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VISION ZERO ADOPTION IN CANADA

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ABSTRACT

This paper documents the adoption of Vision Zero in Canada, which is useful for road safety benchmarking; compares Vision Zero adoption processes and programs in Canadian jurisdictions with the principles for effective adoption of Vision Zero; and identifies common challenges encountered by Canadian jurisdictions in adopting this road safety approach. Vision Zero is an approach to road safety characterized by aggressive casualty and injury reduction goals, coordinated and multidisciplinary action, increased priority and resources allocated toward road safety improvement, and a specific ethical policy framework. The 2016 adoption of Vision Zero at the national level by the Canadian Council of Motor Transport Administrators may lead to widespread adoption among all levels of government in Canada. Ensuring that current and future adoptions of Vision Zero are made both in name and in practice will help to maximize road safety improvement in Canada. This paper is based on a survey with 31 jurisdictions in Canada, 21 of which responded. The survey revealed that eight of 21 responding jurisdictions have already adopted Vision Zero, and that several may consider doing so in the future (12 of 14 responses from jurisdictions that do not currently have Vision Zero).

1 INTRODUCTION

This paper documents the adoption of Vision Zero in Canada, which is useful for road safety benchmarking; compares Vision Zero adoption processes and programs in Canadian jurisdictions with the principles for effective adoption of Vision Zero; and identifies common challenges encountered by Canadian jurisdictions in adopting this road safety approach. The paper is based on a survey with 31 Canadian jurisdictions, 21 of which responded. The scope of the paper was limited to road safety strategies based on Vision Zero; other road safety strategies were excluded.

Vision Zero is an approach to road safety characterized by aggressive casualty and injury reduction goals, coordinated and multidisciplinary action, increased priority and resources allocated toward road safety improvement, and a specific ethical policy framework. Vision Zero was launched in Sweden in 1997 and gradually spread to other countries and states. It is distinctly different from historic road safety approaches in that it recognizes that all road fatalities and injuries are preventable, has the long-term goal of eliminating road fatalities and injuries, and believes that it is unacceptable to trade off human life or health for other benefits of the transportation system. Central to Vision Zero is the notion that humans are fallible and will make mistakes: fault for a road fatality or injury does not exclusively lie with road users, but with the entire transportation system (e.g., the road infrastructure, policy and regulatory framework, vehicle technology, post-crash care, etc.). Some oppose extreme implementations of Vision Zero based on utilitarian principles, however previous research has demonstrated that adopting Vision

Zero helps balance road safety investments and focus them on cost-effective, data-driven treatments.

The Canadian Council of Motor Transport Administrators (CCMTA) published *Canada's Road Safety Strategy 2025 – Towards Zero: The Safest Roads in the World* in January 2016. CCMTA's national strategy is intended to influence the direction of road safety strategies at the provincial, territorial, and municipal level. The national strategy seeks to provide "a framework for governments and other road safety stakeholders to establish their own road safety plans, objectives, and interventions to eliminate road crashes which result in serious injuries or fatalities" (CCMTA, 2016). The framework has three key components, from which jurisdictions may choose to adapt to local conditions when developing their strategies:

1. Adoption of a **Safe Systems approach** that considers how road infrastructure, road users, and vehicles interact to facilitate the safety situation, and seeks to mitigate issues through a wide range of holistic and integrated interventions. CCMTA's interpretation of the Safe Systems approach is illustrated in Figure 1.

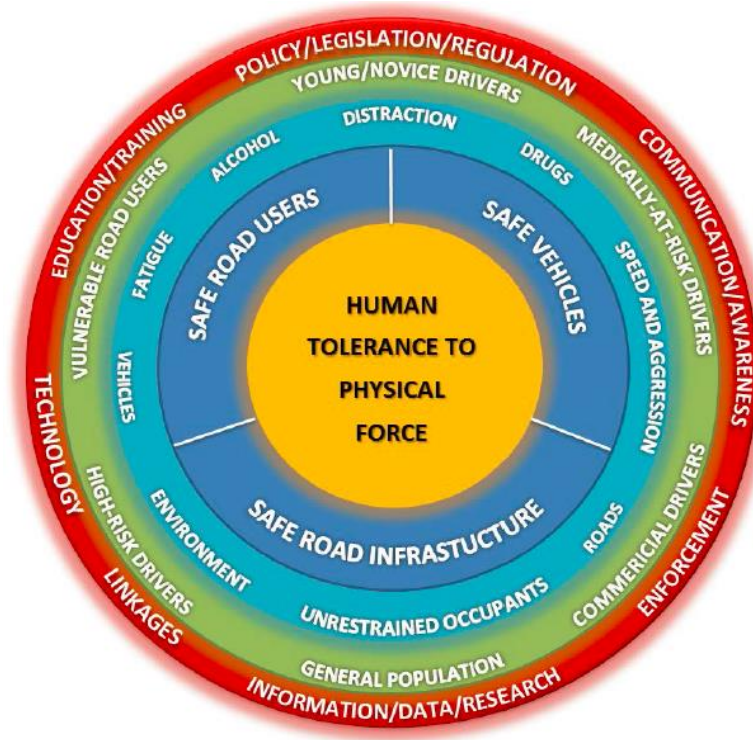


Figure 1: Safe Systems Approach

Source: (CCMTA, 2016) Canadian version adapted from the 2009 WHO report on the Global Status on Road Safety, which was in turn modified from work commissioned by the Government of Western Australia

2. Specification of **rate-based fatality and injury reduction metrics that trend downward, toward zero**. CCMTA will monitor national road safety progress using two rates: (1) fatalities and serious injuries per billion kilometres traveled, and (2) fatalities and serious injuries per 100,000 population. As illustrated in Figure 2, Canada has noted a downward trend in road fatalities, although there is much to be done to eliminate fatalities altogether. The national strategy does not preclude jurisdictions from adopting quantitative targets.

