



## **Case Study Series**

Issue 12: June 2022

**Parachute Vision Zero**

# **Canadian Landscape 3.0**

[parachute.ca/visionzero](https://parachute.ca/visionzero)

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## Acknowledgements

Throughout this paper, findings from the grey literature are supplemented by interviews with key stakeholders involved in the Vision Zero experience, including traffic safety officers, engineers, enforcement officers, and other subject matter experts involved in adoption, implementation, and/or advocacy for Vision Zero.

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**Shawn Gerow**, Sign Shop Lead, County of Grande Prairie

**Pat Cliche**, Chair North Bay & Area Road Safety / Vision Zero Committee

**Meagan Lichti**, Public Health Nurse, Injury Prevention and Built Environment, Southwestern Public Health

**Mark Wilson**, Resource Manager, Going the Extra Mile for Safety Committee (GEMS)

# Parachute Vision Zero Canadian Landscape 3.0: Learning from Key Stakeholder Experiences

In 2019, Parachute published the Canadian Landscape 2.0, which profiled 24 jurisdictions. This included reviewing the current status of all jurisdictions in the process of considering, adopting or implementing Vision Zero; presenting the key features of their programs, using a consistent framework of the five (now six as of 2022) Es of traffic safety (further described in Section 1); and discussing the successes and challenges faced by these programs with key stakeholders, as well as any advice they have for jurisdictions contemplating formal adoption.

This issue of the Vision Zero Canadian Landscape (3.0) revisits these jurisdictions and profiles new areas that have adopted or are adopting Vision Zero. This focus is responsive to earlier feedback from our Parachute Vision Zero Network stakeholders, who had requested a better understanding of how to approach Vision Zero, and the facilitators and barriers to embracing a systems approach to increase road safety and end road fatalities and serious injuries.

It is our hope that this report will help illuminate the successes and challenges faced by programs at different stages of Vision Zero adoption, implementation and evaluation, and provide relevant insights from the frontlines.

*Note: The grey literature review featured in this paper is current as of May 10, 2022. Jurisdictions that have made new materials available or that have newly expressed interest in Vision Zero since that time may not be included. In addition, certain aspects of some jurisdictions' Vision Zero strategies have remained unchanged since 2019.*



# 1. Background

## *Vision Zero*

Vision Zero was initiated in Sweden in 1997, in response to a philosophical belief that traffic fatalities were an unacceptable trade-off for being able to travel (Elvebakk, 2007; Kim et al., 2017). It has since been successfully deployed in jurisdictions around the world including in Germany, the United Kingdom, and various cities in the United States and Canada (Mendoza et al., 2017; Peterniak et al., 2016). Vision Zero is generally premised around the following principles: that serious injuries and fatalities on the road are preventable and should not be accepted as an inevitable cost of transport; that any number of traffic fatalities or serious injuries would be considered unacceptable; that road users and those who are responsible for the built environment or vehicle design all have a role to play in preventing traffic fatalities and serious injuries; and that it is possible to eliminate or reduce human error through changes to the built environment (Elvebakk, 2007; Kim et al., 2017; Peterniak et al., 2016). In a review of Vision Zero adoption in Canada, Peterniak et al. (2016) described a Vision Zero approach as including the following fundamental characteristics: “Aggressive casualty and injury reduction goals, co-ordinated, and multidisciplinary action, increased priority and resources allocated toward road safety improvement, and a specific ethical policy framework” (p. 1).

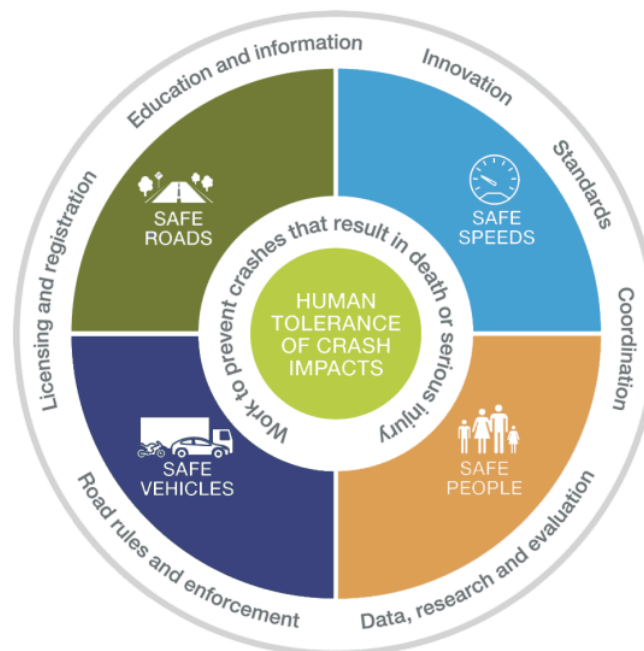
Currently, 1.3 million people around the world die annually from road crashes (World Health Organization, 2018). In Canada, close to 1,800 people die and nearly 24,000 will require hospitalization for transport injuries each year (Parachute, 2021). In Canada, the Canadian Council of Motor Transportation Administrators (CCMTA) is responsible for providing transportation safety advice to the Council of Deputy Ministers, and regularly maintain and update the national road safety strategy as part of its activities (CCMTA, 2016; CCMTA, 2018). The latest iteration of this strategy is the Road Safety Strategy 2025, which explicitly acknowledges a “towards zero” approach and the influence of Sweden’s Vision Zero (CCMTA, 2016). The CCMTA’s role is aligned with its mandate to facilitate both safe and efficient movement of people and goods, and provincial and territorial collaboration on matters of road safety (CCMTA, 2018). However, smaller jurisdictions are expected to build their own Vision Zero plans (CARSP, 2017; Dilgir, 2017).

On Oct. 28, 2021, the World Health Organization (WHO) launched the Global Road Safety Plan for the Decade of Action for Road Safety (WHO, 2021). The plan is a blueprint for achieving the 2030 target to halve road deaths and injuries. The Global Plan describes what is needed to achieve that target and calls on governments and partners to implement an integrated Safe Systems Approach (SSA) to road safety. Given the alignment between Vision Zero and a SSA, Canada is in an ideal position to continue to support jurisdictions as they embrace and adopt Vision Zero.

Several Canadian provinces and municipalities have initiated a Vision Zero strategy or are considering adopting such a strategy (Peterniak et al., 2016). Of these, many have formalized plans, which are crucial to securing commitment and resources for Vision Zero initiatives (Dilgir, 2017). A full list of Canadian provinces, regions and cities with a Vision Zero action plan may be found on the Parachute Vision Zero website: <https://parachute.ca/en/program/vision-zero/vision-zero-map/>

## The Safe System(s) Approach

A Safe System(s) Approach or SSA, is a framework for injury prevention that is grounded in the principles of ethics, responsibility, safety and mechanisms for change (CCMTA, 2016; WRA, n.d.). The SSA sees road safety as a shared responsibility; it is the result of interactions between various components that influence how people travel and behave on the roads, and their risk of being involved in a collision. Such a system involves safe road users, safe vehicles, safe speeds and safe roads (CCMTA, 2016).



## ***Six Es of traffic safety***

The Six Es of Traffic Safety are commonly used in Vision Zero planning. The most commonly used Six Es are: Engineering, Enforcement, Evaluation, Education, Engagement and Equity (City of Calgary, 2018; The Office of Traffic Safety, n.d.).

**Engineering** refers to the design and operation of roads in a way that can prevent collisions from occurring or reduce collisions (The Office of Traffic Safety, Edmonton, n.d.).

**Education** refers to raising awareness of various road safety issues, informing attitudes of the public and promoting safe road behaviour (City of Calgary, 2018).

**Enforcement** refers to strong communication and partnership between cities and police services, and enhanced enforcement targeting road safety risks such as speeding, impaired driving, following too closely, distracted driving and other high-risk driving behaviours (City of Calgary, 2018; The Office of Traffic Safety, Edmonton, n.d.).

**Evaluation** is required to ensure efficiency and effectiveness in road safety planning, and the implementation of only evidence-based measures (The Office of Traffic Safety, Edmonton, n.d.).

**Engagement** often includes two-way communications and encouraging interaction with stakeholders and the public through a variety of different means, including public involvement initiatives, social media, public consultation opportunities and surveys, among others (City of Calgary, 2018; The Office of Traffic Safety, Edmonton, n.d.).

**Equity** recognizes the need to understand the different barriers and power imbalances that affect groups of people, and address them through policies and targeted programs in order to allow everyone the opportunity for healthy, fulfilling lives (Zimmerman, S., 2015).

All references to the Six Es throughout this case study relate to the above definition unless otherwise indicated.

## 2. Summary of Vision Zero Canadian landscape

### ***Canadian cities, regions, and provinces or territories implementing Vision Zero (22 total)***

Brantford, Ont	Manitoba
British Columbia	Mississauga, Ont. – NEW
Calgary, Alta.	Montreal, Que. - NEW
Durham Region, Ont.	Ottawa, Ont.
Edmonton, Alta.	Peel Region, Ont.
Fort Saskatchewan, Alta.	St. Albert, Alta.
Guelph, Ont. – NEW	Saskatoon, Sask.
Halifax, N.S.	Surrey, B.C.
Hamilton, Ont.	Toronto, Ont.
Kingston, Ont.	Trois-Rivières, Que.
London, Ont.	Vancouver, B.C.

### ***Cities and regions where adoption of Vision Zero is being debated, or is anticipated shortly (12 total)***

County of Grande Prairie No. 1, Alta.	Saanich, B.C. – NEW
Kamloops, B.C. - NEW	St. John, N.B. - NEW
Leduc, Alta.	St. John's, Nfld. – NEW
North Bay, Ont.	Strathcona County, Alta.
Niagara Region, Ont. – NEW	Windsor, Ont.
Regina, SK - NEW	Winnipeg, Man.

### ***Public Health Units advocating for Vision Zero***

Southwestern Public Health, Ont.	Timiskaming Public Health, Ont.
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### 3. Canadian cities, regions, and provinces or territories implementing Vision Zero

#### *Brantford, Ont.*

##### **Background**

The City of Brantford had a population of 104,688 based on the 2021 census, and a population density of 1,061.2 per square km (Statistics Canada, 2022g). Based on a 25 per cent census sample, 82.2 per cent mainly commuted to work by driving a car, truck or van, followed by 8 per cent who were passengers in these vehicles, making the personal vehicle the primary mode of commuting in Brantford (Statistics Canada, 2019e).

Brantford saw 297 injury collisions and two fatalities resulting from collisions on municipal roads in 2017 (City of Brantford, 2018). This is approximately the same as what had been reported by the Ontario Ministry of Transportation in 2014, a year that saw one fatal and 290 personal injury collisions (Government of Ontario, n.d.).

##### **Vision Zero: The City of Brantford's Road Safety Plan**

The City of Brantford adopted the Vision Zero initiative in 2018. Since then the City of Brantford has created [Vision Zero: The City of Brantford's Road Safety Plan](#) (2021-2026), which aims to address a number of goals and priorities for the city, including promoting safe, healthy, and age-friendly built environments (City of Brantford, 2021). This five-year plan outlines the projects the City of Brantford and community partners have committed to delivering to achieve the Vision Zero goals. The plan also focuses on three pillars to emphasize road safety: engineering, education and enforcement (City of Brantford, 2021).

##### **Key features of the plan**

**Engineering:** Engineering measures target the design and operation of the city streets and involve the physical, built environment in which people live (City of Brantford, 2021). The City of Brantford has identified a number of traffic calming measures that can improve road safety, such as raised crosswalks, raised intersections, speed humps / cushions, roundabouts, realigned intersections and pavement markings (City of Brantford, 2021).

**Education:** To deliver messaging to the community regarding the importance of road safety and to change road user behaviour, the plan outlines three key educational activities that include signage, public engagement and information sharing (City of Brantford, 2021).

**Enforcement:** To complement the physical changes to the built environment, enforcement measures can be incorporated to ensure that road users are complying with the rules of the road and adjusting their behaviour to protect the health and safety of those around them (City of Brantford, 2021). Enforcement action can include red light cameras, use of automated speed enforcement cameras, and increased police presence in targeted areas (City of Brantford, 2021).

**Evaluation:** For each of the three pillars, the plan clearly outlines key indicators to measure and evaluate success of the countermeasure. Examples of these evaluation metrics for education, for example, include number of page views; number of website updates; number of social media posts regarding Vision Zero; number of interactions with social media posts (City of Brantford, 2021).

## What the city has to say

*Interview with David Ferguson, Manager of Traffic Services, Operational Services – Public Works, City of Brantford*

**PARACHUTE:** How long has your Vision Zero strategy been in place and what are its goals?

**DAVID FERGUSON:** The City of Brantford adopted the Vision Zero Initiative in 2018, aiming to make Brantford streets safer through improved education, enforcement, engineering, evaluation and engagement. In April 2021, the City of Brantford adopted the Vision Zero Road Safety Plan.

In preparing the Vision Zero: The City of Brantford's Road Safety Plan, the city has outlined the following goals to accomplish before 2026:

1. Establish an understanding of the costs associated with road collisions in the city for the following areas to help evaluate the progress of road safety initiatives:
  - a. Cost of insurance claims;
  - b. Cost to repair municipal assets (staff operating costs and material costs); and

- c. Healthcare costs.
2. Partner with community organizations to stress the importance of road safety and reinforce that it is a shared responsibility between the city, community partners, and members of the public:
  - a. Shift the focus of road safety to reframe it as a public health issue;
  - b. Increase understanding in the community about actions different stakeholders can take to contribute to road safety; and
  - c. Focus on educating all road users, including drivers, transit users, pedestrians, and cyclists, about how they can improve road safety in the city.
3. Reduce the number of total road collisions on municipal roads by 10 per cent from the 2019 figures by the end of 2026:
  - a. Reduce the number of total collisions on roadways by 10 per cent;
  - b. Reduce the number of collisions involving cyclists and pedestrians by 25 per cent; and
  - c. Reduce the number of personal injuries resulting from collisions by 25 per cent.
4. Reduce the number of fatalities resulting from collisions to zero.

Each year, the City of Brantford will identify the various actions that are being undertaken to contribute to the four goals identified for the 2021 to 2026 period. The actions being undertaken by the city will be grouped based on the three pillars of the strategy: Engineering, Education and Enforcement.

In addition to identifying the actions being undertaken to improve road safety, the city will provide evaluation metrics to ensure that the progress toward Vision Zero can be tracked on an ongoing basis.

**PARACHUTE: What major activities are you undertaking to meet these goals and are any of these activities geared toward more vulnerable road users?**

DAVID FERGUSON:

- 2022 will be undertaking a city-wide collision analysis and reporting, focus on top collision locations as a whole, top locations involving pedestrians and cyclists

- Upgrading our collision data base program to undertake more advanced collision analysis and implementation of collision counter measures
- Undertaking an Active Transportation Master Plan and a Trails Safety Audit to prioritize the implementation of cycling infrastructure and implement infrastructure that is safe and accessible for all road users
- Undertaking Intersection safety audits using Artificial Intelligence programming
- Completing Neighbourhood Traffic Management Plans to develop and encourage active and healthy neighbourhoods for residents
- Engaging residents to partake in various cycling initiatives through the month of June and partnering with various stakeholders
- Developing a VZ Working Group, consisting of various stakeholders in the community, such as police, public health, engineering, development, the province, school boards
- Reduce speed limits on local roadways to 40 km/h and school zones to 30 km/h
- Automated Enforcement programs – Red Light Camera implementation, testing Automated Speed Enforcement
- Increased installation of Pedestrian Crossovers.

**PARACHUTE: Who are your key stakeholders and how do they work together to implement your Vision Zero strategy?**

DAVID FERGUSON: Being fairly new to the city, this is an area that I have determined needs to be developed, hence the creation of the VZ Working Group. One unique situation in Brantford that I am not aware of in many other municipalities, is that Brantford has implemented a Vision Zero Committee of Council, similar to how other municipalities would have a Public Works or Planning Committee to take reports to. We submit our reports to the VZ Committee and, once approved, they are moved to the other Committees for approval.

**PARACHUTE: Are concrete data available for the impact of your program (i.e., differences in the number of traffic related injuries)? How do you measure the success of your strategy?**

DAVID FERGUSON: This is something that further needs to be developed.



**PARACHUTE: Are there unique contextual factors that you needed to take into account for planning purposes, and if so, can you please describe what these were?**

DAVID FERGUSON: This biggest factor for Brantford is available funding. Being a small municipality, there are limited funding opportunities available. Work needs to be completed on a smaller scenario and through developed work plans.

**PARACHUTE: Since you initiated your program, what has changed in terms of project scope, approach, and buy-in from stakeholders?**

DAVID FERGUSON: There appears to be a growing interest from residents and neighbourhood associations to improve safety and to be engaged.

**PARACHUTE: Based on the way your program has progressed in the three years since we last spoke, do you have any advice for jurisdictions that have recently adopted or that are contemplating Vision Zero adoption?**

DAVID FERGUSON: I can only speak based on my career background of working with VZ. My biggest advice would be to develop a strong and reasonable plan. It's important to have corporate support and political support for the program so that it spreads across all departments. Develop relationships with various stakeholders and community groups.

**PARACHUTE: As your Vision Zero program moves forward, keeping the last three years in mind, where would you like to see the program go next? What are you hoping to accomplish moving forward over the next five years?**

DAVID FERGUSON: Increasing the interest and awareness of roadway safety. Engaging residents and associations to support Active Transportation programming. Enhancing infrastructure throughout the city that improves overall safety for all road users.

## **British Columbia**

### **Background**

The Province of British Columbia (B.C.) has approximately 5 million residents with a population density of 5.0 per square km (Statistics Canada, 2022a). The population is anticipated to grow to 6,662,100 by 2038, largely due to international migration (Statistics Canada, 2015a). In 2019, the province had 3.9 million vehicle registrations, and more than 179,000 new motor vehicle sales were made in B.C. and the Territories in the same year (Statistics Canada, 2020a; Statistics Canada, 2020b). Other notable contextual factors include the presence of alternative modes of transportation alongside private motor vehicles and the growing proportion of drivers ages 60 and over in the province (Lacombe & Arason, 2013).

In 2019, there was an injury rate of 316.4 per 100,000 people and a fatality rate of 5 per 100,000 people associated with traffic incidents on public roads (RoadSafetyBC, 2020). This is a significant drop from the previous rates in 2015 (478.9 injuries per 100,000 people and 6.3 fatalities per 100,00 people) (RoadSafetyBC, 2020).

### **BC Road Safety Strategy 2025**

B.C.'s approach to Vision Zero was initially articulated in 2013 via their BC Road Safety Strategy 2015 and Beyond (Lacombe & Arason, 2013). In this issue, B.C. was explicit in its support of “zero traffic fatalities and serious injuries”, as set out in their vision (Dilgir, 2014; Lacombe & Arason, 2013). B.C.'s strategy supports SSA and emphasizes principles of collaboration, innovation and sustaining successful activities (Lacombe & Arason, 2013; MacLeod, 2014).

As previously stated in our Vision Zero Landscape 2.0 case study, B.C. aims to measure success via a decreasing number of motor vehicle fatalities and serious injuries per year, as well as decreasing rates per 100,000 population; specific targets are set by the municipalities at their discretion (Dilgir, 2014; Lacombe & Arason, 2013). As seen in the numbers stated above, B.C.'s Vision Zero approach has seen much success since its implementation with a decrease in the traffic-related injury rate by around 160 per 100,000 people and a decrease in the traffic-related fatality rate by 1.3 per 100,000 people (Dilgir, 2014; Lacombe & Arason, 2013).

As B.C. moves forward with its Vision Zero strategy, it has developed a new strategy, [BC Road Safety Strategy 2025](#), with a goal to reduce road traffic deaths and injuries by 50 per cent by 2030. B.C.'s new vision zero strategy is built on three pillars.

- **PILLAR 1: Working Together For The Future Of Road Safety:** This pillar focuses on how the road safety sector is working together using a Safe System Approach and public health perspective to solve road safety issues (RoadSafetyBC, n.d.).
- **PILLAR 2: Tools To Make Our Roads Safer:** This pillar highlights how enforcement, infrastructure, data and other tools can be used to make our roads safer (RoadSafetyBC, n.d.).
- **PILLAR 3: Inspiring British Columbians To Make Safe Road Choices:** This pillar emphasizes how the public can contribute to reductions in fatalities and injuries (RoadSafetyBC, n.d.).

### Key features of the plan

**Data collection and analysis:** B.C. is expanding new reporting tools and ways to share data with the public, with researchers and between data-collecting agencies (RoadSafetyBC, n.d.; ICBC, n.d.-b). Through their partnerships, RoadSafetyBC, The Insurance Corporation of British Columbia (ICBC) and the police are sharing information to support more informed decision-making. B.C. is also using business intelligence, and leveraging data and technology, to provide a better understanding of what is happening on the roads. RoadSafetyBC collects and reports 10 years of statistics related to motor vehicle crashes, injuries and fatalities. Work is underway to enhance ways of sharing this information so road safety partners can easily access it to inform their decision-making (RoadSafetyBC, n.d.)

**Public health orientation:** B.C.'s strategy enshrines the important role of public health in its first underlying principle, to “adopt a comprehensive Safe System Approach coupled with a public health perspective” (Lacombe & Arason, 2013). It looks at upstream causes of collisions, such as traffic fatalities due to impairment by drugs or alcohol (Lacombe & Arason, 2013). A public health approach is inherently multidisciplinary, broad and can also contribute rigour in the areas of surveillance methodology and injury prevention (Lacombe & Arason, 2013).

**Education:** Awareness and education campaigns provide British Columbians with important road safety tips and information. Many campaigns are accompanied by

targeted and effective law enforcement actions carried out by the RCMP and other police agencies. While road safety laws are in place year-round, these well-publicized enforcement efforts remind drivers that their behaviour and habits on the road matter (RoadSafetyBC, n.d.). With respect to road user education, the ICBC offers online resources for drivers, cyclists, pedestrians and motorcyclists, including an online refresher test to assess driving knowledge (ICBC, n.d.-a; ICBC, n.d.-d; ICBC, n.d.-e; ICBC, n.d.-f). In recent years, there has been more focused attention on road interactions with commercial vehicles, along with recognition that roads are often places where people work. Government agencies and the private sector are acting to reduce these types of collisions by giving all road users the information they need to make smart and safe choices. Some of these education efforts include mandatory entry-level training, and education campaigns such as “Be Truck Aware” and “Cone Zone” (RoadSafetyBC, n.d.).

**Enforcement:** To ensure that the rules of the road are enforced for all road users, every region of the province has specific Integrated Road Safety Units (IRSU) that are made up of full-time, dedicated traffic enforcement officers from both the RCMP and independent municipal police agencies. Funded in partnership with ICBC and the federal government, these units target high-risk driving behaviours that are the most frequent contributors to casualty crashes in B.C.: speeding, aggressive driving, impaired driving, distracted driving and not wearing seatbelts. (RoadSafetyBC, n.d.).

**Engagement:** To promote ongoing collaboration, an enhanced governance structure has been established for the BC Road Safety Strategy Steering Committee that will support targeted, results-oriented projects focused on improving road safety in the province (RoadSafetyBC, n.d.). Through evidence-based analysis, the Steering Committee will identify key road safety challenges impacting British Columbians. Project-specific subcommittees will be convened to examine a specific issue and develop potential actions. This collaborative, issue-focused approach is designed to draw on the expertise and experience of more than 60 partner organizations and agencies, with the purpose of addressing key road safety issues in B.C. (RoadSafetyBC, n.d.).

**Engineering:** The Ministry of Transportation and Infrastructure has installed high-friction surface treatments at intersections with a history of crashes to help prevent or reduce skidding and rear-end collisions (RoadSafetyBC, n.d.). Collision and

claims data helped determine which locations were the highest risk. This surface treatment is expected to have a significant impact in reducing collisions, especially in wet road conditions. Early indications from a sample of video data taken from these locations show that rear-end conflicts have reduced by 33 per cent (RoadSafetyBC, n.d.). Intersection safety cameras also have a proven record of curbing red-light runners and the serious crashes they cause. The province operates 140 red-light cameras at high-crash intersections in 26 communities. Camera locations were selected after examining risk factors—including crash frequency, severity and type, and the potential for improvement—at 1,400 intersections in B.C. High-risk intersections are closely monitored to ensure cameras are placed at locations that will see the greatest safety gains (RoadSafetyBC, n.d.).

**Evaluation:** The primary source for evaluation data related to BC’s Vision Zero strategy is the province’s annual Motor Vehicle Related Fatalities report, which looks back on the most recent 10 years of available injury and fatality data from police reports (Government of British Columbia, 2018). Evaluation is also carried out by the ICBC: collision data contributes to ICBC’s decision regarding funding for community road safety projects as part of its Road Improvements Program. The ICBC also conducts its own evaluation for the same program, looking at the safety outcomes of improved roads and return on investment of interventions (ICBC, n.d.-c; Sayed & Sacchi, 2015).

**Equity:** The BC Road Safety Strategy 2025 recognizes the unique road safety challenges faced by Indigenous communities and understands the importance of working in conjunction with Indigenous partners to help reduce fatalities and serious injuries. As such, the Steering Committee is committed to working together with Indigenous Peoples in B.C. to better understand the barriers and challenges Indigenous communities face and look for avenues to address these road safety issues. For example, Vancouver Coastal Health’s 2019 Vision Zero Seed Grant supported First Nations, municipalities, and regional districts in promoting road safety. Through a multi-pronged and community-based approach, Wuikinuxv Nation installed road safety signs and engaged with community members to develop an ongoing, community-led road safety awareness program that includes the first-ever First Nations chapter of Mothers Against Drunk Driving (FN MADD) (RoadSafetyBC, n.d.).

## Key stakeholders

Stakeholders who contributed to BC Road Safety Strategy 2025 include various municipalities and police services, BC Health Authorities, BC Medical Association, the Provincial Health Office, the Insurance Corporation of British Columbia (ICBC), WorkSafeBC, the University of British Columbia, Mothers Against Drunk Driving (MADD), and many others (Amit et al., 2016; Lacombe & Arason, 2013). Altogether, more than 160 road safety partners contributed to the plan (RoadSafetyBC, n.d.). Accountability for the delivery of the Road Safety Strategy lies with the province, formally led by the Office of the Superintendent of Motor Vehicles (RoadSafetyBC, n.d.).

From a governance perspective, B.C.'s Road Safety Steering Committee sets the direction for five standing working committees focused on advising and implementing aspects of road safety such as safe vehicles, safe roads and communities, research and data, safe road users, and education and awareness (MacLeod, 2014). The Steering Committee includes senior executives from stakeholder organizations such as BC Coroners, the Ministry of Transportation and Infrastructure, the Ministry of Justice, and more, as well as First Nations representation; the working committees include other diverse organizations (Lacombe & Arason, 2013; MacLeod, 2014; RoadSafetyBC, n.d.). RoadSafetyBC, the provincial agency to deliver road safety in B.C., co-ordinates the committees (Government of British Columbia, n.d.; MacLeod, 2014). The committees further interact with each other via the Road Safety Assembly, which is convened on a yearly basis by the Office of the Superintendent of Motor Vehicles (Lacombe & Arason, 2013; MacLeod, 2014).

Since Vision Zero was initiated, B.C.'s subject matter expertise has increased alongside new measures coming into force, such as the legalization of cannabis, increase in distracted driving, Automated Speed Enforcement (ASE), high-friction surface treatments, infrastructure upgrades to increase active transportation, increase in bus/skytrain usage, and variable speed limits (RoadSafetyBC, n.d.).

## Calgary, Alta.

### Background

The City of Calgary recorded a population of 1.3 million in 2022 and had a population density of 1,592.4 per square km based on the 2021 census (City of Calgary, n.d.-a; Statistics Canada, 2022b). Both natural increase and net migration are contributing to the growth of the city, which has seen the population increase year over year since 1994 (City of Calgary, n.d.-a). Its core business district downtown is surrounded by low-density suburban communities, which results in pressure on the system when populations travel downtown (T. Churchill, personal communication, June 19, 2019). The size of the city also makes it challenging to plan for road safety (T. Churchill, personal communication, June 19, 2019).

In 2020, there were 24 fatal collisions (19 in 2019), 1,697 injury collisions (2,353 in 2019) and 19,822 property-damage-only collisions (35,393 in 2019) on Calgary roads (City of Calgary, 2021). Pedestrians were involved in four fatal collisions (three in 2019), and 84 major injury collisions (101 in 2019), while cyclists were involved in 38 major injury collisions (32 in 2019), with two fatal cyclist collisions (one in 2019). The societal cost of all these collisions was estimated to be \$836 million in 2020 (City of Calgary, 2021).

### Safer Mobility Plan 2019-2023

In July 2013, Calgary approved the Safer Mobility Plan 2013-2017, which cited the SSA and five Es of traffic safety. At the time, formal adoption of Vision Zero was posited as a future direction (City of Calgary, 2017). Even though the city already recognized the importance of working toward zero fatalities and serious injuries, it also knew that implementing Vision Zero would mean more than adopting the target; it would require additional resources and a thoughtful effort to reduce speeds in urban areas, among various other road safety efforts (City of Calgary, 2017).

Six years later, the latest [Safer Mobility Plan 2019-2023](#) clearly sets out Calgary's commitment to Vision Zero and explicitly endorses "mobility free of major injuries and fatalities", in addition to SSA and the five Es (City of Calgary, 2018). Other guiding principles include following a locally developed process, using evidence-based practices that consider emerging technologies, building strong partnerships with relevant stakeholders and treating traffic safety management as an investment for the city (City of Calgary, 2018).

Under the latest plan, Calgary aims to cut down the number of major injury and fatality collisions by 25 per cent and reduce the count of vulnerable road user collisions by 25 per cent (City of Calgary, 2018). This simplifies targets from the earlier Safer Mobility Plan 2013-2017, which spanned six focus areas, including speeding-involved casualty collisions and vulnerable road user casualty collisions (City of Calgary, 2017).

The Safer Mobility Plan is supported by the City's [Step Forward Pedestrian Strategy](#), which has "significant reductions in collisions and fatalities by 2025" as one of its goals, and "launching a Vision Zero campaign" as one of its action items (City of Calgary, 2016).

### Key features of the plan

**Data collection and analysis:** A key facet of the Calgary Transportation Plan is to track and log statistics on community transportation safety, explicitly to support "reducing injuries and fatalities" (City of Calgary, 2009). To that end, the Calgary Police Service and Calgary city staff involved in transportation jointly collect cycling collision data (City of Calgary, n.d.-h). Automated / video-based conflict analysis has also been tested at certain intersections (City of Calgary, n.d.-i; T. Churchill, personal communication, Jun 19, 2019). Data have honed the focus of the Safer Mobility Plan to specific types of high-severity collisions, including rearend collisions and right-angle collisions (City of Calgary, 2018).

