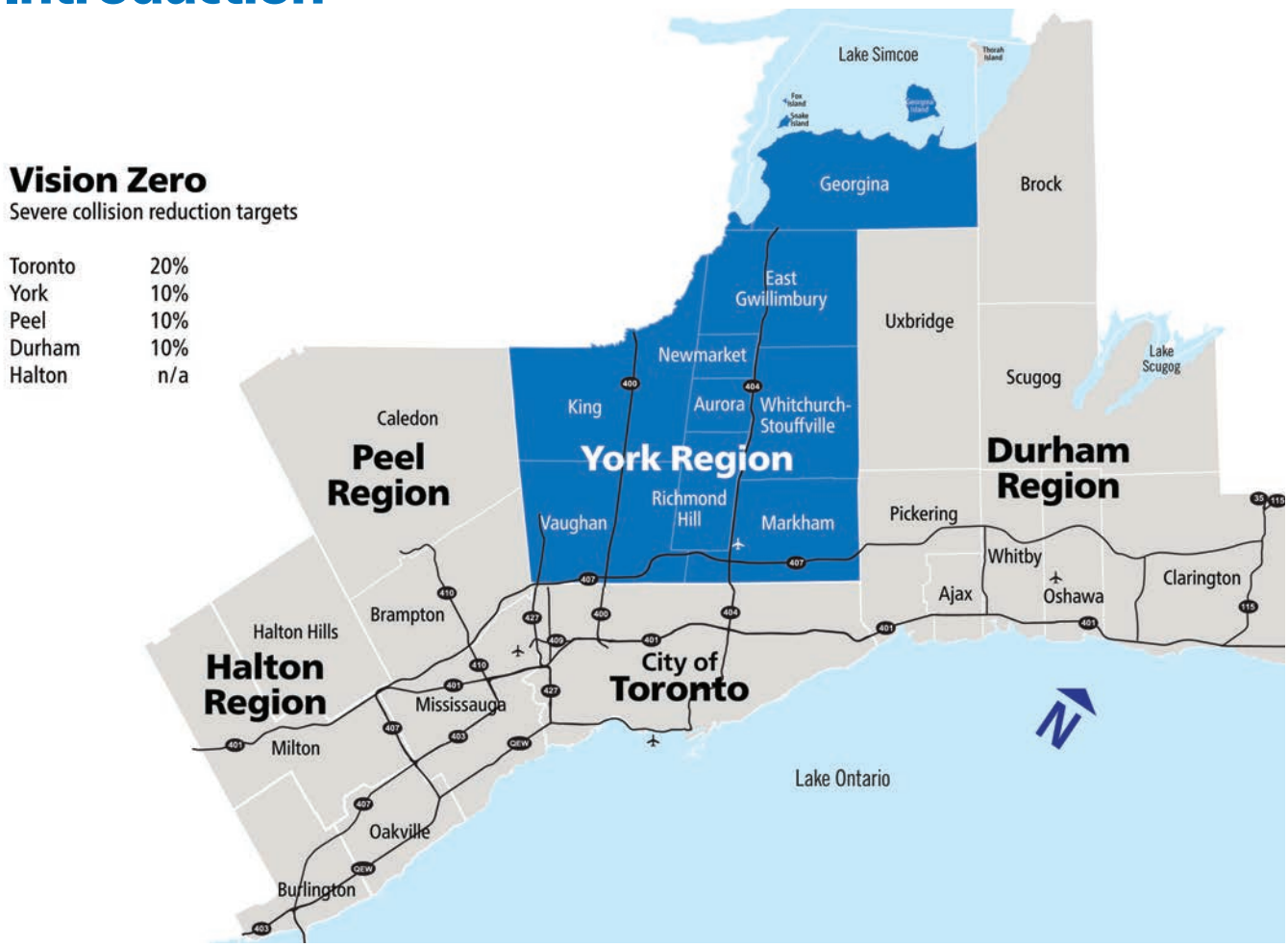
- Vulnerable road users
- Intersections
- Aggressive driving
- Distracted driving
- Impaired driving

More than 100 countermeasures will be implemented to reach the reduction target of 10% (see Appendix A for a full list). York Region monitors the road network to improve traveller safety and efficiency. Everyone shares responsibility in ensuring the safety of travellers on our roads. How roads and traffic controls are designed and operated are key components to this. Enforcing traffic laws is another key part of safer roads. Drivers and other travellers share responsibility too, which is why education and outreach about safe road use behaviours is crucial over the long-term.

Much of this work is happening already. As the Region continues to grow, this Plan will adapt with it, using annual monitoring and reporting to inform future decisions.

The 10% reduction target and countermeasures outlined in the Plan are based on expert data and analysis and incorporate industry best practices and successes in other jurisdictions. This Plan will work towards setting the course for achieving Vision Zero.

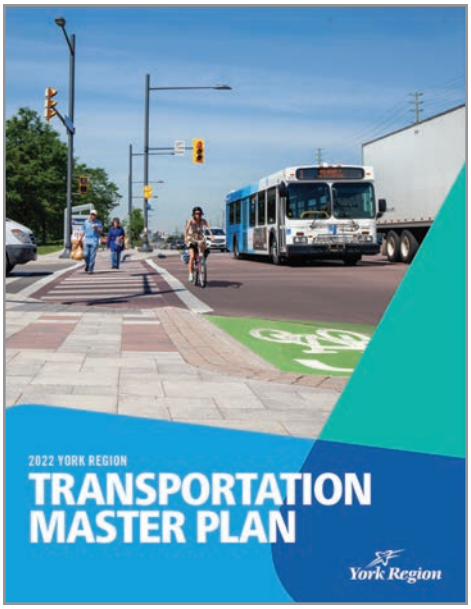
2. Introduction



York Region is one of the largest geographical jurisdictions in the Greater Toronto Area (GTA). By 2022, the population reached over 1.2 million and projections indicated it will grow to 1.5 million between 2031 and 2036. While growth offers potential for economic development, it also increases how much the road network is used. As the population expands, the system will grow in complexity to meet the needs of residents; however, increased use also raises the probability of collisions and a comprehensive safety plan is necessary.

In 2019, York Region and its local municipalities experienced nearly 10,000 reported motor vehicle collisions, including more than 2,500 severe collisions – that means one out of four collisions resulted in either injury or death. The aspirational goal is to end all severe collisions in York Region. To support this, the short-term target is to reduce severe collisions by 10% between 2024 and 2028.

Recent data shows transit is the safest mode of travel in York Region, reporting the fewest injuries and fatal collisions. In contrast, vulnerable road users, such as pedestrians, cyclists and elderly residents, sustain the highest degree of injury in collisions compared to other travellers. York Region is already taking proactive steps to enhance vulnerable road user safety at intersections, and this Plan accounts for further expansion of relevant safety measures.



York Regional Council's commitment to promote strong, caring and safe communities has been outlined in its **Vision** document and corresponding corporate strategic priorities. Two key priorities in the current **Corporate Strategic Plan**, protecting and promoting well-being of residents and supporting safe communities, align with the Plan. As well, the **2022 Transportation Master Plan** identified safety for all travellers as one of its focus areas.

York Region, in collaboration with partner agencies, has prepared the Plan based on the Vision Zero philosophy for addressing severe collisions. The Plan outlines a vision, a target and actions to make roads safer and significantly reduce motor vehicle collisions, injuries and fatalities.

York Region Vision Zero Traveller Safety Plan is one of few Ontario road safety plans that included specific input from each regional and local city and town during its development. This inclusivity ensures comprehensive analysis and a well-crafted plan, making it a unique initiative in York Region's pursuit of enhanced road safety.

The Plan builds on York Region and local cities and towns' existing road safety programs and York Regional Police's operational plan by determining key areas where safety can be enhanced. The Plan then develops a set of individual safety initiatives called 'countermeasures' to achieve 10% target reduction in the next five years. It also establishes a new set of priorities to inform future Plan versions to end all severe collisions in York Region.

This document is an overview of York Region Vision Zero Traveller Safety Plan. It explains York Region's Vision Zero approach for road safety; current state and trends in the road network; aspects of this Plan, including details of each of the five emphasis areas; the process for developing the Plan; and information on resources, monitoring and reporting. The **appendices** contain a full list of countermeasures for each emphasis area.

Everyone in York Region relies on the road network to connect them to work, leisure or various necessities of life. And York Region's economy depends on an efficient and safe transportation network. Speaking with a wide range of partners and stakeholders helped ensure this Plan addresses urgent areas for improvement, and ongoing input will help further the process for years to come.

3. Supporting safe communities and Vision Zero

▲ PHOTOS (Left to right): 01 Automated Speed Enforcement camera on side of road | 02 A red light camera | 03 A red light camera road sign

York Region's Vision is the overarching document outlining York Regional Council's commitment to strong, caring and safe communities. Every four years, coinciding with a new term of Council, the Region sets priorities to align with *Vision*. Two key priorities in the current Strategic Plan are:

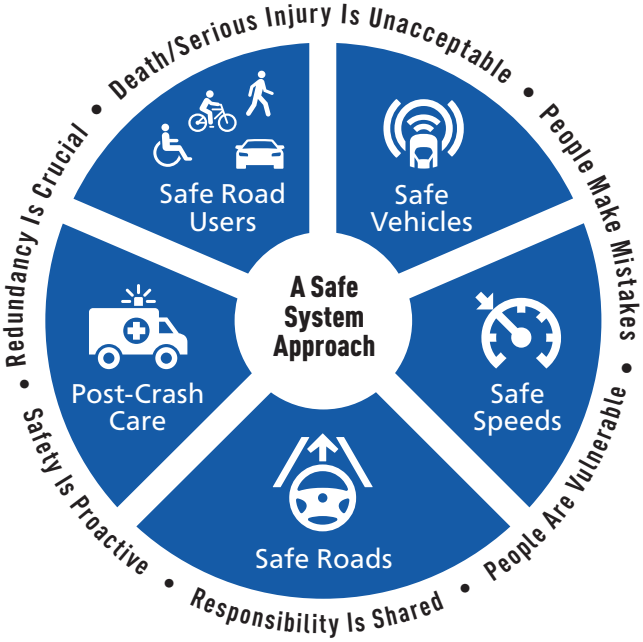
- To protect and promote residents' well-being
- To support safe communities

Safety is also a focus area in York Region's Transportation Master Plan, a long-term blueprint for the transportation network. It takes direction from *Vision* and the Strategic Plan.

Vision Zero is an internationally recognized road safety strategy to eliminate severe injuries and death. It is a commitment to prioritize the safe passage of vulnerable road users, whether they are walking, cycling or using any mobility device. Many cities around the world have adopted the Vision Zero strategy, committing to safe system thinking, which, when fully implemented, greatly reduces risks.

A safe system recognizes it is possible to prevent roadway injuries and deaths and all parties involved have a role to play. Many cities in North America and around the world are applying the safe system approach to road safety plans, as outlined in Figure 1.

FIGURE 1: The Safe System Approach



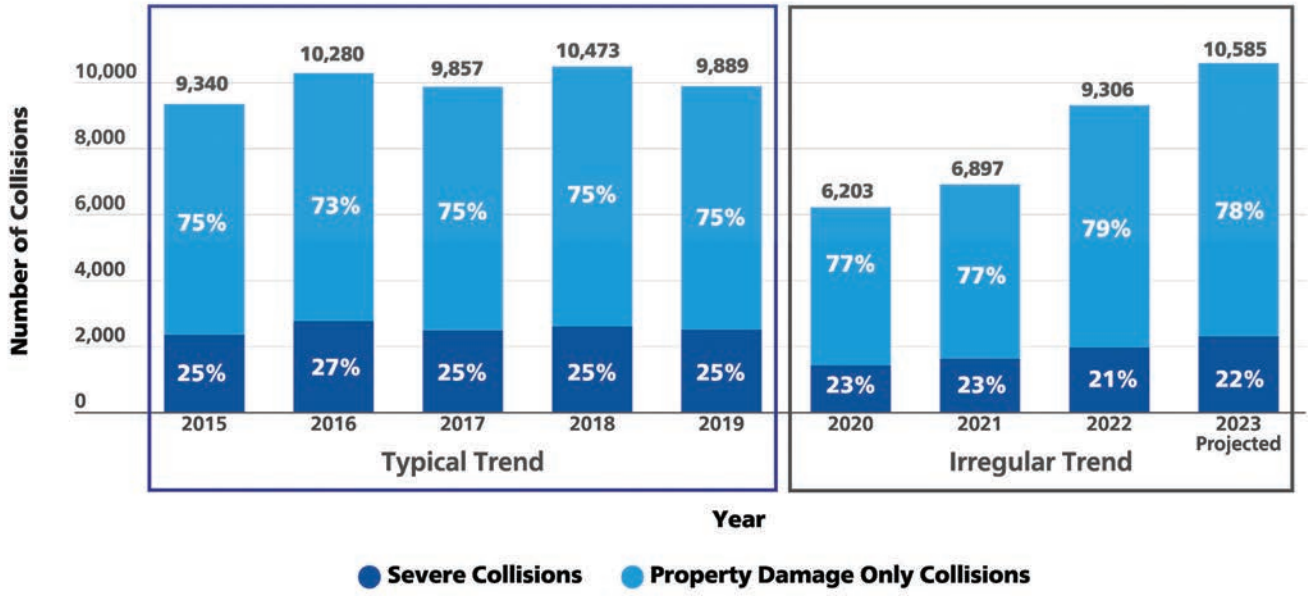
Covering all roads and streets across York Region, the Plan builds on and enhances successful existing road safety programs and new initiatives. Local cities and towns are important partners in the Plan's creation and have a continuing role in realizing its goals.

4. Current State of Region's Road Safety

Trends in the Region's road safety

While collisions rose between 2015 and 2023 by about 13%, traffic volumes also increased by the same percentage. The review of the overall collision data between 2015 and 2023, as shown in Figure 2, shows total collisions: those involving property damage only and severe collisions. The overall upward trend persists even with York Region's consistent efforts to identify high-risk areas, understanding contributing factors and recommending effective countermeasures to enhance road safety. While not all 2023 data is available, the trend looks similar and countermeasures will be prioritized based on new data from 2023 and into the future.

FIGURE 2: Collisions in York Region (2015-2023 Projected)



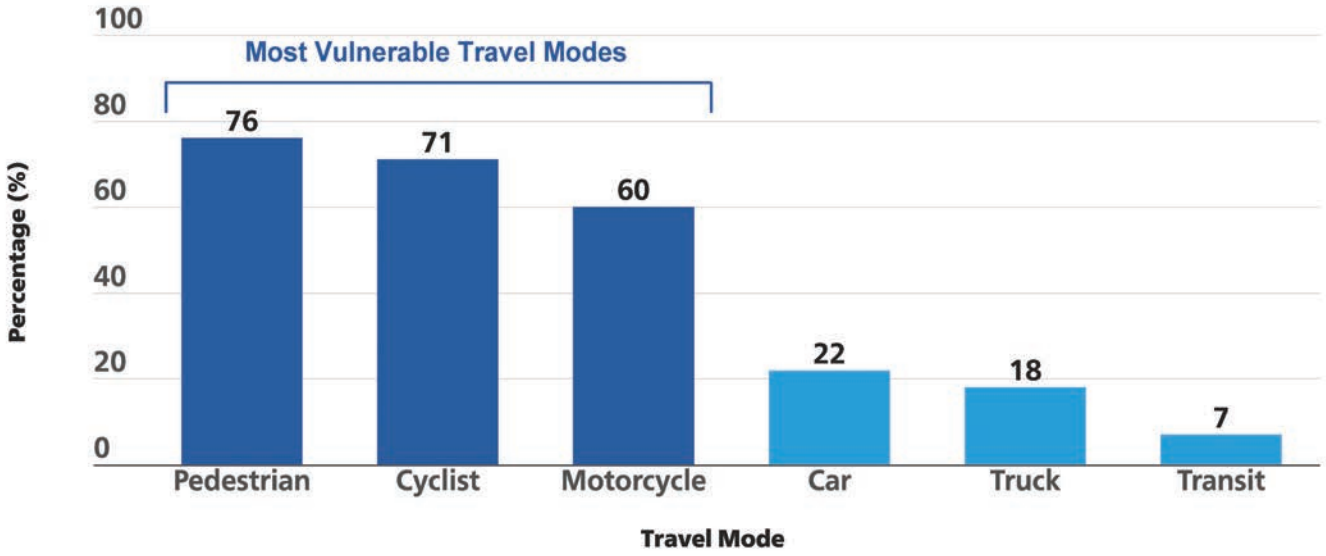
The Plan relies on collision data and trends from 2015 to 2019 as pandemic closures in 2020 changed traffic patterns and road use in major ways. Even though traffic volumes were lower in 2020 and 2021, in keeping with pre-pandemic levels, one-quarter of collisions were still severe.