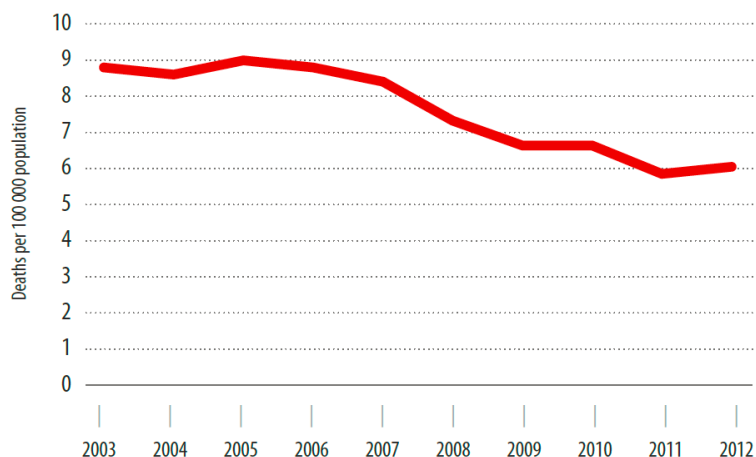


Figure 2: Trends in reported road collisions in Canada

Source: (World Health Organization, 2015) using data from National Collision Database and Statistics Canada Catalogue No. 91-215-X-2013

3. Incorporation of internationally recognized and proven **best practices for road fatality and injury reduction**. A repository of road safety measures and strategies are provided on CCMTA’s website across multiple topic areas: by type of measure (road users, road infrastructure, and vehicles), by key risk groups (e.g., young/novice drivers, vulnerable road users, etc.), by contributing factors (e.g., speed and aggressive driving, distraction, etc.), and by type of intervention (e.g., education/training, road infrastructure, etc.).

National guidance from CCMTA may lead to widespread adoption of Vision Zero in Canada, and although adoption of Vision Zero in Canada continues to grow, it is not well documented. This paper addresses the need to document these efforts, and forms the basis for improved national dialogue and peer exchange regarding Vision Zero adoption and programming in Canada.

2 PRINCIPLES FOR EFFECTIVE ADOPTION OF VISION ZERO

Principles for effective adoption of Vision Zero relate to the kind of funding, partnerships, policy statements, public engagement, training and access to expertise required to mobilize Vision Zero. The content in this section builds upon the paper entitled, *Vision Zero: Principles and Checklist for Effective Adoption* (Milligan & Peterniak, 2015).

BUDGET ALLOCATION AND BUSINESS PROCESSES

Road safety improvements cost money and navigating budget constraints and coordination among multiple actors can be a challenge. Jurisdictions with successful implementations of Vision Zero have the following budget allocation business process characteristics in common: (1) data-driven treatments emphasize obtaining value for money and are directed toward fatal and injury prevention, not collision reduction; (2) ownership-based silos that may prevent efficient funding allocation are removed (e.g., a state/province may pay for municipal improvements if a better ROI is expected, or regional fund transfers are facilitated); (3) sustainable funding channels are built through defined programs which are likely to get renewed annual budget allocations as long as they continue to be effective (e.g., systemic rumble strip program; systemic pedestrian improvement program); (4) other barriers to funding are removed when they make sense (e.g., requirements for a cumbersome business case submission are waived for a predefined set of low-cost treatments known to be highly effective; and (5) programs and interventions are monitored and evaluated, and can be cut or altered if they are not achieving anticipated safety

outcomes. Funding may also be directed toward research and development. Although there have been cases where road safety budgets received new or expanded funding at the onset of Vision Zero, this is not deemed necessary for successful adoption.

PARTNERSHIPS

Partnerships are essential in a successful Vision Zero adoption. Any entity can initiate the push for Vision Zero (e.g., a department of transportation, police agency, politician, citizen group, etc.), but should place emphasis on the importance of building a network of stakeholder partnerships: Vision Zero is a multidisciplinary and collaborative effort by nature. A lead agency will often be identified to retain ownership of a Vision Zero strategy or program, and will coordinate efforts with stakeholders through structured committees and task forces.

POLICY STATEMENTS

Policy statements about Vision Zero are an effective means of providing a mandate to task forces and their member organizations. They can help align efforts and encourage commitment of time, resources, and collaborative approaches. Vision Zero policy statements are helpful in marking the “adoption” time of Vision Zero. It is important for policy statements to have political support and approval, to be embedded in a larger strategy document, and to come after a period of initial consensus building with stakeholders to agree on adopting Vision Zero and to develop initial elements of the plan.

PUBLIC ENGAGEMENT

Public engagement is an important component of Vision Zero adoption in all jurisdictions. Public engagement can be used to build support for adopting Vision Zero, and when it is adopted, for achieving road safety culture change and developing community-based plans.

TRAINING AND ACCESS TO EXPERTISE

Applying the science of road safety, as detailed in the AASHTO Highway Safety Manual, along with a systems-level approach to safety management, provides the greatest improvements in road safety performance. Road management decisions should be made by individuals who are well informed on the science of road safety and the broadening scope of the field, as these decisions impact the safety of all road users. Canadian undergraduate civil engineering programs do not necessarily equip individuals to work in road safety, as they cover introductory road safety concepts yet do not provide in-depth coverage on the science of road safety (Regehr, et al., 2014). Rather, this knowledge is generally obtained through continued education, professional development, and on-the-job training. A survey conducted to gain a better understanding of the current level of expertise and training of individuals working in road safety in Canada and to identify interest levels in obtaining additional training, among other objectives, found that “only 37% of practitioners took any road safety courses prior to commencing practising, while 84% had taken additional professional development in road safety while practising...[and] more than 95% of respondents were interested in obtaining additional training in road safety” (Izadpanah, et al., 2016).

