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# **Making a Vision Zero Commitment in Canada**

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# Making a Vision Zero Commitment in Canada

## Overview

This paper, developed with generous support from Desjardins, provides national thought leadership on a practical implementation of Vision Zero in Canada. It briefly summarizes the roots of Vision Zero and the current status of Vision Zero across Canada. It also provides a high-level review of Vision Zero and road safety frameworks from Canada and internationally. By using an injury-prevention approach based in public health theory, the paper provides information not only on Vision-Zero-specific implementation but will also address the contextual factors that impact these efforts, such as community readiness. Tools created by Parachute and links to other tools supplement the paper by providing useful resources that address the needs of stakeholders at all stages of their Vision Zero commitment.

To be effective, Vision Zero requires collaboration. Governments, regulators, industry, professionals, community organizations, road users and many other stakeholders play a role. This paper focuses primarily on the role of governments, policymakers and their partners to develop, adopt and implement Vision Zero road safety plans in their jurisdictions. While the responsibilities of other stakeholders, such as individual road users, are a component of road safety, they are not included in the scope of this paper.

## Who this paper is for

This paper is for practitioners and professionals from a variety of disciplines who play a role in advocating for, planning, implementing, evaluating and sustaining road safety. In particular, this paper speaks to:

- Community practitioners (e.g., public health professionals, injury prevention practitioners)
- Municipal officials (e.g., mayors, councillors)
- Municipal staff (e.g., policy-makers, urban planners, engineers, road safety planners)

This paper's authors understand that readers may be at different stages related to the adoption and implementation of Vision Zero:

- Vision Zero contemplation
- Vision Zero adoption
- Vision Zero implementation and maintenance

This paper will benefit readers at all stages.

## **Why is this paper needed?**

- While there is generally a strong understanding of the Vision Zero concept, we recognize a number of gaps between understanding the concept and advocating for, adopting, and implementing Vision Zero in real-world practice. In short, there is uncertainty on how to consider Vision Zero in a specific jurisdiction.
- There is a need to consider not only the concrete interventions of Vision Zero (e.g., road design options), but also the context (i.e., social, political) within which the reader is operating.
- This paper leverages Parachute's expertise in injury prevention and overlays the public-health approach with Vision Zero tenets to provide a comprehensive and inclusive framework, including tools on how to implement Vision Zero and countermeasures to improve road safety.

## **How you might use this paper**

- To understand how and why Vision Zero was created and what it means to be a Vision Zero jurisdiction
- To gain high-level knowledge on the current landscape of Vision Zero in Canada
- To support health practitioners, government officials, law-enforcement personnel, engineers and planners, injury-prevention professionals, or members of the public looking to advocate for the adoption of Vision Zero in their jurisdiction

Use the tools provided at the end of this paper to support you in your efforts to advocate for Vision Zero, from contemplation to adoption, implementation and maintenance.



## Learning objectives

After reading this paper, you will:

- Gain a high-level understanding of Vision Zero and road safety frameworks from Canada and internationally
- Understand the various tenets of Vision Zero and how they can support planning and implementation
- Know where to access resources and tools for Vision Zero
- Learn about many proven countermeasures effective in achieving Vision Zero



# Vision Zero: the details

Vision Zero is a multi-national traffic safety initiative that is reinventing traditional approaches to traffic safety, based on the philosophy that no one should be killed or seriously injured while using the transportation system. Vision Zero is built on the belief that “accidents” on our roads are not accidents at all; they are predictable and preventable.

## Principles

Vision Zero is based on the following fundamental concepts and beliefs (City of Edmonton, n.d.):

- No loss of life is acceptable
- Traffic fatalities and serious injuries are preventable
- As humans, we make mistakes and those mistakes must be planned for and anticipated so as not to result in serious injury or death
- We are physically vulnerable when involved in motor vehicle collisions

In a Vision Zero community, eliminating fatalities and serious injuries is a shared responsibility between all road users and those who design and maintain our roadways. This, in essence, means safe drivers, safe vehicles, safe roads and the right speed for each type of road.

## Critical success factors

Factors that contribute to the success of the Vision Zero approach include (Vision Zero Network, 2015):

- Political commitment
- Multi-disciplinary leadership
- Action plan
- Equity
- Co-operation and collaboration
- Systems-based approach
- Data driven
- Community engagement
- Transparency

A successful approach incorporates these contributing factors. It identifies and works toward achieving specific fatality and serious-injury reduction targets.

## Policies and practices

Policies and practices are the foundation of a powerful, engaging Vision Zero approach, as they shape decision-making in a Vision Zero plan. Examples of Vision Zero policies and practices include (Vision Zero Network, n.d.-a):

- Develop and maintain leadership, collaboration and accountability
- Set numerical targets
- Collect, analyze and use data in your Vision Zero planning and decision-making
- Prioritize equity and engagement
- Design roadways that put safety first
- Safe speed management
- Maximize technology advances but be sure not to overlook low-tech solutions





## The roots of Vision Zero

It can be challenging to help people see that zero deaths and serious injuries on our roads is a realistic, reachable goal. Canada, like the rest of the world, has long considered such deaths and injuries to be inevitable, and many have come to accept this as fact. However, Vision Zero is changing this mindset, driving home the idea that the only acceptable number of deaths and serious injuries on our roads is zero. This approach targets the most severe and may not reduce all collisions. Vision Zero is now being adopted by numerous countries and cities worldwide.