**Education:** Numerous educational resources are available on Calgary's website, including materials related to pedestrian safety; promoting reporting of impaired drivers; promoting safe winter driving; and more (City of Calgary, n.d.-d; City of Calgary, n.d.-j). Advice is targeted to each category of road user, including pedestrians and cyclists (City of Calgary, n.d.-j). Education is also provided in residential areas and playground zones by volunteers in the Community Speed Watch Program, and on an ad-hoc basis, e.g., by Calgary Police and the Calgary Downtown Association during the introduction of a new cycle track (City of Calgary, n.d.-b; City of Calgary, n.d.-h). Monthly traffic safety focuses allow for more in-depth road user advice in relevant topic areas, such as distracted driving (City of Calgary, n.d.-k). The most recent Safer Mobility Plan Annual Report 2020 outlines several short-term actions noted below with target areas, including the creation of content to educate the public on blind spots and identification of potential opportunities to combine enforcement programs with public education (City of Calgary, 2021).



**Enforcement:** Calgary deploys high-tech speed limit observation and warning system or “SLOWS” radar devices in select communities identified as having speed issues; their purpose is to facilitate enforcement of, and education about, speed limits without requiring an operator (City of Calgary, n.d.-f). Photo radar is installed in Calgary based on provincial guidelines, in areas such as school zones or construction zones (City of Calgary, n.d.-e).

**Engagement:** The City of Calgary receives feedback from and engages the public on its road safety programming through its Roads Annual Survey, Ward Traffic Safety Meetings, and 3-1-1 inquiries (City of Calgary, 2018). Certain limited information may be available from the annual Spring Pulse Survey carried out by the City and Ipsos, e.g., related to residents’ satisfaction with city streets, and their thoughts on whether further investment is needed into streets and on-street bikeways (City of Calgary & Ipsos, 2019).

**Engineering:** The need for engineering improvements is gauged through road safety audits, network screening and in-service road safety reviews (City of Calgary, 2018). Road design measures include installing temporary traffic calming curbs in high-risk areas, building more on-street bikeways, and roundabouts for new intersections (City of Calgary, n.d.-g; City of Calgary, n.d.-h; City of Calgary, 2011; City of Calgary, 2018). Innovative measures are being assessed, including rectangular rapid flashing beacons and high-friction surface treatment (City of Calgary, n.d.-c). The Complete Streets Policy 2014, which supplements the Calgary Transportation Plan with concrete guidance, describes how to build complete streets that are safer for all road users, principally by lowering driving speed; alternative designs are only accepted under qualified conditions (City of Calgary, 2014).

**Evaluation:** Evaluations focus on multiple interventions and include studying reduced speed limits and the impact of rectangular rapid flashing beacons on safety (City of Calgary, 2018). An annual report of the program’s progress is provided to council (T. Churchill, personal communication, June 19, 2019). Rates of injury and fatality are reviewed to facilitate prioritization of safety improvements, e.g., prioritizing intersections at risk so that in-service road safety reviews can be undertaken and countermeasures installed (City of Calgary, 2017; T. Churchill, personal communication, June 19, 2019).

**Equity:** With the addition of equity to the six, previously five, Es of traffic safety, Calgary has taken its first steps to ensure that its journey toward Vision Zero is

rooted in equity. As such, the City of Calgary is partnering with York University to identify barriers to built environment change, based on locally collected data, to help improve their programs (City of Calgary, 2021).

## Key stakeholders

Key stakeholders in Calgary's program include the City, Calgary Police Service, Alberta Health Region, the Alberta Motor Association, and the University of Calgary (City of Calgary, n.d.-i). The city collaborates with the province of Alberta, e.g., by following their traffic safety plan calendar (T. Churchill, personal communication, June 19, 2019).

## What the city has to say

*Interview with Joanna Domarad, Leader of Traffic Safety Operations, The City of Calgary*

**PARACHUTE:** Last time we talked, we asked you to describe, at a high level, what your Vision Zero strategy/plan looks like. Have there been any major changes to your program since then, in relation to the following:

### A. How long has your Vision Zero strategy been in place and what are its goals?

JOANNA DOMARAD: Our Safer Mobility Plan (SMP) 2013-2017 was established in 2013, with our latest plan established in 2019. Our 2019-2023 SMP outlines the long-term vision of mobility free of major injuries and fatalities with the short-term target of 25-per-cent reduction by 2023.

### B. What major activities are you undertaking to meet these goals and are any of these activities geared toward more vulnerable road users?

JOANNA DOMARAD: Implementing collision reduction measures based on network screening, video-based conflict analysis; downtown bicyclist collision review; continued application of Traffic Calming Curbs to address collision issues; engagement and awareness activities related to speed; and Calgary Police Service targeted enforcement activities.

### C. Who are your key stakeholders and how do they work together to implement your Vision Zero strategy?

JOANNA DOMARAD: Our key stakeholders include the City, Calgary Police Service, Alberta Health Region, the Alberta Motor Association and the University of Calgary.

**D. Are concrete data available for the impact of your program (i.e., differences in the number of traffic related injuries)? How do you measure the success of your strategy?**

JOANNA DOMARAD: Based on preliminary data for 2021, casualty collisions generally trended similarly to 2020 for vehicle and bicyclist categories. Pedestrian and motorcyclist casualty collisions are slightly below previous years. This may be related to decreased travel demand during the pandemic.

In 2020, we had five more fatal collisions compared to the previous year. Major injury collisions continued the downward trend initiated in 2015. Overall, major injury and fatal collisions combined decreased by 10.8 per cent compared to the previous year and by 22.2 per cent since the peak in 2015.

**E. Are there unique contextual factors that you needed to take into account for planning purposes and, if so, can you please describe what these were?**

JOANNA DOMARAD: We are seeing improved safety outcomes for Calgarians with 128 fewer incidents resulting in life-changing or life-ending injuries now, compared to five years ago. Nevertheless, the decreased travel and exposure during the pandemic likely contributed to this decrease and more deliberate action is needed to maintain these levels as we move out of the pandemic.

**PARACHUTE: Since you initiated your program, what has changed in terms of project scope, approach and buy-in from stakeholders?**

JOANNA DOMARAD: With regards to our Joint Mobility Safety Forum, we've initiated new partnership between Calgary Police Service and City of Calgary focused on working together toward the Vision Zero goal by expanding collaboration opportunities and working relationship between Calgary Policy Service and City of Calgary Transportation, and other partners, aimed at creating a safer city for all Calgarians.

**PARACHUTE: Based on the last three years, are there any new successes your program has achieved that you would like to share?**

JOANNA DOMARAD: Residential speed reduction. Specifically, speed, and the perception of speeding, has been a consistent concern we have heard from residents. On May 31, 2021, the default unposted 40 km/h speed limit came into effect on both residential and collector roads in neighbourhoods. The collision reductions of this change have been estimated at \$8.1 million per year.

**PARACHUTE:** Previously, you also discussed challenges that the program has faced. Since then, how were you able to manage those challenges? Have any new challenges or roadblocks come up since we last spoke? Please feel free to focus on one or two significant challenges in your response.

**JOANNA DOMARAD:** We have worked extensively on implementing proven safety countermeasures, collaborating with our partners, and identifying new programs to create systemic change and gain momentum toward Vision Zero. We're partnering with York University to identify barriers to built environment change based on locally collected data and help us improve our programs so our journey toward Vision Zero is rooted in equity.

**PARACHUTE:** Based on the way your program has progressed in the three years since we last spoke, do you have any advice for jurisdictions that have recently adopted or that are contemplating Vision Zero adoption?

**JOANNA DOMARAD:** Public education and communication are needed to raise awareness of road safety issues and promote safe behaviours. Keep this in mind as you move forward with the goal of reducing frequency and severity of collisions.

**PARACHUTE:** As your Vision Zero program moves forward, keeping the last three years in mind, where would you like to see the program go next? What are you hoping to accomplish moving forward over the next five years?

**JOANNA DOMARAD:** In October, the Decade of Action for Road Safety 2021-2030 has been proclaimed by UN General Assembly with a target to reduce road traffic deaths and injuries by 50 per cent by 2030, recognizing the gravity of this global issue. In Calgary we are working toward the same goal.

## ***Durham Region, Ont.***

### **Background**

Durham Region has a population of 696,992 per the 2021 census and had grown 7.9 per cent since 2016; its population density is 276.5 per square km (Statistics Canada, 2022v). Of a 25-per-cent census sample, 78.3 per cent mainly commuted to work by driving a car, truck or van, followed by 11.3 per cent travel by public transit (Statistics Canada, 2019q).

In 2021, 230 traffic safety complaints were filed regionwide, approximately 35 per cent of the total complaints mentioned speed as a concern, and 23 mentioned existing community safety zones specifically (O'Meara, 2022). On average, Durham Region experiences more than 6,700 reported collisions per year, costing regional road users and residents approximately \$225 million in direct and indirect costs every year (Durham Region, n. d.).

### **Strategic Road Safety Action Plan (SRSAP)**

The Region has developed a [Strategic Road Safety Action Plan](#) (SRSAP), which incorporates Vision Zero, with the goals of reducing fatalities and injury collisions by 10 per cent within five years (2019-2023) (Durham Region, n. d.). The eight emphasis areas chosen for the SRSAP are intersections, aggressive driving, distracted driving, young drivers, pedestrians, impaired driving, cyclists and commercial vehicles. Three types of inputs (public opinion, collision data analysis and partner agency information) were used to select these emphasis areas (Durham Region, n.d.).

### **Key features of the plan**

**Data collection and analysis:** To develop the SRSAP, data analysis was conducted on collision data for 2012 to 2016 to look at the overall size of various collision types, recent increase in cycling collisions and fatal and injury collision data (Durham Region, n. d.). The region is aware that additional data collection and analysis is needed to better understand the nature of these collisions and demographics (Durham Region, n.d.).

**Education:** Educational strategies include social media posts, positive ticketing, interactive question-and-answer activities, promotional items, presentations,

assemblies and contests. The plan outlines using these strategies to educating youth and parents about the dangers of driving high (Durham Region, n.d.).

**Enforcement:** The Vision Zero Task Force works with Durham police to increase enforcement levels in community safety zones with a zero-tolerance policy for speed limit violations (O'Meara, 2022). Increased and/or better targeted enforcement is an effective countermeasure to address many of the emphasis areas such as aggressive driving (Durham Region, n.d.).

**Engagement:** To identify the key emphasis areas, an online survey was distributed to the residents of Durham and a public information meeting was held to obtain the public's input on road safety (Durham Region, n.d.).

**Engineering:** Some collision prevention can be achieved by engineering actions such as turning movement and angle collisions at intersections. Engineering solutions can directly address the issues causing those types of collisions (Durham Region, n.d.).

**Evaluation:** The SRSAP is an ongoing program that will monitor and evaluate the effectiveness of the countermeasures implemented by measuring the number of fatal and injury collisions (Durham Region, n. d.).

## Key stakeholders

Durham Region's SRSAP has a Steering Committee which included Durham Region, Durham Regional Police, Ontario Provincial Police, Ministry of Transportation, Durham Region Cycling Coalition, Town of Ajax, Town of Whitby, Township of Brock, City of Pickering, Canadian Automobile Association, Town of Uxbridge, City of Oshawa, Municipality of Clarington, Durham Region Transit, City of Toronto, Township of Scugog, Northumberland County, MADD Durham Region, Heads Up! Durham, Durham Catholic District School Board, Durham District School Board, Student Transportation Services of Central Ontario, Durham Student Transportation Services and Durham College (Durham Region, n.d.). To implement the SRSAP, a Vision Zero Task Force and an Implementation Committee has been created with partners from the Region, Durham Regional Police Service, Road Safety Group, Health Department, and Communications. Lastly, a Durham Safety Stakeholders and Ambassadors group will be formed to advocate for road safety within the Region (Durham Region, n.d.).

## **Edmonton, Alta.**

### **Background**

The City of Edmonton had a population of 1,010,899 in 2021, having grown steadily over the past two decades (City of Edmonton, n.d.-e; City of Edmonton, 2019; Statistics Canada, 2022c). Out of 315,032 surveyed individuals in the 2016 census, 72.27 per cent reported driving a car, truck or van as their main mode of transportation to work, followed by 13.41 per cent taking public transit (City of Edmonton, n.d.-f). Though there is intense road use, 23 per cent of residents do not feel that the streets are well designed, and 33 per cent disagree that the transit system is well designed and attractive (Leger & City of Edmonton, 2018).

In 2021, 259 people were seriously injured and 16 were killed due to crashes in Edmonton, representing a 32-per-cent reduction and 50-per-cent reduction, respectively, in numbers compared to the first year of Vision Zero adoption in 2015 (City of Edmonton, N.d.-h). Over the same period, the rate of fatalities and serious injuries has decreased 44 per cent, from 46 to 26 per 100,000 population and the rate of crashes is down 42 per cent, from 2,851 to 1,641 per 100,000 population (City of Edmonton, N.d.-h). In 2021, the number of serious injuries and deaths were lower than in 2015 for every mode of transportation, including pedestrians, motorcyclists and vehicle occupants, with the exception of cyclists. There were 27 KSI incidents involving cyclists in 2021, 17 per cent more than the 23 in 2015 (City of Edmonton, N.d.-h).

### **Safe Mobility Strategy 2021-2025**

Edmonton's Office of Traffic Safety was the first municipal traffic safety office in North America, beginning in 2006, and in 2015 it became the first major Canadian city to adopt Vision Zero (Thue et al., 2016). In its [Safe Mobility Strategy 2021-2025](#), Edmonton sets a concrete target of zero injuries and fatalities by 2032 (City of Edmonton, 2020).

### **Key features of the plan**

**Data collection and analysis:** Collision data used by the city derive from Edmonton Police Service reported collisions, which are collated in the Motor Vehicle Collision Information System by the city's Traffic Safety Section (City of Edmonton, n.d.-a). Data include information about the number of fatal and injury collisions on public roadways in Edmonton, as well as details of the number of fatalities and injuries, severity of injuries, underlying causes, time and date of collisions, where collisions

are clustered in the city and demographic characteristics of those involved (City of Edmonton, n.d.-a).

**Education:** Road safety education in Edmonton includes knowledge exchange across jurisdictions (e.g., hosting the International Urban Traffic Safety Conference), as well as education programs for road users that take into account their attitudes and beliefs about road safety (e.g., “Four Things to Know” campaign to improve driver awareness of cyclists) (City of Edmonton, n.d.-c; The Office of Traffic Safety, Edmonton, n.d.). Education is being realized in innovative ways, e.g., by having two-way Twitter engagement (City of Edmonton, n.d.-d). A traffic safety culture index will be used to determine whether education programs are working (The Office of Traffic Safety, Edmonton, n.d.).

**Enforcement:** Data are being used to identify areas with high levels of road safety violations and to target limited enforcement resources accordingly. At times, enforcement resources may be directed to specific issues, such as safe school zones (The Office of Traffic Safety, Edmonton, n.d.). Police are interested in various risky behaviours including driving while impaired, distracted driving, not wearing a seatbelt, speeding and more (The Office of Traffic Safety, Edmonton, n.d.).

**Engagement:** Edmonton is developing programming, tools and support to empower citizens so they can influence and participate in safe and livable streets in their community, including:

- Vision Zero Street Labs: Combine citizens’ lived experience and city staff technical expertise to collaboratively identify and implement customized, creative and flexible solutions that address traffic safety concerns outside of Neighbourhood Renewal.
- Safe Speeds Toolkit: Support the implementation of speed limit reductions and address ongoing speeding concerns in neighbourhoods. Enable communities to access tools such as portable driver feedback signs, creative signage and visual awareness options, and location specific data and information to educate and communicate about speeding issues.

**Engineering:** Edmonton audits roads and carries out network screening to facilitate design improvements (The Office of Traffic Safety, Edmonton, n.d.). The city also leverages Community Traffic Management, a form of public engagement that takes place during neighbourhood renewal planning that helps to identify locally



appropriate solutions to include in the plan (City of Edmonton, n.d.-d). A High Injury Network was identified by plotting crash locations on a map for each mode of transportation – walking, cycling, driving and motorcycling. This helps us find specific corridors where serious and fatal injury crashes are occurring overall and by mode (City of Edmonton, 2020). A number of roadway improvements for different road user types have been made since Edmonton adopted Vision Zero, including 14 new right-turn redesigns for drivers, 187 new driver feedback signs providing automated speed readings, 54 signal visibility improvements and installation of protected bike lanes (City of Edmonton, n.d.-c; City of Edmonton, n.d.-d; City of Edmonton, n.d.-g).

**Evaluation:** Edmonton’s annual motor vehicle collision reporting distinguishes counts, rates and analyses related to fatal and injury collisions from those of all collisions, which helps to demonstrate the efficacy of Vision Zero (City of Edmonton, n.d.-a). In addition to annual reporting, Edmonton aims to put in place a Law Enforcement Research Chair, who will work jointly with the Urban Traffic Safety Research Chair to evaluate the efficacy of different kinds of road safety initiatives as well as flag opportunities for new programming (The Office of Traffic Safety, Edmonton, n.d.). In addition, The City of Edmonton has established outputs that will be tracked to measure success in the community, which include number of safe crossings projects completed, number of school safety projects completed, number of engineering improvements on the high injury network, number of traffic safety community activation projects and number of hours of enforcement in high crash neighbourhoods (City of Edmonton, 2020).

**Equity:** The engagement plan for the Safe Mobility Strategy was built to be an inclusive process based on a Gender-Based Analysis Plus (GBA+). It included a broad engagement process for the community as a whole and a targeted engagement process for people whose voices are typically missed or go unheard (City of Edmonton, 2020). In addition, Edmonton has also outlined its 2021-2022 key actions, which include the goal to strengthen and establish relationships with organizations and people from equity-seeking communities to continually work toward removing barriers and creating solutions to safety issues (City of Edmonton, 2020).

## Key stakeholders

Key stakeholders include Edmonton's Road Safety Advisory Committee, which comprises sub-committees and task groups organized around facets of road safety and key issues, such as road safety communications, speed management and school safety (The Office of Traffic Safety, Edmonton, n.d.). Other key stakeholders include Alberta Health Services; Edmonton Police Service; the University of Alberta Centre for Smart Transportation; Alberta Safety Council, a not-for-profit organization focusing on safety training and education; and other public and private-sector partners from across disciplines (ASC, n.d.; City of Edmonton, n.d.-b).

Edmonton is a member of the **Capital Region Intersection Safety Partnership**, a.k.a. **CRISP**, a knowledge-sharing group for traffic safety stakeholders in the Alberta Capital Region, whose vision is that "Alberta's Capital Region roads will have no serious injury or fatality collisions" (CRISP, n.d.; CRISP, 2017). Note that members have different degrees of acceptance of Vision Zero; Morinville, for example, acknowledges the philosophy of Vision Zero while setting out non-zero targets in its Traffic Safety Plan (Morinville Enforcement Services & Town of Morinville, n.d.). However, many of the cities have formally adopted and are using the terminology of Vision Zero, as described in the next sections.

## What the city has to say

*Interview with Jessica Lamare, Vision Zero Program Manager, City Operations, City of Edmonton*

**PARACHUTE:** Last time we talked, we asked you to describe, at a high level, what your Vision Zero strategy/plan looks like. Have there been any major changes to your program since then, in relation to the following:

**A. How long has your Vision Zero strategy been in place and what are its goals?**

**JESSICA LAMARRE:** The City of Edmonton's Vision Zero Program has been in place since 2015. With the introduction of the Road Safety Strategy 2016-2020, Edmonton became the first major city in Canada to adopt Vision Zero.

The City of Edmonton's goal is to achieve Vision Zero – the elimination of traffic fatalities and serious injuries on our streets – by 2032.

**B. What major activities are you undertaking to meet these goals and are any of these activities geared toward more vulnerable road users?**

**JESSICA LAMARRE** The most significant change to the program is the introduction of the new Safe Mobility Strategy 2021-2025, an innovative and inspired approach designed to accelerate our journey to Vision Zero through safe and livable streets by 2032.

Edmonton has made significant progress since adopting Vision Zero, with fatal and serious injury crashes having decreased by 56 per cent and 30 per cent respectively, from 2015 to 2020. Sustaining this type of progress, however, required a shift in approach that better considered other modes of transport (e.g. cycling, walking), equity issues and creative community-driven solutions. Consequently, the City of Edmonton used complex technical analysis, leading edge research and meaningful public engagement to develop the Safe Mobility Strategy.

What sets the Safe Mobility Strategy apart is its system-wide, people-centred approach to traffic safety, which aims to achieve livability goals alongside traditional safety improvements. To accomplish these outcomes, a holistic approach to mobility was necessary. Actions within the Safe Mobility Strategy were prioritized through an equity lens and incorporate both community-led solutions and innovative engineering measures to influence how we plan, design and build our streets. Through this enhanced approach, the City of Edmonton is actively confronting the systemic factors that contribute to serious crashes, including street design, unsafe speeds and deep-rooted cultural norms that impact safe mobility.

The Safe Mobility Strategy sets out a collaborative and integrated set of deliberate actions and strategies that are dedicated to achieving Vision Zero. Major activities include:

**New Community Activation Programming:** Community Activation Programming provides programming, tools and support to empower Edmontonians to influence and participate in designing and implementing safe and livable streets in their own communities. The Community Activation Program features Vision Zero Street Labs, the Safe Speeds Toolkit and the Vision Zero School Kit programs.

**New Safe Crossings Program:** The development of a progressive safe crossings program to increase safety for vulnerable road users.

**High Injury Network:** the identification of a High Injury Network that can be leveraged to influence capital project planning and implementation such as for the Edmonton Bike Plan and Arterial Street Renewal, the deployment of operational resources (for example, snow and ice control equipment) and the deployment of enforcement resources including automated and in-person speed enforcement to high-crash locations.

**Safe Mobility Academic Working Group:** the establishment of the Safe Mobility Academic Working Group, a multidisciplinary research partnership with the University of Alberta that brings together academics from diverse disciplines including urban planning, public health, psychology and human behaviour and engineering. The purpose of this group is to enable holistic and integrated research by means of sharing academic expertise and advice and collaborating with the City of Edmonton on research initiatives that will result in tangible safety and livability outcomes. The creation of this group demonstrates the City's commitment to an evidence-based approach and continuous improvement through academic research partnerships.

**Increased collaboration with the Edmonton Police Service:** the development and provision of data, analysis and intel to the Edmonton Police Service (EPS) to support effective, co-ordinated enforcement efforts. This includes interactive dashboards that provide the EPS with daily data and analysis from City of Edmonton technology programming that identifies speeding hot spots, high-crash locations, and repeat and serious automated enforcement offenders.

**City-wide speed limit reduction:** in alignment with the internationally recognized evidence on the relationship between speed and traffic fatalities and serious injuries, in 2021, Edmonton implemented a reduction in the default speed limit from 50 km/h to 40 km/h, with a focus on residential streets, the downtown core, and high pedestrian areas. Speed limit reduction is a Key Action outlined in the Safe Mobility Strategy, reflecting the fact that speed is a factor in every crash. Lowering speed limits can have city-wide collective impacts that cannot be realized through specific location-based improvements. Reducing speed, particularly in residential communities and areas frequented by vulnerable road users is critical to building a safe system for all people using all modes of travel.

**Education campaigns:** To support the implementation of the Speed Limit Reduction Project, the team collaborated with the City of Edmonton Communications and

**Marketing team to develop tools to address potential misperceptions and alleviate concerns**, such as those related to the expectation of longer travel times, the costs of the project, and signage pollution, and to place emphasis on the positive outcomes that lower speed limits have on safety and livability for everyone.

**Estimated Time of Arrival (ETA) tool:** The team partnered with University of Alberta students to create the Estimated Time of Arrival (ETA) tool. This tool encouraged people to test the impact of the speed limit change on their personal travel times and provided the evidence that little to no change would result.

**C. Who are your key stakeholders and how do they work together to implement your Vision Zero strategy?**

JESSICA LAMARRE: Key stakeholders include internal and external partners

- City of Edmonton departments and branches – collaborate on planning, design, building and installation of projects
- Edmonton Police Service – collaborative work plan
- University of Alberta – multidisciplinary, collaborative research
- School Boards – engagement on school safety issues
- Community groups and passionate Edmontonians – engagement on key safe mobility issues
- Business Associations and businesses/organizations with passion for traffic safety – engagement on key safe mobility issues
- Developers – integrate Vision Zero principles in all stages of development (new initiative forthcoming)
- City Council and other orders of government

**D. Are concrete data available for the impact of your program (i.e., differences in the number of traffic-related injuries)? How do you measure the success of your strategy?**

JESSICA LAMARRE: We produce an annual report found at [edmonton.ca/VisionZero](http://edmonton.ca/VisionZero) where we report on progress, including measures and data to talk about program impact. We also provide collision data on the city's Open Data portal.

**E. Are there unique contextual factors that you needed to take into account for planning purposes and, if so, can you please describe what these were?**

JESSICA LAMARRE The City of Edmonton has previously funded specific traffic safety initiatives through the Traffic Safety Automated Enforcement Reserve, which is funded by a percentage of total fines collected from automated enforcement in Edmonton. That funding source is declining as violations decrease, which means that City Council will need to discuss future funding sources for the work outside of that reserve.

As with everyone, COVID-19 impacted how we perform our work and what priorities exist. The use of temporary, adaptable materials to trial community-led solutions for traffic safety concerns is an excellent example of work catalyzed by the emergency response nature of initiatives tried out to support physical distancing, for example. This approach has now been adopted into regular work and programming.

**PARACHUTE: Since you initiated your program, what has changed in terms of project scope, approach, and buy-in from stakeholders?**

JESSICA LAMARRE: The new Safe Mobility Strategy 2021-2025 brought with it a new approach to achieving Vision Zero. To further propel our progress toward the goal of Vision Zero by 2032, the Safe Mobility Strategy transformed Edmonton's approach to serious crash reduction. First, while building upon the traditional disciplines of engineering, education, enforcement, engagement and evaluation, the principles of equity and empathy were integrated into the Safe Mobility Strategy's foundation. Second, the Safe Mobility Strategy is informed by a comprehensive crash and equity analysis, which is further elevated by the incorporation of the lived experiences of Edmontonians. Understanding current crash patterns and the communities who are most at risk was critical to building an action plan that would lead to meaningful change where it is most urgently needed.

The crash analysis examined crash characteristics and dynamics, human actions and systemic factors, leading to the identification of a High Injury Network (HIN) that represented all modes of transportation. The HIN provided a better understanding of high-crash corridors, leading to improved prioritization and timely deployment of safety measures, as well as the deployment of operations, maintenance and enforcement resources. These analyses helped to identify the causes and contributing factors to crashes that require proactive, strategic action to create a safe system for all road users in terms of roadway design, safe speeds and traffic safety culture.

The equity analysis was also central to this work – the Safe Mobility Strategy was one of the City of Edmonton’s first pilot projects to invoke a Gender-Based Analysis Plus (GBA+) approach. This analysis offered important insight into how different communities experience transportation safety across Edmonton by exploring safe mobility in relation to socio-demographics, evaluating access to transportation and analyzing the distribution of exposure to crashes across Edmonton. The analysis illustrated that equity-seeking communities are both geographic and identity based, crashes are concentrated in specific neighbourhoods and crash risk disproportionately affects low-income citizens, Indigenous Peoples, ethnic, linguistic, sexual and gender minorities, and people with disabilities by virtue of where they live. Overall, some communities experience greater mobility challenges and are more vulnerable to failures in the transportation system.

To further contextualize the crash and equity analyses, peoples’ lived experiences were a significant contributing factor in the development of the Safe Mobility Strategy. Through inclusive engagement with Edmontonians, four central areas of significance to the people who use our roadways were identified, including increasing safety for all modes and all people, improving and expanding infrastructure, increasing knowledge and improving behaviour, and creating partnerships to support continuous safety improvement.

**PARACHUTE: Based on the last three years, are there any new successes your program has achieved that you would like to share?**

JESSICA LAMARRE: The Safe Crossings Project: Since the City of Edmonton adopted Vision Zero in 2015, nearly 300 crosswalks have been upgraded through the Crosswalk Improvement Program. This year, 48 new safe crossing projects have been confirmed and can be explored, along with previous projects, through this interactive map and on [edmonton.ca/VisionZero](http://edmonton.ca/VisionZero). In 2021, 46 safe crossings projects (one full signal, six overhead amber flashers, 13 pedestrian signals, and 26 rapid flashing beacons) were completed.

School Safety: Schools have been reviewed each year to identify traffic safety opportunities and countermeasures tailored to the specific concerns at each school. In 2021, 50 upgrades were completed, including:

- Flashing beacons added at school crosswalks
- Increasing the visibility of stop sign and crosswalk poles

- Upgraded pavement markings for crosswalks and road centrelines

On August 6, 2021, 40 km/h became Edmonton's new default speed limit, reducing speeds on most residential and downtown roads, as well as high pedestrian areas such as Whyte Avenue and Jasper Avenue. The public was invited to participate and encourage change in their neighbourhoods through the [Safe Speed Toolkit](#), which included portable driver feedback signs, creative signage, educational information, and a mechanism to request automated enforcement presence at approved locations. Through this program, more than 3,500 community signs were distributed to Edmontonians and 24 portable driver feedback signs were deployed throughout the city to support the change. Staff supported council reports, championed change with the public, and developed signage plans, automated enforcement warning notices and deployment strategies. This accomplishment will result in safer streets for all Edmontonians. While the default speed limit was implemented on Aug. 6, 2021, drivers were granted a grace period until Aug. 31, 2021. During that time the city completed more than 1,400 hours of enforcement at locations where the speed limit had been reduced to 40 km/h. The results revealed that 77 per cent of drivers were complying with the new speed limit. Moreover, ongoing enforcement continues to result in high levels of compliance. The total hours of deployment from Aug. 6, 2021, to Dec. 31, 2021 was 4,027. The compliance rate increased from the previous 77 per cent to 90 per cent in December, while the hourly violation rate decreased from 3.5 violations per hour to less than one violation per hour in December.

DFS Program - 212 permanent Driver Feedback Signs in use.

Fourteen [Street Lab](#) projects were launched across Edmonton in 2021, with five public project teams completing on-street installation and an additional nine teams in various stages of building their plans. By combining Edmontonians' lived experience with staff expertise, communities collaboratively identified and implemented temporary, adaptable measures that quickly and creatively addressed neighbourhood safety and livability concerns. Through this program, Edmontonians can transform their neighbourhood streets with tools such as shared streets, parklets, curb extensions and painted crosswalks. With these initiatives in place, streets are safer and can function as community hubs for people to move and connect.