Providing training and access to expertise for individuals tasked with leading Vision Zero (within and outside of the engineering discipline) is critical for meeting the aggressive fatal and injury collision reduction targets aligned with Vision Zero programs. Providing opportunities for training and access to expertise can include:

- Local conferences/workshops that feature safety successes, challenges, and leading edge research.

- New hires with advanced safety experience who are tasked with coordinating Vision Zero efforts and/or providing resources to smaller agencies that do not have in-house safety expertise.
- Supporting in-house staff in obtaining post-secondary degrees in advanced road safety engineering or other related fields.
- Other continued education and professional development opportunities.
- Peer exchange programs with other jurisdictions.

3 METHODOLOGY

This paper is based on a jurisdictional survey that sought to identify the level of adoption and awareness of Vision Zero within Canadian government transportation agencies. The survey was distributed via Survey Monkey to 31 municipal, provincial and territorial government transportation agencies across Canada. A total of 21 responses were received from 20 jurisdictions: one jurisdiction submitted two responses from different staff, and one jurisdiction provided documents with relevant information instead of responding to the survey. Responsive jurisdictions are listed below and represent five Canadian provinces/territories and 16 municipalities:

- | | |
|---------------------------------|---------------------------------------|
| 1. Yukon Territory | 12. City of Winnipeg, MB |
| 2. Province of British Columbia | 13. York Region, ON |
| 3. City of Vancouver, BC | 14. City of Hamilton, ON |
| 4. City of Surrey, BC | 15. Region of Peel, ON |
| 5. City of Richmond, BC | 16. City of Ottawa, ON |
| 6. Province of Alberta | 17. City of Toronto, ON |
| 7. Strathcona County, AB | 18. Province of Quebec |
| 8. City of Calgary, AB | 19. City of Montreal, QC |
| 9. City of Edmonton, AB | 20. Halifax Regional Municipality, NS |
| 10. Province of Saskatchewan | 21. City of St. John's, NL |
| 11. City of Saskatoon, SK | |

Respondents were divided into three categories:

1. *Jurisdictions that do not have road safety strategies*: main reasons why jurisdictions do not have a strategy and if they would consider adopting Vision Zero in the future were identified through the survey.
2. *Jurisdictions that have non-Vision Zero road safety strategies*: main reasons why jurisdictions do not have Vision Zero strategies and if they would consider adopting it in the future were identified through the survey.
3. *Jurisdictions that have Vision Zero road safety strategies*: the survey compared their experiences with the principles for effective adoption of Vision Zero and documented any challenges faced in adopting Vision Zero. Supplemental information on jurisdictions with Vision Zero strategies was retrieved online and reviewed to better understand their strategies and programs.

4 SURVEY RESULTS

At the request of several jurisdictions, the survey results are collectively summarized rather than indicating specific responses provided by individual jurisdictions. Table 1 summarizes the adoption of Vision Zero in surveyed jurisdictions: eight out of 21 reported having a Vision Zero strategy, six reported having a non-Vision Zero strategy, and seven reported having no road safety strategy.

Table 1: Adoption of Vision Zero in Surveyed Jurisdictions

Jurisdiction Type	No Road Safety Strategy	Non-Vision Zero Strategy	Vision Zero Strategy	Total
Provincial/Territorial	2	1	2	5
Municipal	5	5	6	16
Total	7	6	8	21

The survey asked respondents to describe their experience with Vision Zero (Figure 3). The majority of respondents reported having basic experience with Vision Zero. The level of experience increased in jurisdictions that run Vision Zero programs: all of the respondents who reported having advanced experience were from jurisdictions with Vision Zero strategies. Two respondents reported having no experience with Vision Zero; both were from jurisdictions that have a non-Vision Zero road safety strategy.