### Sweden's story

The concept of Vision Zero was created by road safety experts at the Swedish Transport Administration. When first presenting the idea in 1995, it was met with skepticism. However, Vision Zero attracted support in the following years as people began to really consider the concepts and positive outcomes of the approach. Road safety experts collaborated with ministries, working groups, stakeholders and partners, such as the police, the Swedish Association of Local Authorities and Regions and the National Society for Road Safety to develop a Ministry Memorandum and, later, an official Government Bill. In 1997, with strong support from researchers, the media and political parties, Swedish Parliament determined that Vision Zero would form the basis of their road safety work (Trafikverket – Swedish Transport Administration, 2014).

**“Strong political will was of decisive importance in Vision Zero becoming a national long-term goal for work on road safety, and thereafter, an international example.”**

Trafikverket – Swedish Transport Administration, 2014

When Vision Zero was adopted, all those involved were aware that the vision would not be realized immediately; it would take time, collaboration and commitment. To ensure effective progress, the Swedish government developed immediate goals against which Vision Zero road safety efforts could be monitored and evaluated (Trafikverket – Swedish Transport Administration, 2019).

Sweden now maintains one of the world's lowest traffic-related fatality rates and their road safety work has been praised by the United Nations and European Union (Government Offices of Sweden, 2016). Given their demonstrated progress with

ensuring roads are safe for all users, Sweden made a renewed commitment to Vision Zero in 2016 (Government Offices of Sweden, 2016).

## Vision Zero worldwide

Cities throughout Canada, the United States, New Zealand, Australia, the United Kingdom, Japan, India, Germany, the Netherlands, Poland and Norway have made Vision Zero commitments. The World Health Organization (WHO) and World Bank are both involved with Vision Zero globally as well, and many cities worldwide have already achieved zero road traffic fatalities in at least one year (Dekra, n.d.).

## Vision Zero Network (U.S.)

The Vision Zero Network was founded by Leah Shahum, who has significant experience in the transportation industry. She has researched Vision Zero strategies in Sweden, Germany and the Netherlands and uses her breadth of experience to spearhead Vision Zero efforts in the United States and lead the Vision Zero Network.

The Vision Zero Network brings together leaders in public health, traffic engineering, police enforcement, policy and advocacy to advance the Vision Zero approach and allow for effective collaboration. The network aims to develop strategies, policies and practices that contribute to Vision Zero success and allows stakeholders to share resources, recommendations, ideas, and lessons learned. The Vision Zero Network also provides networking opportunities by co-ordinating in-person meetings with community leaders across the United States engaged in Vision Zero. The network offers support for all Vision Zero communities through webinars, conference panels, case studies, in-person meetings and a variety of hands-on resources to encourage and educate on effective Vision Zero approaches and strategies.

**“For our communities to succeed in keeping people safe on our streets, sidewalks, and bikeways, it will take real change. And we know that this change won’t be easy because it means, in many cases, affecting the status quo.”**

*Vision Zero Network, 2018a*

## Spotlight on New York City, New York

New York City adopted Vision Zero in 2014. Currently, New York City's traffic-related fatality rate per 100,000 citizens is on par with Sweden (Government of New York City, 2019).

**“This has only been possible through a dedicated effort by numerous City agencies and partners working together to pursue evidence-based solutions.”**

Government of New York City, 2019

Examples of Vision Zero countermeasures and initiatives in New York City (Government of New York City, 2019):

- 1,400+ safety education visits to schools
- 350+ senior centres partnered with at priority locations
- 363 speed humps installed in 2018
- 837 truck sideguards installed in 2018
- 6,584 bus operators trained in Vision Zero
- 873 Leading Pedestrian intervals installed
- 27,000 Taxi & Limousine Commission (TLC) licensed drivers educated in Vision Zero
- 7,536 city drivers took defensive driving classes
- 82 miles of protected bike lanes installed
- 150 locations identified for new traffic signal installation

How has road safety improved in the City?\* (Government of New York City, 2019)

- Pedestrian deaths have decreased **37 per cent** since 2013
- Cyclist deaths **are the lowest in three decades**, despite more cyclists than ever on NYC roads
- Traffic deaths have **fallen by one-third**
- Traffic deaths are the **lowest they have ever been** since the dawn of the automobile

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\* While it is likely that countermeasures and initiatives have contributed to road safety improvements, the outcomes listed may not be solely attributed to these initiatives.

## Vision Zero in Canada

Cities across Canada have taken action against preventable traffic-related tragedies. Efforts began in Edmonton in 2015 and have continued to spread across the country, from the municipal and provincial/territorial levels to a national Vision Zero road safety strategy. To our knowledge, below is a list of cities, regions, and provinces that have adopted Vision Zero as of November 2019. Please note that new cities are consistently considering and adopting Vision Zero; as such, this list changes frequently and may not be exhaustive. It is also important to consider that jurisdictional plans, strategies and approaches to Vision Zero may take on many different names, depending on the defined commitment and goals. Some plans may state, “Towards Zero”, “Road to Zero”, among others, in an effort to communicate their goal of zero while not specifically branding themselves as Vision Zero.

For more detailed information on the Canadian landscape of Vision Zero and how to get involved, visit [parachute.ca/visionzero](https://parachute.ca/visionzero).

### National

The Canadian Council of Motor Transportation Administrators (CCMTA) embraced Vision Zero when they launched “*Road Safety Strategy 2025*” in 2016. *Towards Zero: The Safest Roads in the World*, is modeled after the Safe System Approach and was developed to help jurisdictions implement road safety programs that meet their needs.