Between 2015 and 2019, the overall number of collisions in York Region decreased by almost 15%, but severe collisions remained constant at around 25% to 27%, that is where attention must be focused.

To protect the most vulnerable road users, we must understand who is most at risk and where. For instance, in 2019, York Region experienced nearly 10,000 reported motor vehicle collisions, including more than 2,500 severe collisions of which more than 220 involved pedestrians, almost 100 involved cyclists and 13 involved transit vehicles. Collisions take a profound toll on those involved.

As Figure 3 shows, the most vulnerable road users include pedestrians, cyclists and motorcyclists. They are far more likely to be injured or killed than drivers of cars or trucks. The analysis also includes children and elderly residents as more vulnerable because their potential dangers are greater due to walking speed, awareness and comprehension. Transit is the safest mode of travel in York Region with the lowest reported number of severe collisions.

FIGURE 3: Proportion of Severe Collisions by Travel Mode on Regional Roads (2015-2023)



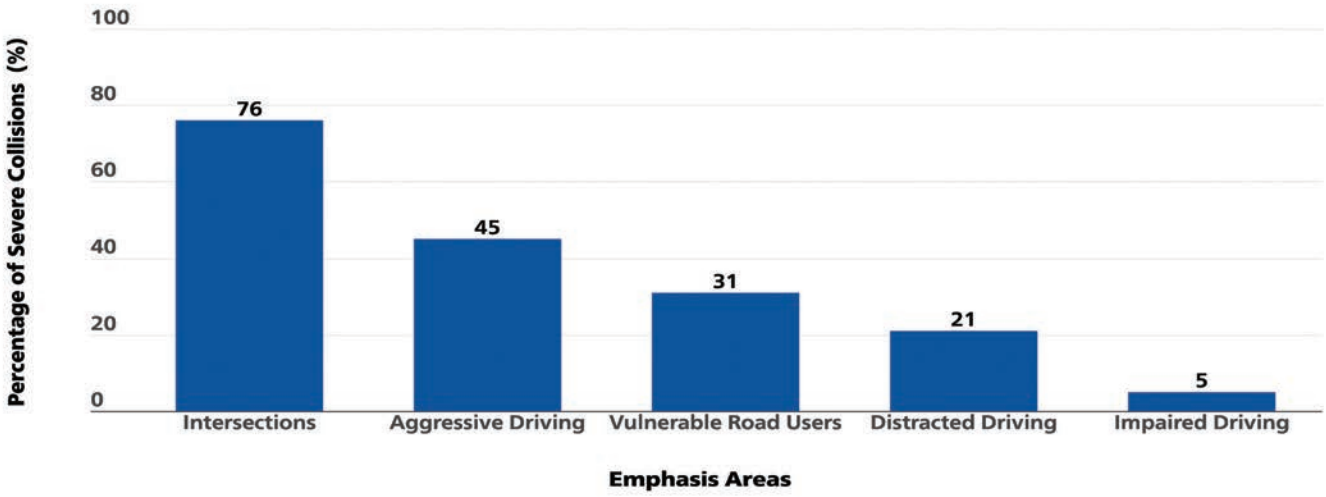
▲ PHOTO: A man walking with a dog crossing at a crosswalk at an intersection

Over the past few years, York Region targeted intersections with improved safety measures because, as shown in Figure 4, they accounted for 76% of all severe collisions.

Aggressive driving, vulnerable road users and distracted driving collisions represent 45%, 31% and 21% respectively of severe collisions on Regional roads.

▲ PHOTOS: York Regional Police officers talking with pedestrians at an intersection

FIGURE 4: Proportion of Severe Collisions by Emphasis Area on Regional Roads (2015-2019)



Note: Totals do not add to 100% as a single collision might involve multiple emphasis areas

A single collision might involve multiple emphasis areas and there is overlapping data in the totals. For example, a pedestrian struck by a vehicle whose driver was distracted at an intersection, the collision is represented in three emphasis areas: vulnerable road users, distracted driving and intersections.

Major successes so far

The Plan builds on previous efforts to identify gaps in existing safety programs. There are major successes in traveller safety throughout the Region that have helped inform the new Plan.

Strong partnerships with local cities and towns, advocacy groups, York Regional Police and support from Regional Council, have significantly improved safety. Major success stories include:

- Automated Speed Enforcement captures on-camera infractions in community safety and school zones; the pilot project showed driving speed dropped by almost 10 km / hour and more than doubled compliance with the speed limit at 12 locations annually; as a result, this program is being expanded
- Intersection improvements, such as traffic signals, crosswalks, audible pedestrian signals and countdown displays, reduced collisions by up to 40% at more than 350 locations
- Pedestrian and cycling measures including no right-turn on red, protected left turn signals, pedestrian head start and warning signs, reduced turning movement collisions by 75% at 12 locations
- Pedestrian crossovers provide a safe and controlled crossing for pedestrians and reduced collisions by about 20% at four locations
- Red-light cameras to discourage red light running at signalized intersections. Since the start of their use, angle collisions, such as T-bones, have fallen by one-third at 40 locations; as a result, this program is being expanded
- Roundabouts reduced severe collisions by more than 80% at four locations
- Lowering posted speed limits by 10 km / hour in all public school zones during school hours has reduced collisions by about 10% at more than 60 locations
- Speed feedback boards (as shown in the image on the right) increased compliance with speed limits by about 10% at 20 locations annually

Details about safety measures are available on the York Region website. Outcomes are reported to Regional Council through the Annual Traveller Safety Report.

▲ PHOTOS (Top to bottom):
01 Automated Speed Enforcement camera on side of road
02 A traffic signal arm showing the traffic signal, a new sign, and No Right on Red sign.
03 A lowered posted speed limit sign in a school zone
04 A pedestrian crosswalk sign
05 A speed feedback board sign

5. York Region Vision Zero Traveller Safety Plan

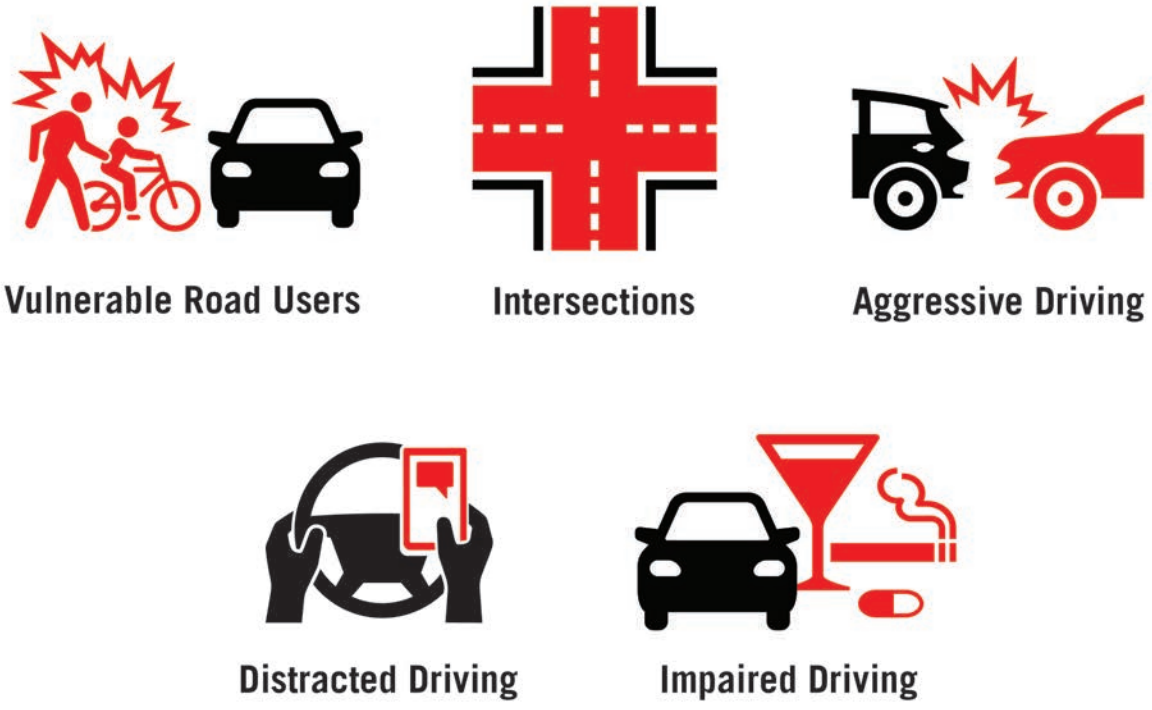
The five-year plan is to reduce severe collisions by 10% with the aspirational goal to end severe collisions.

This Plan builds on existing road safety programs and initiatives across York Region. It is one of Ontario's first multi-tier road safety plans and enables York Region and local cities and towns to work seamlessly alongside other partners to enhance traveller safety.

A transportation safety consultant has helped develop a multi-year (2024–2028) comprehensive set of countermeasures for reducing severe collisions by 10% on roads in York Region. As the Region grows, the road network is growing and becoming more complex. The Plan takes a safety-first approach, which means some actions may slow down traffic in some locations. This is necessary to achieve the interim target and long-term Vision Zero for York Region.

In prioritizing the safety of our most vulnerable road users, the Plan focuses on influencing behaviours at key locations where improvements will have the greatest impacts. These five emphasis areas have been identified through data analysis and input from the public and are shown in Figure 5.

FIGURE 5: Five Emphasis Areas



In comparing collision trends for the Region and for individual municipalities, there was a strong similarity in high-frequency emphasis areas. This means the countermeasures selected as being most impactful in reducing severe collisions will be effective across the Region.

Everyone has the right to move safely everywhere. By addressing these emphasis areas, the Region fosters a positive traveller safety culture, while significantly reducing collisions, injuries and fatalities. While Vision Zero aims to end all severe collisions, the short-term target is to reduce them by 10% between 2024 and 2028.

Various countermeasures will be used to reach this target (see Appendix A for a full list) and much of this work is being done already.

After five years, the Plan will be updated, based on monitoring and reporting throughout the period on how effective countermeasures have been. Updated versions of this Plan will set new benchmarks for further reduction. The 10% target in this Plan is based on expert data and analysis, and considers industry best practices and successes in other jurisdictions.

Countermeasures have been developed based on industry experience and those included in the Plan have the highest likelihood of achieving the five-year target. More than 100 selected countermeasures fall into four categories: engineering, enforcement, education and engagement. The number of countermeasures for each emphasis area, sorted by category, is provided in Table 1.

TABLE 1: Number of Countermeasures for Each Emphasis Area

Emphasis Area	Countermeasure Type			
	Engineering	Enforcement	Education / Engagement	Total
General	14	–	–	14
Vulnerable Road Users	41	4	13	58
Intersections	21	–	–	21
Aggressive Driving	12	6	2	20
Distracted Driving	5	2	1	8
Impaired Driving	–	5	3	8

- Engineering countermeasures are changes to the physical format of the roadway and tend to improve safety immediately
- Enforcement countermeasures emphasize compliance with the rules of the road and require persistent efforts for even temporary behavioural changes
- Education and engagement countermeasures also aim to change road user behaviour, which can take time to work, but the overall effects are significant

While all the countermeasures listed in the Plan contribute to Vision Zero, not all can be immediately implemented. Some require funding or formal approvals while others are tied to large project timelines or infrastructure, such as road construction. This Plan is for 2024 to 2028 and long-term measures will continue to be implemented beyond that.

Countermeasures are prioritized based on how quickly they can be implemented, expected safety benefits, how easily they can be coordinated with other planned projects, and funding (the availability of budget and staff). Implementation will focus first on projects that can be accomplished in the first year. The next step is to study resource availability and determine which locations result in a higher frequency of severe collisions. With that information, York Region can plan for medium (one to three years) and long-term (more than three years) countermeasures.
The following sections outline the five emphasis areas. Appendix A provides details of all countermeasures, almost all are expected to be initiated over the five-year span between 2024 to 2028.

▲ PHOTO: Cyclists riding on a designated cycle path

6. Emphasis Areas

Vulnerable Road Users

Vulnerable road users are more susceptible to severe injury when involved in collisions. They include pedestrians, cyclists, motorcyclists, students, including young children and young and elderly road users.

Many countermeasures for this group address intersections where most collisions occur. For pedestrian, cyclist and motorcyclist collisions, there are long-term countermeasures for improving infrastructure and changing road user behaviours.

In the short-term, engineering countermeasures can be implemented, such as pedestrian / bike signals, crosswalks and crossrides, countdown timers and shoulder treatments. Educational programs, safety campaigns such as Be Visible Be Seen, Distracted Driving, Share-the-Road and Operation Always Be Careful, and police enforcement are some of the initiatives that can reduce risk, but these take time to affect road safety.

The graph and map on the following pages (Figures 6 and 7) show the severe collision history for the past several years for this group.

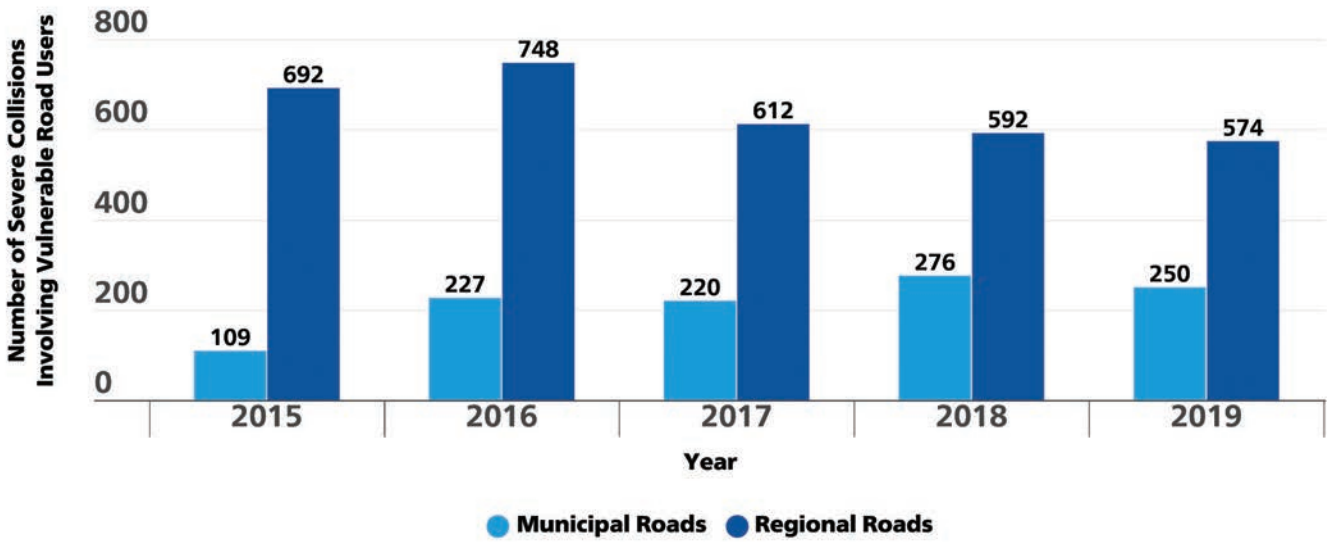
Collision data varies across the Region. Some local municipalities do not have data available for the full five-year period: in the towns of Aurora, East Gwillimbury, Georgina, Whitchurch-Stouffville and Township of King, only two years of collision data is available (2018 to 2019); in the cities of Richmond Hill and Vaughan there is four years of data available (2016 to 2019). The Region, City of Markham and Town of Newmarket have the full five years of data available. This applies to all the emphasis areas that follow.