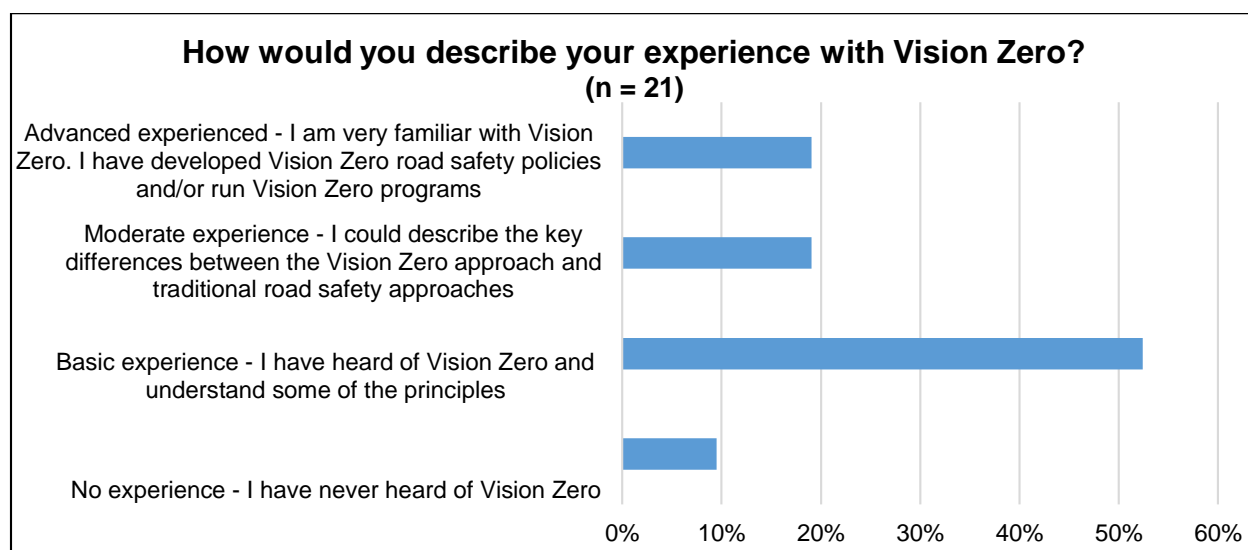


Figure 3: Awareness/experience with Vision Zero in surveyed jurisdictions

4.1 JURISDICTIONS WITHOUT A ROAD SAFETY STRATEGY

As illustrated in Table 1, seven out of 21 respondents indicated they do not have a documented road safety strategy in their jurisdiction, and six of these seven responded 'maybe' to adopting Vision Zero in the future. These respondents were asked to identify the main reasons why they do not have a road safety strategy; their responses are as follows:

- Our road safety strategy is in development (4 responses)
- Lack of priority but also lack of data and poor coordination between police/provincial reporting centre and city
- It wasn't a specific outcome of the City's Transportation Master Plan
- A strategy is not a current road safety priority in our jurisdiction

Four jurisdictions indicated that their road safety strategy is currently in development and that they may consider adopting Vision Zero. Prioritization was a theme across the three remaining responses. One jurisdiction indicated that a strategy is not a current road safety priority in their jurisdiction and that they would not consider adopting Vision Zero in the future because they do not have the safety budget necessary to sustain a Vision Zero approach. Although the respondent did not provide details on their road safety budget, new or expanded funding has not been necessary for the successful adoption of Vision Zero in other jurisdictions. A Vision Zero strategy can be sustained through funding reallocation, sharing, and new programming. Another

jurisdiction responded that they do not currently have a road safety strategy because it was not a specific outcome of their Transportation Master Plan, which set the long-term direction for transportation investment as it relates to socioeconomic growth in the jurisdiction.

In addition to lack of priority, one jurisdiction indicated a lack of data and poor coordination between police/provincial reporting centre and the jurisdiction as factors contributing to not having a strategy. Effective Vision Zero strategies, and several non-Vision Zero road safety strategies, stress the importance of data-driven decision making that relies on good quality information, as well as a coordinated, multidisciplinary approach where several stakeholders work together on task forces or committees. In a multidisciplinary road safety strategy, like Vision Zero, a diverse stakeholder base is united behind a single vision, which they helped to craft. Regardless of the size of a jurisdiction's road safety program, the consultative process undertaken in developing a strategy can help formulate and solidify relationships between multidisciplinary stakeholders. A lead agency initiating a road safety strategy in a jurisdiction where there has historically been poor stakeholder coordination may help breakdown the silos that currently exist, and may also help raise priorities among stakeholder groups, such as data availability and quality.

Improved safety performance is possible without a strategy, however, regardless of the size of a jurisdiction, road safety strategies offer several benefits: strategies identify priority areas for targeted road safety investment which can yield greater returns; help develop partnerships among diverse stakeholder groups; convey a clear plan and vision for road safety in a jurisdiction which can be executed by responsible parties and used for effective public engagement; and help in benchmarking road safety performance over time.

4.2 JURISDICTIONS WITH NON-VISION ZERO SAFETY STRATEGIES

As illustrated in Table 1, six out of 21 respondents indicated having a non-Vision Zero road safety strategy in their jurisdiction. These respondents were asked to identify the main reasons why they did not adopt a Vision Zero strategy; their responses are as follows:

- We did not know enough about Vision Zero to know if it would be right for our jurisdiction (2 responses)
- Vision Zero was less known at the time the jurisdiction adopted their road safety strategy (2 responses)
- Not aware of Vision Zero/have never heard of Vision Zero (2 responses)
- We use Vision Zero concepts and supporting statements but do not explicitly reference Vision Zero due to misconceptions about what it is and the difference between a vision and a goal (by public, council and practitioners)

Five responses related to a lack of awareness of Vision Zero at the time of adopting the current road safety strategy, while one response specified that the jurisdiction uses Vision Zero concepts and supporting statements but does not explicitly reference Vision Zero due to misconceptions about what Vision Zero is and the difference between a vision and a goal. Three jurisdictions indicated that they would consider adopting Vision Zero in the future, three responded 'maybe', and one responded that they would not consider adopting Vision Zero in the future because they were not aware of the concept.

Promotion and training for Vision Zero among transportation professionals has grown in Canada in recent years. For example, the 2015 Transportation Association of Canada (TAC) Annual Conference had a road safety theme and featured a keynote address from a representative of the Vision Zero Academy in Sweden. Parachute Canada hosted a lecture in Toronto in 2015 with the same speaker on Vision Zero and publicized several Vision Zero resources on their website. Edmonton's 8th International Conference on URBAN Traffic Safety was held in April 2016 and had

a *Towards Vision Zero* theme, featured presentations and a workshop on the topic, and also engaged the community through a walk/run/ride in support of Vision Zero.

Increasing opportunities for training and access to expertise within the professional transportation community (through conferences, workshops, webinars, peer exchange, and case studies from some early Vision Zero adopters in Canada) could help increase awareness of Vision Zero, strengthen existing programs, and ensure that new adoptions are being made both in name and practice. In the United States, Minnesota runs an annual Towards Zero Deaths conference that draws hundreds of delegates from a variety of disciplines, with many opportunities to obtain training in workshops and sessions.