### Provincial

- British Columbia was the first Canadian province to support Vision Zero in their provincial road safety strategy (2016)
- Manitoba followed British Columbia, releasing Road to Zero: Manitoba Road Safety Plan 2017-2020 (2017)

### Municipal

#### Nova Scotia

- Halifax (2018)

#### Quebec

- City of Montreal (2016)
- Trois-Rivières (2018)

#### Ontario

- City of Toronto (2016)
- City of London (2017)
- Region of Peel (2017)
- City of Brantford (2018)
- Durham Region (2019)
- City of Kingston (2019)
- City of Hamilton (2019)

### Saskatchewan

- Saskatoon (2018)

### Alberta

- Edmonton (2015)
- Calgary (2018)
- St. Albert (2018)
- Fort Saskatchewan (2019)

### British Columbia

- Vancouver (2016)
- Surrey (2019)

## Spotlight on Edmonton, Alberta

In 2015, council approved “Edmonton’s Road Safety Strategy 2016-2020” and Edmonton became the first Canadian city to adopt Vision Zero.

Examples of Vision Zero countermeasures and initiatives in Edmonton (City of Edmonton, 2019a):

- |   |   |
|---|---|
| • 34 left-turn signal phase improvements                      | • 187 driver feedback signs                                       |
| • 14 right-turn lane redesign at major arterial intersections | • 64 school areas upgraded for safety                             |
| • 54 signal visibility improvements                           | • 43 junior high school zones (later changed to playground zones) |
| • 395 playground zones  | • 100,000+ reflective pedestrian-safety tags distributed          |
| • 48 pedestrian signals/amber flashers                        |   |

How has road safety improved in the city?\* (City of Edmonton, 2019b)

- |  |  |
|--|--|
| • <b>17-per-cent</b> decrease in number of serious injuries    | • <b>29-per-cent</b> decrease in number of cyclist injuries      |
| • <b>21-per-cent</b> decrease in number of pedestrian injuries | • <b>26-per-cent</b> decrease in number of motorcyclist injuries |

Additionally, the city of Edmonton has integrated education and enforcement components to support Vision Zero. Road safety education in Edmonton includes knowledge exchange across jurisdictions (e.g., hosting the International Urban Traffic

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\* While it is likely that countermeasures and initiatives have contributed to road safety improvements, outcomes listed may not be solely contributed to these initiatives.



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).

As well, data are being used to identify areas with high levels of road safety violations and to target enforcement resources accordingly; at times, enforcement resources are directed to specific issues such as safe school zones. Police are interested in various risky behaviours including driving while impaired, distracted driving, not wearing a seatbelt, and speeding.

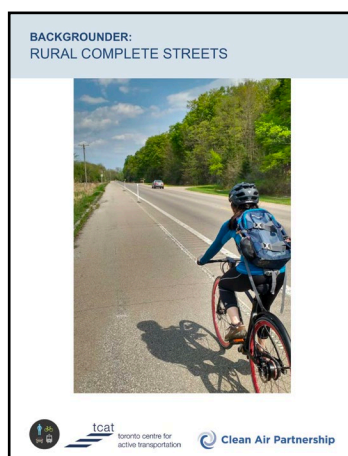
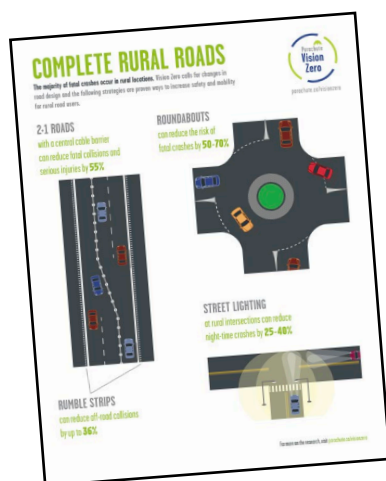
To learn more about Vision Zero in various other Canadian jurisdictions, please see the [Parachute Vision Zero map](#) and [Parachute’s Vision Zero Canadian Landscape 2.0](#).

### *Urban and rural considerations for Vision Zero in Canada*

Urban-rural dichotomies are an important consideration when looking to implement Vision Zero in your jurisdiction. Budgets, built environment, and specific road safety issues may vary depending on the size, location and population of a community. Countermeasures for urban and rural environments are considered in the Proven Countermeasures section of this paper.

More information on rural Vision Zero experiences:

- [Parachute Vision Zero: Complete Rural Roads](#)
- [Complete Streets for Canada: Rural Complete Streets](#)
- [Fort Saskatchewan: Traffic Safety Plan](#)

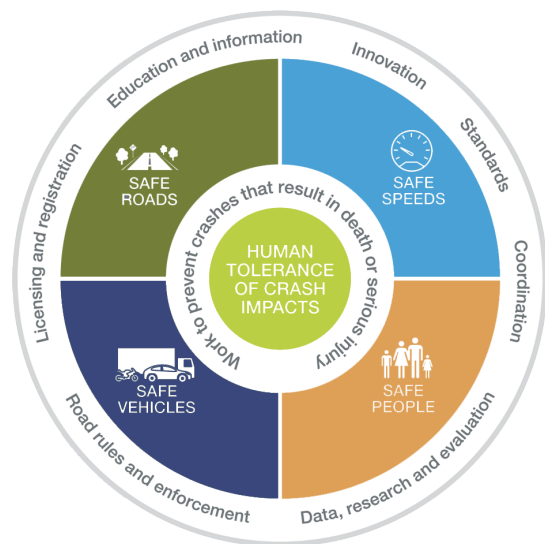


# Vision Zero approaches and tools

Parachute conducted a scan of Vision Zero tools, frameworks and resources that set out criteria, steps, guidelines and components for Vision Zero in various contexts. Each of these tools and frameworks are based on different underlying approaches and have numerous levels of applicability – from the local or municipal level, to the provincial and territorial, or national level. With Vision Zero and road safety as a whole, the underlying goal is the same: zero serious injuries and fatalities on roadways. You can use the tools at the end of this section, regardless of where your jurisdiction stands with Vision Zero: contemplation, adoption, or implementation and maintenance.