▲ PHOTOS (Top left and clockwise):
01 Bollards on the road separating the roadway from the cycle path.
02 A curb extension that improves pedestrian visibility
03 Leading pedestrian intervals that give pedestrians a head start at an intersection.

Of 58 countermeasures to be implemented for vulnerable road users, these three will have the highest impact.

- On-road protected cycling infrastructure, such as bollards, can reduce collisions by 63%
- Leading pedestrian intervals, a traffic signal strategy, can reduce collisions by 19%
- Curb extensions, to improve pedestrian visibility, can reduce collisions by 15%

FIGURE 6: Number of Severe Collisions on Municipal and Regional Roads for Vulnerable Road Users (2015 to 2019)



◀ PHOTOS
(Top left and clockwise):

01 A pedestrian count down timer signal at an intersection

02 A pedestrian crossover

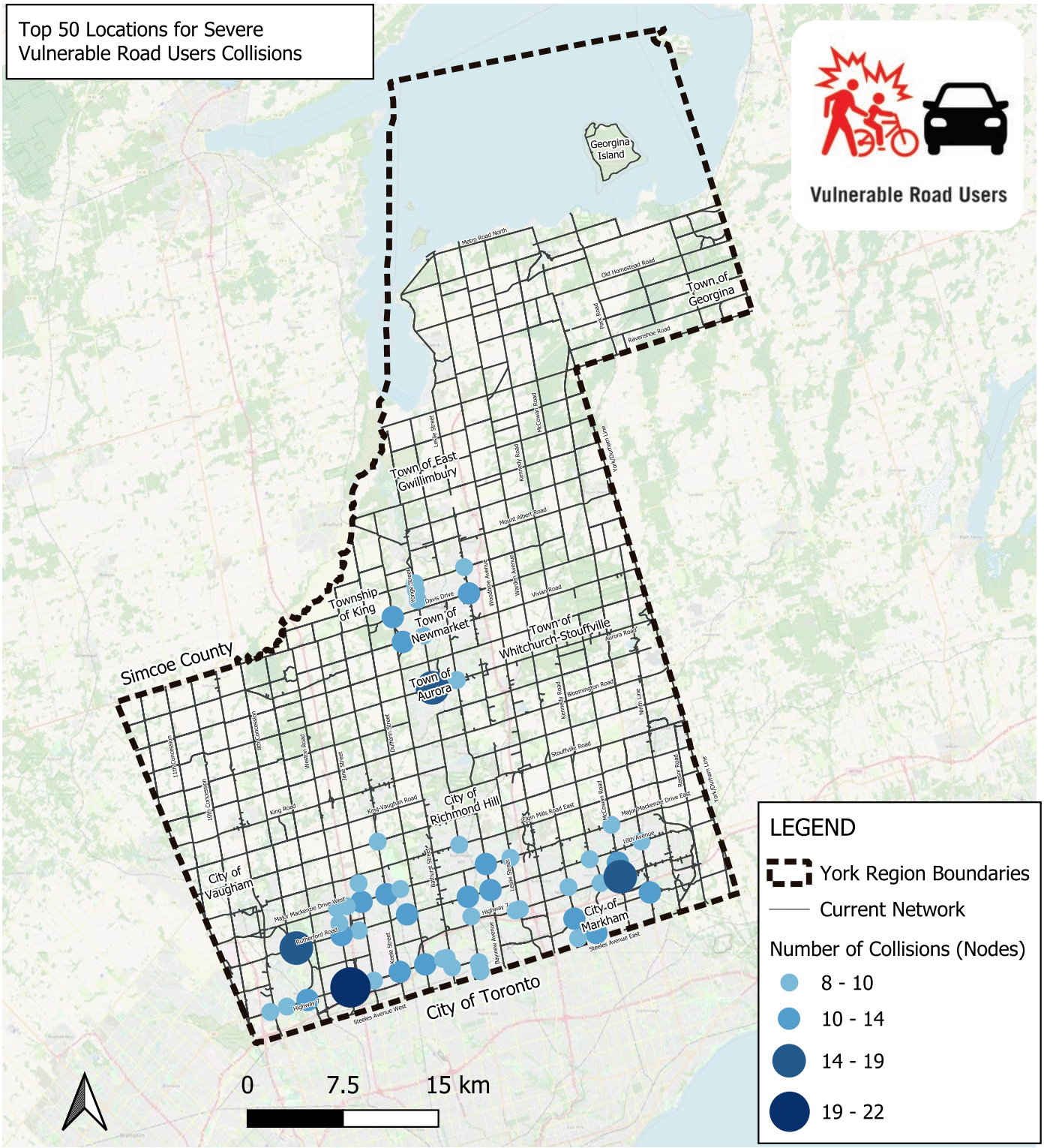
03 Pedestrians and a cyclist crossing a road at a dedicated crossride intersection

04 An intersection with a zebra crosswalk pavement markings

05 Tactile plates on the sidewalk of an intersection

06 A pedestrian pushing a pedestrian signal button at an intersection waiting for visual and audial prompt to safely cross

FIGURE 7: Top 50 Locations for Severe Vulnerable Road Users Collisions



Vulnerable road user collisions make up nearly 1/3 of all severe collisions in the Region.

The following programs are new or expanded countermeasures York Region plans to implement in 2024 to address vulnerable road user collisions as part of the Plan.

TABLE 2: 2024 Planned Countermeasures for Vulnerable Road Users

Countermeasures	2024 Implementation
Accessible intersection improvements	20
Senior zones and extend walking time at signals	4
Transit pedestrian warning and stop review	3
Safety Campaigns	2
Cycling facilities	1
School speed reduction and community safety zone	1


01

02

04

03

◀ PHOTOS
(Top left and clockwise):

01 A protected cycling lane on a roadway

02 An audible pedestrian warning system device on a bus

03 A smart channel intersection design

04 A school zone speed reduction sign with a school bus passing on the road

Intersections

Intersection collisions occur when vehicles pass through, proceed toward or wait to enter an intersection. The highest number of severe collisions occur at intersections — approximately 76% of those in York Region.

Countermeasures for intersections are mostly engineering-related and tend to be location-specific as intersections are often uniquely designed. Some longer-term countermeasures, like converting signalized intersections to roundabouts, are better suited to be incorporated into future capital projects as they may require land acquisition and utility relocation. Less capital intensive and easier to implement countermeasures, such as signs, signal timing or pavement markings, are good candidates for wider implementation.

The graph and map (Figures 8 and 9) show the history of intersection collisions in the Region.

PHOTOS: LEFT – An intersection that shows clear sightlines. TOP RIGHT – Flashing beacons at an intersection. BOTTOM RIGHT – Left turn signal

Of the 21 countermeasures to be implemented for intersections, these three will have the highest impact.

- Sightline improvements can reduce collisions by 47%
- Flashing beacons, to increase visibility, can reduce collisions by 47%
- Left-turn signal phases can reduce collisions by 28%

FIGURE 8: Number of Severe Collisions on Municipal and Regional Roads Involving Intersections (2015 to 2019)

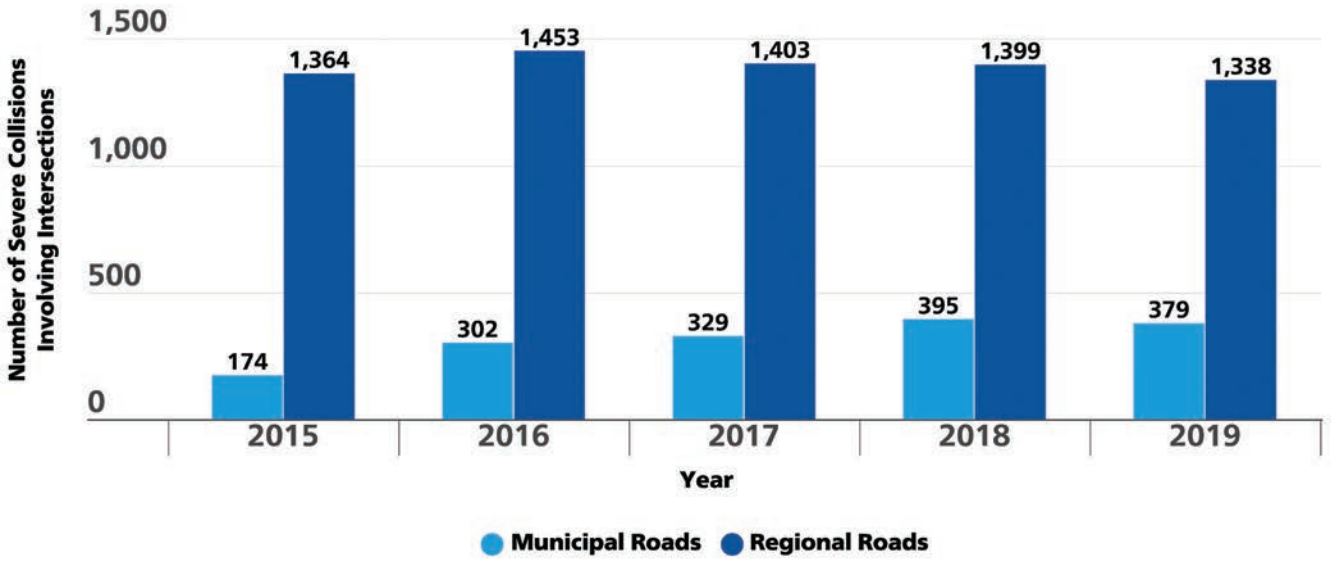
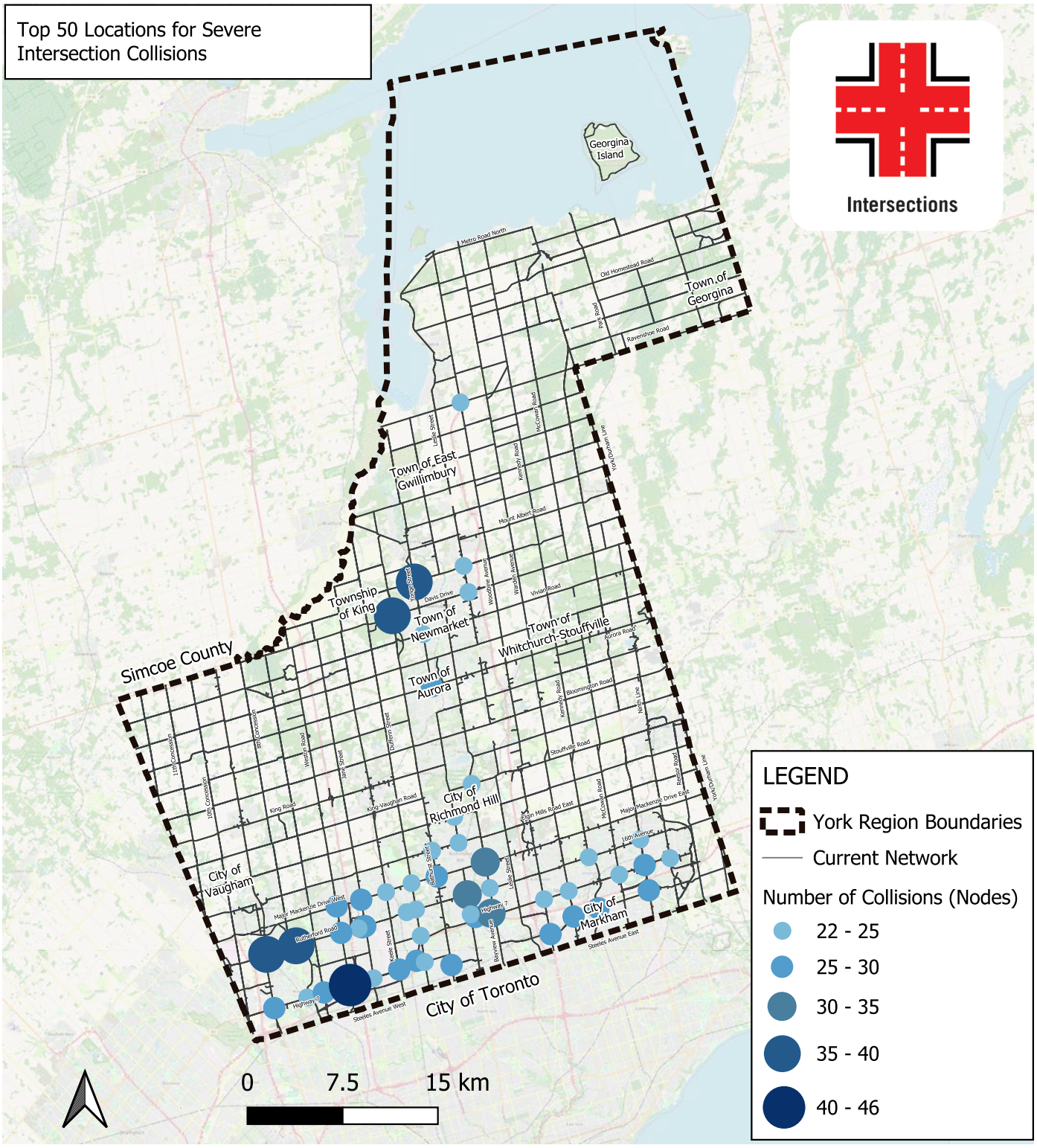


FIGURE 9: Top 50 Locations for Severe Intersection Collisions



The most common types of intersection collisions are rear end (31%), turning movement (27%) and angle (22%).

Programs listed below are new or expanded countermeasures York Region plans to implement in 2024 to address intersection collisions as part of the Plan.

TABLE 3: 2024 Planned Countermeasures for Intersections

Countermeasures	Priority Locations
Illumination	12
Traffic and pedestrian signals	12
High friction pavement	8
Sightline improvements	4
Roundabout feasibility study	4
Left-turn signal	4
Flashing beacons	4

◀ PHOTOS
(Top left and clockwise):

01 A left turn lane offset at an intersection

02 A street light fixture with illumination lighting at an intersection

03 A street light fixture with illumination lighting at a railway crossing

04 An intersection with high friction pavement

Aggressive Driving

Aggressive driving includes deliberate driver actions that lead to collisions. Examples include following too closely, exceeding the speed limit, driving too fast for the road condition, disobeying traffic controls and failing to yield right-of-way. These actions are different than inattentiveness or distracted driving, which is a separate emphasis area.

Aggressive driving countermeasures aim to change driver behaviour, which may take time to prove effective. For faster acting solutions, engineering measures, such as radar speed boards, red light cameras, automated speed enforcement or community safety zones, can deter aggressive driving.

The graph and map (Figures 10 and 11) show the history of aggressive driving collisions in the Region.

PHOTO: A congested roadway

Of the 20 countermeasures to be implemented for aggressive driving, these two will have the highest impact.