Effectively communicating Vision Zero messages to the public and politicians is an important step in building support for Vision Zero. Washington State faced opposition in initially adopting a Target Zero road safety vision due to the perception that it was unrealistic and unachievable. Through various consultative platforms with the public and stakeholders, they achieved a general consensus that no number of fatal and injury collisions was acceptable on their roads and approved the Target Zero vision. In New York City, a progressive transportation community advocated and lobbied for safer transportation infrastructure, which led to Vision Zero being included in a mayor's successful election platform. A powerful message in gaining public and political support for Vision Zero in New York City was that more people are killed on roads than as a result of homicides, and that both causes are preventable. Being included as part of an election platform led to additional funding for road safety and widespread support among all levels and sectors involved.

4.3 JURISDICTIONS WITH VISION ZERO STRATEGIES

As illustrated in Table 1, eight out of 21 respondents indicated having a Vision Zero road safety strategy in their jurisdiction. Survey questions and responses for Vision Zero jurisdictions are summarized below.

Q1: What year did your jurisdiction adopt Vision Zero?

- 2011
- 2012
- 2013
- 2015 (3 responses)
- Anticipated for 2016
- In development

The earliest adoption was made in 2011, while the majority of adoptions took place within the past year or are in development/anticipated for release this year.

Q2: What is your jurisdiction's formal Vision Zero policy statement?

- One fatality or serious injury is too many.
- Vision of zero deaths and serious injuries on our roads...the recognition that deaths and injuries on our roads are not inevitable or acceptable.
- Vision: No one is seriously injured or killed while travelling on our road network.
- Our goal is to have the safest roads in North America by 2020. In line with the Vision Zero movement, the ultimate goal is to eliminate motor vehicle crash fatalities and serious injuries.
- Eliminate fatalities and major injuries from motor vehicle collisions.

- Our goal is to move toward zero traffic-related fatalities. Our ultimate safety goal is to eliminate all fatalities from our transportation system. We recognize the magnitude of this challenge, and that responsibility is dispersed across multiple jurisdictions. However, we also see that great strides are being made around the world to this end and that more and more public and private agencies are recognizing that zero fatalities is the only acceptable goal. We will work closely with our partners to examine the location and contributing factors of any collisions resulting in death and identify appropriate steps to take in response, whether they are engineering, enforcement, and/or education interventions. A special emphasis will be placed on safety for at-risk groups (for example, children, seniors, and those with mobility challenges). This plan may very well not achieve this goal on its own, but we believe it is a worthy first step. One fatality is one too many.
- Minimizing the number of motor vehicle accidents, injuries and fatalities in the next five years.
- Still in development.

The majority of policy statements (five) relate to the elimination of all collision fatalities and serious injuries. One jurisdictional Vision Zero policy statement is restricted to fatality elimination only and does not address serious injuries. One jurisdiction indicated that their Vision Zero policy statement is to minimize the number of collisions, injuries and fatalities over the next five years, which does not align with the internationally accepted Vision Zero approach of *elimination*, rather than *minimization* of fatalities and serious injuries.

Q3: In addition to a Vision Zero policy statement, does your jurisdiction set interim injury and fatality reduction targets? If yes, what are the targets?

- Yes, 15 percent reduction in the number of fatalities during 2016 to 2020 compared to the baseline between 2011 and 2015; 15 percent reduction in the number of serious injuries compared to the baseline; and 15 percent reduction in the combined fatal and serious injury collision rate when compared to the baseline.
- Yes, the average annual rate of combined fatal and major injury collisions per 100,000 population from 2018 to 2020 reduced by 15 percent compared to the average rate from 2011 to 2013, and the average number of fatal and major injury collisions from 2018 to 2020 reduced by 15 percent compared to the average number of collisions from 2011 to 2013.
- Yes, annual targets set over five year period from 2016 to 2020 in terms of collision injuries per 1,000 population (e.g., target of 3.4 collision injuries in 2016, 3.3 in 2017, 3.0 in 2020); reduction in intersection collision rate per 1,000 population (e.g., target of 14.8 intersection collisions per 1,000 population in 2016, 14.5 in 2017, and 13.5 in 2020); and a school zone safety target that has yet to be developed. Targets are expressed by contributing area of intervention (i.e., specific targets for reductions in injury collisions achieved through engineering treatments, road safety audits, enforcement, and education).
- No, simply year-to-year reductions measured as the number of motor vehicle fatalities and serious injuries per 100,000 population per year.
- No, however there are focus area specific targets (e.g., 10 percent reduction in pedestrian collisions resulting in death or serious injury, 10 percent reduction in non-intersection single motor vehicle collisions resulting in death or serious injury, etc.)
- No, we are working under a goal to get to zero every year. We are committed to building safe infrastructure and addressing collision hotspots throughout the jurisdiction, and

working with the police department and others to identify and address the root cause of any traffic fatality that occurs. We are also developing an annual scorecard to help monitor progress towards targets.

- 5 years.
- Still in development.

These responses reveal jurisdictional indicators used to monitor the effectiveness of Vision Zero strategies and programs. As Vision Zero is, in principal, focused on the elimination of road fatalities and injuries, it can be anticipated that complementary Vision Zero indicators will focus on fatality and injury reduction, either expressed as a rate (e.g., reduction in motor vehicle fatalities per 100,000 population, combined fatal and injury collision rate, or collision injuries per 1,000 population), or as a simple frequency (i.e., reduction in number of fatal and injury collisions). Rate-based metrics account for exposure and are useful for road safety benchmarking across jurisdictions or within jurisdictions with variable growth, while frequency-based metrics can be useful in road safety benchmarking within a single jurisdiction over time, as they allow for conclusions in the number of lives saved and injuries prevented over a certain timeframe. CCMTA is monitoring Canada's road safety progress using two rate-based metrics, fatalities and serious injuries per billion kilometres traveled, and fatalities and serious injuries per 100,000 population.