## Safe System Approach

The Safe System Approach recognizes that people need safe travel options to prevent injury. The Safe System Approach understands that people are vulnerable and make mistakes, and that we must work together to design an overall forgiving road transport system to account for these mistakes (Government of Australia, 2018). The Safe System Approach 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. When the transport system is designed and built safely, it benefits society in terms of accessibility, physical activity, air quality, climate change and environmental sustainability (World Resources Institute, n.d.).



**Key tenets of the Safe System Approach are** (Government of Australia, 2018):

- Creating standards for safe vehicles, safe roads and safe equipment
- Developing rules of the road and enforcement strategies that encourage compliance and manage non-compliance
- Using data, research and evaluation results to understand collisions and risk factors

- Managing road access through licensing drivers and registering vehicles
- Being open to new innovations and changes
- Strong management and co-ordination among stakeholders
- Providing education and information

## Five Es of Traffic Safety

The Five Es of Traffic Safety are commonly used in Vision Zero planning. The most commonly used five Es are: Engineering, Enforcement, Evaluation, Education and Engagement. Engineering refers primarily to the design and operation of roads in a way that can prevent collisions from occurring or reduce collision severity and the associated serious injuries and fatalities, while also minimizing the role that human error may play in these collisions (The Office of Traffic Safety, n.d.). Network screening, in-service road safety reviews, and road safety audits are a few ways to identify possible countermeasures to improve safety (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, n.d.). A data-driven approach in Vision Zero planning is often reached together with police through using police data to identify hotspots for prioritized enforcement (The Office of Traffic Safety, n.d.). Countermeasures such as automated photo enforcement are often used to encourage compliance with road rules (The Office of Traffic Safety, 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, n.d.). Research into the success of road injury countermeasures (reduced speed limits, rectangular rapid flashing beacons, automated enforcement, red-light cameras) to produce outcomes such as speed changes and reduced collisions, are two ways

evaluation is often incorporated into Vision Zero plans (The Office of Traffic Safety, n.d.; City of Calgary, 2018).

Education is essential to raise awareness of various road safety issues, inform attitudes of the public and promote safe road behaviour (The City of Calgary, 2018). For example, educational road safety initiatives can be undertaken with road safety stakeholders to increase exposure to primary prevention messages, educational components can be integrated into meetings related to road safety, online content may provide answers to common questions, and results of evaluations can be communicated to the public (The Office of Traffic Safety, n.d.; City of Calgary, 2018).

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.).

Sometimes, additional “Es” or different variations of E may be added or replaced, depending on the plan and the purpose. For example, Vermont’s Safe Routes to School program includes “Encouragement” rather than “Engagement” (State of Vermont, n.d.). Further, equity is always an important component and consideration in road safety and is often included as a sixth E.

## **Complete Streets Framework**

A Complete Streets Framework emphasizes streets designed for all ages, abilities and modes of travel, including pedestrians, cyclists, transit users, and others (Complete Streets for Canada, n.d.). Complete Streets policies ensure streets are designed for all road users, not just motor vehicle drivers. The Complete Streets Framework is intricately connected to public health; its policies have been consistently included within preventative health strategies across North America to promote livability using design strategies such as street furniture and trees (Complete Streets for Canada, n.d.). Communities in any location and of any size and population can implement a Complete Streets framework, from busy downtown streets in Toronto to more suburban communities. Complete Streets as a policy has grown significantly since its introduction in 2003. More than 1,400 Complete Streets policies have been adopted in the United States, and more than 100 have been adopted thus far in Canada (Complete Streets for Canada, n.d.).

The [Complete Streets Evaluation Tool](#) provides a useful outline for evaluating road safety initiatives under the Vision Zero approach. [You can use this tool](#) to evaluate the effectiveness of road safety countermeasures in your jurisdiction. The complete tool is composed of 21 performance indicators aimed at helping municipalities assess effectiveness of their projects. The indicators are organized within four goals (The Centre for Active Transportation, 2015):

Complete Street Goal	Outcome Performance Indicator (with desired effects)
<b>Active Transportation</b>	<ul style="list-style-type: none"> <li>• Changes in pedestrian counts (increase)</li> <li>• Changes in cycling counts (increase)</li> <li>• Changes in transit ridership (increase)</li> <li>• Changes in motor vehicle counts (decrease)</li> </ul>
<b>Level of Safety</b>	<ul style="list-style-type: none"> <li>• Changes in collision severity (decrease)</li> <li>• Changes in collision frequency (decrease)</li> <li>• Changes in all collision types (pedestrian/bike vs. car) (decrease)</li> <li>• Changes in traffic speeds (decrease)</li> </ul>
<b>Level of Service</b>	<ul style="list-style-type: none"> <li>• Changes in transit travel time (decrease)</li> <li>• Changes in motor vehicle travel times (and wait times) (decrease)</li> <li>• Changes in average delay for a motor vehicle to clear a intersection (decrease)</li> <li>• Multi-modal level of service (improve)</li> <li>• Perceived safety and comfort (increase)</li> </ul>
<b>Surrounding Environment</b>	<ul style="list-style-type: none"> <li>• Changes in local property values (increase)</li> <li>• Changes in retail sales (increase)</li> <li>• Changes in air quality (improve)</li> <li>• Changes in physical activity (duration and frequency) (increase)</li> </ul>

## Public Health Approach

The Public Health Approach is preventative in nature and its aims can be applied to many health problems that affect populations, including road safety (Royal Society for the Prevention of Accidents, 2014). The commitment to research, evaluation and equity often seen in Public Health makes it an important consideration in Vision Zero work (Vision Zero Network, n.d.-b). The approach builds off the scientific method and involves understanding the underlying determinants of health problems and developing effective prevention strategies.