- Automated speed enforcement can reduce collisions by 48%
- Red light cameras can reduce collisions by 30%

FIGURE 10: Number of Severe Collisions on Municipal and Regional Roads Involving Aggressive Driving (2015 to 2019)

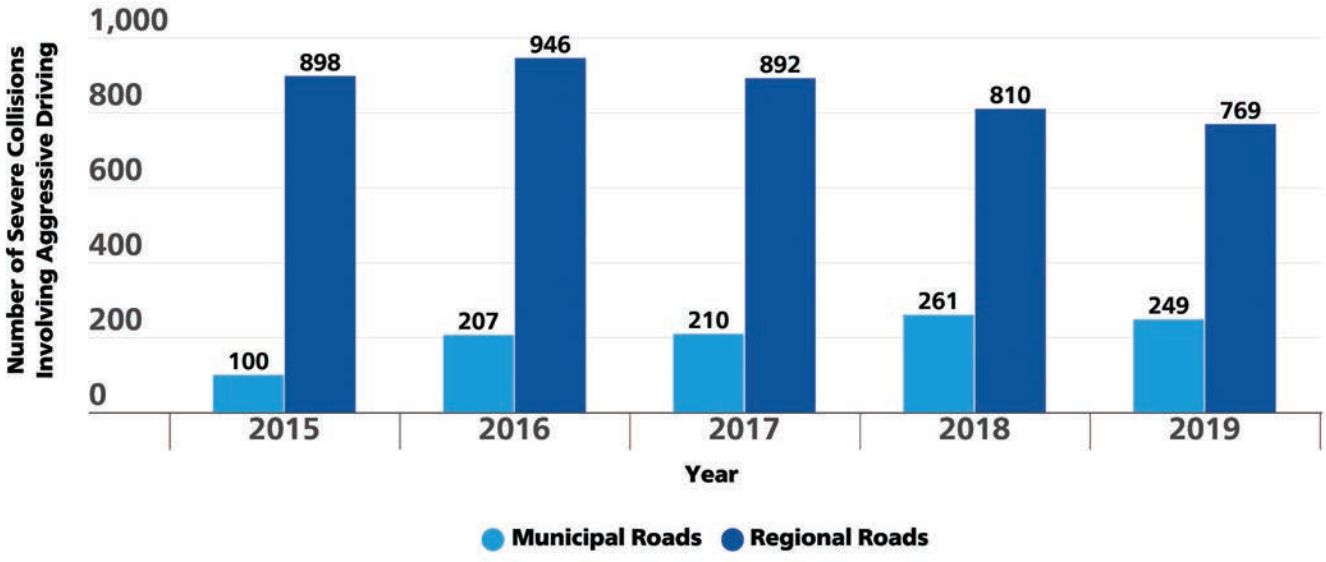
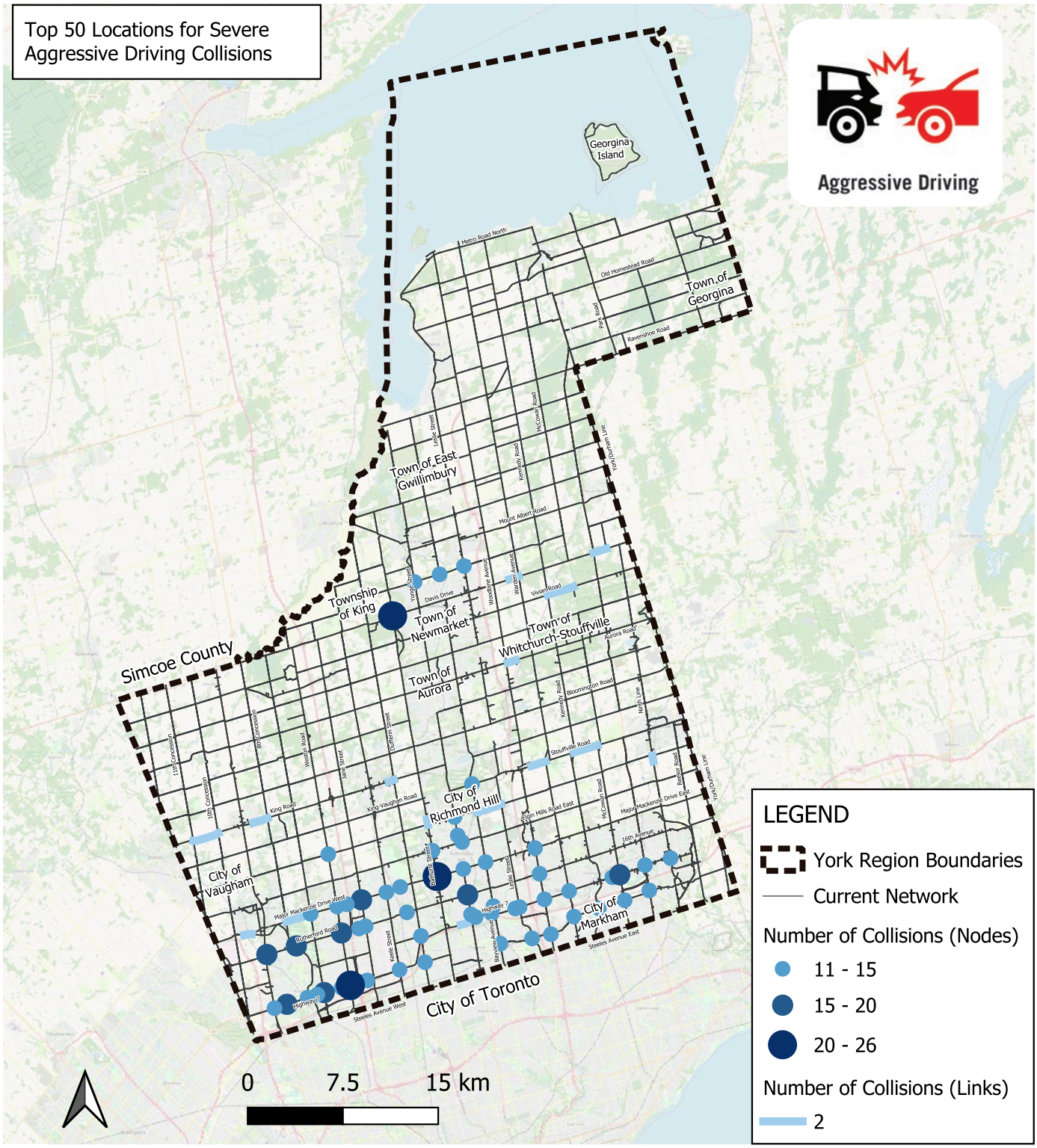


FIGURE 11: Top 50 Locations for Severe Aggressive Driving Collisions



The most common types of aggressive driving that cause severe collisions are failing to yield the right of way (38%) and following too closely (36%).

Programs listed below are new or expanded countermeasures York Region plans to implement in 2024 to address aggressive driving collisions as part of the Plan.

TABLE 4: 2024 Planned Countermeasures for Aggressive Driving

Countermeasures	Priority Locations
Automated speed enforcement	20
Radar speed boards	20
Red light cameras	15
Road markings	8
Warning signs	8
Safety Campaign	4
Targeted enforcement	various

01

02


04

03

◀ PHOTOS
(Top left and clockwise):

01 A roadway with pavement markings that minimize drivers driving on the shoulder of the road

02 An aircraft patrolled road sign

03 A Yield to Turning Vehicles road sign

04 Dragon teeth pavement markings on the road

Distracted Driving

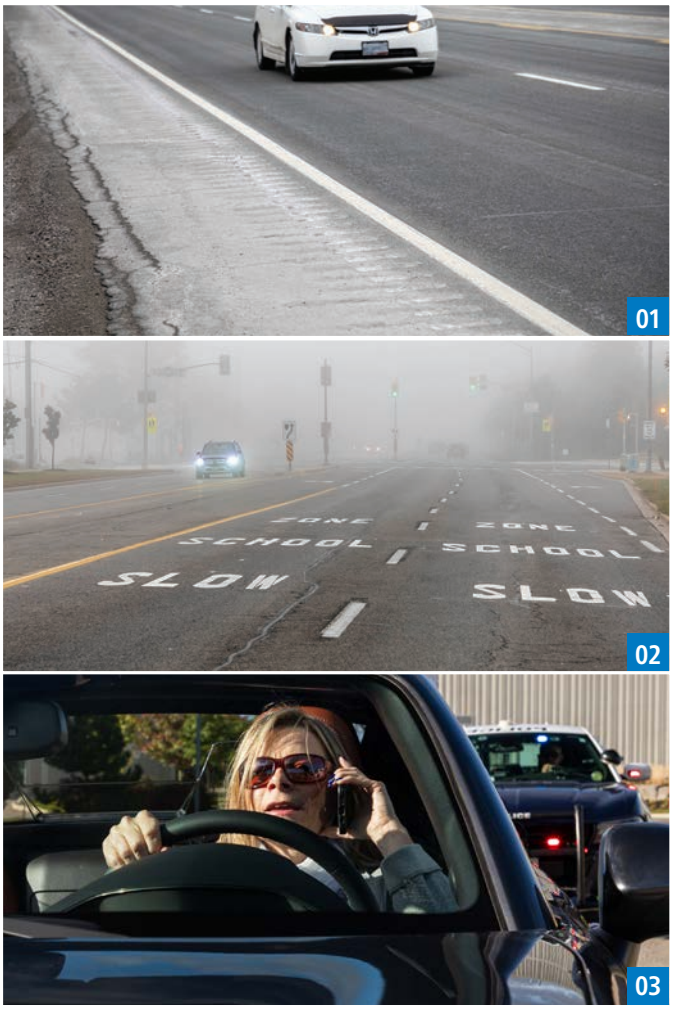
Collisions involving distracted driving are sometimes similar to aggressive driving; however, here the driver is inattentive. Examples include following too closely, exceeding the speed limit, driving too fast or slow for road conditions, improper turning, disobeying a traffic control, failure to yield right-of-way, improper passing, losing control of the vehicle or improper lane change.

It is difficult for police attending the scene of a collision to determine if distracted driving is the cause. It is possible that the actual number of collisions resulting from distracted driving is higher.

Similar to aggressive driving, changing driver behaviours will reduce the number of distracted driving collisions. In the short-term, several engineering countermeasures, such as rumble strips, guide rails and enhanced pavement markings can be implemented.

As per a recent 2023 study, **Real-World Benefits of Crash Avoidance Technologies**, has also listed the safety benefits of collision avoidance technologies on passenger vehicles. For example, Automatic Emergency Braking (AEB) can reduce rear-end injury collisions by 56%; AEB with pedestrian detection can reduce pedestrian injury collisions by 30%; blind spot detection can reduce lane-change injury collisions by 23%; lane departure warning can reduce single-vehicle, sideswipe and head-on injury collisions by 21%.

Figures 12 and 13 show distracted driving collision history in York Region.

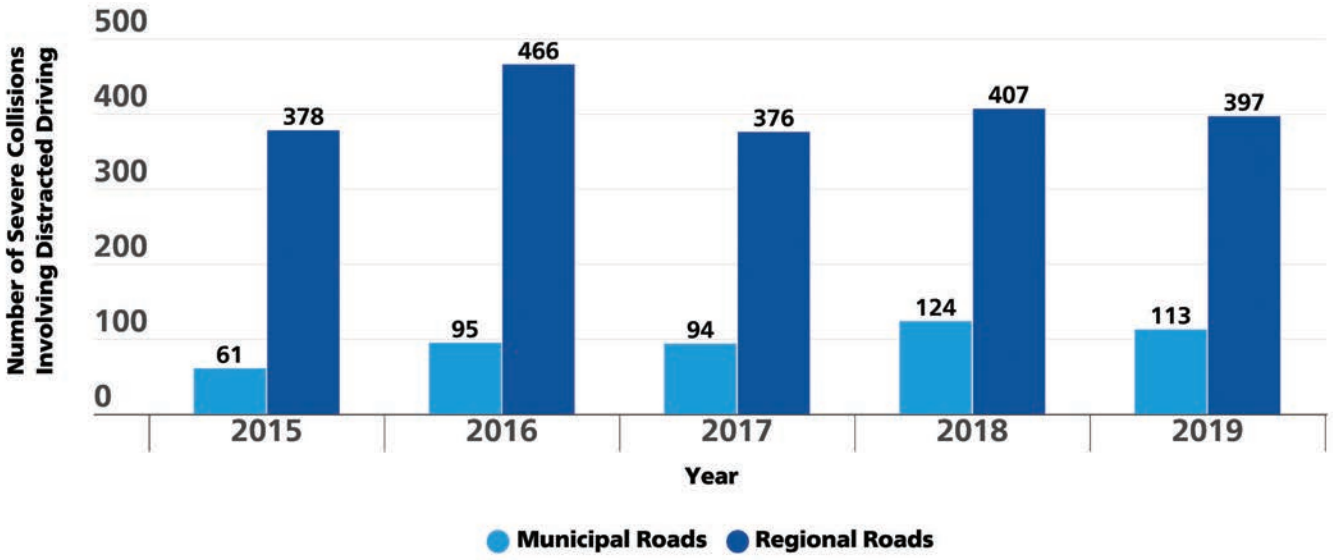


▲ PHOTOS (Top to bottom):
01 Rumble strips on the roadway
02 Slow School Zone pavement markings
03 A driver behind the wheel talking on a cell phone

Of the eight countermeasures to be implemented for distracted driving, these three will have the highest impact.

- Rumble strips can reduce collisions by 44%
- Enhanced pavement markings, using highly visible and durable materials, can reduce collisions by almost 11%
- Project Heads Up, on-street education and enforcement carried out by police officers to reduce distracted driving, can reduce collisions by almost 10%

FIGURE 12: Number of Severe Collisions on Municipal and Regional Roads Involving Distracted Driving (2015 to 2019)

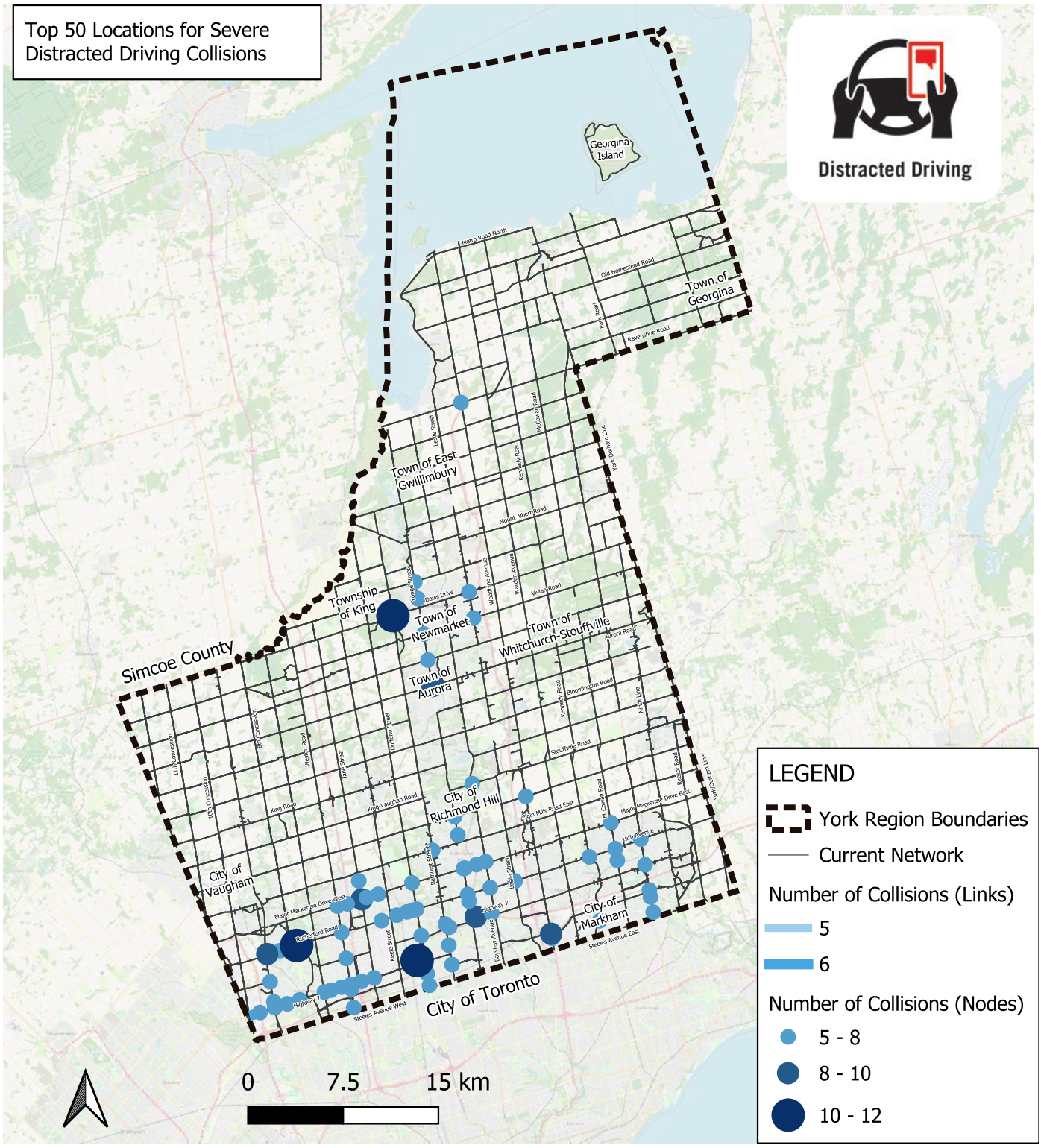


◀ PHOTOS
(Top and bottom):

01 An autonomous vehicle

02 Guiderail

FIGURE 13: Top 50 Locations for Severe Distracted Driving Collisions



Approximately 1/4 of all severe collisions in the Region are due to distracted driving.