The indicators and targets set by a jurisdiction to monitor road safety progress can influence road safety program development and budget allocation. For example, a jurisdiction with targets set for school zone safety and intersection safety will likely develop road safety programming and allocate funding to improvements in these areas. Road safety indicators in Vision Zero strategies generally avoid the inclusion of property damage-only (PDO) collisions; a road safety program or treatment that results in a considerable reduction in PDO collisions, but has little impact on injury and fatal collisions, could produce a positive outcome if the metric being evaluated is based on total collisions. If the metric only considers fatal and injury collisions, an evaluation of the same program or treatment would not have as positive of an outcome, and the resulting decision could be to reallocate funding to treatments with better return on investment. Some jurisdictions with successful Vision Zero programs often undertake in-depth studies of fatal and injury collisions so as to better understand causal factors and characteristics so that they can develop interventions that provide the greatest return. For example, Washington State's Towards Zero program is intensely focused on reductions in road fatalities and injuries to a degree that they continuously monitor the performance of various programs and modify, and in some cases, eliminate, interventions that are not yielding the expected return, as it relates to fatality and injury reduction.

Q4: Did adopting Vision Zero result in the reallocation and refocusing of road safety dollars? If yes, how so? For example, adopting Vision Zero in some jurisdictions resulted in the reallocation of safety dollars toward multidisciplinary safety initiatives, the refocusing of dollars on data-driven solutions as well as systemic treatment programs (e.g., systemic application of rumble strips on all highways, regardless of collision history).

- We are at the first year of the program, which did not see any effect on the reallocation of road safety dollars.
- Not initially, however, in the last election (2014), the mayor picked up on road safety as one of their platforms and has dedicated funding for a variety of safety related initiatives.
- Our previous safety plan was implemented in 2007 and evolved over time using the Safe Systems Approach. Vision Zero was the next step to take with the plan. So essentially new funding was established in 2007 with our first traffic safety plan.

- No. Budget allocations for safety related initiatives remained unchanged after Vision Zero was adopted. There has always been a strong focus on improving safety for vulnerable road users in our jurisdiction (especially pedestrians and cyclists). Before adopting Vision Zero, the jurisdiction had a pedestrian safety study developed and the cyclist safety study being planned.
- The development of a new road safety improvement program that will receive double in funding compared to previous years (investment of \$75 million over the next three years) was released as part of a 10-year transportation plan around the time that Vision Zero was adopted.
- Not at this point.
- No information available.
- Still in development.

None of the respondents indicated a real change in the allocation and focusing of safety dollars as a result of Vision Zero adoption. Jurisdictions outside of Canada with successful Vision Zero programs shifted the direction of their road safety budget toward more data-driven solutions with proven fatality and injury reduction potential; moved away from a black-spot-only type of analysis and intervention program, toward the implementation of systemic treatments, such as systemic rumble strip application or right-turn on red prohibition; and also reallocated dollars toward multidisciplinary initiatives (e.g. joint speed reduction program with support from enforcement, engineering, and public education professionals).

Q5: Did adopting Vision Zero remove prior barriers for safety spending? If yes, how so? For example, adopting Vision Zero in some jurisdictions removed the requirement to prepare business cases for treatments that fell under systemic treatment funding programs. In other jurisdictions, predefined sets of low-cost treatments could be implemented without requesting high-level approvals.

- No. (4 responses)
- No information available. (2 responses)
- The plan is confidential and has not been launched as yet. We are not sure of any impact at this time.
- Still in development.

The adoption of Vision Zero did not simplify the process or remove prior barriers for safety spending within surveyed Canadian jurisdictions. Simplifying the requirements and processes for safety spending on certain treatments or studies known to be highly effective at fatal and injury reduction has been a successful strategy implemented in some Vision Zero jurisdictions outside of Canada.

Q6: Did adopting Vision Zero require an increased safety budget? If yes, by how much was the budget increased?

- No. (4 responses)
- Initially no, 2014: \$425,000 per year.
- No information available. (2 responses)
- Still in development.

None of the respondents indicated a road safety budget increase at the onset of Vision Zero, nor is this considered necessary for effective adoption. Some critics believe that Vision Zero will inefficiently allocate indeterminate amounts of money to do whatever it takes to eliminate all road fatalities. In practice, Vision Zero jurisdictions face the realities of budget constraints and effectively run Vision Zero programs by constantly seeking the most effective ways to spend road safety dollars through data-driven and collaborative programs.

Q7: What sector was most influential in championing the successful adoption of Vision Zero in your jurisdiction? For example, in some Vision Zero jurisdictions, Vision Zero was primarily adopted because of strong political support. In others, the push for Vision Zero came from the department of transportation responsible for developing a road safety strategy.

- Traffic Operations.
- The primary push came from Public Works (Transportation & Traffic).
- The traffic safety plan was truly a collaborative, stakeholder and partner endeavor with the Office of Traffic Safety providing the leadership to move strategies forward.
- Transportation/RCMP.
- All sectors were involved.
- The champions who initiated adoption of Vision Zero were our Active Transportation Policy Council (ATPC). ATPC's is a committee whose members are selected through the City's Civic Committee public selection process for three years. ATPC's role is to advise City Council on strategic priorities relating to walking, cycling, public transit and all active transportation modes in the City.
- No information available. (2 responses)

A variety of responses were received regarding the sector most influential in championing Vision Zero adoption: two respondents indicated the push came from traffic operations or public works, three respondents indicated it was a joint venture between multiple stakeholders, and one respondent indicated that a council responsible for advising on policy, collaborating, and improving awareness/outreach on active transportation was a main driver for Vision Zero adoption.

Q8: What sector or internal department represents the Vision Zero lead agency? (e.g., transportation engineering, transportation policy and planning, mayor's office, enforcement, etc.)