The Public Health Approach consists of four steps as part of an iterative, and not necessarily linear, process:

- Define the problem
- Identify risk and protective factors
- Select and implement interventions
- Monitor and evaluate interventions and ensure widespread adoption



Taking a Public Health Approach to road safety means considering the way we travel as a main determinant of our health. Healthy travel options that keep people safe, reduce noise and air pollution, minimize health inequalities and allow for increased physical activity, can ensure people can move about safely in their own communities, regardless of location, income, or other determinants (Royal Society for the Prevention of Accidents, 2014). When taking a Public Health Approach, ensure you understand who bears the burden of road-related injuries and fatalities in your area, where these are occurring and the frequency (Vision Zero Network, n.d.-b). Public Health strategies can be embraced in framing Vision Zero efforts (Vision Zero Network, n.d.-b). When road safety and public health practitioners work together, the results produce improved safety and improved health (Royal Society for the Prevention of Accidents, 2014).

## Vision Zero: Principles and Checklist for Effective Adoption

This paper by Craig Milligan and Rebecca Peterniak (2015) is based on an environmental scan (interviews, review of documents) and lays out the five main

principles for effective adoption of Vision Zero. The paper provides a summary of experiences seen in Vision Zero jurisdictions and looks to provide useful lessons for implementation. The paper is supplemented by a comprehensive checklist for municipalities to reference when implementing their own Vision Zero plan, to ensure they are making the right decisions regardless of the stage they are at: pre-adoption, adoption or post-adoption.

[Access the full paper and checklist.](#)

Milligan and Peterniak (2015) define the following five Vision Zero Principles:

- **Funding.** Successful Vision Zero jurisdictions share the following common funding characteristics:
  - ▶ Data-driven treatments emphasize obtaining value for money
  - ▶ Ownership-based silos that could prevent efficient allocation of funds are removed
  - ▶ Building sustainable funding channels through defined programs that are likely to get renewed budget allocations if they are shown to be continuously effective (e.g. systemic pedestrian improvement program)
  - ▶ Removal of other funding barriers when it makes sense (e.g. requirements for a business case submission waived for predefined low-cost treatments proven to be effective)
- **Partnerships.** Partnerships are often structured via committees that include representatives from multiple organizations and report to a senior political level. The formation of local committees was shown to be an important way to bridge the gap between the different agency levels. Vision Zero does not usually exist within just one agency; individual agencies bring their expertise but they build collaboration through participating in partnership-based committees. Common stakeholders include:
  - ▶ Politicians and staff
  - ▶ Health agencies (public health, injury prevention, emergency rooms, first responders)
  - ▶ Enforcement agencies
  - ▶ Justice officials
  - ▶ Transportation or public works departments
  - ▶ Educational agencies
  - ▶ Insurance agencies
  - ▶ Businesses
  - ▶ Community organizations



- **Policy Statements.** Policy statements can help align efforts and encourage commitment of time, resources and collaboration. Policy statements about Vision Zero help to clearly outline when Vision Zero is officially adopted. Policy statements should have political support and approval, be embedded in a larger strategy, and come after a period of consensus building with stakeholders to agree on Vision Zero adoption and develop the initial plan.
- **Public Engagement.** Public engagement is critical to the success of Vision Zero adoption. Engaging the public helps build support for adopting Vision Zero for achieving road safety culture change and developing community-based plans once it has been adopted.
- **Training and Access to Expertise.** Counties and smaller municipal agencies may not have significant road safety expertise so hiring necessary personnel or having access to resources, e.g. safety engineers, is important.

Please note that this is not an exhaustive list and there are various approaches to Vision Zero and overall road safety that may also be applicable, such as the Sustainable Safety and Systematic Safety approaches.

## Tools for implementation

Based on an analysis of available resources developed under the aforementioned approaches and frameworks, and with expert input from stakeholders, Parachute has compiled a set of tools to help bring jurisdictions from early consideration of Vision Zero, through to making a strong Vision Zero commitment and following through on that commitment in the long-term.

The following resources have been developed based on, and with credit to, Vision Zero tools, papers and information from experts, including: [Craig Milligan & Rebecca Peterniak's Vision Zero: Principles and Checklist for Effective Adoption, Prevention Institute](#), Vision Zero Network ([Core Elements for Vision Zero Communities](#); [Vision Zero: Planning an Effective Road Map for Action](#); [Nine Components of a Strong Vision Zero Commitment](#); [Moving from Vision to Action: Fundamental Principles, Policies & Practices to Advance Vision Zero in the U.S.](#); [Vision Zero Equity Strategies for Practitioners](#)), [World Resources Institute](#), as well as various road safety plans from around the world and feedback from road safety experts (Milligan & Peterniak, 2015; Prevention Institute, n.d.; Vision Zero Network, 2018b; Vision Zero Network, 2017; Vision Zero Network, 2015; Vision Zero Network, n.d.-a; Vision Zero Network, n.d.-c; World Resources Institute, 2018).