**PARACHUTE:** Previously, you also discussed challenges that the program has faced. Since then, how were you able to manage those challenges? Have any new challenges



**or roadblocks come up since we last spoke? Please feel free to focus on one or two significant challenges in your response.**

JESSICA LAMARRE: While so important, Vision Zero's mandate can be quite narrow and limit the variety of priorities to match. And in Edmonton, that was translating into some challenging discussions. Locations without a tragic crash history – mainly neighbourhood roads – weren't receiving attention despite constant concerns being raised about near crashes, poor driver behaviour and impacts on livability. Public discussions about road safety were becoming increasingly oppositional, people didn't feel heard, safety improvements weren't equitable and we were missing some important tools to keep moving forward on the path to zero. It was clear that the work would be much more complex for here and we needed to leverage both location-based and systemic approaches. We could no longer rely on making just specific intersections safer alone – we needed to shift and influence choices and behaviours that guide how we move on every street and path. It was time to take a moment to look up and out to ground ourselves in creating a plan that Edmontonians could embrace.

We're lucky to have entered the picture on the heels of the city having recently completed its strategic plan, Connect Edmonton, which featured some brilliant and extensive public engagement. It doesn't take long to recognize that the safety and livability of our streets is deeply interconnected with the plan's four strategic goals. When we make it safer for people of all ages and abilities to move around our city by any mode, in any season, we generate broad societal benefits. We improve physical health and wellness, connect neighbours, reduce tragic impacts to lives and livelihoods, reduce the economic impact of crashes, boost local economy and contribute to our climate resilience goals. By drawing on this work, our definition of safe was expanded to include the always enigmatic concept of livability, and the Safe Mobility Strategy was enabled to keep top of mind actions large and small that support the vision for Edmonton as we grow to a city of 2 million people. This is important and a step I highly recommend folks don't chalk up to a "corporate requirement" – intentionally designing the Safe Mobility Strategy around these strategic priorities helped address some of the challenges we had been facing in reflecting the wants and needs of our citizens and, ultimately, set us up for success in adopting this way forward.

**PARACHUTE: Based on the way your program has progressed in the three years since we last spoke, do you have any advice for jurisdictions that have recently adopted or that are contemplating Vision Zero adoption?**

JESSICA LAMARRE:

- Build your strategy to achieve larger goals; don't rely on the power of "safety" alone
- Check in with senior leadership, council and the public often
- Create space for everyone to have a role in realizing Vision Zero
- Graphic designers are geniuses
- If it's a technical word you learned in your Engineering degree, it shouldn't show up in the strategy
- Leave yourself time to adjust the plan
- Ask yourself who is not at the development table and meet them where they are

**PARACHUTE: As your Vision Zero program moves forward, keeping the last three years in mind, where would you like to see the program go next? What are you hoping to accomplish moving forward over the next five years?**

JESSICA LAMARRE:

- Deliver on the Key Actions of the Safe Mobility Strategy to create safe and livable streets for all road users of all ages and abilities and ensure continuous progress towards our goal of Vision Zero by 2032.
- In addition to the new programs launched during the first year of implementation, develop and implement additional key actions outlined in the strategy such as:
  - Engaging in multidisciplinary, collaborative research with our academic partners
  - Increasing the focus on equity through initiatives such as proactive safety reviews
  - Exploring new technologies for data collection and for more proactively monitoring and managing risk and measuring safety
  - Increasing transparency around our programs through public access to assessment criteria, prioritization decisions, implementation status and evaluations for all safe mobility projects
  - Conducting a corporate policy review to ensure all City of Edmonton policies align with Vision Zero

## ***Fort Saskatchewan, Alta.***

### **Background**

The City of Fort Saskatchewan (FS) has a population of 27,088 based on the latest municipal census of 2021 (Statistics Canada, 2022d). In addition, it is estimated that 91 per cent of individuals commute to work by car, truck or van, FS is associated with a large volume of commercial traffic. For example, more than 600,000 commercial movements have been recorded in one direction at one of the city's major intersections (B. Ward, personal communication, July 5, 2019)

Although the city did not have any fatal collisions in 2018, two fatal collisions were reported in 2017, and minor injury collisions are also increasing (City of Fort Saskatchewan, 2019). Furthermore, in a 2016 survey of the residents and business owners of FS, respondents identified 121 locations across the city and on various road types, that raised safety concerns due to issues such as congestion, visibility, poor lighting and speeding (City of Fort Saskatchewan, 2018b).

### **The City of Fort Saskatchewan Protective Services Traffic Safety Plan 2019-2022**

In January 2018, FS formally adopted Vision Zero (City of Fort Saskatchewan, 2018a; Myroon, 2018a). FS has made its commitment to zero road fatalities explicit in its communications (City of Fort Saskatchewan, 2018a; Myroon, 2018a). [The City of Fort Saskatchewan Protective Services Traffic Safety Plan 2019-2022](#) is also aligned with the SSA and the five Es of traffic safety (City of Fort Saskatchewan, 2018a; Myroon, 2018a). FS elaborated on the SSA principles to clarify maximum target speeds for different types of road scenarios that would be consistent with the prevention of road fatalities. The city then mapped these scenarios against new functional road classifications (e.g., “expressway”, “arterial”) in order to facilitate standardization of speed limits (B. Ward, personal communication, Jul 5, 2019; City of Fort Saskatchewan, 2018b).

Following Vision Zero adoption, some outcomes data are available. The year 2018 recorded a lower fatal and injury collision rate per 1,000 residents than 2015 (1.633 vs. 1.872), as well as a lower fatal and injury collision count (43 vs. 45) (City of Fort Saskatchewan, 2018a). One fatality was recorded in 2019 (B. Ward, personal communication, Jul 5, 2019). Other changes that have taken place since Vision Zero adoption include dedicated funding from City Council and the introduction of a Transportation Master Plan (B. Ward, personal communication, Jul 5, 2019).

## Key features of the plan

**Data collection and analysis:** FS collects and analyzes collision information to fine-tune its enforcement efforts (City of Fort Saskatchewan, 2018a; Myroon, 2018a). Data are derived from Royal Canadian Mounted Police (RCMP) and Municipal Enforcement Services reporting and are analyzed within the Protective Services Department (City of Fort Saskatchewan, 2019). Some data are generated by intersection safety devices as well (City of Fort Saskatchewan, 2019). Types of data analyzed include collision time, date, location and cause; type of vehicle; speeds and volumes; and sustained traffic safety complaints (B. Ward, personal communication, Jul 5, 2019).

**Education:** Traffic safety education is a key part of the mandate of FS Protective Services (i.e., tied to enforcement) (City of Fort Saskatchewan, 2019). Examples of education include annual bike rodeos, school presentations about pedestrian safety, training on installation of car seats and inspecting car seats, and “Option 4 programs” to educate ticketed offenders about their violation (B. Ward, personal communication, Jul 5, 2019; City of Fort Saskatchewan, 2019). Traffic officers also receive training on how to accurately note collisions (City of Fort Saskatchewan, 2019).

**Enforcement:** FS leverages automated traffic enforcement (ATE) tools, such as intersection safety device cameras and photo-laser devices, in conjunction with conventional enforcement (City of Fort Saskatchewan, 2018a; Myroon, 2018a). FS’s traffic safety plan seeks to reduce the frequency and severity of injury and property damage collisions at the top five sites for these types of collisions (City of Fort Saskatchewan, 2019). In FS, repeat offenders caught by the cameras are being tracked through the repeat violator program and are being followed up by peace officers, who will offer suggestions and clarify consequences of further violations (B. Ward, personal communication, July 5, 2019; City of Fort Saskatchewan, 2018a).

**Engagement:** The first year of Vision Zero coincided with a period of strong public engagement that saw road users surveyed on their attitudes toward issues such as rolling stops and distracted driving; as well as “My Fort, my city, my say”, a comprehensive multimedia survey of residents’ thoughts on various issues, including traffic volumes (Intelligent Futures, 2018; Myroon, 2018b). FS continues to engage the public by soliciting their requests through the . “Fort Report” online tracker and by including them in the Traffic Safety Working Group run by Protective

Services (City of Fort Saskatchewan, 2019). FS has also made its ATE ArcGIS maps available to the public via its Fort Saskatchewan Automated Enforcement map (City of Fort Saskatchewan, 2019).

**Engineering:** Types of road design changes that have come into play since the adoption of Vision Zero in FS include high-visibility, solar-powered crosswalks; redesign of school zones to include better signage, curb bump outs and other features; protected left-turn lanes in the design of all major intersections; delay in left-turn signalling in favour of pedestrians at a major highway intersection; rectangular rapid flashing beacons; and more (B. Ward, personal communication, July 5, 2019; City of Fort Saskatchewan, 2018a). Though some highways had their speed limits lowered to 70km/h even before Vision Zero adoption, FS has also considered further lowering speed limits on local and collector roadways to 60km/h as part of its Transportation Master Plan (City of Fort Saskatchewan, 2018a; City of Fort Saskatchewan, 2018b).

**Evaluation:** Protective Services circulates collision reports and ATE data on a weekly, monthly and yearly basis (City of Fort Saskatchewan, 2019). Municipal Enforcement Services and Protective Services will review the collision data to determine if the current traffic safety strategy is working (City of Fort Saskatchewan, 2019). In addition, the city also monitors whether the “Option 4” program is working by tracking whether ticket offenders’ driving behaviour has changed following their education session (B. Ward, personal communication, July 5, 2019).

## Key stakeholders

Key stakeholders at FS include the Traffic Safety Working Group, which comprises the city’s Protective Services, Fire, Roads and Engineering departments; public and private school boards; Alberta Transportation; and the Policing Committee (B. Ward, personal communication, July 5, 2019). It also includes enforcement in the form of RCMP and Municipal Enforcement Services (B. Ward, personal communication, July 5, 2019). The city works with the province of Alberta, particularly Alberta Justice, in the development of affidavits to support ATE and conventional enforcement prosecutions (B. Ward, personal communication, July 5, 2019). FS is also a member of CRISP (CRISP, n.d.).

## What the city has to say

*Interview with Coreen Rayner, Director of Protective Services, City of Fort Saskatchewan*

**PARACHUTE: How long has your Vision Zero strategy been in place and what are its goals?**

COREEN RAYNER: City of Fort Saskatchewan adopted Vision Zero in 2018 as our traffic safety goal to have zero fatalities and serious injuries on our roadways.

**PARACHUTE: What major activities are you undertaking to meet these goals and are any of these activities geared toward more vulnerable road users?**

COREEN RAYNER:

- Speed limit changes in 2022 reducing residential speed limits to 40km/h
- Public education through messaging and information on the city's [website](#).
- Traffic calming measures
- Widening of the highway, creating an underpass for safe pedestrian travel
- Increased flashing beacons on pedestrian walkways to improve pedestrian safety
- Speed display signs – help educate and bring awareness to speeds
- Bike Rodeo – bicycle education for youth
- Child car seat education

**PARACHUTE: Who are your key stakeholders and how do they work together to implement your Vision Zero strategy?**

COREEN RAYNER:

- The RCMP, Protective Services and Municipal Enforcement
- The City of Fort Saskatchewan Engineering and Infrastructure Department
- Elk Island School Transportation
- Fort Saskatchewan Traffic Safety Working Group
- Alberta Sheriffs
- All of these agencies work together through joint force operations, analysis of collision data, addressing community concerns for traffic safety and implementing the five Es of Safe Systems approach to road safety.

**PARACHUTE:** Are concrete data available for the impact of your program (i.e., differences in the number of traffic related injuries)? How do you measure the success of your strategy?

COREEN RAYNER: City of Fort Saskatchewan Collision Data

Stats/Year	2017	2018	2019	2020	2021	% Change 2017-2021
<b>Total Collisions</b>	<b>536</b>	<b>369</b>	<b>354</b>	<b>377</b>	<b>393</b>	<b>-42%</b>
Property Damage Collisions	496	323	302	243	267	<b>-46%</b>
Injury Collisions	38	46	50	42	46	<b>21%</b>
Minor Injuries	32	40	44	39	40	<b>25%</b>
Major Injuries	6	6	6	3	6	<b>No Change</b>
Fatal Events	2	0	2	1	0	<b>N/A</b>
Hit & Run	Not Available			91	80	<b>N/A</b>
Vulnerable Road User Collisions	9	10	11	5	5	<b>-44%</b>
Pedestrians	7	6	4	0	2	<b>-71%</b>
Cyclists	1	1	3	3	1	<b>No Change</b>
Motorcyclists	1	3	4	2	2	<b>100%</b>

We measure success by the overall collisions reduced by 42 per cent, 0 fatalities in 2021, and a reduction in vulnerable road user collisions by 44 per cent.

**PARACHUTE:** Since you initiated your program, what has changed in terms of project scope, approach and buy-in from stakeholders?

COREEN RAYNER:

- The city looks at all aspects of traffic safety when planning and addressing concerns.
- We have increased public education to help change driver education.
- Used intelligence-led enforcement as far as hot spots and high-collision locations.

**PARACHUTE:** Previously, you also discussed challenges that the program has faced. Since then, how were you able to manage those challenges? Have any new challenges or roadblocks come up since we last spoke? Please feel free to focus on one or two significant challenges in your response.

COREEN RAYNER: Some of our challenges is having a dedicated staff to work on traffic safety and do analysis, combined with engineering, to focus on traffic safety. There are a couple of us who have this as one of our priorities and objectives, and having time to plan, implement and analyze can be difficult.

**PARACHUTE:** Based on the way your program has progressed in the three years since we last spoke, do you have any advice for jurisdictions that have recently adopted or that are contemplating Vision Zero adoption?

COREEN RAYNER: Creating a specific action plan is important: this is something we are still working on. Also we are implementing metrics to measure our success.

**PARACHUTE:** As your Vision Zero program moves forward, keeping the last three years in mind, where would you like to see the program go next? What are you hoping to accomplish moving forward over the next five years?

COREEN RAYNER: We need to develop a Vision Zero action plan. Would like to see the major injury collisions reduced as well as maintain zero fatalities in our community.



## Guelph, Ont.

### Background

Guelph has a population of 143,740 per the 2021 census and has grown 9.1 per cent since 2016; its population density is 1,644.1 per square km (Statistics Canada, 2022z). Of a 25-per-cent census sample, 77.3 per cent mainly commuted to work by driving a car, truck or van, followed by 7.2 per cent who travelled as a passenger (Statistics Canada, 2019r).

Between 2015 and 2019, there has been 11,408 collisions, an average of 2,281 collisions per year, in the City of Guelph (City of Guelph, n.d.). This does not include collisions on private property. Of these collisions, 15 per cent resulted in an injury. In 2019, there was 35 major injuries and fatalities resulting from collisions. Over the five-year period, the total number of injuries has been decreasing. The societal cost of collisions in the City of Guelph amounted to \$103,579,992 on average (City of Guelph, n.d.).

### Road Safety: City of Guelph Transportation Master Plan

On Jan. 24, 2022, Council approved the [Road Safety: City of Guelph Transportation Master Plan](#) (Halajski, 2022). With this plan, the city has committed to the target of Vision Zero using the Safe System Approach. The plan is committed to a transportation system for all ages and abilities across all modes of transportation including walking, biking, driving, transit and mobility devices (Halajski, 2022). The plan aims to reduce the likelihood of collisions and reduce the consequence of collisions by protecting vulnerable road users and improving street function and design. Moving forward, this plan will be updated every five years to ensure it reflects updated population and employment growth (Halajski, 2022).

The city recently developed a [Community Road Safety Strategy](#) (CRSS), to go with the master plan, that outlines specific strategies to address 10 road safety emphasis areas. These areas are: pedestrian safety, distracted driving, aggressive driving, cycling safety, speeding, impaired driving, school safety, senior safety, transit safety and railway safety (City of Guelph, n.d.).

### Key features of the plan

**Data collection and analysis:** The CRSS has identified two main strategies to prioritize the implementation of traffic calming measures, through request, and

through the use of available data (City of Guelph, n.d.). Police-reported collision data obtained through the MTO Authorized Requester Information Services (ARIS), and equity data, will be used to identify locations for engineering interventions. To increase data transparency, an annual collision report will be produced with collision trends over the past five years (City of Guelph, n.d.). In addition, the City's Traffic Calming Program uses data collected from the public to evaluate the need for safety measures (City of Guelph, 2022).

**Education:** Adopting a Vision Zero philosophy means providing earlier education about transportation safety to increase awareness on speeding, red-light running, sharing the road with cyclists and distracted driving (City of Guelph, n.d.). The Guelph Road Safety Coalition (GRSC) strengthens road safety efforts in the city through sharing resources, building capacity, educating the public and raising awareness (City of Guelph, 2022). In 2018, the City of Guelph established the Community Speed Awareness Program by installing temporary radar boards in residential neighbourhoods to raise awareness of speeding issues (City of Guelph, 2022). Other education tools include pedestrian routes map/app, senior safety zone awareness campaign and slow down lawn signs (City of Guelph, n.d.).

**Enforcement:** Speed plays a key role in both the likelihood and the consequence of a collision (City of Guelph, 2022). Slowing down vehicular traffic through a combination of design, education and enforcement is an effective countermeasure. The City of Guelph plans to use automated measures such as red-light cameras and speed enforcement to address aggressive driving, speeding and school zone safety (City of Guelph, n.d.).

**Engineering:** Currently Guelph has several programs, plans and strategies already in place, such as the active transportation facilities that enable pedestrians or cyclists to travel in a completely vehicle-free environment, and new intersection design to enable cyclists to complete two-stage left turns in a way that mimics foot traffic (City of Guelph, 2022). Future projects include adding leading pedestrian intervals, creating Slow Streets, and establishing Senior Safety Zones (City of Guelph, n.d.). To slow down cars, speed reduction infrastructure such as flex signs, medians, roundabouts, chicanes and speed bumps may be implemented (City of Guelph, 2022).

**Evaluation:** To continuously evaluate and monitor the effectiveness of strategies, techniques and initiatives in the community, several indicators need to be measured

over time (City of Guelph, 2022). Indicators will be determined based on availability of data, which may include operating speeds, changes in volume for all road users, severe and fatal injury collisions and changes in perceptions of road safety (City of Guelph, n.d.). Data will need to be collected before and after a strategy has been implemented to accurately determine if a change has occurred (City of Guelph, n.d.).

**Equity:** Guelph's road safety plan outlines the importance of considering vulnerable and underserved populations when prioritizing road safety expenditures and effort (City of Guelph, 2022). The University of Guelph is conducting an equity study to examine the distribution of road safety infrastructure among a variety of income variables (City of Guelph, n.d.). In addition, the city will use infrastructure data and census data to determine if there are any gaps in locations that require a road safety intervention (City of Guelph, n.d.).

## Key stakeholders

Key stakeholders include members of the Guelph Road Safety Coalition (GRSC) (City of Guelph, n.d.). The coalition includes Guelph Engineering and Transportation Services, Guelph Junction Railway, Wellington Dufferin Public Health, Guelph Police, University of Guelph Campus Police and the Ministry of Transportation, Ontario (City of Guelph, 2022). The City of Guelph is also a member organization of the Road Safety Committee of Ontario (ROSCO). The city also has research partnerships with the University of Guelph and University of Toronto (City of Guelph, n.d.).

## ***Halifax Regional Municipality, N.S.***

### **Background**

Halifax Regional Municipality (hereafter “Halifax”) has a total population of 439,819 according to the 2021 census, and a population density of 80.3 per square km (Statistics Canada, 2022o). Of a 25-per-cent census sample, 70.4 per cent mainly commuted to work by driving a car, truck or van, followed by 11.8 per cent by public transit (Statistics Canada, 2019m). The population of older adults is growing, with the number of individuals over the age of 65 set to more than double between 2001 and 2031 (MTPS et al., 2017).

From 2019 to 2021, total collisions in Halifax decreased from 6,190 to 4,885, and total fatal and injury collisions decreased from 834 to 716 (Halifax, 2022). Though these are improvements, the city has not reached zero fatalities and injuries.

### **Strategic Road Safety Framework**

In June 2018, Halifax adopted a [Strategic Road Safety Framework](#) for 2018 to 2023, with the objective of moving toward zero road injuries and fatalities by 2038 (D’Entremont, 2018; Halifax, 2018b; Halifax, 2019). Halifax draws a distinction between “Vision Zero” and “Towards Zero” / “Road To Zero”: the latter is articulated as recognizing “the reality that zero deaths and injuries cannot be accomplished in the immediate future” (Halifax, 2018b, p.8). Halifax leverages three Es of traffic safety – engineering, enforcement and education – when considering countermeasures (Halifax, 2018b). A unique consideration when planning for road safety in Halifax is the need for resilient road infrastructure in the face of climate change (MTPS et al., 2017).

Seven emphasis areas were proposed for the Towards Zero initiative (Halifax, 2018a; Halifax, 2018b; Halifax, 2019). These include intersection-related collisions, young demographic collisions (<25 years of age), pedestrian collisions, aggressive driving (e.g., tailgating, speeding), distracted driving, impaired driving and bicyclist collisions (Halifax, 2018a; Halifax, 2019). Along with these seven focus areas, there will be five key action items that serve as a framework for the program: form a safety task force, obtain and implement a data analysis program, implement an outreach program, evaluate existing road safety programs, and implement and evaluate the success of countermeasure programs (Halifax, 2019). As part of the new framework, previous road safety activities involving engineering measures will be reviewed (D’Entremont, 2018; Halifax, 2018a; Halifax, 2018b).

So far, a short-term goal to reduce road injuries and fatalities by 15 per cent within the next five years, i.e., by 2023, has been set, with option to reduce further if the goal is reached (D'Entremont, 2018; Halifax, 2018b).

## Key features of the plan

**Data collection and analysis:** In 2019, Halifax started to build a collision database linkable to the internal traffic count database in the future and will be able to generate collision rates (Halifax, 2019). The now complete Road Safety Dashboard offers a comprehensive overview of annual collision data from 2018 to present day. The collision data presented include all fatal and injury collisions occurring within the road right-of-way and exclude any collisions occurring on private property. Injury collisions may involve injuries to more than one person and collisions may overlap between multiple emphasis areas. The data are based on closed collision files received from Halifax Regional Police and RCMP up to the date indicated and is subject to change in future updates. A collision map supporting the detailed data provides a visual representation of the locations where all collisions throughout the municipality have occurred. The dashboard also allows users to track progress the municipality is making on a number of different road safety initiatives to accomplish Halifax's Towards Zero goals.

The Road Safety Dashboard is updated monthly to provide information on road safety progress and can be found at: <https://www.halifax.ca/transportation/streets-sidewalks/road-safety/road-safety-dashboard>

**Education:** Halifax Regional Police conducts training for its own officers on effective vehicle safety checks and conducts awareness events for the community (Halifax, 2019).

**Enforcement:** Monthly themed enforcement efforts by the Halifax Regional Police and the RCMP will continue under the Towards Zero framework (Halifax, 2019). Examples of recent themes include aggressive driving, distracted driving and motorcycle safety (Halifax, 2019).

**Engagement:** Halifax has engaged the public and its own stakeholders in developing its Strategic Road Safety Framework, through workshops and online survey questions (Halifax, 2018a).

**Engineering:** One of the initial steps for the program will be to assess the top 10 fatal and injury collision locations in the city (Halifax, 2019). Deficiencies identified will lead to a proposal for upgrades (Halifax, 2019). Several previous engineering-related activities will also continue under the new framework; these include speed reduction proposals for the Province of Nova Scotia, installing additional rectangular rapid flashing beacons for pedestrian crosswalks, and installing temporary trial infrastructure at locations with high rates of fatal and injury collisions until permanent structures can be funded (Halifax, 2019).

**Evaluation:** Detailed data analysis and evaluation of year-to-year reductions in fatal and injury collisions are forthcoming activities (Halifax, 2019). However, it is understood that under the guiding principle of "do different and do more", there will be flexibility to review and alter existing countermeasures as the framework is further developed (Halifax, 2018a).

## Key stakeholders

Key partners to the road safety strategy included the Province of Nova Scotia, Nova Scotia Health Authority, Halifax Regional Police, RCMP, Halifax Regional Municipality, Halifax Transit, Child Safety Link, Canadian National Institute for the Blind, Halifax Cycling Coalition, Ecology Action Centre, Crosswalk Safety Society, Halifax Walk n'Roll, Dalhousie University, and Dalhousie Transportation Collaboratory (Halifax, 2018a; Halifax, 2018b). The same partners have committed to being involved in the implementation of the plan and new stakeholders may also be engaged (Halifax, 2018a). A similar group of stakeholders, plus the Nova Scotia Transportation and Infrastructure Renewal, are anticipated to participate in the Toward Zero Task Force (Halifax, 2018a). A Road Safety Steering Committee has also been formed and includes Halifax Regional Municipality staff, Halifax Regional Police; RCMP, Nova Scotia Department of Transportation and Infrastructure Renewal; Halifax Regional Centre for Education; Nova Scotia Health Authority; and the IWK Health Centre; plus ad-hoc subject matter experts (Halifax, 2019).

## ***Hamilton, Ont.***

### **Background**

The City of Hamilton has a population of 569,353 per the 2021 census, and a population density of 509.1 square km (Statistics Canada, 2022i). Based on a 25-per-cent census sample, 75.9 per cent mainly drove a car, truck or van to work, followed by 10.5 per cent who took public transit (Statistics Canada, 2019f). This reliance on the personal vehicle was confirmed by a municipal safety survey undertaken in the same year (Ferguson & White, 2019). It is estimated that 1.1 million trips are made by residents in a 24-hour period (Ashby, 2018).

As per the 2020 annual collision report for Hamilton, the number of fatal and injury collisions has decreased since 2016 (City of Hamilton, 2021). The number of fatal collisions fluctuated between 11 and 20 in the past 10 years where the highest occurred in 2012. In 2020, there was a reduction of 33.2 per cent in the total number of collisions and a reduction of 22.5 per cent in fatal and injury collisions compared to 2019. In 2020, the City of Hamilton experienced 13 fatal collisions (City of Hamilton, 2021).

### **Vision Zero Action Plan 2019-2025**

In February 2019, Hamilton officially adopted a Vision Zero oriented road safety action plan, titled the [Vision Zero Action Plan 2019-2025](#), as part of its Strategic Road Safety Program (SRSP) (D. Ferguson, personal communication, July 3, 2019; Ferguson & White, 2019). Hamilton's SRSP was re-established in August 2014 which aims to "eliminate incidents that result in injury or fatality" (Ferguson & White, 2019, p.65). The Vision Zero Action Plan 2019-2025 follows the five Es of traffic safety, which it describes as "elements of Vision Zero" (Ferguson & White, 2019, p.79).

In addition to the five Es, Hamilton's Action Plan draws from the core principles and elements defined by the Vision Zero Network, a campaign that seeks to advance Vision Zero among U.S. communities and facilitate networking and knowledge sharing (Ferguson & White, 2019; Vision Zero Network, n.d.). These principles and elements are listed as: political commitment, multi-disciplinary leadership, action plan, equity, co-operation & collaboration, system-based approach, data driven, community engagement and transparency (Ferguson & White, 2019). Within this framework, the new action plan proposes varied initiatives under the five Es such as dynamic speed boards and a distracted driving and speeding campaign (Ferguson & White, 2019). Secondary emphasis areas for programming focus on users, behaviours and data

quality: aggressive driving, intersections, vulnerable roads users, young drivers and collision data improvements (Ferguson & White, 2019). The Vision Zero Action Plan is anticipated to change as more safety data become available (Ferguson & White, 2019).

### Key features of the plan

**Data collection and analysis:** Collision data are collected by the Hamilton Police Service through self-reports and motor vehicle reports for more serious collisions; all reports are sent to the city and are manually entered into Hamilton's collision database system (D. Ferguson, personal communication, July 11, 2019). Data collected describe frequency of collisions and vulnerable road users affected (Ferguson & White, 2019). According to the program, Hamilton has shifted its approach to network screening over the years to focus on identifying locations with high injuries or fatalities; an example of a fatal and severe injuries heat map is provided in the Vision Zero Action Plan (D. Ferguson, personal communication, July 3, 2019; Ferguson & White, 2019). In the future, Hamilton will provide open data to the public, and this is anticipated to include both raw collision information and heat maps of the city (D. Ferguson, personal communication, July 11, 2019; Ferguson, 2019).

**Education:** So far, the city has facilitated road user education by making safety zone lawn signs available to members of the public; creating the Just Drive Campaign to address distracted driving; raising awareness about yielding behaviours at pedestrian crossovers; and supporting the Hamilton Helmet Initiative (City of Hamilton, n.d.; Ferguson & White, 2019). Online resources on a variety of topics are available from the Hamilton Police Service (Hamilton Police Service, n.d.). As part of the new action plan, there will be an annual education plan based on enforcement and data analysis outcomes, which may include existing and new messaging (Ferguson & White, 2019).

**Enforcement:** 32 red light cameras had been installed at Hamilton's intersections as of 2022 and are being expanded at a rate of five new cameras per year. There has also been added enforcement in school zones and an alcohol testing program facilitated by the Hamilton Police Service, "R.I.D.E." (City of Hamilton, n.d.). As part of the new action plan, the Red-Light Camera Program will be reviewed and measures such as targeted enforcement and development of a Traffic Enforcement Unit will also be considered (Ferguson, 2019; Ferguson & White, 2019).



**Engagement:** When developing Hamilton’s Action Plan, a safety survey was conducted among Hamiltonians to probe their opinions about the safety of Hamilton’s roads, and public workshops and an open house were also conducted to inform the plan (Ferguson & White, 2019). In the future, the public will be engaged on Vision Zero through diverse channels such as surveys, community events, interactive web components and fundraisers; and engagement efforts will also extend to other stakeholders such as other levels of government and the private sector (Ferguson, 2019). Future partnerships with volunteers and Community Road Safety Ambassadors will activate more opportunities to conduct community outreach (D. Ferguson, personal communication, July 3, 2019; Ferguson, 2019).