Programs listed below are new or expanded countermeasures York Region plans to implement in 2024 to address distracted driving collisions as part of the Plan.

TABLE 5: 2024 Planned Countermeasures for Distracted Driving

Countermeasures	Priority Locations
Guiderail upgrade/ installation	20
Real time data collection for autonomous vehicles readiness	4
Targeted enforcement	various
Safety campaign	1

◀ PHOTOS
(Top and bottom):

01 Road surface markings showing Slow School Zone

02 An unmarked police car pulling over a vehicle on the side of a road

Impaired Driving

Impaired driving collisions involve any driver whose ability to safely operate their vehicle has been compromised due to drinking (whether below or above the legal limit), drug use, a medical situation (e.g., seizure or heart attack) or fatigue.

Impaired driving countermeasures rely heavily on education, engagement and enforcement and are mainly led by York Regional Police.

Impaired driving collision history in York Region is shown in the graph and map (Figures 14 and 15). The graph illustrates a slight decrease in impaired driving collisions; however, cannabis legalization may contribute to a rise in impaired driving collisions as 2019 data already shows a slight increase in impaired driving collisions.

Of the eight countermeasures to be implemented for impaired driving, these will have the highest impact.

- Project R.I.D.E. (Reduce Impaired Driving Everywhere), a year-round program more prevalent around holidays, can reduce collisions by 9%
- Alcohol and drugs youth programs, administered by York Region Public Health nurses in schools, can be expanded

FIGURE 14: Number of Severe Collisions on Municipal and Regional Roads Involving Impaired Driving (2015 to 2019)

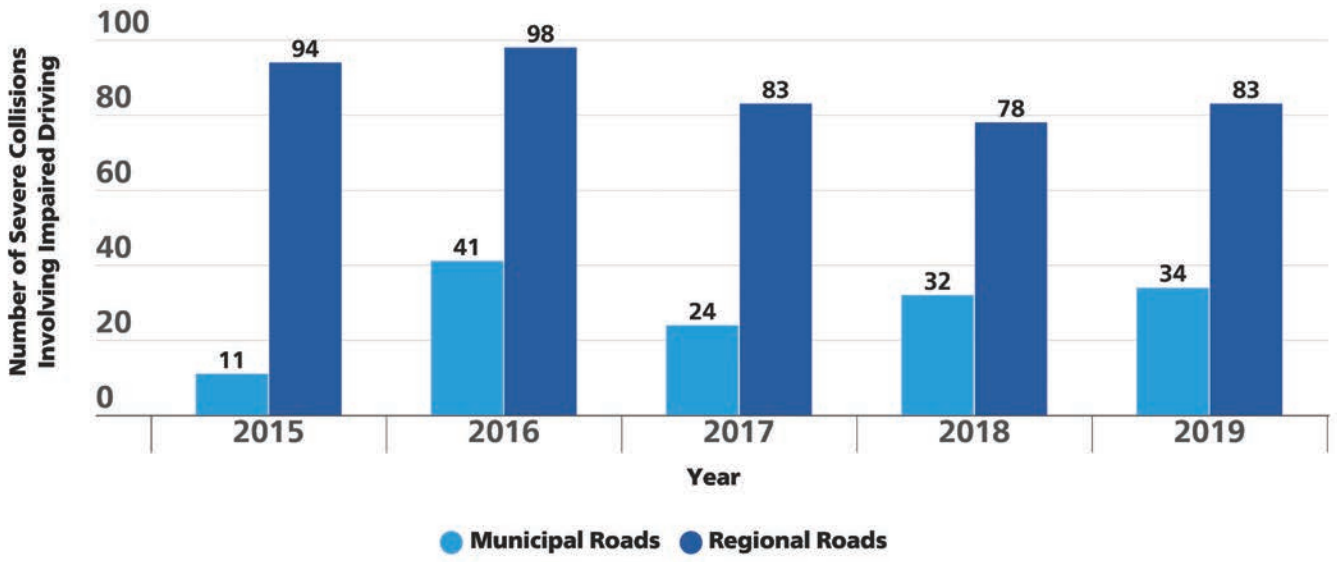
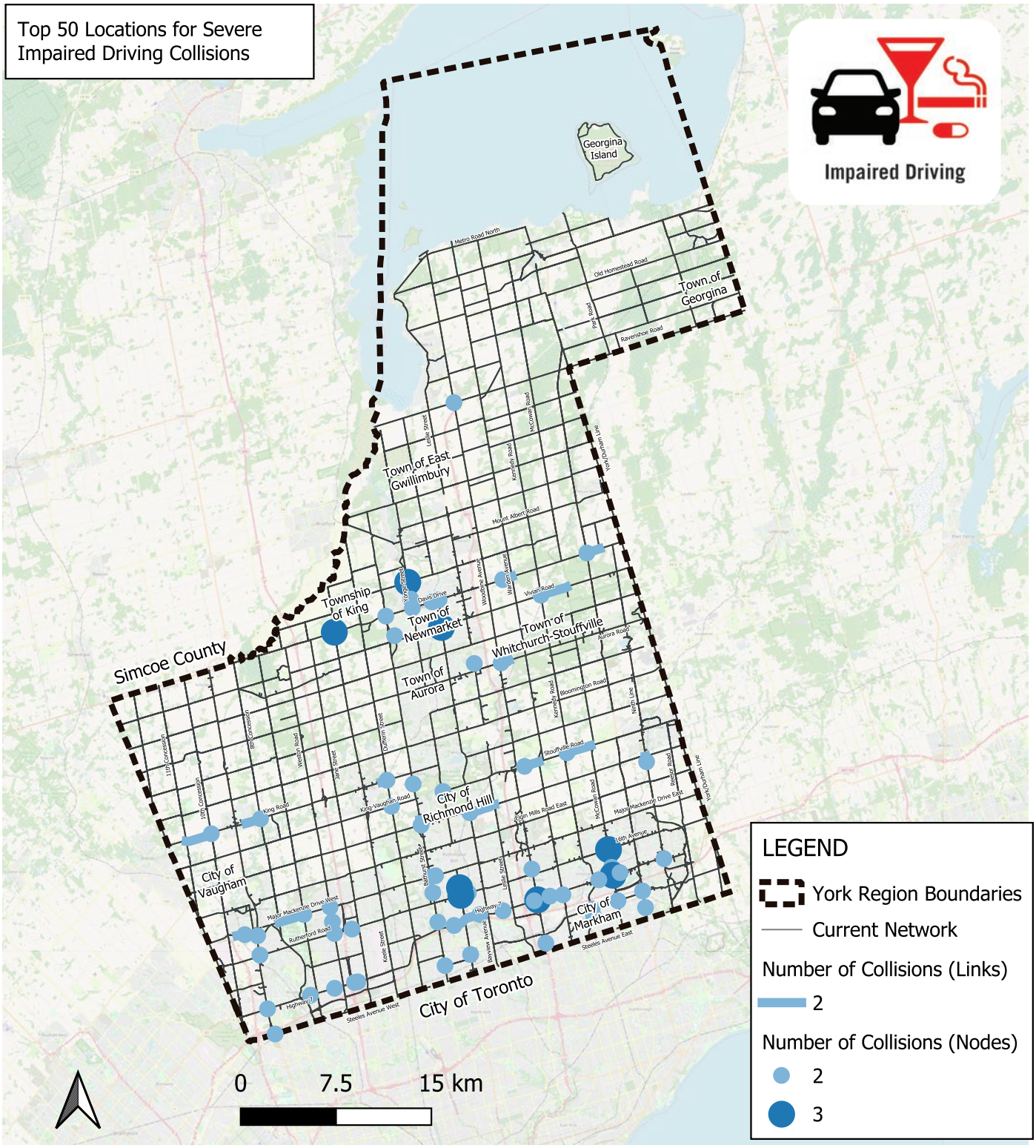


FIGURE 15: Top 50 Locations for Severe Impaired Driving Collisions



Alcohol — even one drink — can reduce your reaction time. The effects of alcohol also include blurred or double vision and impaired attention. Alcohol-impaired driving is one of the leading causes of death on Ontario roads.

Programs listed below are new or expanded countermeasures York Region plans to implement in 2024 to address impaired driving collisions as part of the Plan.

TABLE 6: 2024 Planned Countermeasures for Impaired Driving

Countermeasures	Priority Locations
Project R.I.D.E	various
Alcohol and drug youth campaign	various

◀ PHOTOS
(Top and bottom):

01 Marijuana plant

02 York Regional police officer conducting a R.I.D.E. program

7. How the York Region Vision Zero Traveller Safety Plan Was Created

Partners

The Plan was developed collaboratively; feedback and input from partners and the public are critical to the project's success. This Plan is one of the few Ontario road safety plans that incorporated specific input from each local city and town during its development. Figure 16 shows key steps in developing the Plan, with evaluation embedded into the ongoing review processes.

FIGURE 16: Traveller Safety Plan Development and Implementation Process

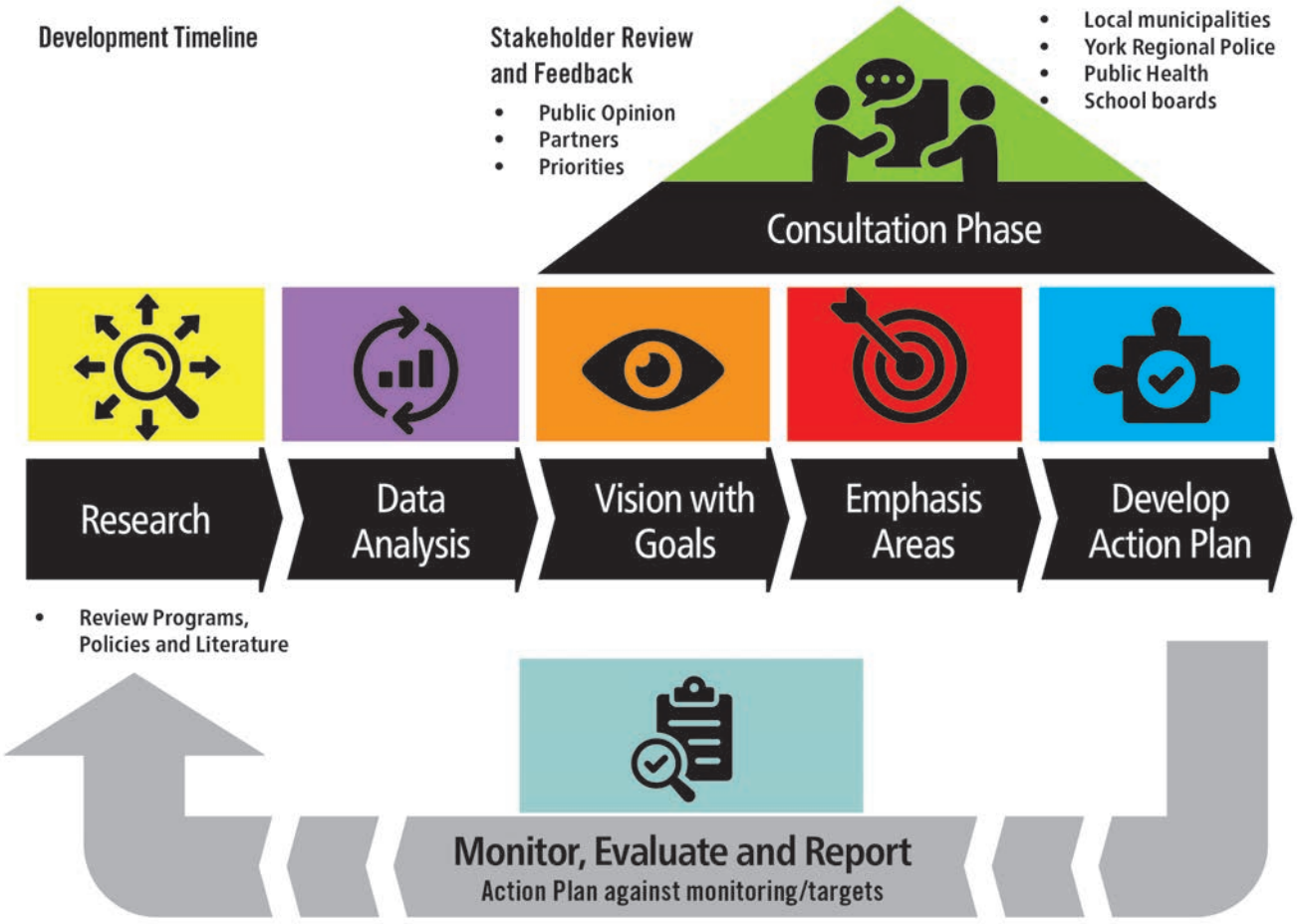


FIGURE 17: Participating Partners

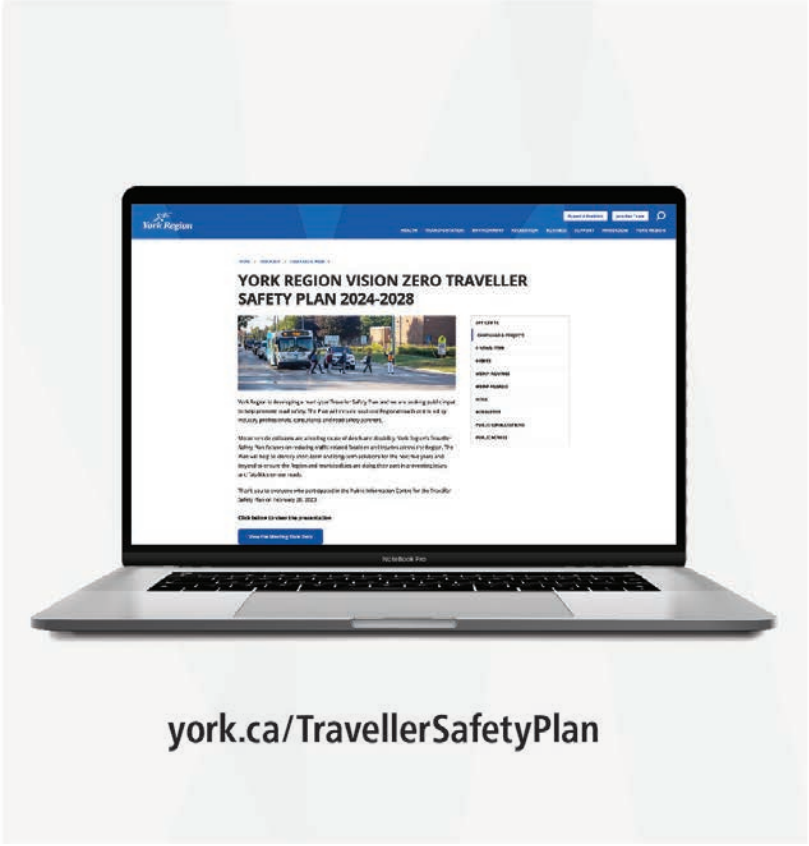
At the outset of this study, York Region identified partners who could contribute to road safety, including local cities and towns, first responders and stakeholders such as Ministry of Transportation Ontario, school boards and accessibility and cycling advocacy groups. Participating partners are shown in Figure 17.