## Indicators of a Vision Zero community



### Multi-Disciplinary Approach



When planning to adopt a Vision Zero approach, partnerships should be developed and maintained with professionals from various disciplines, including:

- Health agencies
- Law enforcement
- Transportation and public works
- Politicians
- Planners
- Engineer
- Educators

### Collaborative and Engaging



Community members should be involved throughout the development, implementation and evaluation of a Vision Zero plan, through representation on Vision Zero committees, surveys or public road safety meetings. Insight from community members is useful to:

- Develop, support and understand what is needed
- Know which countermeasures will be effective to address community road safety concerns
- Gain insight into what is working and what is not (post-implementation)

### Political Will



Government champions and collaboration are essential to the success of any Vision Zero plan. Political will can help ensure adequate, consistent funding for the implementation of Vision Zero initiatives and support from politicians can help push these initiatives forward. Political will is particularly critical when looking to make policy changes related to road safety, such as speed-limit reductions.

### Detailed Plan



Vision Zero communities must have a detailed Vision Zero plan. The plan should include:

- Clear timelines for each road safety initiative
- Assigned responsibilities for completing each task
- Defined, measurable goals including numerical targets
- Training component to ensure all involved have the necessary knowledge and expertise to carry out the goals of the plan

## Indicators of a Vision Zero community



### Data Driven



Data-driven approaches to Vision Zero allow for appropriate planning and ensure that priority concerns are addressed first. Data-driven approaches include:

- Hot-spot tracking, e.g. using police data to determine areas with a high number of collisions
- Implementation of countermeasures that address the most critical road safety issues within priority areas
- Monitoring progress and changes in collision frequency and location over time

### Address Multi-Modal Road Users



Vision Zero planning should address multi-modal road users and aim to make roads safer for all ages and abilities and any form of transportation: pedestrians, cyclists, motorcyclists, drivers and passengers, public transit users. For example, approaches to improve the safety of multi-modal road users include:

- Separate vulnerable road users from cars, buses, trucks
- Make adequate safe crossings available
- Place a strong emphasis on equitable strategies

### Implementation and Evaluation Strategies



The Vision Zero plan must include or be accompanied by a strategy for implementation and evaluation efforts. Effective strategies should:

- Include a framework for monitoring, evaluation, and reporting that directly reflects the measurable goals and numerical targets outlined in your plan
- Be updated annually to reflect funding and plans
- Share evaluation results publicly and with key decision makers to determine priorities and budget

### Proven Countermeasures



There are numerous countermeasures that have been shown to enhance safety for all road users. For example, countermeasures may include reducing speeds, dedicated signal phases for pedestrians, and installing separated cycling infrastructure. Select proven countermeasures are explored further on page 25 of this paper.

## Becoming a Vision Zero community

# STAGE 1: Contemplation



### ✓ Obtain a clear understanding of Vision Zero principles.

This may entail completing research, speaking to Vision Zero jurisdictions, or attending Vision Zero conferences.

### ✓ Advocate for Vision Zero.

An advocacy group meets after departmental approval (or other necessary approval) and begins exploring Vision Zero with partner organizations and stakeholder groups, among others.

- Group gathers to determine willingness to work on a Vision Zero proposal
- Group meets with political leaders to get a mandate to develop Vision Zero proposal

### ✓ Ensure a conducive Vision Zero environment.

The following are essential elements that need to be in place from the beginning (contemplation stage) and stay consistent throughout (implementation and monitoring stage). If any elements are lacking, prioritize addressing these issues first.

#### Buy-in from decision makers

This may include multiple levels of government

#### Public buy-in

Engage community members through surveys, public road safety meetings

#### Robust and diverse alliances

Begin connecting with potential allies before tabling a proposal

#### Funds and resources

Ensure your budget is adequate for built environment changes and evaluation resources

### ✓ Assemble an official, multi-disciplinary working group.

The working group should bring together leaders from various areas, such as public health, transportation and public works, planning, engineering, law enforcement, city councillors, government representatives from various levels and members of the public.

### ✓ Choose an approach or set of organizing principles.

The language and guiding principles may be deployed prior to adoption of Vision Zero to help build acceptance of Vision Zero principles. You may wish to use a combination of the below:

- Safe System(s) Approach
- Complete Streets Framework
- Five Es of Traffic Safety (engagement, education, engineering, enforcement, evaluation)

### ✓ Prepare a detailed Vision Zero proposal.

The Vision Zero working group, with city officials, develop a Vision Zero proposal for approval from all necessary political levels.

## You are ready to move on to STAGE 2, when:

- ✓ You've brought your proposal forward to the appropriate levels of government, and are available for discussion throughout the decision process.
- ✓ The proposal has been **approved by government**.

## Becoming a Vision Zero community

### STAGE 2: Adoption



#### ✓ Define the level of commitment.

Keep in mind that the plan may evolve as commitment to Vision Zero changes over time. Decide where the plan rests on the continuum of Vision Zero plans in Canada before moving forward:

Formal adoption of Vision Zero with the aim of **zero** fatalities or serious injuries

Formal adoption of Vision Zero with an aspirational goal of **zero** fatalities or serious injuries, and interim measures of success. Sometimes called "toward zero"

Use of Vision Zero and/or Safe System(s) Approach language, with a view to eventual formal adoption of Vision Zero

No intention of formally adopting Vision Zero. **Revisit stage 1** and see where improvements and changes can be made

#### ✓ Public political commitment is made.

If approved to adopt Vision Zero, political leaders and government officials make a public commitment to Vision Zero. This means a commitment to try to improve road safety in their jurisdiction, with a budget allocated to implementing countermeasures, measurable goals and numerical targets, a way to effectively evaluate progress toward these targets and an outlined accountable timeframe.