**Engineering:** Currently, there is a strong emphasis on pedestrian safety in Hamilton. Pedestrian-friendly intersections have been created over the years through the use of pedestrian crossovers, accessible push-buttons, pedestrian countdown signals and ladder crosswalk markings (City of Hamilton, n.d.; Ferguson & White, 2019). Road design features for drivers, such as dynamic radar feedback signs and speed humps, are also being used across Hamilton (City of Hamilton, n.d.; Ferguson & White, 2019). As of 2022, the following have been installed in the City of Hamilton:

- 85 speed humps
- 182 speed cushions
- 104 pedestrian crossovers

**Evaluation:** Today, network screening facilitates prioritization of road safety activities in Hamilton based on a combination of risk measurement, frequency of collision types and frequency of collisions at a site (City of Hamilton, n.d.). As part of the new action plan, new methods of monitoring Hamilton’s transportation network will be considered, and other activities such as video analysis of intersections, field reviews of every traffic fatality and cost-benefit analyses of prospective road safety projects will continue to be examined (Ferguson, 2019; Ferguson & White, 2019). As of 2022, the Vision Zero dashboard allows users to track progress on a number of different safety initiatives including the implementation of community safety zones, speed cushions, traffic signals and more. Over the course of 2021 and beyond, the City will continue to implement and expand the functionality of the Vision Zero Dashboard which can be accessed at: <https://www.hamilton.ca/streets-transportation/driving-traffic/vision-zero-dashboard>

## Key stakeholders

Key partners include the Hamilton Strategic Road Safety Committee, a multi-disciplinary and multi-jurisdictional committee affiliated with the SRSP that includes members from the Ministry of Transportation, Hamilton Police Service, Hamilton Public Health Services; and Hamilton's Roads and Traffic, Transportation Planning, and Public Works Communications branches (Ferguson & White, 2019). Additional stakeholders may be engaged for specific project work (e.g., McMaster University's involvement in video analytics of intersections), or to provide advisory capacity for specific stakeholder groups, such as schools or city paramedics (D. Ferguson, personal communication, July 3, 2019; Ferguson, 2019).

## Kingston, Ont.

### Background

The City of Kingston has a population of 132,485 per the 2021 census and had grown 7.0 per cent since 2016; its population density is 293.4 per square km (Statistics Canada, 2022aa). Of a 25-per-cent census sample, 71.5 per cent mainly commuted to work by driving a car, truck or van, followed by 9.3 per cent who travelled by walking (Statistics Canada, 2019s). Each year, more than 300 injury collisions and an average of three fatalities occur on the roads of Kingston (CIMA, 2019b).

### Vision Zero: Kingston's Road Safety Plan

In April 2016, City Council considered a recommendation to approve the installation of red-light cameras in the city. Council deferred the motion and instead asked for staff to create the terms of reference for the development of a strategic road safety plan (CIMA, 2019). The terms of reference were accepted by council in March 2017 and shortly afterwards, the consulting firm CIMA+ was retained to lead the study (CIMA, 2019b).

In September 2019, the City of Kingston approved [the Vision Zero: Kingston's Road Safety Plan](#) (CIMA, 2019b). The plan identifies seven emphasis areas: intersections, distracted driving, aggressive driving, impaired driving, pedestrians, cyclists and young demographic. The plan also acknowledges the five Es of road safety (Engineering, Enforcement, Engagement, Evaluation and Education). The goals of the plan are to see “at least a 10-per-cent reduction in fatal and injury collisions involving any type of road user and at least a 10-per-cent reduction in collisions with vulnerable road users such as pedestrians, cyclists and motorcyclists” (CIMA, 2019b, p.13) over the next five years.

### Key features of the plan

**Data collection and analysis:** To determine the types of collisions occurring, causal effects and locations of collisions in the city, a detailed analysis of Kingston's collision data for a five-year period (2012 to 2016) was required (CIMA, 2019b). To analyze the data, various criteria such as age, impact type and cause of collision were used. Additional collision data and data from public surveys were used to identify the seven emphasis areas. Moving forward, the city plans to review existing data, develop updated and more detailed collision data, and prepare an annual road safety report that reports on collision and road safety data (CIMA, 2019b).

**Education:** To promote Vision Zero, the project team worked with City Communications to create social media ads, print media, postcards, roadside signs and the city's website (CIMA, 2019b). They also promoted Vision Zero through radio ads, local television and an educational video. Education countermeasures, with the purpose of changing road user behaviour, include a campaign for young pedestrians (ages 18 to 25), a drive safe campaign, a Distracted Driving Program, and a Road Safety Challenge (CIMA, 2019b).

**Enforcement:** Enforcement countermeasures typically include automated enforcement, photo radar and police enforcement. Countermeasures applied in the City of Kingston include the strategic traffic enforcement – zero tolerance policy, Automatic Licence Plate Reader (ALPR), Automated Speed Enforcement (ASE), photo radar, enforcement using sobriety testing, and education and enforcement blitzes (CIMA, 2019b).

**Engagement:** The City of Kingston's Public Engagement Framework states how the public and other key stakeholders can be involved and participate collaboratively in problem-solving and decision-making processes. To reach residents, a road safety survey was distributed to Kingston residents by email and interested participants were directed to the online road safety survey. Other engagement tools include Q and A online forms and "pop-up" Vision Zero engagement events (CIMA, 2019b).

**Engineering:** The engineering countermeasures are either sign-specific or targeted to all roadways within the city (CIMA, 2019b). Countermeasures integrated within planned active transportation and intersection projects may be implemented in a short time frame. Examples of engineering countermeasures outlined in the plan include sign inspection and repairs, installation of traffic controls, pavement markings, roundabouts, dedicated turning lanes and reduced lane width (CIMA, 2019b).

**Evaluation:** Evaluating existing countermeasures is important to the overall success of the RSP. For the first five years of the RSP, staff will be monitoring the progress and degree of success of the initiatives and report the progress in an annual road safety report (CIMA, 2019b).

## Key stakeholders

Key stakeholders include the project team and the Road Safety Advisory Group (RSAG) made up of local partners and stakeholder agencies (CIMA, 2019b).

## London, Ont.

### Background

The City of London, Ontario has a population of 422,324 per the 2021 census, and a population density of 1,004.3 per square km (Statistics Canada, 2022h). Based on a 25per-cent census sample, 75.3 per cent mainly commuted to work by driving a car, truck or van, followed by 9.2 per cent who took public transit (Statistics Canada, 2019g).

In 2018, London saw 11 fatalities on the roads (LPS, n.d.-g). Available data concerning “severe collisions” (fatal and injury) shows that numbers were fairly constant between 2009-2013, hovering between 1,200 and 1,600 (City of London, n.d.-a, p. 4). Key issues for the city based on numbers of severe collisions include collisions at intersections, distracted / aggressive driving, and younger drivers ages 16 to 25 (City of London, n.d.-a).

### 2014-2019 London Road Safety Strategy

In May 2017, London's Municipal Council adopted the Vision Zero principles for the City of London (City of London, 2017). The principles were welded to the implementation of the [2014-2019 London Road Safety Strategy](#) (LRSS), which continued to define the City's and Middlesex County's road safety approach (City of London, 2017; M. Elmadhoon, personal communication, June 24, 2019). London describes Vision Zero as an "aspirational goal" (City of London, 2017). The six issues covered by the LRSS include intersections, distracted / aggressive drivers, young drivers, pedestrians, cyclists and red light running (City of London, n.d.-a). Each issue is further described in terms of countermeasures; countermeasures follow London's 4 Es of traffic safety which include engineering, education, enforcement, and empathy (City of London, n.d.-a).

As of 2022, London City Council has adopted the following Vision Zero principles:

- no loss of life is acceptable
- traffic fatalities and serious injuries are preventable
- we all make mistakes
- we are all physically vulnerable when involved in motor vehicle collisions
- eliminating fatalities and serious injuries is a shared responsibility between road users and those who design and maintain our roadways (City of London, 2022).

## Key features of the plan

**Data collection and analysis:** The London Police deliver copies of collision information to the city, including police reports and self-reports, that have occurred in the City of London each day. The consultant then enters all the relevant data into a Traffic Engineering Software (TES) database (M. Ridley, personal communication, July 14, 2019). This data are used to help the city update its road collision statistics, which are analyzed and monitored against the goal of reducing fatal and injury collisions (M. Elmadhoon, personal communication, June 24, 2019). Available data include data regarding collision type, demographics of drivers and whether vulnerable road users were involved. In the future, London Health Sciences Centre will also contribute emergency department admissions data related to collisions (City of London, n.d.-a). Conclusions from road injury and fatality data analysis were one of the inputs to the LRSS, the others being city input and public feedback as described below (City of London, n.d.-a).

**Education:** The London Police Service offers online videos for kids related to back-to-school road safety tips on their website, as well as other online tips for cyclists and drivers with young passengers (LPS, n.d.-c; LPS, n.d.-d; LPS, n.d.-e). Additional road safety tips are available on the Middlesex-London Health Unit website as a component of injury prevention (Middlesex-London Health Unit, 2019). Other education efforts identified in the LRSS include delivering a driver education campaign via Twitter and Young Drivers of Canada training for G1 and G2 drivers (City of London, n.d.-a).

**Enforcement:** London's Traffic Management Unit leads traffic safety enforcement for the city (LPS, n.d.-g). One of the current focus areas for the London Police Service is community safety, which encompasses traffic management and enforcement "with a focus on distracted, impaired, and aggressive driving, and seatbelt use" (LPS, n.d.-a). An example of the focus areas at work is enforcement of R.I.D.E. checks to identify impaired drivers (LPS, n.d.-f). Enforcement efforts target not just drivers, but also cyclists and pedestrians engaging in illegal behaviours (City of London, n.d.-a).

**Engagement:** The six focal issues in road safety for the LRSS were selected based in part on the public's feedback; the public was asked to provide their opinion on the overall status of road safety in London, as well as thoughts about nine initial focus areas (City of London, n.d.-a). The London Police Service responds to questions from

the public on matters related to traffic legislation, automated enforcement, and traffic-related concerns through their website (LPS, n.d.-b).

**Engineering:** Engineering programs form the bulk of the City of London's Vision Zero countermeasures (City of London, n.d.-a). Areas for future action identified in the LRSS include advanced street name signs ahead of major intersections, roadway alignment improvement, expanding bicycle lanes, installing red light cameras and putting in place pedestrian refuge islands (City of London, n.d.-a). Areas for further analysis include the need for advanced left-turn phasing and ladder markings at intersections, and visibility and timing of traffic signals (City of London, n.d.-a).

**Evaluation:** As mentioned above, fatal and injury collisions are tracked and monitored, and can provide an indication of whether the strategy is working (City of London, n.d.-a; M. Elmadhoon, personal communication, June 24, 2019).

**Empathy:** According to the city, "the Empathy approach was introduced to bring awareness of the need for mutual understanding between road users when meeting under conflicting circumstances" (City of London, n.d.-a, p. 2). Many of the aforementioned education campaigns have empathy components as well (City of London, n.d.-a).

## Key stakeholders

Key stakeholders for the LRSS are a part of a steering committee that includes the City of London, Middlesex County, Ontario Ministry of Transportation, London Police Service, Ontario Provincial Police, CAA, Young Drivers of Canada, London Block Parent Program, London Health Sciences Centre and Middlesex-London Health Unit. Other implementation stakeholders include Fanshawe College, Western University, 3M, Young Drivers of Canada, Ontario Provincial Police and the Ministry of Transportation (City of London, n.d.-a, City of London, n.d.-b). The London Middlesex Road Safety Committee (LMRSC) meets regularly to discuss and implement the Road Safety Strategy and Vision Zero activities (M. Elmadhoon, personal communication, June 24, 2019). As well, each of the six target issues is further supported by its own issue-based working group, co-ordinated by a lead agency; in some cases, two working groups are assigned to a single issue, representing London and Middlesex respectively (City of London, n.d.-a).

## Manitoba

### Background

The Province of Manitoba is a province of 1,342,153 residents and this is expected to grow to up to 1,786,600 by 2038, due to a combination of international migration and a positive difference between births and deaths in the province over time (Statistics Canada, 2015a; Statistics Canada, 2015b; Statistics Canada, 2022f). In 2019, the province had approximately 1.2 million vehicle registrations, and approximately 57,500 new motor vehicle sales were made (Statistics Canada, 2019c; Statistics Canada, 2019d).

In Manitoba, there were 65 fatal collisions and 9,691 injury collisions recorded in 2017 (MPI, n.d.). This resulted in 73 fatalities and 2,468 injuries requiring any type of hospital treatment (MPI, n.d.). The most significant contributor to road injuries based on 2012-2015 data was distracted driving, a factor in an increasing number of collisions year over year (Manitoba & MPI, 2017). Impaired driving was also anticipated to be a key issue on the basis of expected increases in cannabis use and the need for research and surveillance data to inform countermeasures (Manitoba & MPI, 2017). Other issues affecting the province include a significant proportion of road injuries and fatalities taking place in rural areas and an increasing population of elderly drivers (Manitoba & MPI, 2017). As of February 2022, this is the most recent data publicly available.

### Manitoba Road Safety Plan 2017-2020

Manitoba set out its commitment to Vision Zero in the [Manitoba Road Safety Plan 2017-2020](#), i.e., the “Road To Zero” report (Manitoba & MPI, 2017). In its plan, Manitoba describes its approach as “Towards Zero” rather than “Vision Zero” and sets out that “Towards Zero maintains that while not all types of crashes may be prevented, traffic deaths and severe injuries are preventable” (Manitoba & MPI, 2017, p.12). This approach is aligned with the SSA, though Manitoba has pointed out that SSA is not a part of any provincial policy (Manitoba, 2017; Manitoba & MPI, 2017).

In the short term, the province will measure success by an annual decreasing trend in the rate of fatalities and serious injuries and in the per capita societal cost of collisions (Manitoba & MPI, 2017). No concrete numeric targets are provided but may be developed after data are available from the first three years of the plan (Manitoba & MPI, 2017).



Since the release of the Manitoba Road Safety Plan, the technical working groups have put forward a number of diverse recommended action items to the government to address road safety issues (C. Eden and G. Matson, personal communications, July 25, 2019). Manitoba's PRSC also plans to engage the City of Winnipeg and other municipalities in the development of municipal road safety strategies to ensure there is alignment with provincial principles, objectives and key success measures (C. Eden and G. Matson, personal communications, July 25, 2019).

## Key features of the plan

The Manitoba Road Safety Plan is organized based on the SSA principles of safe vehicles, safe roads, safe road users and safe speeds (Manitoba & MPI, 2017). However, for comparability, they will be listed by similar headers as other sections.

**Data collection and analysis:** The critical activities of research and data collection run through the plan (Manitoba, 2017; Manitoba & MPI, 2017). The province will collaborate with various partners to ensure that data collected are comparable with those from other jurisdictions (Manitoba & MPI, 2017). Another planned activity involves the creation of a centralized database of road safety data that stakeholders, including researchers, will be able to access (Manitoba & MPI, 2017). Currently, Manitoba's collision data is analyzed and reported using two sources: Traffic Accident Report (TAR) data compiled by police and TARs associated with collision claims compiled by Manitoba Public Insurance (MPI) (MPI, n.d.). This already provides detailed information about number of collisions, severity of collisions, demographics of the parties involved, and more; however, the plan seeks to increase data collection to address collision rates across different modes of transport (C. Eden and G. Matson, personal communications, July 25, 2019; Manitoba & MPI, 2017).

**Education:** Manitoba will undertake public awareness campaigns to facilitate changes to road safety culture, including changes in attitudes toward impaired driving and distracted driving (Manitoba, 2017; Manitoba & MPI, 2017). The province will attempt to address the common practice of speeding in the province (Manitoba & MPI, 2017). The province will also promote correct use of seatbelts and child restraints (Manitoba & MPI, 2017).

**Enforcement:** Priorities for enforcement will be on the five leading dangerous traffic behaviours as identified by the province and law enforcement. Based on 2017 data, this would likely include behaviours such as distracted driving, impaired driving,

and speeding, which were also the most common factors cited in fatal and serious injury collisions for the year (MPI, n.d.). Effective enforcement measures highlighted in the plan include “visible and consistent police enforcement” for risky behaviours, as well as automated enforcement, which the province seeks to expand (Manitoba & MPI, 2017, p. 22).

**Engagement:** It is anticipated that municipalities, First Nations representatives and other stakeholders in road safety will be engaged as part of the plan, “when strategic actions are developed in support of the Plan” (Manitoba & MPI, 2017, p. 29). Public consultation is also expected (Manitoba & MPI, 2017).

**Engineering:** Engineering takes the form of safe vehicles (e.g., advanced safety features, autonomous vehicles) and safe roads (e.g., designing roads to be more friendly to vulnerable road users, defined to include pedestrians and cyclists; integrating road safety into both new infrastructure and renewal of existing infrastructure in a formalized way) (Manitoba, 2017; Manitoba & MPI, 2017). Speed management will be achieved in part through changes to road designs (Manitoba & MPI, 2017).

**Evaluation:** In addition to collision statistics reporting, an annual progress report will be produced by the Provincial Road Safety Committee (PRSC) specifically related to the plan and relevant activities and outcomes (Manitoba & MPI, 2017; MPI, n.d.).

**Emerging technologies:** A unique feature of the Manitoba Road Safety Plan is that it takes into account emerging technologies and attempts to place these into the road safety landscape. For example, the plan describes at a high level the perceived safety benefits of autonomous vehicles and attempts to forecast changes that will be needed to enable their operation on Manitoba roads, which will include changes to legislation as well as infrastructure (Manitoba & MPI, 2017).

## Key stakeholders

Key stakeholders for the Vision Zero plan include Manitoba’s PRSC, comprising representatives from Manitoba Infrastructure; MPI; Manitoba Justice; Manitoba Health, Seniors & Active Living; and Manitoba Association of Chiefs of Police (C. Eden and G. Matson, personal communications, July 25, 2019). In addition, the PRSC has established technical working groups focused on priority road safety issues and these groups include representation from Manitoba Infrastructure; Manitoba Justice; Manitoba

Health, Seniors and Active Living; Manitoba Municipal Relations; MPI; City of Winnipeg; Winnipeg Police Service; RCMP; Canadian Automobile Association (CAA) Manitoba; Bike Winnipeg; and Coalition of Manitoba Motorcycle Groups (C. Eden and G. Matson, personal communications, July 25, 2019).

## ***Mississauga, Ont.***

### **Background**

As of 2021, Mississauga has a population of 717,961, down from 721,599 in 2016, and a population density of 2,452.5 per square km (Statistics Canada, 2022y). Based on a 25-per-cent sample of the 2016 census, 71.6 per cent in Mississauga mainly commuted to work by driving a car, truck or van, followed by 18.1 per cent who commuted by public transit (Statistics Canada, 2019o).

Mississauga is located in the Region of Peel. In 2020 there were 267 reported collisions on Peel regional roads per 100,000 population, including fatal, non-fatal and property damage type collisions. This represents a 33-per-cent reduction as compared to the baseline year of 2017 (Dedman, 2021). However, in 2020 there were 18 fatal collisions in the Mississauga, an increase from 2019 which had 13 fatal collisions (Peel Regional Police, 2022). In Mississauga, the majority of fatal collisions resulted in the death of pedestrians or drivers from 2017 to 2020 (Peel Regional Police, 2022).

### **Vision Zero Action Plan**

The City of Mississauga committed to Vision Zero in 2018 through a Council-approved motion. Mississauga City Council also passed a resolution to adopt Vision Zero and work toward a goal of zero fatalities and serious injuries as a result of collisions on city streets (City of Mississauga, 2021). The city's pledge to achieve Vision Zero was further strengthened through the Transportation Master Plan (TMP) approved in 2019. The TMP included 91 action items related to transportation improvements in the city. The TMP provided further direction to advance Vision Zero work (City of Mississauga, 2021).

This led to the development of the [Vision Zero Action Plan](#), which provides city staff with actions they can apply to their current and ongoing projects so that they contribute to the Vision Zero goal of eliminating fatalities and serious injuries in the transportation system (City of Mississauga, 2021). Vision Zero efforts are categorized into five Es of road safety, which include education and engagement actions the city can take to help inform residents about road safety and create transportation-related behaviour change (City of Mississauga, 2021).

## Key features of the plan

**Data collection and analysis:** A key success to the Vision Zero approach is analyzing available data to determine trends, hot spots and areas of focus, which also help achieve equity in road safety efforts. The Vision Zero Action Plan includes many activities to collect data such as the Data Management Program, Transportation Data Plan and the Collision Report Processing. The plan also outlines many ways to share this data with the community to inform decision making such as the Vision Zero Annual Report, the Online Dashboard and the Vision Zero Digital Map. Good quality data allows the City of Mississauga to be proactive in mitigate safety concerns rather than reactive to incidents or neighbourhood complaints (City of Mississauga, 2021).

**Evaluation:** Tracking and highlighting progress is key to learn from the past to improve conditions in the future. To track progress, appropriate baseline data and targets must be set. Through collision report processing, traffic volume, speed data and other available data, targets will be used to monitor the reduction of collisions in Mississauga (City of Mississauga, 2021).

**Education:** To help all road users understand that each have a role to play in keeping the roads safe for our vulnerable road users, the city uses empathy by fostering concern for community members who are at risk. In addition, Mississauga aims to educate the community about road safety through road signs, social media, formal training and other creative outreach and education tactics (City of Mississauga, 2021).

**Engineering:** Altering the physical built form of the transportation network and prioritizing the safety of pedestrians, cyclists and other vulnerable road users is the new direction Mississauga is taking when designing the build environment. This includes but is not limited to narrowing lane widths, channelized right-turn lanes, roundabouts, protected pedestrian crossings, lowering speed limits, street lighting upgrades, bicycle signals and pavement markings (City of Mississauga, 2021).

**Enforcement:** As technology advances and provincial regulations allow for the use of technology to enforce speed, the City of Mississauga has rolled out automated speed enforcement cameras in school zones and community safety zones. The city continues to work with Peel Regional Police on enforcement blitzes and

communications opportunities to encourage desired driver behaviour (City of Mississauga, 2021).

### **Key stakeholders**

Key partners involved in the City of Mississauga's plan included a Vision Zero Program Lead and Vision Zero Working Group; Infrastructure Planning and Engineering; Traffic Management and Municipal Parking; Works, Operations and Maintenance; Strategic Communications and Initiatives; MiWay; Planning and Building; and Peel Regional Police (City of Mississauga, 2021). City of Mississauga will continue to collaborate with regional partners co-ordinated by Region of Peel Road Safety Staff through the Vision Zero Task Force (City of Mississauga, 2021).

## Montreal, Que.

### Background

The City of Montreal has a population of 1,762,949 as per the 2021 census, up 3.4 per cent since 2016, and a population density of 4,833.5 per square km (Statistics Canada, 2022x). Based on a 25-per-cent sample of the 2016 census, 47.2 per cent in Montreal mainly commuted to work by driving a car, truck or van, followed by 36.5 per cent who commuted by public transit (Statistics Canada, 2019n).

Overall, the total number of fatal and serious injury collisions have been decreasing since 2005 (City of Montreal, 2022a). In 2019 there were 144 serious injury collisions and 28 fatalities on Montreal roads (City of Montreal, 2022a). Pedestrians and vehicle occupants make up the majority of victims seriously injured or killed (City of Montreal, 2022a). As of 2022, half of all pedestrian fatalities are age 65 or older and more than 75 per cent of drivers who die are young men 20 to 24 years old (City of Montreal, 2022b). In Montreal, over 75 per cent of all collisions occur at intersections (City of Montreal, 2022b).

### Vision Zero Action Plan

In 2008, Montreal's Transportation Plan included a road safety target to reduce road traffic collisions by 40 per cent over a 10-year period as a first step toward Vision Zero (City of Montreal, n.d.). On September 26, 2016, city council approved a motion to declare Montreal's commitment to Vision Zero. This led to the launch of the [2019-2021 Vision Zero Action Plan](#) and the commitment to reducing the number of deaths and serious injuries on the roads to zero by 2040. The plan includes 60 commitments by the city, which have been organized under 22 multilateral actions (City of Montreal, 2022b). The plan is also gathered around three major themes (promote collaboration, change the mentality and transform the road network) that demonstrates the commitment of Montreal and its partners (City of Montreal, 2022b). Currently the city is in the process of developing a new action plan for 2022 to 2024 (City of Montreal, 2022c).

### Key features of the plan

**Data collection and analysis:** The City of Montreal has developed an interactive map that shows collisions, crash scenarios and measures implemented (City of Montreal, 2022a). Each year the city publishes an annual report that includes a review of killed and severe injury collisions, updates from the post-fatal-collision

assessment team, borough-initiated implemented measures and a showcase of some partner/stakeholder initiatives (City of Montreal, 2022a).

**Education:** In collaboration with partners and stakeholders, the city has completed a transitional pilot project in favour of road safety education for children (City of Montreal, 2021). Currently the city is using virtual reality to increase public awareness and understanding of heavy vehicle driving conditions in urban areas. Another project will consult older adults, both pedestrians and drivers, to determine what supports are needed to reduce social isolation and encourage movement and autonomy for older adults (City of Montréal, 2021).

**Engineering:** For each fatal collision, a team conducts a visit to rapidly implement measures such as leading pedestrian intervals, installing street furniture to redirect pedestrians and improved signage visibility (City of Montreal, 2021). Types of measures initiated and implemented by boroughs include improved pedestrian movement and crossings, speed reduction, improved cycling protection, and traffic management (City of Montreal, 2021).

## Key stakeholders

To develop and implement the Vision Zero Action Plan a steering committee, three task forces, a vulnerable user consulting committee (CCUV) and a data management committee were formed with internal staff (City of Montreal, 2021). These groups were responsible for identifying road system failure (City of Montreal, 2021). External partners included the Ministry of Transportation Quebec (MTQ), Société de l'assurance automobile du Québec (SAAQ), Autorité régionale de transport métropolitain (ARTM) and Communauté métropolitaine de Montréal (CMM) (City of Montreal, 2021).

## What the city has to say

*Interview with Bartek Komorowski, Lead Planning Advisor, Urban Planning and Mobility Department, City of Montreal and Nancy Badeau, Team Lead Engineer, Urban Planning and Mobility Department, City of Montreal*

**PARACHUTE:** How long has your Vision Zero strategy been in place and what are its goals?



BARTEK KOMOROWSKI and NANCY BADEAU: In 2016, Montreal declared the adoption of Vision Zero. It was not until 2019 when the first VZ Action Plan 2019-21 was approved by council. We are currently developing the next 2022-24 VZ Action Plan. The goals of 2022-24 plan are to address recurring pedestrian-vehicle collision scenarios, reduce overall level of risk through mobility and land use measures, improve data collection, analysis and disseminate data and knowledge, strengthen implementation capacity, maximize partner engagement and establish links between Vision Zero to other policies and programs (e.g. public health, climate change).

**PARACHUTE: What major activities are you undertaking to meet these goals and are any of these activities geared toward more vulnerable road users?**

BARTEK KOMOROWSKI and NANCY BADEAU: Collisions involving pedestrians are the main focus of the plan. Actions that address pedestrian collision risk factors are prioritized. Some activities we have done in the past included adding cycling infrastructure, creating an accessibility policy to make sure everything that we do is accessible and the School Zone Safety Program to encourage students to travel to school by walking or biking.

A significant project that is being undertaken is reviewing every single signalized intersection in Montreal to ensure it is safe for pedestrians. We are retiming the intersections that already have pedestrian signals. Intersections that don't have pedestrian signals will have new pedestrian signals added. We also have new metrics to increase time: in other words, we've decreased the average walking speed to better accommodate older adults. There are around 2,000 intersections to do over an eight-year plan. Currently we have already gone through at least 500 intersections.

Currently the city councillor responsible for mobility has directed us to develop a program specifically for the safety of older adults (65+). The focus on older adults, specifically older pedestrians, is justified by our collision data, which show that they are overrepresented in our prevalent pedestrian-vehicle collision scenario. The city-wide program will finance improvements at intersections, such as the construction of pedestrian refuge islands, in areas where older residents are concentrated. We are hoping to launch this project shortly and we are considering working on somewhere between 10 to 20 locations a year.

**PARACHUTE: Who are your key stakeholders and how do they work together to implement your Vision Zero strategy?**

BARTEK KOMOROWSKI and NANCY BADEAU: We have both key internal and external stakeholders in the City of Montreal. This is a very big municipal organization with more than 20,000 employees. We have a two-tiered municipal administration, with a central administration and 19 boroughs. Internally our stakeholders are the other mobility and urban department units, the boroughs, police, fire department, communications and other municipal agencies. Our external partners include Ministry of transportation Quebec (MTQ), Société de l'assurance automobile du Québec (SAAQ), Autorité régionale de transport métropolitain (ARTM) and Communauté métropolitaine de Montréal (CMM). SAAQ is the provincial car insurance agency, which is also responsible for driver education, permitting and funding a lot of educational campaigns. ARTM is the regional transportation agency. The CMM is a regional governance entity of non-elected members mandated by our Ministry of Municipal Affairs to deal with land use planning across the Montreal region. We also have partnerships with the public health department, trucking industry groups, and active mobility advocacy groups such as Vélo Québec and Piétons Québec.

**PARACHUTE: Are concrete data available for the impact of your program (i.e., differences in the number of traffic related injuries)? How do you measure the success of your strategy?**

BARTEK KOMOROWSKI and NANCY BADEAU: This is an area where there is room for improvement. Currently we only have killed and seriously injured (KSI) numbers from the police collision reports. When a collision occurs, the police department fills out the collision report form and sends it in within two weeks. When someone is killed or severely injured and a registered vehicle is involved, there is a process in place where the police department notifies the city immediately and we mobilize a team that goes out within 10 days of the incident to collect more info on the context. This allows us to make detailed recommendations in the short term. Unfortunately, for single-user crashes (e.g., a cyclist hitting a pothole) that don't involve a registered vehicle, receiving the data can lag a bit and we are not able to investigate the circumstances as quickly and in as much detail. We are working on how to get this data in a timely manner.

Overall, the number of deaths has stabilized between 25 and 30 a year whereas serious injuries are in decline. We do break down the KSI numbers by cyclists, pedestrians and automobile users. To present the KSI data, we have developed an interactive map so you can see where collisions are occurred and what measures have been put in place by

the city and by the boroughs. As KSI numbers are stable, we wish to develop a set of other indicators to help measure our progress.

We also have access to dooring (a collision in which driver opens a car door into the path of a cyclist) data. The police department has been collecting dooring data for the past few years, but we don't have the severity of those dooring collisions.

Each year we put out an annual report that gives an overview of the KSI statistics and the advancement of some of our actions. An interactive map is also available enabling the user to see KSI collision locations by user type and also to see where certain types of road safety measures have been implemented.

**PARACHUTE: Are there unique contextual factors that you needed to take into account for planning purposes and, if so, can you please describe what these were?**

BARTEK KOMOOWSKI and NANCY BADEAU: Montreal has a two-tier municipal government. Vision Zero is co-ordinated by the central administration (upper tier). Boroughs (lower tier) have a varying level of engagement and knowledge. Few tools are available to compel boroughs to comply with the VZ action plan or do anything related to road safety. Also, not all boroughs are equal. They don't all have the same resources and staff. Currently there is no dedicated operating budget to support Vision Zero and boroughs are using existing operating budgets. There is a budget allocated for a few special capital projects that have been pre-determined.