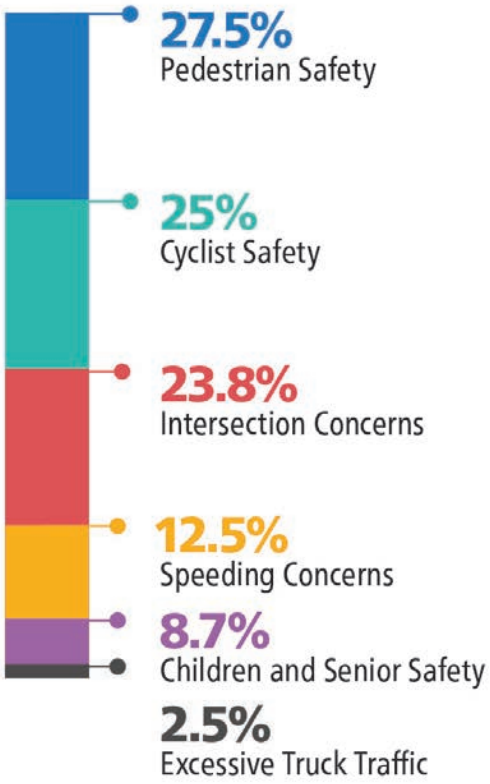
York Regional Police (YRP) is a key partner and has developed a road safety strategy emphasizing education, engineering and enforcement actions, using the safe system approach. The Plan builds on York Region's and local municipalities' existing road safety programs and York Regional Police operational plans. Many education and enforcement countermeasures in this Plan are ongoing YRP programs and YRP input is invaluable for long-term success in achieving Vision Zero.

Partners met in a series of workshops and York Region also worked with local cities and towns to learn more about their existing road safety programs. This process provided a better understanding of safety issues across York Region and how to build on existing efforts.

Residents were also encouraged to provide feedback. One opportunity was a virtual public information centre that introduced this study and collected more than 1,000 comments. Public opinion was also collected through online surveys in April 2023, with more than 500 completed responses. This work highlights the role of human factors in collisions, including attitudes towards hazardous behaviours like distracted driving and speeding. Figure 18 shares primary areas of concern identified through various channels of public input.

FIGURE 18: Top Safety Issues from the Virtual Public Information Centre





Data analysis

Strong data analysis is the foundation for the Plan. In a major step forward, York Region, in 2023, implemented a new web-based data warehouse tool to view and analyze anonymized and aggregate information about collisions, traffic volumes, infrastructure, Highway Traffic Act infractions and connected vehicle data, available with many newer vehicles. The data warehouse tool includes analytic features to conduct data-driven and evidence-based analysis for the purpose of identifying and prioritizing better measures for changing traveller behaviours. New data sources from partners and the data warehouse helped York Region understand traveller behaviours more clearly and will continue to encourage a stronger road safety culture.

This level of detail is unprecedented in Ontario, as is the use of sophisticated innovative technology to identify collision hot spots. Data must be viewed in a larger context. Based on available traffic volume data collected during the pandemic, traffic volumes experienced a significant decrease in both 2020 and 2021, especially in 2020, ranging from a 15% to 60% reduction, then gradually increased later in 2021 to a level close to or exceeding the pre-COVID conditions. Therefore, collision data between 2015 and 2019 is consistent, representing typical trends. It forms baseline data, avoiding irregular collision data from during the pandemic.

The Future of Road Safety: Connected Vehicle Data

Breakthroughs in technology are pointing the way to better road safety decisions.

Newer vehicles, equipped with internet connectivity and certain onboard sensors, can participate in connected vehicle data, which is sent wirelessly from vehicles using on-board transmitters. Millions of data points from different vehicles are sent virtually in real time. York Region uses anonymized and aggregate data to obtain a detailed picture of how much traffic is in a particular location and how fast vehicles are travelling in each direction.

Even more critical for road safety, this big picture shows where drivers are braking or accelerating unusually hard (Figure 19 A and 19 B). This information may indicate engineering work is needed at a specific location to allow for a smoother travel experience.

Aggregated data has many other uses in road safety and transportation planning, including predicting and assessing safety countermeasure impact, checking compliance with posted speed limits and determining how to divert traffic efficiently during roadwork.

How offering more ways to travel can make the network safer

The Transportation Master Plan focuses on offering more ways to travel in the Region. This includes more transit and other eco-friendly ways of getting around, such as walking, cycling and micromobility (e-bikes, e-scooters and other lightweight, low-speed vehicles).

The Master Plan responded to a growing trend among residents who wish to get out of their cars, especially for shorter trips in more built-up areas.

For greater safety, separate multi-use paths are being added or extended and, where that's not feasible, cycling tracks on roadways are being protected.

These measures benefit everyone because they also reduce single-occupant vehicles on roads, easing congestion and reducing the risk of collisions.

FIGURE 19A: Connected Vehicle Event Heatmap from May 7, 2023, to June 9, 2023

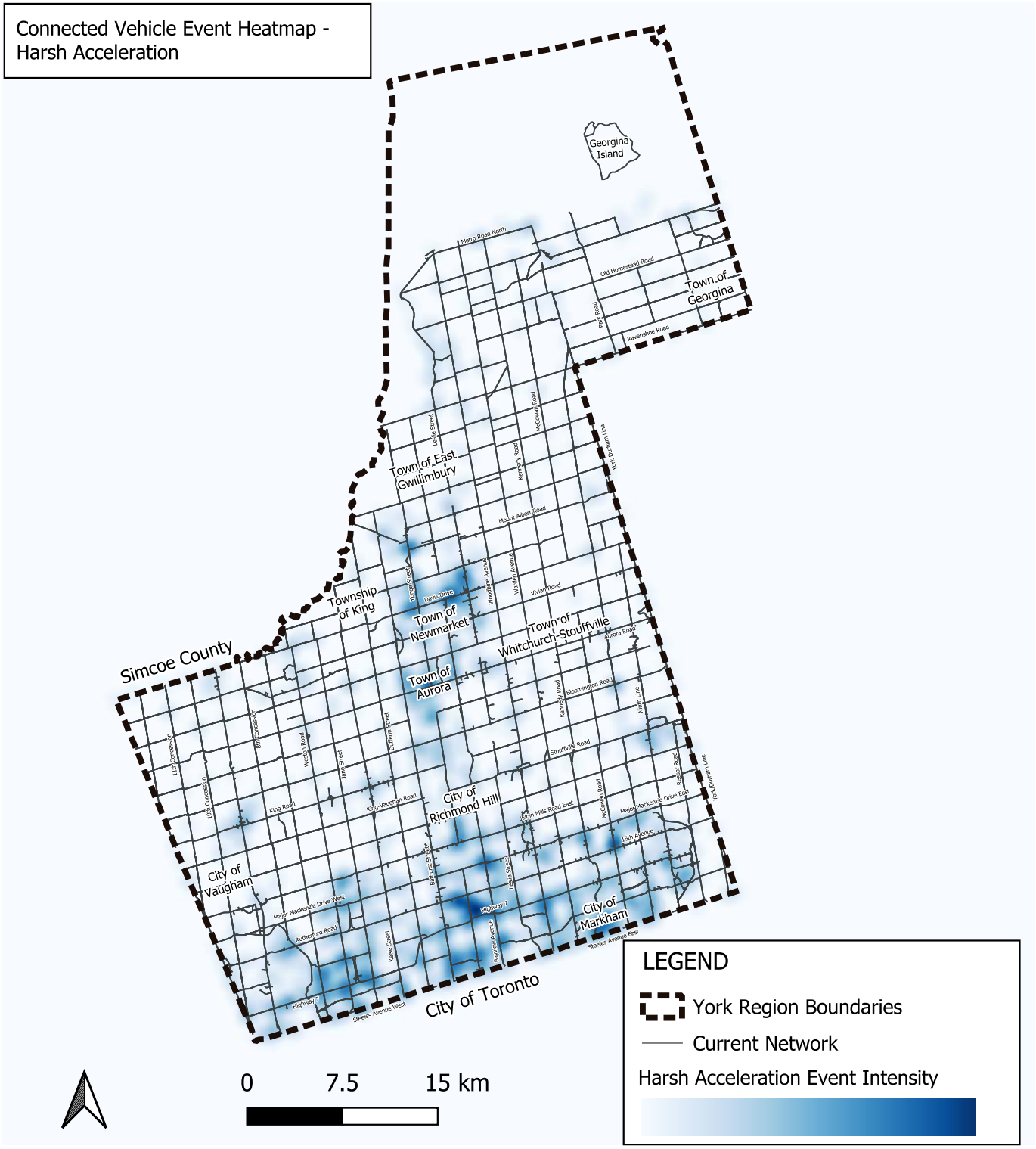
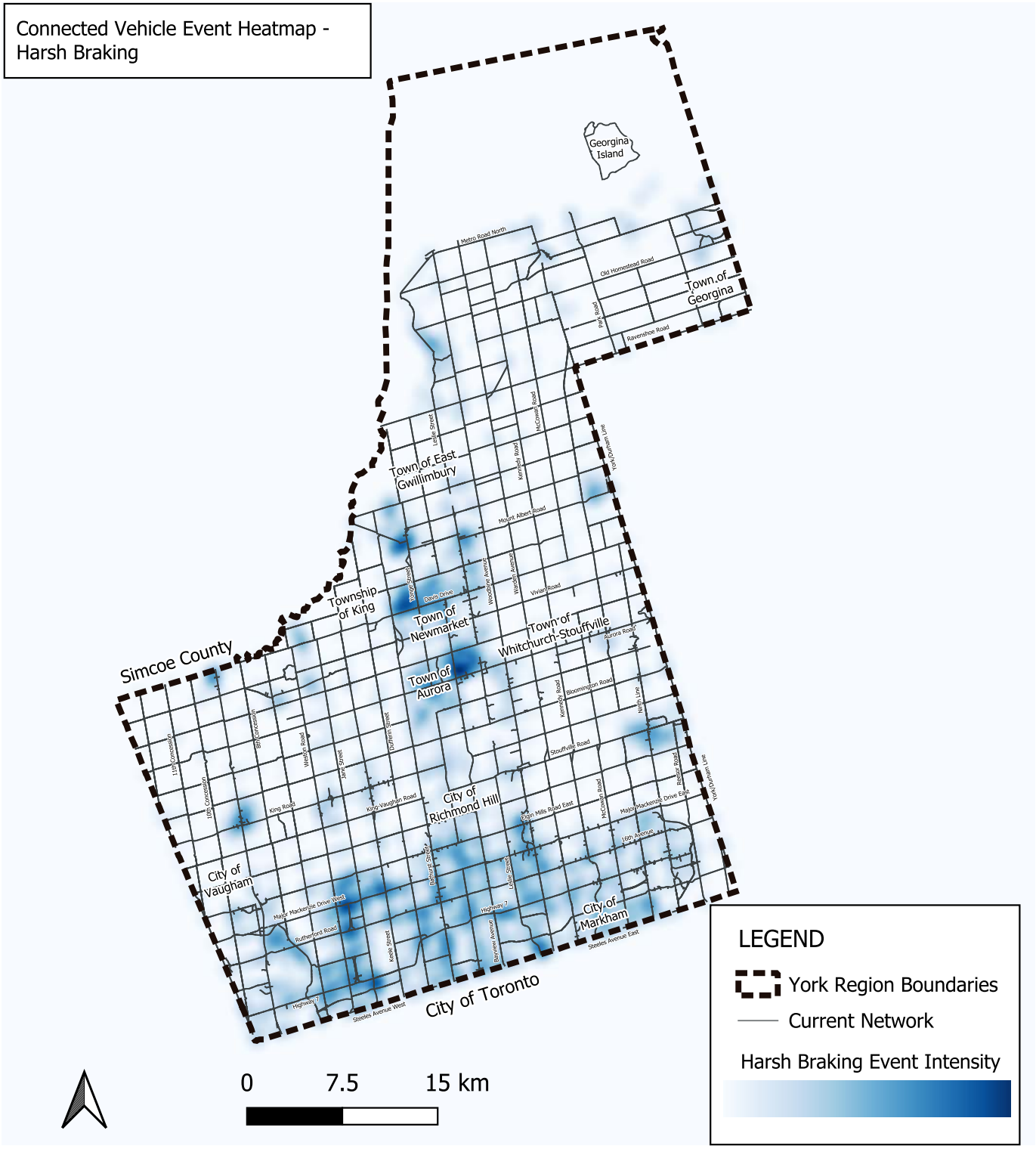


FIGURE 19B: Connected Vehicle Event Heatmap from May 7, 2023, to June 9, 2023



8. Resources

Similar to other municipalities that have developed Vision Zero plans, considerations for budget and human resources are a foundation and included in this section.

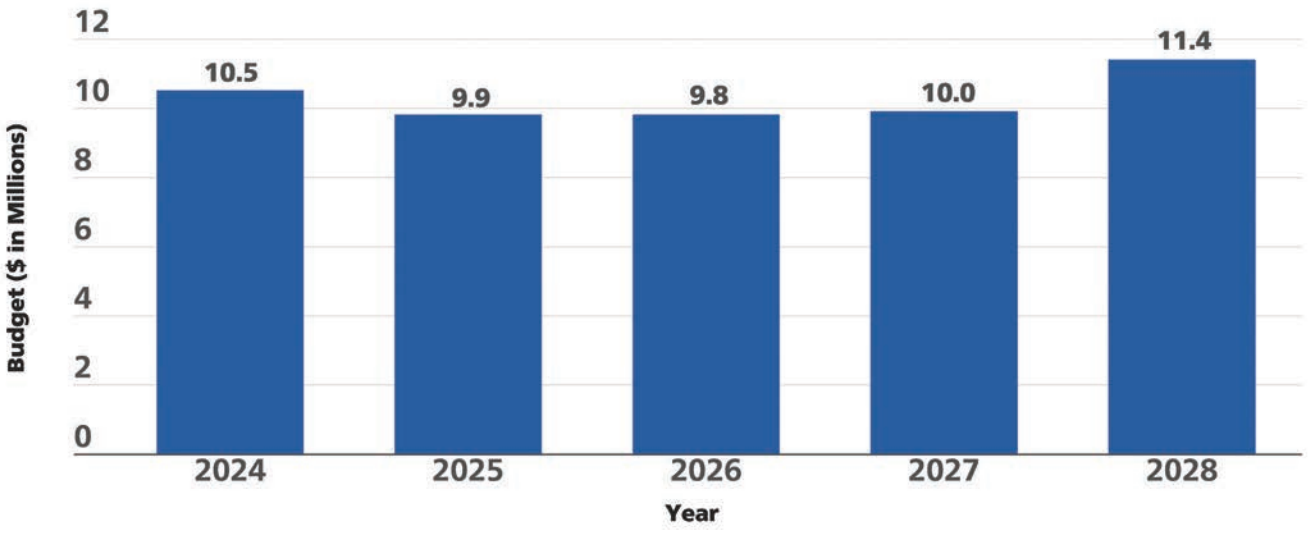
Budget

The Plan budget is approximated by adding each countermeasure implementation cost, including recurring lifecycle operating and maintenance costs. Larger countermeasures are expected to be delivered through the Capital Roads Program and Capital Rehabilitation Contracts under the York Region [2024 10-Year Roads and Transit Growth Capital Construction Program](#).