#### ✓ Collect relevant data to determine priorities.

- Data related to motor vehicle collisions, including geographic data
- Data from residents regarding knowledge and attitudes about road safety
- Data from comparator jurisdictions
- Ensure high quality data is being used, i.e. consider the reliability and validity of the data
- Understand the limitations of the data: Who reports the data? How quickly is it made available for analysis, monitoring and evaluation? What types of data would be helpful to have and which key stakeholders would have such data?
  - Collision reports from police are commonly used

## Becoming a Vision Zero community

### STAGE 2: Adoption



✓ **Build in context-specific considerations.**

- Risk factors in a jurisdiction, e.g. distracted and impaired driving, incomplete roads or sidewalks, or lack of mid-block crossings.
- Geographic and demographic factors, e.g. urban-rural divide
- Urban and rural communities may have unique road safety concerns and budgets.
- Equity and socioeconomic considerations in your jurisdiction
- The needs of vulnerable populations, e.g. seniors, school children, cyclists, motorcyclists, pedestrians, transit users
  - Concerns from community members

✓ **The Vision Zero proposal develops into a formal road safety plan.**

The Vision Zero road safety plan should be developed with the working group to include:

- Principles and constraints identified in Stage 1
- Timelines
- Assigned responsibilities for completing each task
- Defined goals and/or numerical targets that are measurable and realistic
- Clear implementation, monitoring and evaluation plan
  - If budget allows, external evaluators can be brought on to assist in developing an effective evaluation plan; where this is not possible, various evaluation resources exist online such as the Complete Streets Evaluation Tool from the Toronto Centre for Active Transportation (TCAT) or evaluation information from other Vision Zero jurisdictions.
- A strong data framework, both for priorities and for evaluation
  - Consider changes in collisions, vehicle speeds, active transportation, and police tickets/citations.

✓ **The Vision Zero plan is marketed and made public to enhance accountability of all stakeholders.**

✓ **The Vision Zero working group continues to grow and develops a formal meeting schedule.**

### You are ready to move on to **STAGE 3**, when:

- ✓ Your Vision Zero road safety plan is solidified and publicized.
- ✓ All stakeholders have been engaged and are aware of their role moving forward

### Time to implement your Vision Zero plan!



## Becoming a Vision Zero community

# STAGE 3: Implementation & Maintenance



### ✓ Revisit the Vision Zero road safety plan from stage 2 and set your priorities.

When the Vision Zero plan is approved and the budget is allocated, the step-by-step plan for implementation can begin to be determined. To do so:

- Use the available data and your chosen framework or principles to determine priority areas and pertinent road safety concerns
  - Consider hotspots based on collision data and police reports
  - Speed control and roadway design are generally among high-priority items
  - System level KSI (killed/seriously injured) collision analysis can be undertaken to identify trends throughout the system and can be used to inform high-level decision-making (i.e. if your KSI collision analysis identifies a large number of motorcyclist deaths, this can be communicated to the police to encourage a public awareness and enforcement campaign)
- Ensure the community is engaged and their input is incorporated into the plan
- Determine the countermeasures that will best address each area of concern
- Create a budget forecast for each countermeasure or initiative to be implemented, being mindful to stay within budget and allocate a portion for possible unforeseen circumstances or changes
- Ensure all proposed projects, initiatives and countermeasures can be completed effectively, within budget and with available personnel

**Remember:** Focus on equitable approaches, such as having a diverse Vision Zero working group with broad interests, using a socioeconomic lens when defining priority areas for improvement with limited resources, ensuring your strategies address conditions that create inequities in road safety and consistently engage community members throughout the process of defining and implementing road safety solutions.

### ✓ Ensure you have an effective monitoring and evaluation plan in place.

Consistent monitoring and evaluation is critical to track your progress. Your monitoring and evaluation framework is developed in stage 2; however, make changes as you see necessary.

### ✓ The Vision Zero working group, decision-makers, system designers and other key Vision Zero stakeholders work together to determine policies and projects to implement in which order.

- Initial elements should include: education, training and development of a thorough understanding of road safety issues in general and in your jurisdiction specifically
- When possible, link Vision Zero efforts with other road safety programs and strategies to ensure a co-ordinated approach and improve visibility of your Vision Zero commitment

### ✓ Publish notable achievements throughout the process to maintain support.

Keep stakeholders involved and in the loop through a variety of communication tools, such as updating your website, e-blasts, social media posts, newsletters, among others.

### ✓ Continually monitor, evaluate and communicate results.

Introduce iterative improvements into your plan based on feedback received.

**Remember:** political changes, e.g. elections, are a critical Vision Zero activity that will introduce lasting change.

**Update your plan annually based on data, budget and evaluation results.**

## Proven Countermeasures to Achieve Zero

A number of proven countermeasures aimed at improving road design and use are explored in this section. Vision Zero jurisdictions often couple engineering countermeasures with education (e.g. awareness campaigns) and enforcement initiatives (e.g. automated speed enforcement, red-light cameras, enhanced enforcement in priority areas) to enhance effectiveness.