**PARACHUTE: Since you initiated your program, what has changed in terms of project scope, approach and buy-in from stakeholders?**

BARTEK KOMOROWSKI and NANCY BADEAU: One thing that has changed is that there has been a lot of staff turnover since the onset of Vision Zero. Also, our strategic approach has really changed. In our first action plan there was a mishmash of different activities. In the new plan we narrowed the focus to give priority to recurring risk factors and explicit recognition of the need to act on mobility (alternatives to cars) and land use to reduce overall risk exposure. Our new plan also focuses more on a safe system approach rather than solely infrastructure.

**PARACHUTE: Are there any new successes your program has achieved that you would like to share?**

BARTEK KOMOROWSKI and NANCY BADEAU: Since the last action plan was developed, we have established a Vision Zero ecosystem including work groups focused on specific themes: pedestrian road crossings, heavy vehicles, speed management, data collection and sharing. We have also launched an annual report on road safety and an interactive map showing KSI collision locations as well as city and borough actions to improve road safety. Lastly, The City of Montreal and the MTQ are financing a direct vision standard inspired by London with the Standards Bureau of Québec (Bureau de la normalisation du Québec). They have convened a committee to come up with a safety index that will allow us to categorize heavy vehicles in terms of the driver's direct vision and general safety equipment aboard. The index is expected to be published next year.

**PARACHUTE: Have you experienced any challenges or roadblocks? Please feel free to focus on one or two significant challenges in your response.**

BARTEK KOMOROWSKI and NANCY BADEAU: First and foremost, we have some financial constraints post-pandemic. Being required to keep our public transit system running without any passengers during the pandemic and a variety of emergencies that had to be addressed had a serious impact on city finances. Another potential challenge is the unknown impact of changing commuting patterns on collision scenarios and data. We have to see what the new normal is, how commuting patterns will settle and what effect this will have on collisions.

**PARACHUTE: Do you have any advice for jurisdictions that have recently adopted or that are contemplating Vision Zero adoption?**

BARTEK KOMOROWSKI and NANCY BADEAU: Based on my observation with respect to our previous plan, I would recommend going for a focused plan that looks at the most frequently recurring risk factors and not trying to solve all road safety issues all at once. A focused plan is easier to monitor and easier to communicate to the public.

Another suggestion is to be wary of using Vision Zero to justify actions that have little direct impact on KSI collisions. The Vision Zero and Safe Systems subcommittee, from TAC (Transportation Association of Canada), did a survey and we realized that a lot of organizations are concentrating on road infrastructure in their action plans because they are mainly initiated by the transportation departments. You need to take the opportunity and fully engage with other partners and stakeholders and establish links between Vision Zero and other policies and programs that have shared interests (e.g.,

reducing automobile dependency reduces collision risk exposure but also contributes to climate change goals and public health goals with respect to physical activity) in order to develop synergies and push forward together in the same direction.

Lastly, while working to resolve specific recurring road safety issues, don't lose sight of the big picture: in the long term, attaining Vision Zero will require a significant reduction in automobile dependency.

**PARACHUTE: As your Vision Zero program moves forward, keeping the last three years in mind, where would you like to see the program go next? What are you hoping to accomplish moving forward over the next five years?**

Overall, we want to improve stakeholder engagement and participation. We want to see more participation from key stakeholders, taking charge of elements beyond the city's jurisdiction (e.g., vehicle safety standards, introducing road safety into primary and secondary education curricula). We also want to improve data collection and sharing and develop indicators other than number of KSI collisions to better measure our progress.

## Ottawa, Ont.

### Background

The City of Ottawa recorded a population of 1,017,449 in 2022, increasing 8.9 per cent since 2016, and has a population density of 364.9 per square km (Statistics Canada, 2022r). According to a 25-per-cent census sample, 62.7 per cent of the population mainly commuted to work by driving a car, truck, or van, followed by 20.6 per cent who use public transit (Statistics Canada, 2019p).

From 2015 to 2019, there was an average of 150 collisions annually resulting in fatal or serious injuries on Ottawa roads (City of Ottawa, 2021). In 2020, there were 18 fatal collisions and 109 major injuries; this is a decrease from 2019, which had 27 fatal collisions and 133 major injuries (City of Ottawa, 2020).

### 2020-2024 Road Safety Action Plan

Since 2003, the City of Ottawa has implemented two Road Safety Action Plans (RSAP) from 2003 to 2011 and 2012 to 2016. The second plan resulted in a 14-per-cent reduction in fatal and major injury collisions in Ottawa. In 2019, the city created the [2020-2024 Road Safety Action Plan](#), built on the success of the previous plan. The plan is guided by the theme of “Think Safety, Act Safely” and focuses efforts and resources where they are needed most to have the greatest impact on reducing collisions resulting in serious injury or death (City of Ottawa, 2021). This new plan also emphasizes toward zero fatalities and major injuries vision and goal (CIMA, 2019a).

The RSAP is an integrated, comprehensive and proactive strategy that incorporates input and guidance from residents, community stakeholders, road safety advocates and experts. The action plan addresses four key emphasis areas: vulnerable road users (pedestrians, motorcyclists and cyclists), intersections, rural roads and high-risk drivers (speeding, aggressive and impaired driving) (City of Ottawa, 2021).

### Key features of the plan

**Data collection and analysis:** The RSAP is primarily a data-driven study (CIMA, 2019a). The data is primarily managed by the Transportation Data Collection & Analytics team that uses a data software known as TES (Transportation Engineering Software), to manage traffic volumes, operating speed data and police collision report data. The data is used to better understand how collisions are happening

within the city and who is involved (e.g. age groups, types of collisions, cause of collisions, etc.) (CIMA, 2019a).

**Education:** As per the 2021 implementation plan for RSAP, education and outreach on new and existing pedestrian infrastructure will be expanded (City of Ottawa, 2021). Motorcycle safety training will be expanded to 300 participants and the number of cycling safety courses available to the public will be increased (City of Ottawa, 2021).

**Enforcement:** While enforcement is the responsibility of Ottawa Police Service, valuable contributions to road safety are also made by Ottawa Fire Services, Ottawa Paramedic Service and Ottawa Public Health (City of Ottawa, 2021).

**Engagement:** As the RSAP moves forward, “Take It to the Track” events will be expanded to engage high risk motorcyclists (City of Ottawa, 2021). Expansion of the cycling network will continue, and the “Walking School Bus” program will be expanded with a hybrid paid/volunteer model (City of Ottawa, 2021).

**Engineering:** Cycling safety enhancements will be made to 10 locations, including signs, signals, pavement markings, bike lanes, bike boxes and cross rides (City of Ottawa, 2021). Enhanced, high visibility crosswalk markings will be added at 10 high priority locations, and more advanced pedestrian walk signals will be added at locations downtown and near schools (City of Ottawa, 2021).

**Evaluation:** The purpose of the Evaluation and Monitoring plan is to analyze the successes of engineering, enforcement and educational countermeasures delivered. An example of the evaluation of engineering countermeasures includes a review of high-volume cycling/vehicle interaction locations to guide future designs and new cycling safety technologies such as curb products and cycling detection feedback will be assessed and piloted (City of Ottawa, 2021).

## Key stakeholders

Key partners agencies who were a part of the development of the RSAP include the City of Ottawa, Safer Roads Ottawa (SRO) team, the Steering Committee, the Internal Working Group (Ottawa Police Services, Ottawa Public Health, Transportation Services, and Traffic Services) and the Stakeholder Committee (Bike Ottawa, Ottawa Safety Council, MADD Canada, and many others) (CIMA, 2019). Members of the Steering Committee include Chief, Ottawa Fire Services; Chief, Ottawa Paramedic Service; Chief,

Ottawa Police Service; Medical Officer of Health, Ottawa Public Health; General Manager, Transportation Services Department; and Regional Supervising Coroner (CIMA, 2019a).



## ***Region of Peel, Ont.***

### **Background**

The Region of Peel is a municipality of Southern Ontario that encompasses Brampton, Caledon and Mississauga (Region of Peel, n.d.-c). According to the 2021 census, the Regional Municipality of Peel has a population of approx. 1,451,022, up five per cent since 2016, and the population density was 1,163.2 per square km (Statistics Canada, 2022n). Of a 25-per-cent census sample, 74.3 per cent mainly commuted to work by driving a car, truck, or van, followed by 15.5 per cent by public transit (Statistics Canada, 2019). It is estimated that 2.5 million trips are made by residents in a 24-hour period (Ashby, 2018). Notably, the median age of the population was the lowest in the Greater Toronto Area at 38.3 years old (Region of Peel, n.d.-a).

2020 presented sudden and unforeseen challenges associated with the COVID-19 pandemic; while overall traffic volumes dropped significantly, goods movement increased, many residents shifted to walking and cycling and open roads gave rise to an increase in speeding (Dedman, 2021). In 2020 there were 267 reported collisions on regional roads per 100,000 population, including fatal, non-fatal and property damage collisions. This represents a 33-per-cent reduction as compared to the baseline year of 2017. While the total number of collisions decreased significantly in 2020, the number of fatal collisions increased for the first time in three years when compared to 2017 data (Dedman, 2021).

### **Road Safety Strategic Plan, 2018-2022**

In 2017, the Region of Peel developed the [Road Safety Strategic Plan \(RSSP\) \(2018 -2022\)](#) with a goal of decreasing fatal and injury collisions on regional roads by 10 per cent by 2022 (Region of Peel, 2017). Peel's RSSP is structured around six emphasis areas, or characteristics associated with the largest groups of collisions on regional and local roads (Region of Peel, n.d.-c). These include intersections, aggressive driving (encompassing behaviours such as speeding and tailgating), distracted driving, impaired driving, pedestrian collisions and cyclist collisions (Region of Peel, n.d.-c). In the RSSP's action plan, each emphasis area is matched to one or more of the four Es (Region of Peel, n.d.-c). Altogether, the plan includes more than 100 countermeasures that directly counteract the frequency or severity of collisions (Region of Peel, n.d.-c). Countermeasures would then be delivered by the region or one of its partners (Region of Peel, n.d.-c). While not considered emphasis areas, truck collisions and school zones

are also deemed to be “awareness areas”, or additional areas of concern to the community (Region of Peel, n.d.-c). The RSSP is a component of Peel’s long-range transportation plan, which also looks at sustainable transportation, transport of goods and other topics (Region of Peel, 2017). Within Peel, Mississauga also adopted Vision Zero in February 2018 (Williams, 2018).

As of the writing of this document, the most recent report released by the region of Peel was in 2020 to outline the third year of their Vision Zero strategy (Dedman, 2021). The document can be found at: <https://www.peelregion.ca/pw/transportation/media/2020-vision-zero-road-safety-strategic-plan-update-year-three.pdf>

## Key features of the plan

**Data collection and analysis:** Peel’s RSSP is informed by data that look at different factors such as demographic characteristics of collision participants and characteristics of collisions to develop appropriate interventions (Region of Peel, n.d.-c). Looking at collision data has helped to identify the Region’s emphasis areas (Region of Peel, n.d.-c).

**Education:** Education countermeasures include activities to improve awareness of at-risk behaviours and safe behaviours; they may also help improve uptake of and mastery of active transportation options as in the case of bike rodeos (Region of Peel, n.d.-c). The Region of Peel website links out to several road user resources (Region of Peel, n.d.-b).

**Enforcement:** Countermeasures related to enforcement include Automated Speed Enforcement (ASE), red-light cameras, “Eliminating Racing Activities on Streets Everywhere” or “ERASE”, and “Operation Corridor” (enforcement campaign against aggressive truck driving) (Region of Peel, n.d.-c).

**Engineering:** Examples of engineering improvements include roundabouts, pavement marking improvements, street lighting improvements, Community Safety Zones and traffic calming measures such as allowing for on-street parking (Region of Peel, n.d.-c).

**Empathy:** Peel’s definition of empathy involves ensuring that road users recognize each others’ needs and experiences (Region of Peel, n.d.-c). Although it falls under the umbrella of education, it is singled out for its importance (Region of Peel, n.d.-c).

**Evaluation:** Stakeholder discussions about priorities, and evaluation of the efficacy of engineering changes, will continue throughout the life of the RSSP and countermeasures will be measured on an annual basis (Region of Peel, n.d.-c; Region of Peel, 2018). There is latitude to revisit the plan and make adjustments prior to 2022 depending on the outcomes shown (Region of Peel, n.d.-c).

**Engagement:** Stakeholder workshops were used to facilitate the development of the RSSP vision, goal and emphasis areas; stakeholders included representation from municipalities, enforcement and the province as more fully described below (Region of Peel, 2018). Additionally, public input helped to identify the “awareness areas” in the RSSP (Region of Peel, n.d.-c; Region of Peel, 2017; Region of Peel, 2018). The Region of Peel has shown an interest in engaging the public through opinion polls and community outreach programs (Region of Peel, n.d.-c; Region of Peel, 2017). As part of the RSSP, a road safety ambassador network will be created that will include interested residents and advocacy groups (Region of Peel, 2018).

## Key stakeholders

Key partners in Peel’s Vision Zero plan include Region of Peel, Peel Public Health, the City of Brampton, Caledon and Mississauga, Regional Municipality of York, Peel Regional Police, Ontario Provincial Police, the Ontario Ministry of Transportation, Mississauga Cycling Advisory Committee, Bike Brampton and Brampton Cycling Advisory Committee, Road Today, CAA, MADD, MiWay and Brampton Transit (Region of Peel, 2017). A Vision Zero Task Force will help to oversee the RSSP through activities such as securing funding, conducting research into new interventions and making periodic adjustments to the plan (Region of Peel, n.d.-c). This group includes partner agencies listed above and may in the future include other interested and /or influential stakeholders such as school boards (Region of Peel, n.d.-c). A separate Technical Advisory Committee will deliver countermeasures and will include municipal, enforcement and provincial representation (Region of Peel, 2018). Finally, one of the objectives of the RSSP will be to interweave safety considerations into municipal decision-making, thereby making the entire region a partner to the plan; this will be facilitated by roles such as road safety ambassadors and paradigms such as the healthy development assessment (Region of Peel, n.d.-c).

## What the region has to say

*Interview with Grace Mulcahy, Technical Analyst, Traffic Safety Transportation, Region of Peel*

**PARACHUTE: How long has your Vision Zero strategy been in place and what are its goals?**

GRACE MULCAHY: In 2017, the Region of Peel’s Vision Zero strategy was approved by council and in 2018 Peel released the five-year Road Safety Strategic Plan (RSSP). The current goal is a 10-per-cent reduction in fatal and injury collisions by the end of 2022. We also have a long-term goal or “vision” of zero fatal and injury collisions on our roadways.

**PARACHUTE: What major activities are you undertaking to meet these goals and are any of these activities geared toward more vulnerable road users?**

GRACE MULCAHY: Peel is working with our stakeholders and implementing new programs or countermeasures to work toward Vision Zero. One major activity includes collaboration with our stakeholders through our Vision Zero Task Force, which meets bi – annually and is made up of our local municipalities, Peel Regional Police, Ontario Provincial Police Caledon Detachment, Ministry of Ontario, and members of Council.

Additionally, representatives at Peel are involved in various road safety committees including the Automated Speed Enforcement Steering Committee, the Road Safety Committee of Ontario, the Mississauga Road Safety Committee and the Fatal Collision Review Committee.

Peel has implemented Automated Speed Enforcement – we are currently on a pilot program and have one camera. We are hoping to expand this program pending the results of the pilot and the decision from the Provincial Pilot Program.

We perform our annual network screening to evaluate the safety needs in Peel and in-service road safety audits, including an office and field review to identify safety deficiencies. Additionally, Peel has a right-turn channel retrofit program in which we are continuously upgrading our right turns to make them safer for pedestrians and cyclists as necessary.

We work closely with our communications and education and outreach teams to send out Vision Zero and road safety messaging, supporting and collaborating for the delivery of education programs such as Bike Month, road safety poster and video contests, and more. Our communications team frequently update our social media channels (Twitter, Facebook) with road safety messaging targeting Peel residents with pedestrian, cyclist, speeding and various other road safety messaging. Many of our activities are geared toward vulnerable road users, as pedestrians and cyclists make up two of our six emphasis areas outlined in our Road Safety Strategic Plan. Our initiatives specifically geared toward vulnerable road users include the right-turn channel retrofit program, updating pavement markings as necessary (i.e., ladder crosswalks), AODA intersection updates (i.e., tactile plates), implementation of crossrides, multi-use trails, vulnerable road user road safety messaging and education programs, and many more initiatives.

**PARACHUTE: Who are your key stakeholders and how do they work together to implement your Vision Zero strategy?**

GRACE MULCAHY: Our key stakeholders include our local municipalities (City of Mississauga, City of Brampton, and the Town of Caledon) and police partners with Peel Regional Police and Ontario Provincial Police Caledon Detachment. We collaborate with our key stakeholders frequently on various committees as mentioned previously, we work together and accommodate one another to continue moving toward implementing Vision Zero and support one another with various initiatives. For example, when responding to a concern about speeding in Peel, we will frequently copy our police partners and request their support with additional enforcement, as their resources permit. Another example would include our collaboration on the Fatal Collision Review Committee, where key stakeholders meet throughout the year to review fatal collisions in Peel and work together to identify the cause and a solution.

**PARACHUTE: Are concrete data available for the impact of your program (i.e., differences in the number of traffic related injuries)? How do you measure the success of your strategy?**

GRACE MULCAHY: Annually, Peel will provide an update report to update Regional Council, stakeholders and residents on the status of our program. We released our 2020 report back in December 2021. Please see the data below:

Total collisions, the Region of Peel Road Network (2017-2022)					
Collisions per 100,000 population	2017 Baseline	2018	2019	2020	Per cent (%) change 2020 compared to 2017
Total collisions on regional roads, fatal, injury and property damage	396	439	417	267	down 33% ↓
Fatal collisions	0.7	0.8	0.5	0.9	up 29% ↑
Injury collisions	60	57	51	32	down 47% ↓
Property damage collisions	335	381	366	234	down 30% ↓

Trending - Fatal & injury collisions, the Region of Peel Road Network (2017-2022)					
Emphasis areas	Fatal and injury collisions (per 100,000 population)				Per cent (%) change 2020 compared to 2017
	2017 Baseline	2018	2019	2020	
Intersection collisions	45	45	40	26	down 42% ↓
Aggressive driving	26	26	25	17	down 35% ↓
Distracted driving	23	19	20	12	down 48% ↓
Pedestrian collisions	7	6	6	4	down 43% ↓
Cyclist collisions	0.8	0.5	0.4	0.7	down 13% ↓
Impaired driving	2.2	2.6	3.2	2.2	0% (no change)

- Data reflect reported collisions on roads under the jurisdiction of the Region of Peel
- Population data were obtained from Peel Data Centre and is as follows: 2017 - 1,452,597; 2018 - 1,479,139; 2019 - 1,494,747; 2020 - 1,501,578

Since 2017, which is our baseline year, we have seen a decrease in total collisions, injury collisions and number of property damage collisions. The number of fatal collisions increased for the first time in three years in 2020 and, through data analysis, we believe this is due to lower volume on our roadways as a result of the COVID-19 lockdowns, resulting in higher speeds. Overall, Peel measures the success of our strategy through collision and data analysis, as well as through public and stakeholder feedback. In 2020, our education and outreach team worked with our safety team to perform a Road Safety Community Survey to gauge public feedback, perception, road safety habits and

more. The results of the survey were used to determine the success of our program, areas of improvement and next steps.

As part of ongoing health surveillance, Peel Public Health monitors and reports on injuries, hospitalizations and death caused by Motor Vehicle Collisions (MVC) among Peel residents, as well road safety behaviours (e.g., seat belt used, impaired driving) as reported in the Canadian Community Health Survey. Although not explicitly used as data that monitor the impact of the region's road safety strategic plan, these data provide important context for understanding the magnitude of the problem, burden and impact on Peel residents from a health perspective.

**PARACHUTE: Are there unique contextual factors that you needed to take into account for planning purposes and, if so, can you please describe what these were?**

GRACE MULCAHY: When planning and preparing our current road safety strategic plan, one unique contextual factor that we needed to take into account was considering the needs of our local municipalities. At the Region of Peel, we are the upper jurisdiction and are made up of three local municipalities: the City of Brampton, the City of Mississauga and the Town of Caledon. It was important that our RSSP was in alignment with the goals of our local municipalities, as well as supportive of their road safety needs.

**PARACHUTE: Since you initiated your program, what has changed in terms of project scope, approach and buy-in from stakeholders?**

GRACE MULCAHY: Since initiating our program in 2018, our roadmap and goals have remained the same; however, our RSSP is a living and evolving document. As road safety evolves and advances, the Region of Peel is eager to continue our movement toward Vision Zero including adding new countermeasures as technology changes, updating countermeasures as needed and continuously reviewing the effectiveness of our program. Additionally, we continue to receive feedback from elected officials and members of the public and are open to improving our networks as necessary with the aim of improving road safety. Overall, our project scope and approach have not changed and continue to guide our program but will be reviewed and updated as necessary in the next iteration of our RSSP in 2023.

**PARACHUTE: Based on the last three years, are there any new successes your program has achieved that you would like to share?**

GRACE MULCAHY: One major success of our Vision Zero program would be the implementation of our Automated Speed Enforcement (ASE) Pilot Program in September 2020. We currently have one camera that is rotating around various sites in the Town of Caledon. We have been collecting before, during and after speeds and collision data to evaluate the success of our program and pending the results and provincial decision on ASE, we will likely move out of the pilot phase and expand our program to become a permanent Peel safety program, as court capacity and Administrative Monetary Penalties System permits. Another success is that our Vision Zero Task Force has grown significantly since 2018, with multiple new members from our police services, local municipalities, and other road safety organizations such as Teens Learn to Drive.

**PARACHUTE: Previously, you also discussed challenges that the program has faced. Since then, how were you able to manage those challenges? Have any new challenges or roadblocks come up since we last spoke? Please feel free to focus on one or two significant challenges in your response.**

GRACE MULCAHY: Challenges our program faces are financial and resourcing constraints. As all programs do, we have an annual budget and unfortunately that can pose challenges when implementing countermeasures or investing in programs. For example, Peel has been actively using electronic signs such as radar feedback signs and vehicle activated traffic calming signs; however, they are very expensive. As such, we need to be selective and carefully consider which priority locations justify the signs and rotate the signs. However, we do budget accordingly and evaluate countermeasures, location needs and rotation schedules to ensure road safety is widespread throughout Peel.

**PARACHUTE: Based on the way your program has progressed in the three years since we last spoke, do you have any advice for jurisdictions that have recently adopted or that are contemplating Vision Zero adoption?**

GRACE MULCAHY: Our advice would be that adopting the Vision Zero framework is a very positive and crucial step toward institutionalizing road safety in any jurisdiction. The program may take time to mature. Small milestones, such as partnering with police services or providing education to the public on the dangers of distracted driving, are all big steps toward safer roadways and travel behaviours. Ultimately, every countermeasure, big or small, adds up in the path toward Vision Zero.



**PARACHUTE:** As your Vision Zero program moves forward, keeping the last three years in mind, where would you like to see the program go next? What are you hoping to accomplish moving forward over the next five years?

GRACE MULCAHY: We would like to see our program continue to grow and expand as road safety evolves with the implementation of new countermeasures and road safety programs. Our main goal would be to see Peel continue to move closer to our vision of zero fatal and injury collisions and continuously achieving our milestones, such as a 10-per-cent reduction by 2023. Additionally, we would like to see continued growth in awareness of our program and Vision Zero, as well as a cultural shift toward road safety. For example, we want Peel residents to be passionate about the consequences of speeding and distracted driving, as many already are regarding the dangers of impaired driving. In the next five years we are planning to have our updated plan, implement new road safety programs and countermeasures, as well as continue our partnership with key stakeholders.

## ***St. Albert, Alta.***

### **Background**

St. Albert, Alta. is a small city in the Edmonton Metropolitan Region (EMRB, n.d.). The city has a population of 68,232 per the 2021 census and has a population density of 1,426.4 per square km (Statistics Canada, 2022e). As part of the City of St. Albert Municipal Development Plan, the city hopes to grow to a population of 100,000 (City of St. Albert, 2016; Urban Strategies Inc., ISLELS, & City of St. Albert, 2019), which may impact road volumes in the future. Based on a 25-per-cent sample from the 2016 census, 86.1 per cent mainly commuted to work via car, truck or van, followed by 4.6 per cent who are passengers in the same vehicles and 4.6 per cent who take public transit (Statistics Canada, 2019b).

In 2017, St. Albert saw one fatal collision and 211 injury collisions recorded on public roadways, breaking the prior trend of no fatal collisions between 2014 and 2016 (City of St. Albert, n.d.-a; TranSafe, WCG, & City of St. Albert, 2018). Altogether, there had been 63 major injuries (i.e., resulting in hospitalization) and six fatalities recorded in the city between 2012 and 2016 (TranSafe et al., 2018). As of February 2022, this is the most recent collision data available publicly available.

### **St. Albert Transportation Safety Plan 2018-2025**

In 2018, St. Albert included Vision Zero in their [Transportation Safety Plan 2018-2025](#) (D. Schick, personal communication, June 25, 2019). In the Transportation Safety Plan, the city explicitly references the goal of “elimination of fatalities and major injuries within [St. Albert’s] transportation system” (TranSafe et al., 2018). To achieve this goal, St. Albert leverages SSA and the five Es of traffic safety (City of St. Albert, n.d.-b; D. Schick, personal communication, June 25, 2019; TranSafe et al., 2018), though engagement is sometimes omitted (City of St. Albert, 2018d).

In addition to the above, the plan leverages three additional frameworks. First, the plan supports the five pillars of sustainability, cited as “Social, Economic, the Built Environment, the Natural Environment, and Culture” (TranSafe et al., 2018, p. i). Secondly, the plan seeks to realize its vision through the principles of integration, network, sustainability (of funding), protection of the most vulnerable, innovative, respect, and evidence-based, a.k.a. “INSPIRE” (TranSafe et al., 2018). Finally, the activities of the plan are organized by a framework of focus areas, which include intersections, vulnerable road users (here defined as “including pedestrians, cyclists,

motorcyclists, and the visually, hearing-, or mobility-impaired” (TranSafe et al., 2018, p. iv), vehicle speeds, distraction, young drivers (ages 16 to 25) and safer vehicles (via technology) (TranSafe et al., 2018). The target of the plan is to ensure “a year-to-year reduction in fatalities and injuries”, with a view to eventually reaching zero fatalities and injuries (TranSafe et al., 2018, p. iii).

St. Albert’s Transportation Safety Plan is directly supported by a [Transportation Safety Implementation Plan](#) that describes the activities specific to each road safety strategy, the partners involved in each and places the activities into a timeline (City of St. Albert, n.d.- b). Updated Network Screening results and budgets may cause the implementation plan to be revisited (City of St. Albert, n.d.-b).

The Transportation Safety Plan is also supported by a system of other transportation-network-related plans that all reinforce the idea of road safety as a priority (D. Schick, personal communication, June 25, 2019). For example, St. Albert’s Complete Streets Guideline and Implementation Strategy 2018 proposes to improve safety by designing streets for all types of road users and for the intended posted speed limit (City of St. Albert, 2018b). Another example is St. Albert’s Intelligent Transportation Systems Strategic Plan 2018, which emphasizes the support of the TSP’s goal of zero fatalities or serious injuries “as a priority” through innovative growth and improvement of the transportation network and will help facilitate data gathering for network screening (ASA & City of St. Albert, 2018; D. Schick, personal communication, June 25, 2019). Since implementing Vision Zero, the program remarks that they have become more evidence-based, are using more sophisticated network evaluations and looking at the performance of the program in a more holistic manner (D. Schick, personal communication, July 2, 2019).

## Key features of the plan

**Data collection and analysis:** St. Albert’s data are generated by the RCMP’s reports of public and private roadway collisions, including fatal and injury collisions, which are provided through E-Collisions to the city and tabulated in St. Albert’s own data file (City of St. Albert, n.d.-a). St. Albert’s reporting captures details such as the location of the collision (e.g., intersection vs. midblock), collision time of day and year, cause and at-fault driver’s demographic information (City of St. Albert, n.d.-a). More work is being done to classify major and minor injuries in the data (D. Schick, personal communication, June 25, 2019). Apart from RCMP data, St. Albert also

collects and uses reports of concern from road users across the city (D. Schick, personal communication, June 25, 2019).

**Education:** St. Albert's website includes educational resources for road users with respect to speed limits, driving and sharing the road with commercial vehicles, riding and sharing the road with motorcyclists and pedestrian safety (City of St. Albert, 2018a; City of St. Albert, 2018c; City of St. Albert, 2019a; City of St. Albert, 2019c). Education also encompasses activities in the community; an example is the Speed Awareness Program, which uses a radar-equipped trailer to capture and display road user speeds in areas such as playgrounds and construction zones (City of St. Albert, 2019c). As part of the Transportation Safety Plan, the city intends to look at public education around distracted driving, impaired driving, free-flow right-turn lanes, sharing the road with cyclists and other relevant topics for all types of road users (TranSafe et al., 2018).

**Enforcement:** St. Albert employs photo enforcement and red-light cameras, and both the criteria for installing photo enforcement sites and their locations are made transparent to the public (City of St. Albert, 2018d; City of St. Albert, 2019b). As part of the Transportation Safety Plan, enforcement measures will be used to address issues such as distracted driving and red-light violations (City of St. Albert, n.d.-b; TranSafe et al., 2018). There will also be reviews of policies and bylaws, e.g., around school zones, parking near crosswalks and speed limits for neighbourhood roadways (TranSafe et al., 2018).

**Engagement:** To create an appropriate and acceptable Transportation Safety Plan, the City of St. Albert first engaged both internal and external stakeholders (TranSafe et al., 2018). In the future, further engagement of the public will take place on issues such as neighbourhood traffic calming (TranSafe et al., 2018). Other methods of ongoing engagement include promotion of safe driving phone applications (TranSafe et al., 2018).

**Engineering:** Examples of engineering interventions proposed by the city's Transportation Safety Plan include gateway treatments for transitions to slower-speed areas, appropriate signage for grade crossings of the rail line, separated bicycle lanes, installation of pedestrian countdown signals and accessible pedestrian signals at priority intersections, among others (TranSafe et al., 2018). Roadway design standards will also be revisited, taking the city's Complete Streets Guidelines into account (TranSafe et al., 2018).