Figure 20 and Figure 21 present the annual capital and operating budgets required to deliver the countermeasures selected by the Region in the next five years. As can be seen, the expected level of investment increases towards the end of the Plan life cycle (i.e., 2027 and 2028). This is due to the required time for engineering studies and approvals for more expensive countermeasures, such as installing protected bike lanes and roundabouts. The presented budget and its distribution over the next five years are subject to change upon the availability of more accurate unit costs and funding to the Region.

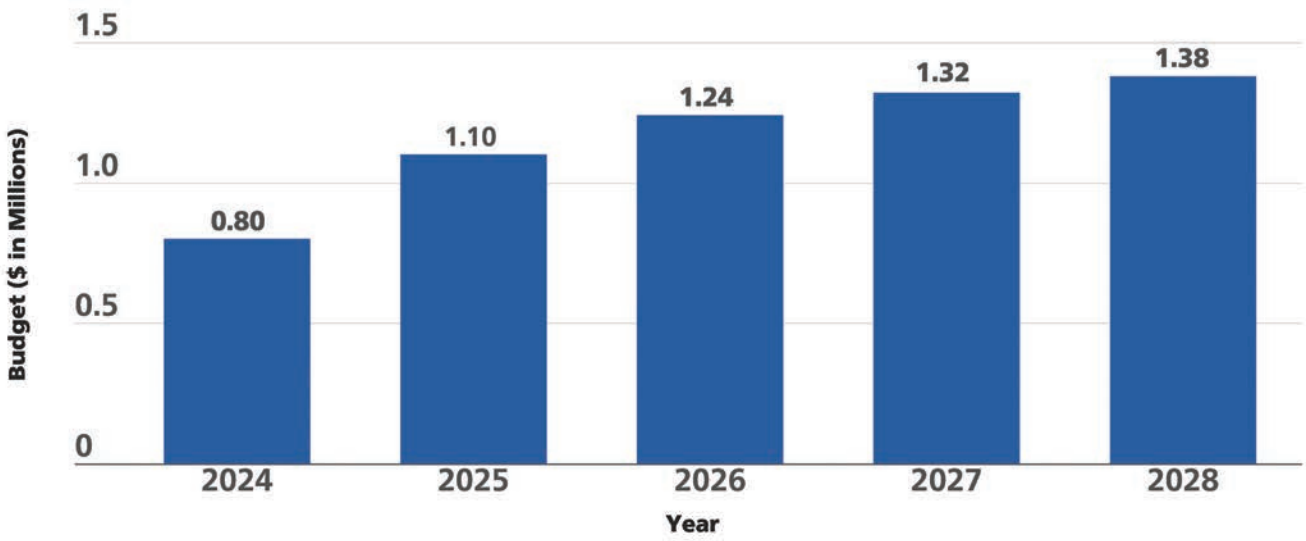
There are no additional budget needs in 2024 and any 2024 resources needs were included in the 2024 budget.

FIGURE 20: Annual Capital Budget – York Region ($ in Million)



Note: Capital plus operating equals approximately $12 million (90% Capital and 10% Operating)

FIGURE 21: Annual Operating Budget – York Region ($ in Million)



Several countermeasures are already underway; however, once this Plan is launched, each tactic can be identified accordingly for a full picture of York Region's road safety initiatives. In addition, future funding from public safety initiatives including automated speed enforcement and red light cameras will be allocated to support plan implementation.

Investments will increase towards the end of the five years because engineering studies and approvals for more cost intensive countermeasures, such as installing protected bike lanes and roundabouts, will take more time to implement.

The Plan requires a human resources investment. A significant effort is needed to analyze safety data, develop specific programs, implement countermeasures and monitor results. Additional staff and / or staff time, which may be in form of new hires, reallocating existing staff and consulting services, is crucial. Municipal and Regional roads all form part of the same vital system and it is important that local cities and towns and York Region continue to work together to achieve Vision Zero. Municipalities are encouraged to implement an appropriate resource plan to implement the action plan.

While all of this may require additional resources in the future, it will also help to save lives, prevent severe collisions and protect our vulnerable travellers. Any future requests for staff resources, capital and operating dollars to support the Plan will be considered by Public Works as part of the annual budget process.

9. Monitoring and Reporting

Process performance will be monitored and evaluated annually to ensure planned actions are happening as envisioned. Success will be reported back through an annual report to York Regional Council and will capture any early signs of success, including preliminary results.

In working with our partners, York Region will continue to refine the Plan to achieve a 10% reduction in severe collisions in the next five years and reach the long term Vision Zero goal.

10. Conclusion: From Plan to Action

Over the next five years, York Region and its partners will put more than 100 countermeasures in place to reduce severe collisions in all five emphasis areas. This Plan sets priorities in each area based on urgency, expected safety benefits, resource needs and, in the case of larger engineering solutions, how the work will integrate with other capital projects.

To assess progress for each emphasis area, performance will be regularly measured, tracked and reported annually. Over time, new challenges may arise. To keep the Plan current, emphasis areas will be reassessed each time it is updated.

At the same time, partners will work to create a culture of traffic safety within their own organizations and across the Region. This will grow out of:

- Joint work, idea sharing and collaboration among safety staff, internal and external partners and others with an interest in traveller safety
- Encouraging collision data use in all decision making about the road network
- Explicitly building safety into existing and new plans and programs
- Resourcing relevant safety programs run by departments outside traffic operations and road safety

On a broad scale, creating a safety culture means changing people's values and attitudes across all communities in York Region. Safety is a shared responsibility of all road users and must be a key part of every decision made about how to travel. That is how we realize our aspirational vision of ending all severe collisions on our roads.

Appendix

Full list of Countermeasures

Following is a list of new and expanded countermeasures York Region plans to implement as part of York Region Vision Zero Traveller Safety Plan. They are organized by general countermeasures that can be applied to all emphasis areas, then by the specific emphasis areas they address.

APPENDIX 1: General Countermeasures

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
Library of Resources and Reference Materials	Engineering GCM-01	Assemble a digital library and obtain / purchase copies of provincial (Ministry of Transportation of Ontario), national (Transportation Association of Canada) and international (Federal Highway Administration, the American Association of State Highway and Transportation Officials) manuals on traffic safety and operations	Undetermined	Library of Resources
Traffic Count Program Needs Assessment	Engineering GCM-02	Determine optimal locations for the count program; implement refinements to data collection periods and seasons; develop procedures to estimate Annual Average Daily Traffic (AADT) at intersections based on Turning Movement Count (TMC) data while using time of day, day of week and day of month conversion factors; develop procedures to estimate AADT on road segments based on Automatic Traffic Recorder (ATR) data while using time of day, day of week and day of month conversion factors	Undetermined	Repeated every five years
Road Safety Database Update	Engineering GCM-03	Develop procedures to assess road safety data quality; conduct regular collision database updates / audits; conduct regular infrastructure database updates / audits; conduct regular update of traffic volume database	Undetermined	Annual review
Pedestrian and Cyclist Count Program	Engineering GCM-04	Explore and adopt different technologies for collecting pedestrian and cyclist counts; develop procedures to estimate pedestrian and cyclist volumes at intersections based on TMC data; develop procedures to estimate pedestrian and cyclist volumes at midblock crossing based on adopted data collection technologies; collect and estimate pedestrian and cyclist volumes	Undetermined	Repeated every five years
Speed Data Collection Program	Engineering GCM-05	Explore and adopt different technologies for collecting historical and real-time speed data; develop procedures to estimate speed noncompliance on road segments; collect and estimate speed non-compliance; analyze the collected Speed Data and Identify High Risk Locations with speeding issues	Undetermined	Annual review

APPENDIX 1: General Countermeasures

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
Network Screening Program	Engineering GCM-06	Collect and assemble necessary data; develop Safety Performance Functions (SPFs); conduct Network Screening using Empirical Bayes Method; identify sites with higher Potential for Safety Improvements (PSI); consider all road users	Undetermined	Update every 3 to 5 years
Systemic Safety Review Program	Engineering GCM-07	Collect and assemble necessary data; identify risk factors and assign them to sites; identify and rank sites with one or more risk factors; identify systemic safety treatments; consider all road users	Undetermined	Update every 3 to 5 years
In-Service Road Safety Review Program	Engineering GCM-08	Develop and implement a program to conduct in-service road safety reviews at top-ranked locations in York Region	Undetermined	20 locations per year
Develop Vision Zero Dashboard	Engineering GCM-09	Present Road Safety program progress through key performance indicators (KPIs) using visualization tools such as Power BI dashboards	Undetermined	1 dashboard
Annual Road Safety Report	Engineering GCM-10	Prepare a road safety report summarizing KPIs on annual basis for presentation to York Regional Council and the public	Undetermined	Annual update
Traffic Inquiry Prioritization Tool	Engineering GCM-11	Develop an inquiry intake priority procedure for optimal / objective handling of public requests	Undetermined	Update every 3 to 5 years
Before-After Studies	Engineering GCM-12	Conduct regular before-after studies determining countermeasure effects following best practice approaches	Undetermined	3 counter-measures per year
City Standards and Specifications Update	Engineering GCM-13	Identify and develop required standards and policies to facilitate seamless traffic safety business unit operation	Undetermined	3 policies per year
Incorporate Safety in Design and Planning	Engineering GCM-14	Review York Region's current planning policies and design guidelines to identify gaps; incorporate safety in planning and design procedures	Undetermined	Update every 3 to 5 years

APPENDIX 2: Vulnerable Road Users

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
Addition of Active Transportation Facilities (painted lanes)	Engineering VRU-01	On-road, painted lanes, adjacent to general purpose lanes, to reduce collisions with pedestrians, cyclists, etc.	14% reduction	10 kilometres
Addition of Active Transportation Facilities (protected on-road)	Engineering VRU-02	Protected cycling lanes, separated by bollards, barriers or a bike track	63% reduction	2.5 kilometres
Addition of Active Transportation Facilities (protected off-road)	Engineering VRU-03	Separated bike path or multi-use lanes	63% reduction	2.5 kilometres
Bicycle Conflict Zone Pavement Markings	Engineering VRU-04	Markings for drivers that increase awareness and safety of cyclists	Undetermined	5 locations
Countdown Timers	Engineering VRU-05	Countdown timers for pedestrian crossing at intersections	8.8% reduction	25 locations
Crossing Guards	Engineering VRU-06	Trained adults to ensure pedestrians are crossing at appropriate times and locations, especially beneficial for children near schools	Undetermined	Collaborative with local municipalities
Curb Extensions	Engineering VRU-07	Extending curbs to improve pedestrian safety and visibility at intersections	15% reduction	5 locations
Incorporating Active Transportation Improvements into development applications	Engineering VRU-08	Ensure through development approvals process that active transportation infrastructure is being accounted for; may include developer-funded transit incentives as a condition for approval	Undetermined	5 locations
Pedestrian Warning Devices (for buses)	Engineering VRU-09	The audible pedestrian warning system is a device on the bus that warns pedestrians the bus is making a right or left-hand turn and exterior mounted speaker system is used to make the automated announcement	Undetermined	14 e-buses
Pedestrian-level Illumination	Engineering VRU-10	New or upgraded streetlighting designed specifically to highlight the presence of and assist pedestrians to cross at protected locations, especially beneficial in low-light or nighttime conditions	42% reduction	25 locations
Pedestrian Crossovers (PXOs)	Engineering VRU-11	Pedestrian crossings protected by signs, pavement markings and flashing lights	18% reduction	5 locations

APPENDIX 2: Vulnerable Road Users

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
School Crossings	Engineering VRU-12	Controlled crossings near schools, typically with markings on the road, signs and crossing guards	37% reduction	Collaborative with local municipalities
Tactile Plates	Engineering VRU-13	Pavement surface devices near the edge of the road to assist visually challenged pedestrians in crossing	Undetermined	25 locations
Text Pavement Markings	Engineering VRU-14	Pavement markings to increase drivers' awareness of school zones and reduce speed	15% reduction	25 locations
Walking Speed Adjustments	Engineering VRU-15	Altered traffic signal timings to accommodate slower walkers crossing intersections	51% reduction	25 locations
Warning Signs	Engineering VRU-16	Signs warning vehicles turning right that pedestrians and / or cyclists have the right-of-way within the intersection	Undetermined	50 locations
Zebra Crosswalks	Engineering VRU-17	Ladder-style markings to emphasize crosswalk presence	40% reduction	50 locations
Audible Pedestrian Signal	Engineering VRU-18	Sound units to indicate to the visually impaired the signal indications as well as the presence of intersections equipped with this technology	Undetermined	25 locations
Pedestrian and Cycling Planning and Design Guidelines	Engineering VRU-19	Application of the Pedestrian and Cycling Planning and Design Guidelines, active transportation components of the 2022 Transportation Master Plan, and best practices from Ontario Traffic Manual (OTM) Book 18 Cycling Facilities	Undetermined	Developed
Bike Signals	Engineering VRU-20	Dedicated signals for cyclists at signalized intersections	Undetermined	1 location
Bus Stop Location Reviews	Engineering VRU-21	Bus stop reviews are a formal assessment on the safety impact of either adding or relocating transit stops	Undetermined	10 locations
Relocate Bus Stops	Engineering VRU-22	Bus stop locations may be adjusted based on the results of the transit stop location evaluation	Undetermined	5 locations
Designing Great Streets Guidelines	Engineering VRU-23	Complete Streets is a proactive approach to planning and design where the needs of all road users are considered (not just vehicle traffic)	Undetermined	1 location
Corner Radius Reductions	Engineering VRU-24	Smaller corner radius encourages slower turning speeds, improving pedestrian safety	1.9% reduction	5 locations

APPENDIX 2: Vulnerable Road Users

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
Crossride Markings	Engineering VRU-25	Crossride (bicycle crossing) pavement markings highlight the presence of cyclists crossing and help organize their movements; Revise and expand active transportation intersection pavement markings and signage	40% reduction	5 locations
Intersection Roadside Protection	Engineering VRU-26	Bollards, guiderail or barriers may be installed to control pedestrian movements, especially large flows, and protect vehicles from encroaching	Undetermined	5 locations
Leading Pedestrian Intervals (LPIs)	Engineering VRU-27	A traffic signal timing strategy used to improve pedestrian safety at intersections; walk signal activates before the vehicle green light, allowing pedestrians to establish their presence in the intersection	19% reduction	5 locations
Integration with the City of Vaughan's MoveSmart Strategy	Engineering VRU-28	Regional partnership and support for the City of Vaughan Road Safety Initiatives and MoveSmart Strategy (improve road safety, school safety, traffic management data program, traffic calming measures, and expansion of pedestrian and cycling network)	Undetermined	In progress
Right Turn on Red (RTOR) restrictions	Engineering VRU-29	Prohibitions reduce conflicts with pedestrians who are crossing where vehicles are turning right	3% reduction	5 locations
School Zone guidelines	Engineering VRU-30	Establishing specific standards and guidelines for safety measures in school zones	Undetermined	To be developed
School / Event Timing plans	Engineering VRU-31	Implement specific timing plan near schools around school hours or special events	Undetermined	10 locations
Sidewalk Addition / Completion	Engineering VRU-32	Building new sidewalks, especially where there are missing links in a system. In consultation with local municipalities as sidewalks are typically their jurisdiction	65% reduction	10 kilometres
Smart Channels with / without pedestrian crossovers (PXOs)	Engineering VRU-33	Smart channels are a modern design for right turning where the approach angle for vehicles is sharper, slowing speeds and providing a better view of crossing pedestrians	47% reduction	5 locations
School Zone Speed Reduction	Engineering VRU-34	Use of the new, simpler school speed zone signing based on revised provincial regulation	Undetermined	Pending new school locations