- Traffic Operations Section.
- Traffic & Data Management Branch, Engineering.
- Traffic Engineering and Safety Branch of Transportation and Agriculture Services Department in partnership with the Integrated Traffic Unit of the RCMP and Enforcement Services Department.
- The Office of Traffic Safety (OTS) in the Department of Transportation. The OTS provides and umbrella and collaborates with other key ministries and stakeholders through a number of subject matter expert groups that are key in implementing the traffic safety plan.
- Office of Traffic Safety.

- The program is fully integrated. It has a Board of Directors that includes the Manager of Public Works, the Chief of Police, Chief of Emergency Services, Manager of Public Health and the Coroner.
- The road safety department of the Ministry of Public Safety and Solicitor General, in partnership with the Ministry of Transportation and Infrastructure.
- Still in development.

The majority of respondents indicated that the Vision Zero lead agency is within the jurisdictional department of transportation, typically within a traffic engineering, operations, or safety branch. Two respondents referred to a joint initiative between multidisciplinary internal stakeholders as the lead agency structure.

Q9: Does your jurisdiction have a Vision Zero task force or committee? If yes, who are the stakeholders?

- The program is fully integrated. It has a Board of Directors that includes the Manager of Public Works, the Chief of Police, Chief of Emergency Services, Manager of Public Health and the Coroner.
- In addition to subject matter expert groups, there are a few steering committees at various levels: Assistant Deputy Minister, Executive Directors, and key ministries and stakeholders/partners.
- The Integrated Traffic Unit and Traffic Engineering and Safety branch meet regularly.
- Yes. An executive-level steering committee comprised of Assistant Deputy Ministers, the Superintendent of Motor Vehicles, senior executives, and special advisors, as well as five working committees that report to it. The five working committees cover the topics of safe vehicles, safe roads and communities, research and data, safe road users, and education and awareness. All stakeholders meet annually at a road safety assembly.
- Yes. We formed our committee and had our first meeting early 2016. Stakeholders include: the local insurance corporation, police department, school board, transit association, local bus company, local university, provincial ministry of transportation road safety unit, local health care providers, and local injury research and prevention unit.
- Yes, creation of a new Road Safety Advisory Committee, School Safety Committee, and Road Safety Communications Committee.
- No.
- Still in development.

The majority of respondents have a multi-stakeholder road safety/Vision Zero committee or task force. Although the survey did not address meeting frequency, objectives, and outcomes, it would be useful information, especially if documented for peer exchange purposes. Committee structures and mandates that go beyond information sharing by facilitating joint ventures, shared resources, and training among the various stakeholders may see improved results.

Q10: What new partnerships were formed upon adopting Vision Zero? Describe the nature of these partnerships. For example, some Vision Zero jurisdictions have shared funding programs for cooperative engineering and enforcement initiatives.

- Internally, these partnerships were already supported before the Vision Zero policy was adopted. The strategy identifies a lead agency that is accountable for actions/initiatives under each focus area.

- We had existing partnerships since the implementation of our first traffic safety plan in 2007. These partnerships are with engineering, enforcement, research communities, communications, community mobilization, Aboriginal Traffic Safety Strategy, and impaired driving communities.
- School Traffic Safety Partnership.
- Over 40 organizations both within and external to government, at the national, provincial, and municipal levels, from public and private sectors of a variety of disciplines (e.g., health services, police, universities, consultants, automobile association, trucking association, cyclist coalition, transit services, etc.).
- Stronger partnerships with health groups were developed while our Transportation 2040 plan was developed (which contains our Vision Zero vision). Additionally, in 2016 we created a Vision Zero committee with several stakeholders (the local insurance corporation, police department, school board, transit association, local bus company, local university, provincial ministry of transportation road safety unit, local health care providers, and local injury research and prevention unit). From our Vision Zero committee, we are also developing a smaller task force with health and research groups to develop an injury dataset. This dataset will be developed using information from the local ambulance, trauma, and health service authorities to identify severity of injuries, demographics of people injured, and most importantly identify incidents that are non-vehicle related (e.g., ped-cyclist incidents, cyclist-cyclist, cyclist-objects, etc.).
- Not applicable.
- No information available.
- Still in development.

Pre-existing partnerships in some jurisdictions either remained or were strengthened after adopting Vision Zero. Some respondents indicated the development of new partnerships. One jurisdiction indicated partnerships exist with over 40 organizations; engaging multiple stakeholders can help foster a culture of road safety. Two jurisdictions described a multi-level committee structure, with executive planning level functions at the top tier, and action-oriented task forces focused on target areas at the lower tier.

Q11: Has training and access to expertise increased as a result of adopting Vision Zero? If yes, how so? For example, some Vision Zero jurisdictions introduced new safety conferences and workshops after adopting this policy. Others hired additional experts to be available for staff with limited safety experience.

- Yes, the collaboration and partnerships inherent in the governance structure has lent itself to the ongoing development of road safety expertise, as well as the sharing of information, research, ideas and best practice.
- Access to expertise has increased at the Traffic & Data Management Branch. Also one of the engineering positions at this Branch was changed to have a greater focus on safety. The Vision Zero committee meets three times a year to discuss our safety performance and actions towards reaching our safety goal. Our Design Review Team in the Transportation Division meets every week to discuss challenging or unusual designs being developed. In the future, this group will also have regular meetings once the new collision data is available, with representatives from each Branch (Parking, Planning, Design & Traffic/Data Management), to discuss how to tackle locations that have significant safety concerns.