**Evaluation:** Information from network screening in St. Albert can be used to facilitate road safety evaluations, e.g., related to contributing factors to collisions, or to gaps in active transportation routes (TranSafe et al., 2018). Other proposed evaluation activities include creation of a safety model made up of linked collision data, mapping data, and hospital or ambulance data (TranSafe et al., 2018). Finally, evaluations may be conducted to better understand the efficacy of specific activities or pilot projects, such as St. Albert’s neighbourhood traffic calming program, curb extensions and speed display signs (TranSafe et al., 2018).

### **Key stakeholders**

Key partners include St. Albert’s Engineering Services, RCMP Traffic Services and Municipal Enforcement Services (City of St. Albert, 2018d). When developing its Transportation Safety Plan, St. Albert looked to Alberta’s Traffic Safety Plan 2015, as well as best practices from 11 Canadian municipalities and some international municipalities (TranSafe et al., 2018). St. Albert also aligns its knowledge campaigns with the Province of Alberta’s monthly calendar (TranSafe et al., 2018). St. Albert is also a member of CRISP (CRISP, n.d.).

## Saskatoon, Sask.

### Background

The City of Saskatoon had a recorded population of 266,141 in the 2021 census, up 7.7 per cent from 2016, and a population density of 1,174.7 per square km (Statistics Canada, 2022m). Of a 25-per-cent census sample, 80.4 per cent mainly commuted to work by driving a car, truck or van, followed by 6.2 per cent who were passengers in the same vehicles (Statistics Canada, 2019k). As Saskatoon's population continues to grow at a projected rate of 2.5 per cent each year, land use, optimizing transit and fostering active transportation will be two key issues for the city (Urban Systems Ltd. & City of Saskatoon, 2016).

In 2017, eight fatal and 727 personal injury collisions were measured by the Saskatoon Police Service (Saskatoon Police Service, n.d.). The city has reported that 69 fatalities took place and 12,666 people were injured on Saskatoon roads between 2007 and 2016 (City of Saskatoon, 2018a; City of Saskatoon, 2018b). In a 2016 report on unintentional injuries in Saskatoon, the Saskatchewan Health Authority (then the Saskatoon Health Region) found that rural residents of the Saskatoon Health Region had consistently higher motor vehicle injury hospitalization rates per 100,000, adjusted for age and sex, than individuals who lived in Saskatoon (City of Saskatoon, 2018c; Saskatoon Health Region, 2016).

### Traffic Safety Action Plan

The city's current [Traffic Safety Action Plan](#), which is organized around a set of seven emphasis areas and the strategic approaches of education, engineering, enforcement and legislation, referenced the need for a Vision Zero approach as early as 2013 (City of Saskatoon, n.d.; City of Saskatoon et al., 2013). At the time, this was defined as zero fatal or injury collisions over the long term (City of Saskatoon et al., 2013). In 2016, the Saskatchewan Health Authority's report also recommended that the City adopt a Vision Zero approach (Saskatoon Health Region, 2016).

In September 2018, Saskatoon's Standing Policy Committee on Transportation agreed to adopt Vision Zero by "committing Saskatoon to become a community with zero transportation-related deaths and severe injuries" (City of Saskatoon, 2018f). A draft project charter was tabled which endorsed an expanded list of six Es of traffic safety: engineering, enforcement, education, engagement, equity and the environment; as well as a seventh principle of "leadership" (City of Saskatoon, 2018e). It is anticipated that

the eventual strategy will connect to other city programs and policies such as the Complete Streets Policy and Active Transportation Plan (City of Saskatoon, 2018g). It is unclear at this time whether any progress has been made past this initial commitment. The committee requested to see a report in 2019 discussing the strategy and resourcing required (City of Saskatoon, 2018f). Collection of collision data was also anticipated to start in early 2019 (City of Saskatoon, 2018e).

### **Key stakeholders**

Stakeholders that have supported Vision Zero strategic planning or are potential future collaborators include the Saskatchewan Health Authority, Saskatoon Police Service, Saskatoon Public Schools, Medavie Health Services West, Saskatoon and District Safety Council, the Saskatoon Board of Education Driver Education, Greater Saskatoon Catholic Schools, Saskatoon Fire Department and Saskatchewan Government Insurance (SGI) (City of Saskatoon, 2018a). The core Vision Zero Steering Committee will be limited to representatives from the Saskatoon City Council, Saskatchewan Health Authority, Saskatoon Police Service, Saskatoon Public Schools, Greater Saskatoon Catholic Schools, and the City's Transportation and Utilities Department; and may have initiative-specific subcommittees (City of Saskatoon, 2018a; City of Saskatoon, 2018e). In developing its Vision Zero proposal, Saskatoon also looked to select Canadian jurisdictions that have adopted Vision Zero and the specific countermeasures they deployed as part of their programming (City of Saskatoon, 2018d).

Parachute will continue to monitor developments from Saskatoon as more information becomes available about their Vision Zero approach.

## Surrey, B.C.

### Background

With a population of more than 560,000 people, Surrey, B.C. is one of the fastest-growing cities in Canada and is also the largest geographically in the Metro Vancouver area (City of Surrey, 2019). Based on a 25-per-cent census sample, 74 per cent mainly commuted to work by driving a car, truck or van, followed by 14.9 per cent who travelled via public transit (Statistics Canada, 2019a).

Each year, 20 people are killed and 12,000 injured on Surrey's roads (City of Surrey, 2021). Distracted driving is the leading cause of killed and seriously injured (KSI) collisions (33 per cent), followed by speeding (18 per cent) and impaired driving (16 per cent) (City of Surrey, 2019). Between 2019 and 2020, traffic volumes and total number of collisions decreased, including those involving vulnerable road users. While vulnerable road users represent only five per cent of commuter trips in Surrey, 50 per cent of traffic deaths involve vulnerable road users (City of Surrey, 2021).

### Vision Zero Surrey Safe Mobility Plan (2019-2023)

In February 2019, the city officially launched the [Vision Zero Surrey Safe Mobility Plan \(2019-2023\)](#) and held British Columbia's first Vision Zero summit that brought together international experts to share their experiences (City of Surrey, 2019). The city's vision is to have "zero people killed and seriously injured on its roads and human life is valued above all else in the transportation network" (City of Surrey, 2019). This plan adopts the SSA based on four pillars: Safe Roads, Safe Road Users, Safe Speeds and Safe Vehicles. The plan also includes six area of focus: pedestrians, cyclists, motorcyclists, intersections, high-risk driving, and equity (City of Surrey, 2019).

### Key features of the plan

**Data collection and analysis:** Surrey uses various types of data to prioritize high-risk locations of harm, victims of harm and perpetrators of harm (City of Surrey, 2021). Surrey regularly reviews its data to determine high-collision areas that require evidence-based, tailored, results-driven, focused and cost-effective engineering, education and enforcement programs. They use tools such as heat mapping, traffic cameras, and machine learning to help prioritize high-risk locations. Currently collision data is received from ICBC and police (Traffic Accident System), which includes KSI data. The city is working in partnership with Fraser Health and the BC



Centre for Disease Control to link health-system injury data with the existing collision data to better inform decision making (City of Surrey, 2021).

**Education:** Humanizing the collision data and connecting with the people of Surrey are essential strategies for changing road user behaviour such as speeding and aggressive driving, and increasing compliance with traffic laws (City of Surrey, 2021). In 2022, the city invested in 13 educational campaigns and handed out more than 8,300 pedestrian reflectors. Through the city's Facebook and Twitter channels, eight campaigns reached 138,571 people and received 5,872 likes, shares, and comments (City of Surrey, 2021).

**Enforcement:** This plan includes both automated and police enforcement to help increase compliance with traffic laws. In 2020, the police issued 2,050 distracted driving violations. In that same year, the transit police targeted mobile enforcement team (TMET) conducted nine traffic enforcement developments and 48 violation tickets (City of Surrey, 2021).

**Engagement:** Surrey values that road safety is a shared responsibility and has reached out to partners and stakeholders to explore opportunities to work together (City of Surrey, 2021). In 2020, the city engaged with and responded to more than 4,000 resident concerns related to sidewalks, speeding, traffic signal and other traffic-related issues. The city also engaged the community by hosting 15 Vision Zero presentations (City of Surrey, 2021).

**Engineering:** To decrease speeding, the Safe Speeds Actions for Change program added automated speed enforcement, speed humps and speed radar boards (City of Surrey, 2021). In 2020, the City of Surrey installed 30 new crosswalks, 13 traffic signs, 15 speed humps, 18 left turn signals, 24 flashing lights and 15 leading pedestrian intervals. In 2021, Surrey's Slow Streets: Residential Speed Limit Reduction Pilot was launched, to examine the impact of reducing speed limits in neighbourhood zones from the default speed limit of 50km/h to 30km/h and 40km/h, respectively (City of Surrey, 2021).

**Evaluation:** To evaluate the success of the program, the plan clearly outlines key performance measures that include baseline data and interim targets (City of Surrey, 2021). These key performance measures include rate of killed and seriously injured, rate of pedestrian collisions, rate of cyclist collisions, rate of motorcyclist collisions and rate of intersection killed and seriously injured per 100,000 population. The rate

of people being killed or seriously injured (KSI) in collisions has decreased by 22 per cent over the last three years (City of Surrey, 2021).

**Equity:** This plan emphasizes the importance of using an equity lens when analyzing data and evidence to make decisions for each of the areas of focus listed above. The data highlights that seniors, youth, Indigenous peoples and those in lower income communities suffer disproportionately on the roads of Surrey (City of Surrey, 2021).

## Key stakeholders

Key stakeholders involved in the road safety plan include internal staff from across the City of Surrey; not-for-profit organizations, interest and community groups; Business Improvement Associations (BIAs) representing different neighbourhoods; and organizational-level stakeholders such as RCMP, Surrey Fire Services, ICBC, Surrey Schools, Fraser Health Authority, Coroners Service of BC, Road Safety BC, Provincial Health Services Authority and BC Injury Research and Prevention Unit. Surrey will continue to work closely with its partners and stakeholders to implement this plan.

## What the city has to say

*Interview with Shabnem Afzal, Road Safety Manager, Vision Zero Leader, The City of Surrey*

**PARACHUTE:** How long has your Vision Zero strategy been in place and what are its goals?

**SHABNEM AFZAL:** We launched the Vision Zero Surrey Safe Mobility Plan in February 2019. It was approved by our City Council in January 2019 and then we hosted a Vision Zero Summit, the first of its kind in B.C., at the City of Surrey. We invited transportation practitioners from all over B.C. with the specific intention to promote Vision Zero in the province. It is a five-year plan with particular focus areas and key performance measures to track our progress over the years. Our ultimate target is zero, but we have set interim targets that we have already met. We have made a huge impact on vulnerable road user collisions: They have been going down steadily since the time we started implementation.

**PARACHUTE:** What major activities are you undertaking to meet these goals and are any of these activities geared toward more vulnerable road users?

SHABNEM AFZAL: Vulnerable road users are one of the key focus areas in our plan. We analyzed our health data, which tells us more about the victims of harm who are cyclists, motorcyclists and pedestrians. We noted an over-representation of seniors and youth in traffic related injuries and a major over-representation in Surrey's Indigenous and First Nations communities.

We use collision data and best practices to target our countermeasures to where they will have the most impact. We've implemented a number of interventions such as crosswalks, speed bumps and humps, sidewalks, leading pedestrian interval, rapid flashing beacons (RFB), LED Street Lighting and fully protected left turns. We know from that data that most of our pedestrian collisions do happen in crosswalks, so we use that information to inform the work we are doing.

We are also doing a residential speed limit reduction pilot focused on vulnerable road users to test the impact of reducing speed limits to 30km/h and 40km/h respectively and increasing public perceptions of safety. We are testing control areas, 40 km/h and 30 km/h areas, to see which will have the biggest impact. We will have results of this pilot by the end of 2022. We intend to review speed limits and reduce speeds on arterial/collector roads in order to have a more robust speed reduction strategy for the city: this pilot was our start. To make it culturally palatable for a largely car centric environment, we started with residential communities. We also conduct road safety audits in high-risk corridors with a focus on vulnerable road users and equity. We have recently completed a Cycling Safety review of the city and have a Pedestrian Safety review planned this year.

Another element of our Vision Zero work focuses on education and engagement initiatives which we conduct in collaboration with our enforcement partners and the Insurance Corporation of BC. We follow a program of annual campaigns which address road user behaviours issues such as distracted driving; impaired driving; speeding etc. We also focus on pedestrian safety especially during the winter months when such collisions are more frequent.

**PARACHUTE: Who are your key stakeholders and how do they work together to implement your Vision Zero strategy?**

SHABNEM AFZAL: The City of Surrey has a Vision Zero Action Team that is a multi-stakeholder group made up of Insurance Corporation British Columbia (ICBC), RCMP, police, Surrey Schools District, Fraser Health District (injury prevention department),

the Fire Department, Community Safety, Planning, By Laws, Parks, and many other departments from across the city, as well as non-profit agencies. The Vision Zero Action Team is led by the city, and they meet once a month with all these stakeholders to discuss safety projects and share information on best practices as well as collision data trends.

Lastly, we have collaborated with a number of academic organizations including Simon Fraser University, Kwantlen University and the University of British Columbia to work on various student projects that help to enhance road safety.

**PARACHUTE: Are concrete data available for the impact of your program (i.e., differences in the number of traffic-related injuries)? How do you measure the success of your strategy?**

SHABNEM AFZAL: The ICBC and Police collision data are shared with us annually under a data-sharing agreement. The data inform us where the collisions are happening and, with further analysis, we are able to create collision profiles to assist in the allocation of remedial safety measures. The focus of our work is on fatal and injury collisions as opposed to simply property damage only. We create GIS maps of that data to identify various geographical hotspots, known as “locations of harm”. We have 24-hour access to a data dashboard that uses fire data and the city has a state-of-the-art traffic management centre where staff monitor the camera footage of more than 500 signalized intersections. If a collision event is detected, it is recorded and stored so that the analysis can provide valuable insights to supplement the collision data base.

Road safety data are so critical, and we always get data that involve vehicle collisions because they are collected by the police and insurance corporation. We have access to that data through partnership with both of those agencies and they provide regular annual data sets, but we don't always get detailed data on cyclist, pedestrian or motorcyclist collisions. Although these vulnerable road users only make up five per cent of our trips within the City of Surrey, they notably make up 50 per cent of fatalities. We have just started completing a Cycling Safety Review to gain more focused information on these collisions. The Cycling Safety Review has identified the top 20 locations where cyclist collisions and injuries are most frequent. We will use this detailed analysis to prioritize and inform the types of interventions we put into place for cyclist safety.

When we started Vision Zero, we identified key performance indicators to measure our key focus areas. When we began our journey, there was a huge lag in the collision data as we were receiving data every two years rather than annually. One good thing is that we have one insurance company in the whole of B.C. that provides basic insurance. We advocated for and spoke to the CEO of ICBC to see if we can get that data sooner to help prevent collisions. They responded positively and this further strengthened our partnership and now we get data sooner but there's still a six-month lag as the data are cleaned and collated from claim files.

We also have access to a police data set called the Traffic Accident System, which only includes collisions attended by police. By their nature these tend to be the most serious collision types where a police response is precipitated. We still struggle with identifying the severity of specific collisions, which is why we are working with the Province of B.C.'s Provincial Health Services Agency to get a refined understanding of the geographic locations where fatal and serious injury are occurring using health data. This work was put on hold due to COVID-19, but we are now revisiting the initiative for linked data sets. It's important to note that the data we deal with are anonymized and do not contain any personal identifiers.

**PARACHUTE: Are there unique contextual factors that you needed to take into account for planning purposes and, if so, can you please describe what these were?**

SHABNEM AFZAL: This city is growing at a rapid pace and is very diverse: we have 1,000 people moving to our city every month. We need to look at the social demographic factors to inform our programs to ensure we are meeting the needs of our diverse community. We work with newcomers' organizations to educate them on road safety and with community groups to create dialogue and research the challenges and opportunities. Also, we need to focus on the complex trends that are leading to collisions so we can find ways to address them in a proactive and targeted way. We have a large city, with both urban and rural roads, and six centres, which provide economic opportunities. A safe and efficient transportation network is critical in supporting the rapid growth we are experiencing.

We also need to be mindful of jurisdictional differences. We have different types of abilities to impact the physical road environment as well as policies and regulations. In B.C., for example, we do not have the ability as a municipality to install automated speed enforcement camera systems (these are determined and run under the province's program). However, the evidence provides strong support for the effectiveness of such

measures to save lives. We continue to work with our stakeholders to advance road safety.

**PARACHUTE: Since you initiated your program, what has changed in terms of project scope, approach, and buy-in from stakeholders?**

SHABNEM AFZAL: The program scope is the same, but we've done a lot more with proactive and targeted engagement and education to tailor specific road safety messaging to different types of road users. The public is very supportive of improving road safety. Surveys consistently indicate road safety as a top priority for the community. People are aware that collisions are preventable. Before, safety enhancements could be seen as an add-on and come into projects at a late stage when the road designs are almost complete but now we get invited to participate in the early stages of the design work. We are currently working with city planners to work up stream in planning for safety. Vision Zero has been embraced by our health partners and we now have provincial health services funding unique Vision Zero initiatives.

Vision Zero has opened the dialogue around equity and diversity. We are changing our policy around allocation of city infrastructure such as crosswalks and speed calming, which is currently triggered by community requests. Usually, what we see is that certain engaged individuals request infrastructure as they are well versed in the city's process and opportunity. We conducted an analysis that mapped collision data and overlaid it with socio-demographic factors. We found a correlation between the number of actual collisions, which are lower in locations where most of our community requests for service originate. We receive fewer requests from areas where we have a high number of injury and fatal collisions. We are working to make the process more equitable to address the most serious injury locations. We are also working with Indigenous communities and an Indigenous lead consultancy to explore their experiences related to road safety and identify what factors contribute to their over-representation in the health collision data. The aim is to not only gain an understanding of these factors but also to co-create solutions that are culturally sensitive and lead to enhanced safety for our Indigenous community.

**PARACHUTE: Are there any new successes your program has achieved that you would like to share?**

SHABNEM AFZAL: I am really proud of the Slow Streets Pilot as we know that vehicle speeds are a major factor that contribute to collision frequency and severity. This pilot is

the first step in our speed management program. We are also in the process of revising our Design Construction Manual, which guides all the road designs across the city. It is going to be a legacy and it is going to fundamentally change how we build our future transportation network with a safety focus. Safety leaders and advocates can come and go, but this guide will remain, and safety will be a mandatory requirement for new road construction. I think those are the changes that have a massive, sustained impact, long term. Another success is the sustained partnerships across the city; we have never worked in such a highly collaborative manner before. The Cycling Safety Review is a big win for us and we are now venturing into a pedestrian safety review, the recommendations from which will ensure we are being data driven in our work to eliminate injury and death from our roads from the perspective of not just drivers but all road users. We have adopted a Safe Systems Approach throughout this work as we know that road safety is a shared responsibility and all the elements have to come together for safe road users and safe roads to be a reality.

**PARACHUTE: Have you experienced any challenges or roadblocks? Please feel free to focus on one or two significant challenges in your response.**

SHABNEM AFZAL: The biggest challenges I have faced would be in creating a cultural shift toward prioritizing safety above all else in the transportation network, which traditionally focuses on moving goods and vehicles efficiently. Changing the mindset to moving people safely takes time and getting buy-in among professionals requires strong leadership, data and evidence. Making the case around why we should invest extra money to make safety enhancements to intersection design remains our biggest challenge. We need a cultural change for people to start thinking in terms of a safe systems, a holistic and collaborative approach. We need a champion in the political space to help drive this culture change.

**PARACHUTE: Do you have any advice for jurisdictions that have recently adopted or that are contemplating Vision Zero adoption?**

SHABNEM AFZAL: My key advice would be to use the data to analyze the key areas to focus on first and use the examples of best practice in terms of how you address the safety issues as this will ensure your investments are having the largest impacts on improving safety. Also ensure you have a budget and staff dedicated to Vision Zero and road safety work. Safety is not an add-on. You must have dedicated staff to implement the plan successfully. Also advocate for leadership at the executive and government levels to help you get to your safety goals. Lastly, do not do it alone. Go into Vision Zero

with partners. It must be a joint collaboration among many different stakeholders across various sectors.

**PARACHUTE: As your Vision Zero program moves forward, where would you like to see the program go next? What are you hoping to accomplish moving forward over the next five years?**

SHABNEM AFZAL: This plan ends in 2023. Before we go forward, we will evaluate the programs to see what worked and the lessons learned along the way to see how we can do it better for the next five years. Zero is still the ultimate goal but we will refresh our interim targets and identify actions, stakeholders and partnerships that will help us achieve them. We also need look at who we are serving, how that has evolved and what challenges are creating barriers to safety. We need to demonstrate how the data-driven and evidence-led approach is working and has saved not only lives but also dollars to show to key stakeholders our progress. Lastly, we want to look at embedding Vision Zero into all our process upstream so that we are more proactive at making road safety a priority in community planning decisions. Vision Zero must be woven into the fabric of everything we do.

In a macro sense we will continue to advocate for support and resources from the provincial and federal level. Europe and the U.S have invested proactively in Vision Zero and sadly we have not seen the same momentum in Canada. We need federal leadership and attention to this critical safety issue. Two thousand lives lost each year in Canada to traffic collisions is completely unacceptable and totally preventable.



## Toronto, Ont.

### Background

The City of Toronto had a total population of 2,794,356 per the 2021 census, and a population density of 4,427.8 per square km (Statistics Canada, 2022j). Based on a 25 per cent census sample, 46 per cent mainly commuted to work by driving a car, truck or van, followed by 37 per cent who took public transit; walking also occupied a high percentage at 8.6 per cent, making Toronto's roads truly shared ecosystems for different road user types (Statistics Canada, 2019h). It is estimated that 5.1 million trips are made by residents in a 24-hour period (Ashby, 2018).

Within its massive road network that comprises 5,600 km of roads, 900 km of cycling networks, and 26,300 intersections, Toronto regularly experiences road injuries and fatalities (City of Toronto, n.d.). Annual counts of traffic fatalities had decreased from 2019 to 2021, from 64 to 60 (City of Toronto, 2022a). As of 2021, the greatest proportions of road fatalities involve pedestrians at 43 per cent, followed by car users at 34 per cent (City of Toronto, 2022b). From 2016, when the Vision Zero strategy was implemented, to 2021, motorist fatalities have decreased non-linearly from 27 to 20, and pedestrian fatalities have decreased nonlinearly from 44 to 27 (City of Toronto 2022a). Cyclist fatalities were the same with one in 2016 and one in 2021 with fluctuations in between (City of Toronto 2022a). Motorcyclist fatalities however have increased non-linearly from six in 2016 to 12 in 2021 (City of Toronto 2022a). In 2022, road fatalities continue to be an issue, with three pedestrian deaths and one motorist death recorded by February (City of Toronto, 2022a).

### Toronto Road Safety Plan (TRSP) 2017-2021

Toronto's commitment to Vision Zero was announced in 2016 and the city's approach was set out in its [Toronto Road Safety Plan \(TRSP\) 2017-2021](#) (City of Toronto, n.d.; City of Toronto, 2017). The TRSP recognizes the significance of killed or seriously injured (KSI) collisions and focuses on these collisions as the basis of identifying priorities and measuring progress (City of Toronto, n.d.). It uses four headings to organize measures: engineering, enforcement, technology and education (City of Toronto, n.d.). In addition, the TRSP contains six focus areas: pedestrians, school children, older adults, cyclists, aggressive and distracted driving, and motorcyclists (City of Toronto, n.d.; City of Toronto, 2018).

In March 2019, Toronto Mayor John Tory announced his intention to roll out Vision Zero 2.0, based on data gathered on pedestrian deaths in 2018, as well as other sources such as demographic and road environment data, and public opinion (City of Toronto, Toronto Public Health, Toronto Police, TCDSB, TDSB & TTC, 2019; Pelley & Howells, 2019). More details of the new strategy were brought forward in June 2019 and the plan was adopted by city council in July (City of Toronto, 2019a; City of Toronto, 2019b). Vision Zero 2.0 reaffirms the city's commitment to a target of zero and the Safe System Approach (SSA) and uses the five Es of traffic safety to define countermeasures (City of Toronto, 2019b). Its primary focuses are a speed management strategy, road design improvements, proactively addressing high-risk mid-block crossings, proactively addressing turning collisions at signalized intersections, and an education and engagement plan (City of Toronto, 2019b). Within each area of focus, there may be specific tools and actions such as Automated Speed Enforcement (ASE), public education, enhanced enforcement and lower speed limits on arterials (City of Toronto, 2019b; City of Toronto et al., 2019; Pelley & Howells, 2019). Other countermeasures that do not fall into the above focus areas are also being considered as part of 2.0, such as additional red-light cameras (City of Toronto, 2019b; Pelley & Howells, 2019).

As of 2022, the City of Toronto has implemented multiple initiatives to improve the safety of its streets and decrease the number of traffic related fatalities and injuries (City of Toronto 2022c). These initiatives include:

- Engineering improvements
- Watch Your Speed Program (WYSP)
- Red light cameras
- Traffic control
- Community safety zones
- Cycling corridor enhancements
- Automated speed enforcement
- School crossing guard program
- Speed limit reduction
- Left turn calming pilot
- Active & safe routes to school pilot

- Flexible in-road traffic calming sign pilot

More information about these programs can be found at the following link: <https://www.toronto.ca/services-payments/streets-parking-transportation/road-safety/vision-zero/safety-initiatives/>

## Key features of the plan

**Data collection and analysis:** Data are provided by the Toronto Police and data analysis was key to identifying issues and priority locations featured in the TRSP (City of Toronto, n.d.). For example, geospatial “heat mapping” was carried out to better understand how collisions were dispersed across the city, all together and by focus area population, and to try to identify the causes of any “heat spots” (Browne, 2017). In May 2018, Toronto also initiated an eight-week challenge in collaboration with Ryerson University, allowing those interested in road safety issues to propose data-driven solutions to help determine where transportation safety measures should be focused (Draaisma, 2018; Pelley, 2018).

Newly added to the City of Toronto website is the Toronto’s Vision Zero Map, an interactive tool that displays information on historical collisions (fatalities and seriously injured) and safety measures that have been implemented under the City of Toronto’s Vision Zero program. The map was built to provide a transparent view into the historical locations of collisions in the city side by side with the suite of safety measures that are being deployed through the Vision Zero program (City of Toronto, 2022d).

The map features safety measure data including:

- Transportation safety and local improvements
- Local geometric improvements
- New sidewalk installations
- 2019 council approved speed limit reductions
- Community safety zones
- Automated speed enforcement cameras

The interactive data map can be viewed at: <https://www.toronto.ca/services-payments/streets-parking-transportation/road-safety/vision-zero/safety-measures-and-mapping/>

**Education:** Education campaigns planned for Toronto address issues such as pedestrian jaywalking, helmet use for cyclists, legal uses of pedestrian crossings, and illegal street racing (City of Toronto, n.d.). Safety campaigns will be reinforced through various channels including social media, print media and the Vision Zero website, and may even take the form of exhibitions (City of Toronto, n.d.; Rieti, 2018). Educational resources targeted to specific age groups are available, e.g., colouring books to promote road safety awareness among school children, or seminars for older adults (City of Toronto, n.d.).

**Enforcement:** Speed limits in parts of the city are decreasing under the plan, from 50 km/h to 40 km/h and from 40 km/h to 30 km/h, and further speed reductions are being considered on arterial roads (City of Toronto, n.d.; Moore, 2019). Red-light cameras have also been deployed in some parts of the city (City of Toronto, n.d.). Police will apply enhanced enforcement in a manner that supports the Vision Zero focus areas, e.g., increasing enforcement in areas used by older adults, or for risky behaviours such as dooring and aggressive motorcycle riding (City of Toronto, n.d.). In addition, Toronto will attempt to work with the Province of Ontario to pilot ASE in the city's school zones and community safety zones, pending approval (City of Toronto, n.d.; Pelley & Howells, 2019).

**Engagement:** Consultation with the public and with advocacy groups was a key input into the TRSP (City of Toronto, n.d.). Engagement also plays a role in program implementation; an example of this is the "Youth in Control" leadership program from Toronto Public Health which is predicated on peer-based education (City of Toronto, n.d.).

**Engineering:** Varied road design features will support road safety for all: for example, pedestrians will benefit from features such as pedestrian countdown signals, pavement markings and amber beacons; while cyclists will be served by features such as separated bicycle lanes and advanced greens at intersections (City of Toronto, n.d.). For motorcyclists, there are efforts to improve how road safety audits are conducted so that their safety issues are also taken into account (City of Toronto, n.d.). Design changes may be informed by the local population, e.g., longer crossing times near facilities for older adults (City of Toronto, n.d.).

**Evaluation:** The TRSP proposes to evaluate several of its activities and programs, including its school zones, with a view to making improvements or reducing risk (City of Toronto, n.d.). Evaluation strategies for the Vision Zero school safety zones

were presented in 2018, and it is anticipated that this work will serve as a model for developing future Vision Zero evaluations that meet the needs of both policy makers and researchers (CARSP, 2018; Rothman, 2018).

### **Key stakeholders**

Key stakeholders in developing the TRSP included Toronto Public Health; Sunnybrook Health Sciences Centre; Toronto Police Service; the Toronto Centre for Active Transportation (TCAT); the Disability, Access and Inclusion Advisory Committee; CARP; Cycle Toronto; Walk Toronto; the Rider Training Institute; CAA; Toronto District School Board; and Toronto Catholic District School Board (Browne, 2017; City of Toronto, n.d.). The Vision Zero Road Safety Committee, which meets quarterly to discuss planning and implementation issues associated with the plan, includes representation from each of these partner agencies (City of Toronto, n.d.). Other partners may be involved in specific improvements, for example, Toronto Hydro's involvement reviewing and enhancing street lighting at areas at increased risk of pedestrian collisions, or the Toronto Transit Commission's involvement in the "Stay focused stay safe" education campaign (City of Toronto, n.d.).

## Trois-Rivières, Que.

### Background

The City of Trois-Rivières has a population of 139,163 per the 2021 census and has a population density of 482.1 per square km (Statistics Canada, 2022k). Based on a 25-per-cent census sample, 87.6 per cent mostly commuted to work by driving a car, truck or van, followed by 4.6 per cent who walked (Statistics Canada, 2019i).

The city has formally adopted a Vision Zero goal and is now in the implementation stage (M. Mercure & C. Ferron, personal communication, June 26, 2019). Vision Zero in Trois-Rivières will be organized according to 10 key measures, including safe and active schools, active transportation for seniors, speed reduction and safe winter driving (M. Mercure & C. Ferron, personal communication, June 26, 2019). Some of the measures, such as police monitoring and education, are well aligned with the five Es of traffic safety (M. Mercure & C. Ferron, personal communication, June 26, 2019).