APPENDIX 2: Vulnerable Road Users

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
Active Transportation Prioritization Missing Links	Engineering VRU-35	A flexible, rational, data-driven methodology for prioritizing bicycle and pedestrian improvements along existing roads; framework developed to help prioritize missing links in the active transportation network	Undetermined	To be developed
Bicycle-Specific Signal Timing	Engineering VRU-36	Used where there are significant volumes of bicycles and evidence green or amber timing at a traffic signal is not long enough for crossing safely	Undetermined	1 location
Median Treatments (two-stage crossing, etc.)	Engineering VRU-37	Used where long distances make it impractical to cross a wide roadway and pedestrians must have a safe median	46% reduction	1 location in 2028
Multi-Modal Levels of Service (LOS) Analysis	Engineering VRU-38	Attempts to provide more equal use of the roadway system for all types of travel including transit, cycling and walking	Undetermined	Developed
Incorporate Motorcycle Safety into routine roadway inspections and maintenance	Engineering VRU-39	Regularly maintain pavement surface to minimize surface irregularities (e.g., potholes), debris	Undetermined	Incorporate into existing maintenance program
Provide Advance Warning Signs for Motorcyclists	Engineering VRU-40	Provide advance warning signs to alert motorcyclists of reduced traction, irregular roadway surfaces and work zones	Undetermined	Incorporate into existing signage program
Provide Fully Paved Shoulder	Engineering VRU-41	Fully paved shoulders provide motorcyclists space for roadside recovery and breakdowns	Undetermined	Incorporate into resurface / reconstruction projects
Active School Travel	Education / Engagement VRU-42	Education to promote and encourage active school travel with infrastructure enhancements including sidewalk stencils, wayfinding signs and bike racks; infrastructure enhancements can include safety signage, sidewalk stencils and wayfinding signs	14 to 16% reduction	5 locations

APPENDIX 2: Vulnerable Road Users

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
Be Safe. Be Seen	Education / Engagement VRU-43	Seniors' safety initiative involving social media messaging and in-person events	9% reduction	1 program
Driving Around Cyclists	Education / Engagement VRU-44	An educational outreach program with specific instruction on avoiding cyclist collisions	9% reduction	1 program
Helmet Education	Education / Engagement VRU-45	An educational outreach program to encourage more cyclists to wear helmets	9% reduction	1 program
Motorcycle Safety in May	Education / Engagement VRU-46	Annual education campaign on social media focused on motorcycle safe driving behaviours; uses Share-the-Road messaging and education	9% reduction	1 program
Operation ABC (Always Be Careful)	Education / Engagement VRU-47	Education and enforcement for getting school-aged children and youth to and from school safely	9% reduction	1 program
Project Lifesaver	Education / Engagement VRU-48	Joint social media and event-based campaign with Metrolinx around level railway crossings across York Region, with events at Toys-R-Us stores with officers from YRP and Metrolinx reading a Thomas the Tank Engine safety book to children	9% reduction	1 program
Road Safety Parachute	Education / Engagement VRU-49	This Parachute resource, provided by York Region Public Health, covers research and best practice interventions in the areas of intersections, aggressive driving, distracted driving and impaired driving	9% reduction	1 program
Stay Alert. Stay Safe	Education / Engagement VRU-50	Traffic safety awareness campaigns to educate public on areas of concern	9% reduction	1 program
Dementia-Friendly Communities Initiative	Education / Engagement VRU-51	The Dementia-Friendly Canada™ project is a partnership between Alzheimer Societies across Canada offering workforce training to support and include people affected by dementia in their communities	Undetermined	1 program
Inclusion, Diversity, Equity, Accessibility (IDEA) Initiative	Education / Engagement VRU-52	This initiative is to develop an advisory group to ensure an IDEA lens is applied to all tactics	Undetermined	1 program
Young Driver Education	Education / Engagement VRU-53	An educational outreach program focused on distracted or impaired (alcohol and drug use) driving in secondary schools	9% reduction	1 program

APPENDIX 2: Vulnerable Road Users

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
PARTY Program (Prevent Alcohol & Risk-Related Trauma in Youth)	Education / Engagement VRU-54	Students hear first-hand experiences about road safety from police officers, paramedics, doctors, a coroner, nurses, the blood and tissue bank, rehabilitation professionals and injury survivors	9% reduction	1 program
Pedestrian / Cyclist Collision Selective Enforcement	Enforcement VRU-55	Police enforcement targeting areas of concern regarding pedestrian safety	Undetermined	1 program
School Bus Stop Arm Cameras	Enforcement VRU-56	Consultation with Ontario government for provision of school bus stop arm camera program	100% reduction	1 program
School Zone Enforcement	Enforcement VRU-57	Police enforcement targeting school zones for parking compliance, stop sign compliance, speeding, etc.	Undetermined	1 program
Seatbelt Enforcement	Enforcement VRU-58	Participation in Ontario Government Seatbelt Enforcement Traffic Campaigns	Undetermined	1 program

APPENDIX 3: Intersections

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
All-Way Stop Control (AWSC)	Engineering INT-01	Convert Minor-Road Stop Control (MRSC) to All-Way Stop Controls (AWSC), which are less efficient but safer	70% reduction	5 locations
Flashing Beacons	Engineering INT-02	Installed at intersections with stop controls to increase visibility	47% reduction	5 locations
High-Friction Pavement	Engineering INT-03	Improved pavement materials (high friction surfacing) at intersections and on specific roadway segments (curves) to reduce collisions due to skidding	48% reduction	5 locations
Intersection / Railway Illumination	Engineering INT-04	Install or upgrade lighting	33% reduction	5 locations
Railway Crossing Review	Engineering INT-05	Identifies the need for pedestrian gates and flashers	Undetermined	10 locations
Roundabouts	Engineering INT-06	Converting stop-controlled intersections to roundabouts	68% reduction	1 location
Sightline Improvements	Engineering INT-07	Keeps pedestrian waiting areas and daylighting triangles free of obstructions; improves drivers' ability to enter an intersection safely	47% reduction	10 locations
Signalization	Engineering INT-08	Changing intersections from stop-controlled to traffic signal-controlled	14% reduction	50 locations
Left-turn lane offset	Engineering INT-09	Revise intersection left-turn lane offset and left-turn signal phases	36% reduction	5 locations
Left-turn signal phases (protected / protected + permissive)	Engineering INT-10	Fully protected left-turn phases at intersections reduces collisions with pedestrians and cyclists	28% reduction	5 locations
Traffic Control Visibility	Engineering INT-11	Addresses the situation where signals and signs are easy to miss or hard to see	3% reduction	5 locations
Added Left-turn lanes	Engineering INT-12	Left-turn lanes, especially in free-flow conditions, reduce rear-end collisions	28% reduction	5 locations
Closing Driveways Close to Intersections	Engineering INT-13	Driveway movements close to intersections, especially traffic signals, should be avoided, as they are a major cause of collisions	Far-side: 25% reduction	1 location

APPENDIX 3: Intersections

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
Incorporating Safety into Traffic Impact Studies (TIA)	Engineering INT-14	TIAs should be required to incorporate road safety analysis in their designs and show that the best alternatives have been chosen to minimize risk	Undetermined	1 location
Incorporating Safety into Design, and Operational Analysis	Engineering INT-15	Municipal roadway design and operational analyses should automatically incorporate safety	Undetermined	1 location
Left-turn Traffic Calming	Engineering INT-16	Modifying median island, typically at a signalized intersection, to reduce turning radius, slowing traffic	18% reduction	5 locations
Access Management (intersection and midblock)	Engineering INT-17	Managing driveways on a roadway; the fewer the number and the better managed they are with turn slots or bike crossings, the safer for everyone	Undetermined	Developed
Reduce Speeds at approaches to intersections	Engineering INT-18	Speed reduction in the vicinity of major intersections will reduce frequency and severity of all collisions	7% reduction	5 locations
Roundabout Feasibility A	Engineering INT-19	Roundabouts should always be considered as an alternative to signalization; while there are many restrictions limiting the applicability, at least a high-level systemic review	Undetermined	5 locations
Systemic Intersection Improvements near schools and universities	Engineering INT-20	School zones should be considered in a systemic fashion, combining several of the tools noted in this list	9% reduction (FI)	5 locations
Turn Prohibition (full or part-time)	Engineering INT-21	A full-time or part-time turn prohibition may be appropriate where congestion is causing collisions (and care should be taken not to simply relocate the problem elsewhere)	Undetermined	5 locations

APPENDIX 4: Aggressive Driving

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
In-road Flexible Speed Signs	Engineering AGG-01	Located between travelled lanes, these signs narrow lanes to make drivers slow down	15% reduction	1 location
Median Treatment—continuous physical median	Engineering AGG-02	Installation of centre median to prevent cross-median crashes in urban areas and to restrict access	71% reduction	1 location
Radar Speed Boards	Engineering AGG-03	Relay exact travel speeds to drivers, encouraging compliance with posted speed limits	5% reduction	10 locations
Urban Shoulders	Engineering AGG-04	Pavement marking application to minimize driving on shoulders, creates buffer from curb and narrows lane width	7% reduction	10 kilometres
Automated Speed Enforcement (ASE)	Engineering AGG-05	Implementation following consultation and approval by the Ontario government; applicable to Community Safety Zones and school zones	48% reduction	60 cameras (20 cameras in each of 2024, 2025, 2026)
Congestion Management plan	Engineering AGG-06	Actions that improve safety, such as incident and event response, bicycle facilities expansion and traveller information systems	Undetermined	To be developed
Dragon's Teeth	Engineering AGG-07	Triangular road markings perpendicular to the edge of the roadway, often used at gateways to give the effect of the road narrowing (encourages drivers to slow down)	7% reduction	5 locations (1 location / year)
Increased Fines	Engineering AGG-08	Lobby the Ontario government to increase fines and penalties for moving vehicle charges	Undetermined	1 location
Red Light Camera (RLC)	Engineering AGG-09	Automated enforcement of signal violation at intersections; reduces intentional red light running behaviours (frequency of rear-end collisions might increase)	21% reduction	15 cameras in 2024
Road Design	Engineering AGG-10	Redesigning roadways by reallocating space to different transportation modes for improved safety	37% reduction	5 kilometres
School Zones, Community Safety Zones	Engineering AGG-11	Implement additional Community Safety Zones or school zones, as appropriate (with lower speeds, higher fines, etc.)	7% reduction	Pending new school locations
Vehicle Restriction / Diversion Measures	Engineering AGG-12	Restriction of certain travel movements if they are causing unsafe conditions for pedestrians, cyclists or other road users	Undetermined	5 locations

APPENDIX 4: Aggressive Driving

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
Project S_PACE (Leave Space and Slow your Pace)	Education / Engagement AGG-13	Annual Road Safety Social Media Campaign and Enforcement Project, formerly called Slow Down Move Over	9% reduction	Expand existing program
School Area review (Safe Neighbourhoods)	Education / Engagement AGG-14	Collaboration with schools to review concerns	Undetermined	1 program
Aircraft Enforcement	Enforcement AGG-15	Aircraft enforcement sign and pavement marking; show maximum penalty for stunt driving	Undetermined	Expand existing program
Project E.R.A.S.E. (Eliminate Racing Activity On Streets Everywhere)	Enforcement AGG-16	An awareness and enforcement campaign, operated jointly by police services across Ontario in partnership with the Ontario government, focused on street racing, stunt driving and modified, unsafe vehicles	9% reduction	1 program
ROAD WATCH	Enforcement AGG-17	Neighbourhood driven program for observing inappropriate driving behaviour; upgrades are suggested to streamline reporting process and make it more accessible to the public	Undetermined	Expand existing program
Speed Enforcement	Enforcement AGG-18	Development and delivery of a targeted enforcement program	Undetermined	Expand existing program
Unmarked Enforcement Targeting Aggressive Driving	Enforcement AGG-19	Enforcement of distracted driving laws using unmarked police vehicles	Undetermined	Expand existing program
Priority Location / Time Enforcement Targeting Aggressive Driving	Enforcement AGG-20	Selective enforcement based on demonstrated patterns of distracted driving	Undetermined	Expand existing program

APPENDIX 5: Distracted Driving

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
Rumble Strips	Engineering DIS-01	Texturing pavement, either parallel or perpendicular to the direction of vehicle travel, that make noise and vibrations to alert drivers to slow, stop or other changes ahead	44% reduction	1 segment
Slow vehicle crossing warning systems	Engineering DIS-02	Alert drivers to possibility of a slow-moving vehicle crossing or moving adjacent to the travelled lane	Undetermined	Expand existing program
Autonomous vehicles readiness	Engineering DIS-03	Preparation for the use of autonomous vehicles means changes to the roadway system, including markings, signs and electronic infrastructure (new standards are already being prepared)	Undetermined	1 location
Guide rail upgrades	Engineering DIS-04	Treatments should be updated to the latest Manual for Assessing Safety Hardware (MASH) standards	Undetermined	10 kilometres
Enhanced pavement markings	Engineering DIS-05	Advanced road surface markings that use highly visible and durable materials, such as reflective paints or thermoplastics, to provide improved visibility and guidance for drivers	11% reduction	10 kilometres
Project Heads Up	Education / Engagement DIS-06	Officers observing and enforcing drivers use of hand-held devices and other distracted driving offences	9% reduction	1 program
Unmarked enforcement targeting distracted driving	Enforcement DIS-07	Enforcement of hand-held devices and other distracted driving using unmarked police vehicles	Undetermined	Expand existing program
Priority location / time enforcement targeting distracted driving	Enforcement DIS-08	Selective enforcement based on demonstrated patterns of distracted driving	Undetermined	1 program

APPENDIX 6: Impaired Driving

Countermeasure	Type	Description	Potential for Safety Improvement	5-year Implementation Plan
Alcohol and Drugs Youth Programs	Education / Engagement IMP-01	York Region Public Health nurses (PHNs) provide presentations to high schools on safer parties and cannabis and alcohol use, and a component includes impaired driving. PHNs employ a trainer model where possible and support various committees including SAID DAY, Ontario Students Against Impaired Driving (OSAID), Arrive Alive conference, and participate in other networks.	Undetermined	Expand the existing program
Project Four—Mandatory Approved Screening (MAS)	Enforcement IMP-02	Initiative to conduct mandatory approved screening to drivers exiting golf courses	Undetermined	Expand existing program
Project R.I.D.E. (Reduce Impaired Driving Everywhere)	Enforcement IMP-03	Year-round program with increased presence during festive seasons	9% reduction	Expand existing program
Drug Recognition Expert Training	Enforcement IMP-04	Specialized training for police officers to recognize drug impairment	Undetermined	1 program
Impaired Driver Detection vehicle	Enforcement IMP-05	New technology to prevent impaired driving: for example, not allowing vehicles to start if impaired drivers are detected	Undetermined	1 literature review
Priority location / time enforcement	Enforcement IMP-06	Selective enforcement based on demonstrated patterns of distracted driving	Undetermined	Expand existing program
Weed Out the Risk	Education / Engagement IMP-07	Educational program targeting Grades 9 to 12 on drug impairment dangers. Provides knowledge at varying levels and periods within the calendar year. Emphasis on Grades 9 and 10 in the fall to impact newest student population as they enter high school. Targets Grades 11 and 12 in the spring as many prepare to leave high school and enter employment or post-secondary education	13% reduction	1 program
Transit program "Denzo"	Education / Engagement IMP-08	Driver health monitoring for distraction and fatigue of bus drivers	Undetermined	1 program

2024
YEAR ONE

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