- Creation of a new Law Enforcement Research Chair at a local university as a result of adopting Vision Zero could improve training and access to expertise in this jurisdiction. The strategy emphasizes the importance of taking an evidence based approach to road safety, and specifies investments in development, implementation and use of predictive analytics and near-real-time data which is expected to generate improved research and knowledge transfer. An annual traffic safety conference focused on the safe systems approach is held in this jurisdiction and provides an excellent forum for international knowledge transfer.
- Unclear on meaning of question. The traffic safety plan was developed with consultants who provided expertise as needed related to best practice.
- No, although our first iteration of a Traffic Safety Strategic Plan resulted in the creation of two full time equivalent positions in Traffic Safety.
- No. (2 responses)
- No information available.

Three respondents indicated that training and access to expertise increased with Vision Zero adoption. Training and access to expertise increased as a result of collaboration through new partnerships, the creation of new safety-focused positions, stimulation of university-based road safety research, increased university-based road safety research initiatives, as well as a road safety conference.

Q12: Please comment on any challenges encountered when adopting and/or running a Vision Zero program. For example, some Vision Zero jurisdictions indicate that it took a significant amount of time and effort to build consensus around the initiative due to various concerns from different stakeholders.

- Hard to keep momentum going through changes in government and hard to convince the next group of traffic safety priority. Traffic safety needs to be a core program that is not questioned with changes in leadership. I believe this has been done in other countries (Australia).
- Still many who don't believe it can be done, but overall quite supported in our community in theory.
- We are still considering as to whether to include the zero serious injury goal as part of our vision zero goal. This has been requested to us by ATPC and our Vision Zero Committee. In principle, staff agree with minimizing serious traffic-related injuries, and safety is an important lens which we apply to all our projects. We are open to revising the Transportation 2040 target, but only if and when a reliable and consistent way to track serious injuries is established. Currently there are no reliable and comprehensive data sets. As part of Vision Zero Committee, we are working on developing an injury databases to resolve this issue. We have been requested to develop and monitor intermediate targets for moving towards Vision Zero. However, we are working under a goal to get to zero every year. We are also developing an annual scorecard to help monitor progress towards targets.
- We have developed strict plan how to achieve our safety program no issues so far.
- No information available. (3 responses)
- Not applicable.

Two of the comments received on challenges related to fostering and maintaining a road safety culture: one about keeping momentum going through changes in government, and a second about keeping support among parties who do not believe Vision Zero can be achieved. Canadian jurisdictions are not alone in this challenge, as it has been noted by others outside of Canada who now run effective Vision Zero programs (Milligan & Peterniak, 2015). Effective methods for gaining support for Vision Zero within jurisdictions outside of Canada have included engaging the private and public sectors through the dissemination of marketing and promotional material, use of social media, and consultation workshops, and top-down promotion from strong political champions. The Transportation Research Board (TRB) Subcommittee on Roadway Safety Cultures is a good resource for dealing with this challenge, as they are working to create partnerships between organizations and people capable of influencing roadway safety cultures by putting roadway safety in the broader context of social change, public health, and quality of life (TRB Subcommittee on Roadway Safety Cultures, 2012). This subcommittee is involved with a National Cooperative Highway Research Program (NCHRP) project entitled *A Strategic Approach to Transforming Traffic Safety Culture to Reduce Deaths and Injuries* (NCHRP 17-69) which is seeking to develop a strategic approach, appropriate for multidisciplinary audiences. This strategic approach can be adopted by departments of transportation to transform and foster internal and external improved road safety culture (Ward, 2014), which could be a useful resource for Canadian jurisdictions who cite a lack of road safety culture as a barrier to Vision Zero adoption.

The second challenge mentioned by one respondent related to injury data quality and reliability. This jurisdiction opted to withhold establishing an indicator and target related to road injuries until a more reliable injury dataset is established, which is a priority they are currently working on.

5 CONCLUSIONS

Road safety strategies offer several benefits: they identify priority areas for targeted road safety investment which can yield greater returns; help develop partnerships among diverse stakeholder groups; convey a clear plan and vision for road safety in a jurisdiction which can be executed by responsible parties and used for effective public engagement; and help in benchmarking road safety performance over time. Vision Zero is one approach to road safety and is by no means the only approach that can lead to improved road safety performance. This paper revealed that a large proportion of Canadian jurisdictions have adopted Vision Zero (eight out of 21 surveyed jurisdictions) and that many jurisdictions may consider adopting it in the future (12 out of 14 responses from jurisdictions that do not currently have Vision Zero). Ensuring that current and future adoptions of Vision Zero are made both in name and in practice will help to maximize road safety improvement in Canada.

This paper sought to compare the experiences of Vision Zero Canadian jurisdictions with the principles of effective adoption of Vision Zero. Key findings from this comparison include:

- Most Vision Zero jurisdictions use rate-based fatal and injury collision indicators to measure road safety progress. Road safety indicators that include PDO collisions may not be the best measure of effectiveness in Vision Zero strategies, as a positive outcome evaluation of this indicator may not necessarily reflect a reduction in fatal and injuries, which is critical for Vision Zero programs.
- None of the Vision Zero respondents indicated a change in road safety budget size or allocation, or the removal of barriers to road safety spending as a result of Vision Zero adoption. Although increased safety budgets are not necessarily required for successful Vision Zero adoption, the reallocation and refocusing of safety dollars has proven effective in Vision Zero jurisdictions outside of Canada. This reallocation and refocusing has generally been toward data-driven solutions with proven fatality and injury reduction

potential, shared funding between multidisciplinary stakeholders, and the creation of new sustainable funding channels through defined programs likely to be renewed in annual budgets built around proven and systemic treatments.

- The majority of jurisdictions engage several multidisciplinary stakeholders as part of their Vision Zero program.
- Some jurisdictions indicated increases in training and access to expertise upon Vision Zero adoption (e.g., improved information sharing among stakeholder groups and creation of new safety-focused position), while others did not experience any change in this regard.
- The key challenge that emerged was fostering a road safety culture in order to gain or retain support for moving Vision Zero forward.

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