### Key features of the plan

**Education:** The city will continue to invest in road safety education, which may take the form of outreach campaigns and targeted education for young people (M. Mercure & C. Ferron, personal communication, June 26, 2019).

**Enforcement:** The city will continue to invest in enforcement of the Road Safety Code, which may take the form of funding for police services, road monitoring operations, and targeted monitoring of school areas (M. Mercure & C. Ferron, personal communication, June 26, 2019). With respect to speed management, the city has suggested pilot projects of speed limits of 40 km/h for collector and local streets and speed limits of 30 km/h for kid-friendly parks and hospital zones in select neighbourhoods; outcomes of these pilot projects will be used to determine whether coverage will be expanded in the future (M. Mercure & C. Ferron, personal communication, June 26, 2019).

**Engagement:** Citizens were engaged in the development of the key measures for Vision Zero and will also be involved in the city's road safety commission, see below (M. Mercure & C. Ferron, personal communication, June 26, 2019). It has been suggested that a road safety option be added to the "Trois-Rivières 311" mobile app, which would allow the public to document road network issues and contribute to

the quality of city services (M. Mercure & C. Ferron, personal communication, June 26, 2019).

**Engineering:** See earlier observations regarding speed limits. Other measures that are being considered include redesigns of sidewalks and chicanes, and improved visibility around certain intersections, as well as improved snow removal, which also impacts the road environment (M. Mercure & C. Ferron, personal communication, June 26, 2019).

**Evaluation:** Evaluations will be carried out for the pilot projects listed above and the Vision Zero strategy may be further modified as pilot study outcomes are made available (M. Mercure & C. Ferron, personal communication, June 26, 2019).

### **Key stakeholders**

In respect to key partnerships, the city has set up the Commission de la mobilité durable et de la sécurité routière (translation: Committee of Sustainable Mobility and Road Safety), which will include citizens and partners from different stakeholder groups such as firefighters, public health officers and local non-profit organizations (M. Mercure & C. Ferron, personal communication, June 26, 2019).

## Vancouver, B.C.

### Background

The City of Vancouver has a population of 662,248 per the 2021 census, up 4.9 per cent since 2016, and has a population density of 5,492.6 per square km (Statistics Canada, 2022i). Based on a 25-per-cent census sample, 45.4 per cent mainly commuted to work by driving a car, truck or van, followed by 29.7 per cent who rode public transit (Statistics Canada, 2019j). The City of Vancouver includes a growing downtown area, strong demand for transit and an aging population among its transportation challenges for the next two decades (City of Vancouver, n.d.-j).

Between 2014 and 2018, the city saw annual counts of traffic and motor-vehicle-related fatalities decrease from 16 to 13, averaging 14.2 per year (City of Vancouver, 2019). Pedestrians and motor vehicle occupants make up the majority of road fatalities at 45 per cent and 42 per cent respectively (City of Vancouver, n.d.-j). Several road safety interventions, such as LED lighting and countdown timers, had shown promising reductions in pedestrian injury and fatality collisions (Brown, n.d.; City of Vancouver, n.d.-d).

### Moving Towards Zero Safety Action Plan

Vancouver's Vision Zero program is guided by the [Moving Towards Zero Safety Action Plan](#), which was introduced in May-Dec 2016 (Brown, n.d.). The program follows the five Es of traffic safety though they are not prominently featured in the action plan (Brown, n.d., City of Vancouver, n.d.-c). Vision Zero is also cited in and supported by [Vancouver's Transportation 2040 Plan](#), which sets out specific infrastructure improvements and policy suggestions to enhance road safety for different types of road users, such as pedestrians and cyclists (City of Vancouver, n.d.-j). A mixture of long-term and short-term policy directions have been identified to support Vision Zero (City of Vancouver, n.d.-j).

Though no specific target apart from zero is given, Vancouver anticipates that fatal and injury collisions can be reduced by 15-to-20 per cent through their plan (Brown, n.d.). Additional targets for those action items covered by the Transportation 2040 Plan may also be developed (City of Vancouver, n.d.-j).

Vancouver's target of zero and Moving Towards Zero Safety Action Plan are also referenced in their Walking + Cycling in Vancouver Report Card series, underlining the



link between safety and active transportation (City of Vancouver, n.d.-m; City of Vancouver, n.d.-n; City of Vancouver, n.d.-o).

## Key features of the plan

**Data collection and analysis:** To implement Vision Zero, the city examined different types of collision, fatality and injury data from sources such as the Vancouver Police Department (VPD), ICBC, and Vancouver Coastal Health (VCH) (Brown, n.d., City of Vancouver, n.d.-d). Available data describe severity of injury, types of road users involved and age of those killed or injured (City of Vancouver, n.d.-a). As part of its strategy, the city plans to look at hospital and ambulance data, which will help to describe injury location, non-motor-vehicle collisions and other significant details (City of Vancouver, n.d.-a; City of Vancouver, n.d.-n). Data are used to inform engineering and enforcement activities, and to identify priority locations for further planning and analysis (Brown, n.d.). In 2018, Vancouver also hosted the VANquish Collisions Hackathon event, which challenged Vancouver residents to come up with their own data-driven solutions for addressing both Vision Zero and active transportation that the city may further develop (City of Vancouver, n.d.-k).

**Education:** Vancouver offers education on traffic rules, signs and markings; provides notice to the public about its road safety pilots; and is enhancing driver testing content (City of Vancouver, n.d.-g; City of Vancouver, n.d.-j). It partners with VPD and ICBC to carry out education campaigns (Brown, n.d.). Road user tips are provided on both the city's and the VPD's websites (City of Vancouver, n.d.-l).

**Enforcement:** Vancouver is enforcing 30 km/h speed limits on bike routes and is advocating for municipal control over the rest of the city's speed limits (City of Vancouver, n.d.-j). It is also advocating for bylaws and laws that provide more legal protection to vulnerable road users (City of Vancouver, n.d.-j). In addition, the VPD has developed targeted enforcement programs to tackle dangerous behaviours at priority locations (City of Vancouver, n.d.-j).

**Engagement:** The Transportation 2040 Plan was developed based in part on public input gathered through town halls, workshops and other means (City of Vancouver, n.d.-j). The plan involves ongoing engagement activities between the city and its partners, including healthcare providers, non-profit organizations and the private sector (City of Vancouver, n.d.-j). A notable example of a recent engagement activity was 2018's public engagement to inform the city's outdoor lighting strategy before it

went to City Council (City of Vancouver, 2018). Vancouver collects feedback from road users, making changes that are responsive to the outcomes of engagements with them (City of Vancouver, n.d.-e). The VPD's Traffic Support Team also answers traffic-related questions from the public (City of Vancouver, n.d.-i).

**Engineering:** The Transportation 2040 Plan recommends features such as high-visibility pavement markings, curb extensions and raised sidewalks for pedestrians, as well as increased space and separated bicycle lanes for cyclists (City of Vancouver, n.d.-j). Recently piloted engineering features included accessible pedestrian signals, leading pedestrian intervals and pedestrian-activated flashing beacons (City of Vancouver, n.d.-d). In addition, in February 2021, Vancouver launched its first slow zone demonstration pilot in the Grandview-Woodland area. This zone is a specifically designated area with slower speeds than otherwise similar streets in the same jurisdiction. In this area, the speed limit will be reduced to 30 km/h as opposed to the normal 50 km/h in the area. The results of this pilot project are pending release on the City of Vancouver's website.

**Evaluation:** The city uses collision data from ICBC and the VPD, as well as hospital and ambulance injury data, to monitor the efficacy of its programming (City of Vancouver, n.d.-a). Some engineering activities are already being evaluated for their impact on road safety outcomes, including pedestrian signals, countdown timers and increased lighting (Brown, n.d.; City of Vancouver, n.d.-d). Activities for monitoring and evaluating Transportation 2040 goals will be developed, including progress reporting and surveys of road users, and there will be flexibility to speed up implementation of road safety measures that are found to be particularly effective (City of Vancouver, n.d.-j).

## Key stakeholders

Vancouver's stakeholders include multiple specialized departments of the VPD, the ICBC and the VCH (Brown, n.d.; City of Vancouver, n.d.-b; City of Vancouver, n.d.-h; City of Vancouver, n.d.-i). Specific projects may also result in other stakeholders being involved, such as the Canadian National Institute for the Blind and Access for Sight-Impaired Consumers, both of which were consulted for the city's accessible pedestrian signals program (Brown, n.d.; City of Vancouver, n.d.-d). It is anticipated that partners from government, academia and the private sector will all be engaged in developing evaluation tools associated with Transportation 2040 Plan actions (City of Vancouver,

n.d.- j). Vancouver has established a Traffic Safety Advisory Group, whose responsibility is to provide multidisciplinary advice around road safety (City of Vancouver, n.d.-e).

## What the city has to say

*Interview with Liliana Quintero, Senior Transportation Safety Engineer, City of Vancouver*

**PARACHUTE: How long has your Vision Zero strategy been in place and what are its goals?**

LILIANA QUINTERO: It started in 2011 when Vancouver developed its transportation 2040 long-term vision. As part of the plan, there were some goals set; one of them was zero traffic-related fatalities. Then in 2016 we launched a strategy to accelerate getting to zero, which included adding serious injuries to the target. Also, a budget was specifically allocated for the Vision Zero program where, before, funding was absorbed from existing programs. The focus was on active modes of transportation such as pedestrians, cyclists, and at-risk groups such as seniors, people with mobility challenges and children.

**PARACHUTE: What major activities are you undertaking to meet these goals and are any of these activities geared toward more vulnerable road users?**

LILIANA QUINTERO: Many of our activities are geared toward vulnerable road users. Recently we have been implementing many speed-reduction activities. We are piloting a Slow Zone project in a residential neighbourhood, which included changing speed signs to 30 km/h on all residential streets inside that zone at every block. A report was done to choose that neighbourhood and identify how the project would be implemented. We also looked at extending the time on speed limits in school and playground zones on residential streets to 24/7. Previously it was from 8 a.m. to 5 p.m. during school days. Right now, we're working on a report to decrease the speed limit in the school zones that are on arterials and collectors' roads. Right now, those roads are listed at 50 km/h, which is the max speed for arterial or collector, but we've heard a lot of concerns from parents and school administrators about children walking to the schools walking next to these arterials. We've also been looking at the feasibility of a blanketing 30 km/h for all residential streets in Vancouver.

Lastly, we also have done a lot of pilot programs, testing new items such as flashing beacons (RRFBs), leading pedestrian intervals (LPIs) and protected intersections to

support pedestrians and cyclists. We are learning from these pilots that flashing beacons have significantly increased driver-yielding compliance. Right now, we are working on a right-turn study to understand how different designs affect the right-turn vehicle and cyclist conflict. We continue each year with our classic programs such as the pedestrian signal program, the speed hump program, the school active travel planning program, the rail corridors program and replying to residents' complaints.

**PARACHUTE: Who are your key stakeholders and how do they work together to implement your Vision Zero strategy?**

LILIANA QUINTERO: One of our main activities is co-ordinating with our safety partners monthly. Our key partners include Vancouver Police Department and ICBC. Each month we review specific violations or fatalities that happen that need to be discussed and addressed quickly with specific interventions such as enforcement, education or engineering interventions. We also meet monthly with the Vancouver School Board on different needs that each school has, such as crosswalks and signage changes. We also partner with Vancouver Coastal Health and BC Ambulance when it comes to sharing hospital injury data and how that is collected to help inform our decisions. We also work with Translink, other emergency services such as fire department and researchers (e.g. UBC, SFU). The list is endless but those are some examples.

**PARACHUTE: Are concrete data available to show the impact of your program (i.e., differences in the number of traffic related injuries)? How do you measure the success of your strategy?**

LILIANA QUINTERO: Keeping track of our safety data is key to understand what's happening in the city. The data are used to evaluate our progress and to identify key safety hotspots. This involved data-sharing agreements with different stakeholders. We get data from Vancouver Police Department on fatalities: we get a notification every time there is a fatality within two to three days. We also get monthly data from Vancouver Coastal Health on injuries and annual collision data from our insurance corporation (ICBC), which is the larger data set. We collect various metrics such as traffic-related fatalities, which in Vancouver have been decreasing for the last 20 plus years. We also have a metric for serious injuries: When someone is admitted to the hospital and involved in a traffic-related collision, we get this data. When we look at this data, the number of serious injuries has been decreasing for bikes and been stable for pedestrians and drivers over the last seven years.

We have also been looking at pre and post data to evaluate engineering interventions. We check the location before and after and compare against locations that are similar that didn't get the treatment to see if the intervention was impactful. We are seeing more expensive interventions having a higher collision reduction compared to smaller, low-cost interventions such as a countdown timer. When we do pilots such as the leading pedestrian intervals or protected intersections, we do safety conflict analysis in partnership with UBC to understand the reduction in conflicts to help inform if we should expand to a more established program.

**PARACHUTE: Are there unique contextual factors that you needed to take into account for planning purposes and, if so, can you please describe what these were?**

LILIANA QUINTERO: Vancouver is a city that is very focused on active modes of travel. We have a goal of two-thirds of our trips made by foot, bike, or transit by 2030 as per our Climate Emergency Action Plan. To do this we have to make sustainable travel more attractive and safer. Given the high density of Vancouver, we don't have any more space to build more road capacity, so our focus is on providing that space for active travel, for walking and cycling, rather than adding new roads.

**PARACHUTE: Since you initiated your program, what has changed in terms of project scope, approach, and buy-in from stakeholders?**

LILIANA QUINTERO: We've developed a good relationship with our health partners, which has allowed us to have access to serious injury data and demographics data to better inform our decisions. Together we developed a data-sharing agreement and piloted how the data would be used and showed them the findings. This expanded now to sharing the data monthly. Another change is that a lot of our pilot programs, such as the flashing beacons, became annual projects after seeing the benefits of the pilot. Having annual programs have allowed us to advance our goals.

We have also had a chance to do more engagement and safety initiatives with the public. For example, we had the VANquish Collisions Hackathon in 2018 where we reached out to the young demographic to leverage their opinion and get their ideas on how we can get to zero. After that we have been working with one of the teams that participated to develop an app to help find safe walking routes to school. Another initiative was the "grandma on the move" safety campaign. This initiative included a traffic safety song, music video and colouring book with key safety messages on

mindful travel. Overall, we have changed the way we approach the public in different ways that are more exciting and allow for more positive feedback.

**PARACHUTE: Are there any new successes your program has achieved that you would like to share?**

LILIANA QUINTERO: In March 2021 we launched our Slow Streets pilot, which was positively received by the neighbours as well as the media. We are now advancing a second slow zone. We are also working on reviewing current speed limits on every street to work toward a blanket speed reduction across all residential streets.

**PARACHUTE: Have you experienced any challenges or roadblocks? Please feel free to focus on one or two significant challenges in your response.**

LILIANA QUINTERO: Getting things done quickly is one of our challenges, like installing an infrastructure upgrade. Sometimes it takes a long time, especially for programs like the school program where you're installing small projects. The school program involves engagement in the first year and then upgrades in the second year. When they weren't seeing the changes, it created a bit of disappointment and lack of trust from the community. To resolve this, we hired an external contractor to help expedite those projects.

Another challenge is dealing with very vocal residents. There are a lot of very well-organized resident associations that have very specific interests. But we must keep looking at the data when prioritizing upgrades to ensure we are being equitable and prioritizing the most high-risk safety collision hotspots first. For example, many groups wanted to be selected for the slow streets pilot but, to make an objective decision, we looked at the data to select the neighbourhood. We look at collisions, speeds, number of community amenities and disproportional impacted communities' data to make the decision. There are cases where emergencies are raised by residents that merit us to look into what they are asking. So, it is important to keep an emergency bucket of funds for projects like this.

Another challenge is that funds appear when you're least expecting them to appear from either external grant or even internally. It is a good idea to have a project that are shelf ready in case there is an opportunity.

**PARACHUTE: Do you have any advice for jurisdictions that have recently adopted or that are contemplating Vision Zero adoption?**

LILIANA QUINTERO: I would recommend talking to other cities that have already started Vision Zero to get some good ideas of what is working so you don't have to reinvent the wheel. For me, what was very helpful at the beginning was to talk to other cities such as Toronto, Montreal and Edmonton. Then look at the safety data to see what kind of issues are occurring in your city. See if there are other data you can access. Use the data to identify key intersection and corridors, and which groups are most impacted such as seniors, children or youth. Also get buy-in from your council members to see if you can get a budget allocated. If you cannot, try to see what is available within existing programs that you could use, which is what we were doing in the beginning.

**PARACHUTE: As your Vision Zero program moves forward, where would you like to see the program go next? What are you hoping to accomplish moving forward over the next five years?**

LILIANA QUINTERO: Over the next year, I want to learn more from our speed reduction for school zones in arterials/collectors pilot at select locations and see if we can expand to all Vancouver schools. As well I want to look into adding any supplementary measurements, such as flashing beacons and geometric modifications, for locations where speeding is still an issue after the speed reduction. Over the next year, we want to establish a blanket speed limit for all residential streets, which is something we have been trying to do for the last 10 years. It is going to take a few years to get all the signage up and educate the public regarding the change.

## 4. Cities, regions and groups where adoption of Vision Zero is being debated, or is anticipated shortly

### *County of Grande Prairie No. 1, Alta.*

#### **Background**

The County of Grande Prairie No. 1 has a population of 23,769 per the 2021 census, up 5.6 per cent since 2016, and a population density of 4.1 per square km (Statistics Canada, 2022s). According to a 25-per-cent census sample, 93.8 per cent drove while 3.2 per cent rode as a passenger to work in a car, truck or van, making the personal vehicle the prevailing mode of commuting in the county (Statistics Canada, 2019x).

Grande Prairie had voiced its endorsement of Vision Zero principles as early as 2017 (CGP1, 2017). The county attempted to adopt Vision Zero principles formally in 2017 after employees attended an Alberta Traffic Safety Conference and heard about Vision Zero initiatives (S. Gerow, personal communication, July 29, 2019).

Currently there are various road safety initiatives taking place in the County and City of Grande Prairie, such as new pedestrian crossing signs with flashing beacons, ATE, and enforcement and education programs that concentrate on flagging parking violations around school zones in September (City of Grande Prairie, n.d.-a; City of Grande Prairie, n.d.-b; CGP1, 2017). It is unclear if these will come together under a singular Vision Zero plan or be revisited. Related, the county's Transportation Master Plan sets out that the county will review its road design standards, invest in transportation infrastructure updates, and attempt to collect more detailed collision data in collaboration with the RCMP and Regional Enforcement Services (CGP1, n.d.-b).

#### **What the county has to say**

*Interview with Shawn Gerow, Sign Shop Lead, County of Grande Prairie*

**PARACHUTE:** Last time we talked, we asked you to describe, at a high level, what your Vision Zero strategy/plan looks like. Have there been any major changes to your program since then, in relation to the following:

**A.** How long has your Vision Zero strategy been in place and what are its goals?



SHAWN GEROW: The County of Grande Prairie No.1 started out with not much of a strategy when we began. Currently there are new plans being developed for such things as Neighbourhood Traffic Calming in our new Minimum Standards & Guidelines.

- As the Sign Shop Supervisor, we in this department adopted our own strategy in 2016-17 and continue to this day. Our goal is to continue to implement devices and ideas to improve the safety of all our roads, rural and urban.
- We began simply by upgrading all our signs to the highest reflectivity possible. Diamond Grade III. We have changed thousands of signs and continue to change out and add more signage for driver safety.

I have continued lobbying the Alberta Government since 2017 to improve the safety for the Vulnerable Roadside Workers: workers who occupy one location for 30 minutes or less. Our Minister of Transportation, Rajan Sawhney, announced Bill 5 on March 16, 2022. This requires both lanes of travel on a four-lane divided highway in the same direction and both lanes on a two lane undivided highway to slow to 60km/h when passing any roadside worker or emergency responder. A big win! We are still lobbying and hoping to allow the roadside workers to have the addition of a blue light along with the current amber lights.

**B. What major activities are you undertaking to meet these goals and are any of these activities geared toward more vulnerable road users?**

SHAWN GEROW: We continue to install marked crosswalks and signs that were missed during the development phase of new roads. This summer, we are adding more mid-block zebra crosswalks with RRFBs [Rectangular Rapid-Flashing Beacons]. We also began last year in implementing a few new traffic calming measures and have purchased some new driver feedback signs for the purpose of data collection and/or installation.

For changes to improve Vulnerable Roadside Workers safety, we have been lobbying the government. We have gained much support, including from the Alberta Chamber of Commerce, many companies, workers, safety groups and enforcement people.

**C. Who are your key stakeholders and how do they work together to implement your Vision Zero strategy?**

SHAWN GEROW: I work with residents, county managers and enforcement when implementing any new devices.

**D. Are concrete data available for the impact of your program (i.e., differences in the number of traffic related injuries)? How do you measure the success of your strategy?**

SHAWN GEROW: Unfortunately, that kind of up-to-date data are hard to come by here. I do know we have a very low number of traffic-related injuries. That said, when we hear of any incident on one of roads, we in the sign department investigate to see if we can aid in making any improvements to road safety, such as more signage.

With our new driver feedback signs, we will be able to collect data this year.

**E. Are there unique contextual factors that you needed to take into account for planning purposes, and if so can you please describe what these were?**

SHAWN GEROW: With regard to worker safety, we have been working toward including the many other workers, such as sign installers, line locators, road maintenance workers, any who are not in a regulated construction zone where the reduced speed signs are in place and in force.

We have also been lobbying to have a blue/amber light combination to inform motorists there is someone out of vehicle working.

**PARACHUTE: Since you initiated your program, what has changed in terms of project scope, approach, and buy-in from stakeholders?**

SHAWN GEROW: As stated previously, a bit more new focus on Neighbourhood Traffic Calming, and more concentration on pedestrian safety at crossings

**PARACHUTE: Based on the last three years, are there any new successes your program has achieved that you would like to share?**

SHAWN GEROW: The addition of more mid-block pedestrian crossings with RRFBs. The addition of some flashing red beacons on rural stop signs where the stopping has been an issue. The beginning of implementing a Neighbourhood Traffic Calming Policy and Guidelines.

With our new driver feedback signs, we will be able to collect data to see if or what devices may help to lower speed limits in residential neighbourhoods.

I am part of the Alberta Roadbuilders Highway Safety Committee and, as a group, we may be finally getting close to the addition of slow down move over laws for the Vulnerable Highway Workers as well as an additional change in the strobe light combination these workers use. Currently the University of Alberta is doing a strobe light study, which includes white, amber and blue. I feel we are getting close to finally making the roads safer to work on for these groups of people.

**PARACHUTE: Previously, you also discussed challenges that the program has faced. Since then, how were you able to manage those challenges? Have any new challenges or roadblocks come up since we last spoke? Please feel free to focus on one or two significant challenges in your response.**

SHAWN GEROW: I feel the county is moving toward and possibly being more open to discussion on a Vision Zero strategy and making some goals, with the commitment now of implementing some traffic calming devices and some warning beacons. I still have a very large workload, which makes it difficult to dedicate a lot of time to getting an actual strategy or policy in place.

**PARACHUTE: Based on the way your program has progressed in the three years since we last spoke, do you have any advice for jurisdictions that have recently adopted or that are contemplating Vision Zero adoption?**

SHAWN GEROW: It seems there are more jurisdictions implementing Vision Zero strategies and ideas. It can just start with one person and, as more get involved, it gets easier to begin the discussion of Vision Zero and its ideals.

**PARACHUTE: As your Vision Zero program moves forward, keeping the last three years in mind, where would you like to see the program go next? What are you hoping to accomplish moving forward over the next five years?**

SHAWN GEROW: I would like to see the County of Grande Prairie fully adopt a Vision Zero strategy and begin to implement new safety measures for all road users in the new developments to come.

We will continue in my department as we are in adding pedestrian crossings, signage, beacons and whatever else we can possibly do to enhance the safety of our roadways.

Things like this get noticed from our residents and they in turn speak to their councillors or officials, which in turn keeps road safety open for discussion.

With our new driver feedback signs, we will be able to collect data, in turn interpreting the results of the data, then implementing the necessary traffic calming measures to keep speed limits down and aid the vulnerable road users.

We want to obtain more driver feedback signs with data collection capabilities, as well install more driver feedback signs, as most studies show these as a proven effective device.

## ***Kamloops, B.C.***

### **Background**

The City of Kamloops has a population of 97,902 per the 2021 census and had grown 8.4 per cent since 2016; its population density is 328.6 per square km (Statistics Canada, 2022ac). Of a 25-per-cent census sample, 80 per cent mainly commuted to work by driving a car, truck or van, followed by 6.6 per cent travel as a passenger in a car, truck or van (Statistics Canada, 2019z).

An analysis of 2,159 collisions in Kamloops identified 1,166 property damage only, 892 minor injury, 90 major injury and 11 fatal collisions. Half of the major injury collisions involved pedestrians, cyclists and motorcyclists, and four of the 11 deaths were pedestrians (City of Kamloops, n.d.). Speeding is a known primary contributor to severe crashes, particular for vulnerable road users, who are over-represented in fatal and major injury crashes. Other contributing factors that lead to crashes include driver inattention, alcohol impaired / alcohol suspected and failing to yield right of way (City of Kamloops, n.d.).

### **Vision Zero: Kamloops Road Safety Strategy**

The City of Kamloops is in the process of developing a comprehensive [Vision Zero Road Safety Strategy](#) that outlines goals and measures to achieve a target of zero fatalities or serious injuries caused by collisions by 2039 (Holliday, 2022). The strategy will use a Safe System Approach to achieve Vision Zero. The city is asking for the public's help by gathering their stories and feedback on road safety, along with collision data, crash analyses and input from industry to develop the plan which will be presented to council this fall (City of Kamloops, 2022).

Parachute will continue to monitor the status of Kamloops' Vision Zero strategy.

## **Leduc, Alta.**

### **Background**

Leduc is a city in the south of the Edmonton Metropolitan Region; its population was estimated at 34,094 as of the 2021 census, having more than doubled since 1997 (City of Leduc, n.d.-a; EMRB, n.d.; Statistics Canada, 2022u). Based on a 25-per-cent sample of the 2016 census, 86.1 per cent commuted to work via car, truck or van, followed by 5.3 per cent who rode as a passenger in one of these vehicles, making the personal vehicle the predominant mode of commuting in the city (Statistics Canada, 2019t).

Though 2018 saw no fatal collisions reported in Leduc, there were still 100 injury collisions reported by the RCMP (RCMP-K, 2018). In addition, Leduc has seen counts of motor vehicle collisions causing injury increase between 2013 and 2018 by 147 per cent; a lesser increase occurred in Leduc County (Leduc RCMP Detachment, 2019; Kendall, 2018). Certain locations have been repeatedly identified as the top sites of collisions across 2017 and 2018 (RCMP-K, 2018).

Currently, Leduc's road safety programming is not part of a Vision Zero program. However, based on existing materials, Leduc's program already endorses the SSA and five Es of traffic safety (RCMP-K, 2018). The goal of their program is to reduce collisions and provide safe roads in the city and surrounding area (City of Leduc, n.d.-b).

Examples of road safety initiatives currently taking place include ATE leveraging intersection safety devices, bicycle safety clinics, child seat safety checking, traffic hot spot checks, speed management and speeding education, school zone patrols, mandatory alcohol screening (MAS), education on drunk and distracted driving for junior high and high school students, and more (City of Leduc, n.d.-b; City of Leduc, 2018; Leduc RCMP Detachment, 2019; Orr & Kunetzki, 2018).

### **Key stakeholders**

Key stakeholders in Leduc's current program include Leduc Enforcement Services and the RCMP detachment of Leduc (City of Leduc, n.d.-b; Leduc RCMP Detachment, 2019). There is also a Traffic Advisory Committee that advises the Leduc Council and City Manager on matters related to road safety, and that includes the aforementioned stakeholders (City of Leduc, 2019; Orr & Kunetzki, 2018). Leduc leverages resources such as School Resource Officers and Community Peace Officers (part of Leduc

Enforcement Services) to help deliver education and enforcement initiatives (Leduc RCMP Detachment, 2019). In addition, Leduc is a member of CRISP (CRISP, n.d.).

## North Bay, Ont.

### Background

The City of North Bay recorded a population of 52,662 in 2021, increasing 2.2 per cent since 2016 (Statistics Canada, 2022q). According to a 25-per-cent census sample, 76.3 per cent of the population mainly commuted to work by driving a car, truck or van, followed by 8.5 per cent who walked (Statistics Canada, 2019w).

In June 2016, Parachute presented on Vision Zero to North Bay communities; and in October 2016 the North Bay Vision Zero subcommittee formed, a division of the Road Safety Committee that would advise the city's Engineering Department to ensure alignment with the Vision Zero plan (Parachute, 2017). A "soft approval" to pursue Vision Zero was given in 2017, and City Council endorsed a framework for North Bay Vision Zero in September 2018 (Parachute, 2017; Bortolon, 2018; City of North Bay, 2018).

Development of a five-year action plan is underway and so the program is not considered to be in implementation at this time (P. Cliche, personal communication, July 21, 2019). Although a detailed description of North Bay's approach is not yet available, this plan is expected to address reducing traffic-related fatalities and serious injuries, using a data-driven approach, and the five Es of traffic safety will play a role (P. Cliche, personal communication, July 21, 2019). Aside from the action plan, a Road Safety Strategy will also be needed, to identify the most important traffic safety issues in North Bay (P. Cliche, personal communication, July 21, 2019).

Preliminary programming suggestions include allowing pedestrians more time to cross streets and eliminating right turns on a red light (Young, 2018). Heat maps were also being worked on as early as 2017 (Parachute, 2017).

### Key stakeholders

Key stakeholders and participants on the current Vision Zero steering committee include the City of North Bay, North Bay Parry Sound District Health Unit, District of Nipissing Paramedic Services, North Bay Collision Centre, North Bay Fire and Emergency Services, Ontario Ministry of Transportation, North Bay City Police, Ontario Provincial Police, and Connecting Community Partners in Injury Prevention Committee (CCPIP) (Parachute, 2017). Community engagement was also considered (Bortolon, 2018). Working relationships between community partners and organizations will be



strengthened as part of the Vision Zero action plan (P. Cliche, personal communication, Jul 21, 2019).

## What the city has to say

### *Communication with Pat Cliche, Chair North Bay & Area Road Safety/Vision Zero Committee*

Due to the COVID-19 pandemic, Vision Zero strategy implementation for North Bay has been put on hold as focus has shifted to disease tracking and prevention. However, prior to the COVID pandemic, we were meeting and had developed objectives for our updated Vision Zero strategy. One of our goals was to update the status of those objectives and refine and develop new ones for 2021-2024 on our workplan.