*The resources below were provided by Neil Arason, Director, Injury Prevention and Healthy Settings, BC Ministry of Health, November 2019.*

There are many measures to improve road safety, and many sources for direction and guidance including:

- [The BC Road Safety Toolkit](#) (Introduction and modules 1 to 3)
- [British Columbia Active Transportation Design Guide \(2019\)](#); full guide is available for free
- [Canadian Council for Motor Transport Administrators \(CCMTA\) Road Safety Measures; available for free](#)
- [NACTO Design Guides](#); various but limited content is available for free
- [NACTO, Global Street Design Guide](#); full guide is downloadable for free
- [US Department of Transportation Proven Safety Countermeasures](#)

Various countermeasures have the potential to produce exceptional road safety benefits. Many of these are described below and broken down into measures that apply to urban versus rural settings.

***Please note:** This is not an exhaustive list of measures and engineering expertise must be used when planning their suitability and implementation.*

## Countermeasures to improve road safety in urban environments

### Reduced speeds

- Reduced urban speed limits to 30 km/h is highly effective and is in line with Safe System principles, which dictate that where vehicles mix with pedestrians and cyclists, the maximum safe speed is 30 km/h
- Automated speed enforcement

- Shorter curb or turning radii to reduce vehicle speeds at turns
- Innovative measures to shorten vehicle turning radii at intersections, such as rubber bumpers and bollards
- Elimination of dedicated right-turn slip lanes at intersections
- Physical road design that lowers vehicle speeds and includes both vertical and horizontal deflection
  - Examples of vertical deflection include speed humps, raised intersection tables and raised crosswalks.
  - Examples of horizontal deflection include road narrowing or lane narrowing, sidewalk bulges or curb extensions, traffic circles and chicanes.

### **Measures that separate vulnerable road users from vehicle traffic through time such as:**

- Leading Pedestrian Intervals
- Pedestrian Scramble Intersections
- Dedicated or channelized left and right turns, including moving from permissive left turns (a traffic signal indication allowing vehicles to turn on a green light in the absence of opposing traffic) to channelized turns (only one traffic movement happens at once, such as when a green flashing arrow allows cars to turn left where these cars have right of way and pedestrians aren't allowed to cross at the same time).
- Dedicated signal phases for pedestrians
- Dedicated signal phases for cyclists
- Prohibition of right-turn-on-red

### **Measures that separate vulnerable road users from vehicle traffic through space such as:**

- Installation of sidewalks, preferably further away from the road
- Installation of dedicated and separated bicyclist infrastructure
- Installation of shared use paths



- Installation of overhead pedestrian and cyclist crossings
- Floating bus stops with cyclist speed hump
- Protected intersection designs for pedestrians and cyclists
- Bicycle boxes

### **Measures that support or nudge driver decision-making such as:**

- Better crosswalk treatments, including Rectangular Rapid Flashing Beacons
- Improved lighting
- Improved driver sight lines
- Advanced stop lines for cars
- Well-designed roundabouts with tight cross-diameters
- Enhanced pavement markings
- Use of coloured or textured surfaces for vulnerable road users
- Tactile markings for people with disabilities
- Danish offset crosswalks, which have a median that breaks up the crossing distance
- Changing geometry of dedicated right-turn slip lanes to create a sharper turning radii
- Conversion of two-way stops to four-way

### **Measures or policies that encourage modal split away from car use and toward walking, cycling and public transport such as:**

- Prioritization planning that gives the greatest priority to active modes of transport followed by public transit and then private automobiles last
- More and better public transit
- Bus rapid transit
- Light and heavy rail
- Dedicated rail lines, dedicated bus lanes, and bus queue jump lanes

- Road-use pricing for drivers such as road tolls, congestion charges or distance- and time-based fees
- High-priced parking
- Increased gas taxes
- Road diets, where roads are narrowed to calm traffic and improve safety
- Volume diversion
- Disruptive (non-grid) street design for cars
- Non-disrupted (continuous and connected) pathways for pedestrians and cyclists
- Closing off roads to cars in certain geographic areas or during specific time periods

## **Countermeasures to improve road safety in rural environments**

- Appropriately set speed limits, in-line with Safe System principles
- Automated speed enforcement, including point-to-point or speed over distance
- Variable speed message systems
- Centreline and shoulder rumble strips
- Improved, wider pavement markings
- Better signage
- Speed limit changes, including “buffer zones” or “gateways” to transition drivers gradually into slower speed areas
- The use of “hatched areas” or extra space between lanes
- Anti-skid pavement resurfacing
- Improved lighting
- Centre-median crash barriers including their implementation through “2 + 1 roads” (roads with two lanes in one direction and one lane in the other, alternating every few kilometres)
- Roadside crash barriers
- Clear zones

- Crash attenuators
- Wildlife passages
- Wildlife detection systems
- Rest stops located every 50 kilometres
- Good access management
- Roundabouts
- Separate infrastructure for pedestrians and cyclists located well away from the road



## Conclusion

Vision Zero has shown significant success in areas such as Sweden, the City of Edmonton, and New York City, leading numerous countries and cities across the world to publicly adopt Vision Zero as well. While making a Vision Zero commitment requires time, effort, collaboration and patience to see meaningful results, it is a small price to pay when the lives of many loved ones could be saved. Whether you take a Safe Systems, Five E's of Traffic Safety, Public Health, or Complete Streets approach, the vision remains the same: zero deaths and serious injuries on our roadways.



Parachute Vision Zero is supported by



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