Some of the projects that were discussed and being planned were as follows:

- Traffic data – including pedestrian, bikes, motor vehicles from all agencies including the collision centre to be mapped on a district chart – highlighting risky intersections and areas of concern
- Development of a RFP to hire a consultant to create a Road Safety Plan
- Road safety program budget confirmation from the City Engineering Department and the Health Unit
- Engineering Department projects presentation with the committee before they are implemented and to share their road safety plan with engineering and council
- Vision Zero Guidance Document to be reviewed and updated as objectives highlight that enforcement and education is needed around all traffic work in the city
- Recommendation to the city on major street crossing areas for reduction of speed, and a step-up spilt between four lanes of traffic
- Participation in school bus safety programs
- And finally, next steps regarding Vision Zero strategies focus on:
  - Strong emphasis on enforcement and education
  - Stress that traffic safety is a priority

## Niagara Region, Ont.

### Background

Niagara Region has a population of 477,941 per the 2021 census and had grown 6.7 per cent since 2016; its population density is 258 per square km (Statistics Canada, 2022ab). Of a 25-per-cent census sample, 84.3 per cent mainly commuted to work by driving a car, truck or van, followed by 6.8 per cent as passengers (Statistics Canada, 2019y).

Compared to other jurisdictions in Southern Ontario, Niagara Region experiences a high collision fatality rate (Niagara Region, 2019). Collision data show that the total number of collisions on Niagara regional roads are continuously increasing (Niagara Region, 2019).

### Vision Zero Road Safety Program

On Nov. 5, 2019, the Niagara Region sought Regional Council approval to adopt [the Vision Zero Road Safety Program](#). The program aims to implement Automated Speed Enforcement (ASE), Red Light Cameras (RLCs), and Community Safety Zones to cut deaths and injuries on the road down to zero (Niagara Region, 2019). The program draws solutions from the five Es of engineering, enforcement, education, engagement and evaluation. Solutions include speed management strategies, road design improvements, proactively addressing high-risk mid-block crossings and proactively addressing collisions at signalized intersection (Niagara Region, 2019).

The implementation of the Vision Zero Road Safety Program will cost between \$5 to \$5.8 million per year. This cost must be shared 50/50 between the Niagara Region and the 12 Local Area Municipalities (LEMs). In order to move forward with the program, all 12 LEMs must agree upon a funding formula (Niagara Region, 2019). At its Feb. 14, 2022 meeting, Niagara-on-the-Lake council voted in favour of approving the Vision Zero program, joining nine other municipalities (Hmood, 2022). On May 2, 2022 Grimsby agreed to implement the program after already rejecting the project twice (Green, 2022). Now that all 12 municipalities are on board, the region hopes the program will go live later this year (Green, 2022).

Parachute will continue to monitor the status of Niagara Region's Vision Zero strategy.

## ***Regina, Sask.***

### **Background**

Regina has a population of 226,404 per the 2021 census and had grown 5.3 per cent since 2016; its population density is 1,266.2 per square km (Statistics Canada, 2022ad). Of a 25-per-cent census sample, 81.3 per cent mainly commuted to work by driving a car, truck or van, followed by 6.9 per cent travel as a passenger (Statistics Canada, 2019aa).

### **Vision Zero Road Safety Project**

To improve road safety in 2022, the city will invest \$1.2 million to create safer sidewalks by addressing a backlog in sidewalk maintenance, as well as \$600,000 on the Vision Zero Road Safety project and \$125,000 toward a Clean Streets program (City of Regina, 2022). Previous council approved a Vision Zero plan in 2019, which focused specifically on school zones, parks and playgrounds. An updated Vision Zero report will be completed and presented to City Council in quarter three of this year (Wallace-Scribner, 2022).

Parachute will continue to monitor the status of Regina's Vision Zero strategy.

## ***Saanich, B.C.***

### **Background**

The District of Saanich has a population of 117,735 per the 2021 census and had grown 3.1 per cent since 2016; its population density is 1,136.6 per square km (Statistics Canada, 2022ae). Of a 25-per-cent census sample, 68.4 per cent mainly commuted to work by driving a car, truck or van, followed by 11.9 per cent travel by public transit (Statistics Canada, 2019ab).

While Saanich's Active Transportation Plan includes a Vision Zero target, it stops short of adopting Vision Zero as the primary guiding principle (City of Saanich, 2021). On Jan. 10, 2022, city councillors voted unanimously to ask staff to report back on options to cut the timeline for their Active Transportation Plan in half to 15 years to implement a Vision Zero plan more quickly to protect vulnerable road users (Times Colonist, 2022). According to City Council, accelerating the active transportation plan and developing a Vision Zero strategy in tandem will fundamentally change the way that residents live and increase the livability of Saanich's communities (Times Colonist, 2022).

Parachute will continue to monitor the status of Saanich's Vision Zero strategy.

## ***Saint John, N.B.***

### **Background**

Saint John has a population of 69,895 per the 2021 census and had grown 3.4 per cent since 2016; its population density is 221.5 per square km (Statistics Canada, 2022af). Of a 25-per-cent census sample, 72.8 per cent mainly commuted to work by driving a car, truck or van, followed by 11.2 per cent travel as a passenger (Statistics Canada, 2019ac).

### **Road Safety Strategy**

The City of Saint John has developed a three-phase project called MoveSJ. This project will guide how people and goods will move throughout the city and transportation infrastructure investments over the next 25 years (City of Saint John, 2020). The primary objectives of MoveSJ are to guide the growth of an integrated multi-modal transportation system, considering unique road users such as pedestrians, cyclists, public transit users and truckers, among others. MoveSJ also strives to provide a safe, efficient and accessible network for all who live and work in the City of Saint John (City of Saint John, 2020).

As part of the project's third phase, a [Road Safety Strategy](#) (RSS), which outlines a proposal for the adoption of a Vision Zero strategy and the Safe System Approach, will be finalized (City of Saint John, 2020). The emphasis of this strategy is on providing overall best practices for improving the safety of all road users, as well as highlighting how safety can be interwoven with the other strategies and initiatives being put forward (City of Saint John, 2020). Currently phase 1 and 2 of the project have been completed and the Road Safety Strategy is in draft form.

Parachute will continue to monitor the status of the City of Saint John Vision Zero strategy.

## St. John's, N.L.

### Background

St. John's has a population of 110,525 per the 2021 census and had grown 1.5 per cent since 2016; its population density is 247.8 per square km (Statistics Canada, 2022af). Of a 25-per-cent census sample, 75.5 per cent mainly commuted to work by driving a car, truck or van, followed by 9.9 per cent who travelled as a passenger (Statistics Canada, 2019ad).

In 2016, the city saw about 2,900 crashes that year; of those, 99 collisions involved pedestrians (CBC News, 2020). Two weeks after a blizzard blanketed the city in February 2020, a handful of residents began raising the issue of impassable, unsafe walkways forcing pedestrians onto the roads (CBC News, 2020). The group met with city council to discuss the issue and the possibility of adopting a Vision Zero approach. Following the meeting, about 60 per cent of the 161 kilometres of walkways were cleared by the city. In addition, 98 per cent of streets were widened to allow for two lanes of traffic (CBC News, 2020).

Daniel Fuller, the Canada Research Chair in Population Physical Activity and professor at Memorial University, says changing speed limits is an integral part of the Vision Zero plan (CBC News, 2020). The plan would have cars going as low as 30 km/h in most neighbourhoods (CBC News, 2020). Fuller also stated that the plan would include creating narrower streets and reducing the number of turning lanes to slow cars down at intersections (CBC News, 2020). Other possibilities include pedestrian advance signals and a ban on right turns on red lights (CBC News, 2020). Currently the city does not have a formal Vision Zero policy, but the city's annual intersection safety program will contribute to a Vision Zero approach (City of St. John's, 2019).

Parachute will continue to monitor the status of St. John's Vision Zero strategy.

## **Strathcona County, Alta.**

### **Background**

The specialized municipality of Strathcona County (SC) is an urban-rural mixed area in the Edmonton Metropolitan Region, with a population of 99,225 in 2021 (Statistics Canada, 2022p). The population grew 1.2 per cent between the 2016 and 2021 federal censuses and continued to grow thereafter, with greater pace of growth in the Urban Service Area than the Rural Service Area (Statistics Canada, 2022p; Strathcona County, n.d.-b). Of a 25-per-cent sample of the 2016 census, 87.5 per cent of individuals commuted to work mainly by driving a car, truck or van, followed by 4.5 per cent by public transit (Statistics Canada, 2019u).

Between 2011 and 2020, there were more than 20,600 motor vehicle collisions reported in Strathcona County. Sixty four people lost their lives and 436 suffered major, often life-changing injuries. Altogether, these collisions cost the community more than \$500 million (Strathcona County, 2021). Over the last 10 years, total reported collisions in the County have dropped despite population growth. Both the Property Damage Only (PDO) and Total Collision Rates are down significantly between 2011-2020, 43 per cent and 39 per cent, respectively (Hameed, 2021). In 2020 specifically (the most recent data available), there were six fatal, nine major injury (one or more persons required hospitalization) and 356 minor injury collisions (Hameed, 2021).

Collisions are a concern in both rural and urban areas: while the number of fatal and major injury collisions increased more in urban areas, rural areas continue to represent approximately 35 per cent of collisions each year and are risky due to higher speed limits (Strathcona County, 2018). Thus, there is a need to improve road safety and to carefully balance the needs and interests of both urban and rural residents (D. Rawson, personal communication, June 20, 2019).

### **Traffic Safety Strategic Plan 2020 (TSSP)**

In 2014, SC laid out its [Traffic Safety Strategic Plan 2020](#) (TSSP), following in the footsteps of the Province of Alberta (Rawson & Narbonne, 2018; Strathcona County, 2014). SC does not consider its TSSP a Vision Zero plan (D. Rawson, personal communication, June 20, 2019). It uses the language of the safer systems approach, as the county recognizes that it does not have the community buy-in to implement actions that would be needed to fully implement a Safe System Approach (SSA) (D. Rawson, personal communication, June 20, 2019; Strathcona County, 2019b). Until it has that

capacity, it does not want to use the term Vision Zero and erode belief in the pure model (D. Rawson, personal communication, June 20, 2019). The plan proposes 13 short-term and long-term strategies embodying the five Es, and with a specific strategy looking at older adults (Rawson & Narbonne, 2018). The SC TSSP also set two targets, including the target of decreasing the annual rate of fatal and major injury collisions per 100,000 population by 15 per cent in the period 2018 to 2020 as compared to 2011 to 2013 (Strathcona County, 2014). The other target is non-numeric: to “work co-operatively with Alberta Transportation staff to improve traffic safety and help meet provincial safety targets” in view of provincial roads in SC (Strathcona County, 2014).

SC’s TSSP is supported by the county’s Intersection Safety Action Plan, which sets out a further 15 action items in direct support of the TSSP; these actions primarily emphasize engineering and enforcement activities related to arterial road intersections (Strathcona County, n.d.-a).

### Key features of the plan

**Data collection and analysis:** RCMP data for reportable crashes that result in injury or fatality on SC’s public roadways were previously manually entered into SC’s Traffic Crash Location System but are now being fed automatically by Alberta’s Provincial E-Collision reporting system (D. Rawson, personal communication, June 20, 2019; Hameed et al., 2016; Rawson & Narbonne, 2018). On an annual basis, SC uses its data to report rates and counts of fatalities, major injuries and minor injuries stratified by factors such as road user type, age, cause and time of day or year (Hameed et al., 2016). SC also maps collision data regarding fatalities and major injuries and analyzes the road network for factors such as speed, volume and noise (Hameed et al., 2016). All of this information feeds into engineering and enforcement strategies and facilitates evaluation (Rawson & Narbonne, 2018).

**Education:** Through its Traffic Safety Communication Plan, SC has set out a central framework for road safety messages (Rawson & Narbonne, 2018). Communications also include outreach via Facebook and Twitter (Rawson & Narbonne, 2018). Some traffic safety educational materials, e.g., related to rural driving, are available on SC’s website (Strathcona County, 2018). Within the community, an “Option 4” program is offered to previous traffic offenders who wish to receive education about their offences instead of paying a fine (Strathcona County, 2019a).w



**Enforcement:** SC's enforcement activities include traffic stops and commercial vehicle safety assessments (Rawson & Narbonne, 2018). One type of enforcement service in SC is the Neighbourhood Traffic Safety Initiative, which consists of heightened enforcement in a particular neighbourhood (Rawson & Narbonne, 2018). Another example of enforcement is the implementation of an application process for work activities that affect road right-of-way and/or require traffic control, promoting safer work zones (Rawson & Narbonne, 2018).

**Engagement:** SC collected public opinion information on traffic safety in 2015 and 2018 (Rawson & Narbonne, 2018). The 2018 online survey revealed that a higher percentage of respondents felt that traffic safety in SC was good compared to in 2015; however, there was also increasing tolerance of risky behaviours such as speeding (Rawson & Narbonne, 2018).

**Engineering:** New arterial roads are subject to road safety audits and collision data is being used to identify where infrastructure improvements should take place for existing roads (Rawson & Narbonne, 2018). In-service road safety reviews have been conducted on areas with high crash risk, and some resultant recommendations have already been applied (Rawson & Narbonne, 2018). As well, traffic calming measures were installed in certain neighbourhoods (Rawson & Narbonne, 2018). Finally, an Intersection Safety Action Plan will guide the design of intersections (Rawson & Narbonne, 2018). Examples of specific safety features that have been installed in SC include intersection safety devices, protected left turns on certain roads, driver feedback signs displaying road speed, shark's teeth yield lines and rectangular rapid flashing beacons (Rawson & Narbonne, 2018; Strathcona County, 2019d).

**Evaluation:** As new data is collected each year, progress against the original strategies and targets will be assessed (Rawson & Narbonne, 2018). SC also compares its own results to those of other municipalities, such as St. Albert and Edmonton – that have formally adopted Vision Zero – in order to determine whether they are on trend (Rawson & Narbonne, 2018).

## Key stakeholders

Key stakeholders include the Traffic Safety Advisory Committee, a group of elected officials and citizens that convene roughly monthly and whose core members support council on matters related to traffic safety planning (Strathcona County, 2019c). Other stakeholders include multiple county departments (e.g., Transportation and Agriculture

Services, Transportation Planning and Engineering, Planning and Development Services, Enforcement Services), as well as SC's Integrated Traffic Unit, which includes Community Peace Officers, RCMP, and Provincial Sheriffs (Rawson & Narbonne, 2018). SC works with residents and schools on school-related traffic safety initiatives (Rawson & Narbonne, 2018). For specific initiatives, there may also be other partnerships struck, such as a seasonal collaboration with Shell Canada in 2017 for the distribution of pedestrian safety lights (Rawson & Narbonne, 2018). Finally, SC also works with the Province of Alberta and Alberta Transportation for road safety matters, including provincial highway safety and meeting provincial safety targets (Rawson & Narbonne, 2018; Strathcona County, 2014). SC is also a member of CRISP (CRISP, n.d.).

## ***Windsor, Ont.***

### **Background**

The City of Windsor has a population of 229,660 as per the 2021 census and a population density of 1,572.8 per square km (Statistics Canada, 2022t). Based on a 25-per-cent sample of the 2016 census, 81.6 per cent mainly commuted to work by driving a car, truck or van, followed by 6.7 per cent who road as a passenger in the same vehicles (Statistics Canada, 2019v).

In 2017, the city saw five fatal collisions and 1,412 injury collisions, based on reportable collisions tracked by the Windsor Police Service (City of Windsor, 2018). Annual counts of injury collisions in Windsor have been trending upwards, from 904 in 2014 to 1,412 in 2017, and the five-year-average rate was 6.98 per 1,000 population in 2013-2017, compared to the provincial average of 3.99 per 1,000 population in 2009-2014 (City of Windsor, 2018). Collision risk factors particularly prevalent in Windsor include distracted driving and drivers that had alcohol exposure before driving (City of Windsor, 2018).

### **Vision Zero Action Plan**

In February 2020, Windsor City Council officially approved the Vision Zero Policy, which endorses the goal of zero fatal and serious injury collisions (Hagan, J., 2020). To achieve this goal, a Vision Zero Action Plan is currently being developed in collaboration with a Vision Zero Task Force, which is made up of staff across city departments and emergency services, and a Vision Zero Stakeholder Group consisting of community stakeholders and members of the public. Using a data-driven, equity-focused approach, the Vision Zero Action Plan will identify strategic priorities, recommended initiatives and interim goals (Hagan, J., 2020).

Progress reports will be presented to the Environment, Transportation and Public Safety Standing Committee as the Vision Zero Action Plan is developed (Hagan, J., 2020). The final plan will be subject to council approval. Once the Vision Zero Action Plan is approved, annual reports will be created to document Windsor's progress toward Vision Zero (Hagan, J., 2020).

Windsor's approved Vision Zero policy is available at: [https://www.citywindsor.ca/residents/Traffic-And-Parking/Transportation-Planning/Documents/Vision\\_Zero\\_Policy\\_2020\\_03\\_11.pdf](https://www.citywindsor.ca/residents/Traffic-And-Parking/Transportation-Planning/Documents/Vision_Zero_Policy_2020_03_11.pdf)

## Winnipeg, Man.

### Background

The City of Winnipeg has a population of 749,607 per the 2021 census and had grown 6.3 per cent since 2016; its population density is 1,623.3 per square km (Statistics Canada, 2022w). Of a 25-per-cent census sample, 70 per cent mainly commuted to work by driving a car, truck or van, followed by 14.9 per cent by public transit (Statistics Canada, 2019af).

The city's Annual Collision Report, based on MPI-reported collisions data, indicates that 11 fatal collisions and 5,589 injury collisions had taken place in 2017 (City of Winnipeg, n.d.). Fatal collisions had decreased since 2012 but not linearly, while injury collisions had shown increases every year since 2012 (City of Winnipeg, n.d.). Six out of 11 fatalities in 2017 involved pedestrians, while rear-end and intersection 90-degree collisions were responsible for the majority of injury collisions (City of Winnipeg, n.d.).

### Winnipeg Road Safety Strategic Action Plan

In January 2017, Winnipeg's Standing Policy Committee on Infrastructure Renewal and Public Works asked the Winnipeg Public Service to create a road safety strategy founded in "Towards Zero" (City of Winnipeg, 2018). In January 2018, an information report was submitted to the Standing Policy Committee outlining the high-level theoretical framework for the plan (City of Winnipeg, 2018). However, it appears the plan was not completed and that the work is being repurposed for the overall transportation master plan; thus, it is unclear whether that plan will also have a "Towards Zero" orientation or when it will be delivered (Glowacki, 2019).

Winnipeg espoused a "Towards Zero" approach, which it described as "based on an international best practice called Vision Zero" and aligned with Safe System Approach (SSA) (City of Winnipeg, 2018). "Towards Zero" has its roots in the CCMTA's Road Safety Strategy 2025.

As of the writing of this document, work on the Winnipeg Road Safety Strategic Action Plan is underway. The plan will serve as a roadmap for implementing both short-term solutions and long-term investments over the next three-to-five years and beyond in a co-ordinated and focused manner, to ensure the city is doing its part in preventing serious injury and death on its roads (City of Winnipeg, 2020).

Current programming, which include activities such as road safety audits, protected left turn signal phases at specific intersections, and installation of design measures such as curb extensions and raised crosswalks, as well as enforcement activities, will continue under the new plan (City of Winnipeg, 2018; City of Winnipeg, 2019a).

Current partners of the city in road safety initiatives include the city's Public Works Department, Winnipeg Police Service, MPI, and Manitoba Hydro (City of Winnipeg, 2018, City of Winnipeg, n.d.). Winnipeg also deploys an independent audit team to carry out its road safety audits (City of Winnipeg, 2019b).

# Public Health Units or groups advocating for Vision Zero

## *Southwestern Public Health, Ont.*

### **Background**

Southwestern Public Health (SPH) is an Ontario Public Health Unit (PHU) comprising three regions: City of St. Thomas, Elgin County and Oxford County (SPH, n.d.). It was created through the combination of two PHUs, Elgin St. Thomas Public Health and Oxford County Public Health, in 2018 (SPH, n.d.). Together, the counties represent approximately 200,000 residents – the City of St. Thomas is within Elgin County. (SPH, n.d.).

Between January 2014 and June 2018, there were 26 fatal motor vehicle collisions on Oxford County roads with most occurring on rural roads (M. Lichti, personal communication, July 10, 2019). As the county's population and employment (and by extension, commuting volumes) are expected to increase over the next two decades, additional efforts are needed to ensure that all people can get around safely (PTS et al., 2019). Impaired driving from alcohol and other sources has also been recognized as a public health issue in the Oxford County (Macleod & Deroo, 2018).

In 2019, stakeholders representing Oxford County had started to discuss adoption of Vision Zero (M. Lichti, personal communication, July 10, 2019). Due to the COVID-19 pandemic, Vision Zero strategies have been put on hold until further notice. (M. Lichti, personal communication, February 2022). In the meantime, a draft transportation master plan for the next two decades points to possible engineering and enforcement changes such as ASE and a speed management policy (PTS et al., 2019). Analysis and yearly review of collision data are also planned and a preliminary analysis has already revealed the most at-risk urban and rural intersections in the county (PTS et al., 2019).

### **What the public health unit has to say**

*Interview with Meagan Lichti, Public Health Nurse, Injury Prevention and Built Environment, Southwestern Public Health*

MEAGAN LICHTI: Due to the COVID-19 pandemic, Vision Zero strategy implementation for Southwestern Public Health has been put on hold as focus has shifted to disease tracking and prevention. There is currently no Vision Zero plan in place as its introduction has been halted with the pandemic.

- While there is currently no Vision Zero plan in place, with regards to traffic safety, we were working with public health, police, municipal engineers, and a local injury prevention group.
- We were looking at a mix of data including police/road numbers, public health data, MTO reports; but this has also been on pause.

Look toward the future, I would like to see more ownership among all stakeholders, more sustainability in the plan where parts can continue to move forward regardless of different roadblocks.

## ***Timiskaming Health Unit, Ont.***

### **Background**

Timiskaming Health Unit (THU) is an Ontario PHU that includes offices in New Liskeard, Kirkland Lake, and Englehart (THU, n.d.-a; THU, n.d.-b). The PHU serves a population of 31,424 according to the 2021 census, and a population density of 2.4 per square km (Statistics Canada, 2022v). Of a 25-per-cent census sample, 80.9 per cent mainly commuted to work by driving a car, truck, or van; the next-most popular modes were walking and riding as a passenger at 7.5 per cent each (Statistics Canada, 2019ae).

The PHU has many ongoing public health activities oriented to transportation, including the promotion of active transportation via the Share the Road education campaign, CAN-BIKE bicycle training and other community initiatives (THU, n.d.-a). Internal stakeholders are contemplating adoption of a Vision Zero plan (K. Oviatt, personal communication, July 11, 2019). In the Timiskaming Shores Ontario and Area Chamber of Commerce there is a subcommittee called GEMS (Going the Extra Mile for Safety) that works with THU to advocate for Vision Zero. Because THU is in the very early stages of adoption with limited published material related to Vision Zero, we interviewed a member of GEMS.

### **What the public health unit has to say**

*Interview with Mark Wilson, Resource Manager, Going the Extra Mile for Safety Committee (GEMS)*

**PARACHUTE:** Last time we talked, we asked you to describe, at a high level, what your Vision Zero strategy/plan looks like. Have there been any major changes to your program since then, in relation to the following:

**A. How long has your Vision Zero strategy been in place and what are its goals?**

**MARK WILSON:** GEMS (Going the Extra Mile for Safety) is a subcommittee of the Temiskaming Shores and Area Chamber of Commerce and has been advocating for a 2+1 road pilot project in Northern Ontario since 2015. [A 2 + 1 road works like highways in Canada that have passing lanes, except there are continuous, alternating passing lanes with the added safety of a dividing barrier. Generally, this means that every two to four kilometres there is a passing opportunity, or approximately 40 per cent of the trip. Implemented in Sweden as part of Vision Zero, 2 + 1 roads are one of



the most significant road safety measures that country has taken on its rural road network].

**B. What major activities are you undertaking to meet these goals and are any of these activities geared toward more vulnerable road users?**

MARK WILSON: 2+1 roads are perhaps one of the most successful examples of Vision Zero principles on rural roads. They drastically reduce the kinetic energy of crashes and virtually eliminate head-on crashes. This fact has been the primary focus of our advocacy efforts. These advocacy efforts have included many presentations and meetings with regional politicians as well as with provincial politicians at high levels.

**C. Who are your key stakeholders and how do they work together to implement your Vision Zero strategy?**

MARK WILSON: The key stakeholders have been Municipalities in Northern Ontario as well as the public, who both have supported the efforts of GEMS.

**D. Are concrete data available for the impact of your program (i.e., differences in the number of traffic related injuries)? How do you measure the success of your strategy?**

MARK WILSON: Currently the data are unavailable.

**E. Are there unique contextual factors that you needed to take into account for planning purposes and, if so, can you please describe what these were?**

MARK WILSON: To be persistent there must be research and data to support the cause and that research must be continually communicated to those who make decisions.

**PARACHUTE: Since you initiated your program, what has changed in terms of project scope, approach and buy-in from stakeholders?**

MARK WILSON: The challenge that we faced initially was the difficulty in being heard regarding the benefits of 2+1 roads. We continued to speak with many people in the road transportation sector across Canada and around the world. The evidence was continuing to build regarding the success of 2+1 roads and eventually we were able to present the ideas to decision makers at high levels.

**PARACHUTE: Based on the last three years, are there any new successes your program has achieved that you would like to share?**

MARK WILSON: After many years of advocacy, our efforts have finally been successful. The Ontario Ministry of Transportation has announced that a 16-kilometre 2+1 pilot project will be built on Highway 11 between Temagami and North Bay. The other key part of the success so far is the partnerships that we established. These partnerships helped us further the cause of a 2+1 road pilot project. These partners came from various places, but they all contributed in important ways.

**PARACHUTE: Based on the way your program has progressed in the three years since we last spoke, do you have any advice for jurisdictions that have recently adopted or that are contemplating Vision Zero adoption?**

MARK WILSON: For GEMS the success came from a consistent, determined and respectful approach to authorities. Persistence is so important.

**PARACHUTE: As your Vision Zero program moves forward, keeping the last three years in mind, where would you like to see the program go next? What are you hoping to accomplish moving forward over the next five years?**

MARK WILSON: For GEMS, the next steps are to continue to communicate the benefits of 2+1 roads to interested parties. When the pilot is complete in the next few years, it will be vital that road users are aware of its benefits and understand that the primary purpose of the pilot is safety. GEMS will also continue to communicate with the MTO and co-operate as part of the team that will evaluate the 2+1 pilot project.

## Conclusion and next steps

Vision Zero efforts may not look the same or take the same path in each jurisdiction. As this report highlights, however, there are many similarities in both the fundamentals of the framework and the way in which it is rolled out. It is our hope that by presenting Vision Zero programs across Canada, we have facilitated a better understanding of how to approach Vision Zero in your unique jurisdiction. The learnings from various road safety stakeholders shared in this case study can help you to prepare for a variety of challenges that may arise throughout the consideration and implementation of a Vision Zero and/or Safe Systems Approach to improving road safety.

Whether you are just learning what Vision Zero is, are advocating for Vision Zero in your area, or are actively in the phase of considering or implementing Vision Zero, learning from the experiences of other jurisdictions can help you plan effectively and progress your road safety efforts forward.

If your community is thinking about implementing Vision Zero, let us know by emailing [info@parachute.ca](mailto:info@parachute.ca). Visit the [Vision Zero collection](#) on the Parachute website to find Parachute-produced case studies, blogs, infographics, videos as well as links to road safety plans in Canada. You will also find the best tools and resources to create, implement and evaluate Vision Zero.

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## Appendix 2: Acronyms

ASA: Associated Engineering Alberta Ltd.

ASC: Alberta Safety Council

ASE: Automated Speed Enforcement (see also ATE)

ATE: Automated Traffic Enforcement (see also ASE)

BCRSS: BC Road Safety Strategy

CAA: Canadian Automobile Association

CARSP: Canadian Association of Road Safety Professionals

CCMTA: Canadian Council of Motor Transport Administrators

CCPIP: Connecting Community Partners in Injury Prevention Committee

CGP1: County of Grande Prairie No. 1

CRISP: Capital Region Intersection Safety Partnership

EMRB: Edmonton Metropolitan Region Board

EPS: Edmonton Police Service

FS: City of Fort Saskatchewan

GEMS: Going the Extra Mile for Safety

GRSP: Global Road Safety Partnership

HRM: Halifax Regional Municipality; also “Halifax”

ICBC: Insurance Corporation of British Columbia

ISLELS: ISL Engineering and Land Services

KSI: Killed or Seriously Injured

LC: Lura Consulting

LED: Light-Emitting Diode

LPS: London Police Service

LRSS: 2014-2019 London Road Safety Strategy

MADD: Mothers Against Drunk Driving

MPI: Manitoba Public Insurance

MTPS: McPhail Transportation Planning Services Ltd.

MTSF: Memorial & Traffic Safety Fund

NSHA: Nova Scotia Health Authority

OPP: Ontario Provincial Police

OPS: Ottawa Police Service

OTSE: Office of Traffic Safety – Edmonton, Canada

PHU: Public Health Unit

PRSC: Manitoba's Provincial Road Safety Committee

PTS: Paradigm Transportation Solutions Limited

RCMP: Royal Canadian Mounted Police

RCMP-K: RCMP – "K" Division Leduc Detachment

RLC: Red Light Camera

RSSP: Region of Peel's Vision Zero Road Safety Strategic Plan 2018-2022

SC: Strathcona County

SPH: Southwestern Public Health

SRCC: Share the Road Cycling Coalition

SRSP: Hamilton's Strategic Road Safety Program

SSA: Safe System/Systems Approach (as distinct from Safer Systems)

STEP: Selective Traffic Enforcement Program

TAC: Transportation Association of Canada

TAR: Traffic Accident Report

TCAT: Toronto Centre for Active Transportation

THU: Timiskaming Health Unit

TIRF: Traffic Injury Research Foundation

TRSP: Toronto Road Safety Plan

TSACC: Temiskaming Shores & Area Chamber of Commerce

TSSOP: Region of Peel's Transportation Safety Strategic and Operational Plan

TSSP: Strathcona County's Traffic Safety Strategic Plan 2020

VCH: Vancouver Coastal Health

VPD: Vancouver Police Department VZ: Vision Zero

WCG: Watt Consulting Group

WRA: World Road Association

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