

# Changing the Conversation Around Traffic Safety:

## Safe Mobility Strategy 2021–2025



Edmonton

This report provides a detailed rationale for developing a Safe Mobility Strategy (SMS) that is focused on eliminating fatal and serious injury traffic crashes by 2032. The SMS ties directly to the vision and broad goals of *ConnectEdmonton*. This approach establishes the SMS as a corporate strategy that influences a wide range of City of Edmonton policies and programs and goes beyond the scope of traditional road safety efforts.

# Introduction

The theory of change behind this approach is straightforward.

- The *Road Safety Strategy 2016–2020* has delivered strong results. Fatalities have been reduced by 56% and serious injuries have been cut by 30% since 2015. Many of the most dangerous intersections and streets have been identified and treated with appropriate countermeasures to eliminate or reduce the contributing causes of crashes.
- A combination of location-based and system-wide approaches is now necessary to tackle widespread issues that contribute to crashes, including street design and deep-rooted cultural norms around traffic and mobility that are inhibiting safe and livable streets in our city. These factors are impacting the City of Edmonton's progress towards its strategic goals of Healthy City, Urban Places, Regional Prosperity, and Climate Resilience.
- We need to change the conversation around traffic safety to inspire decisions that overcome institutional and cultural inertia. We know how to prevent fatal and serious injury collisions, for example by not exceeding the speed limit and designing roads that discourage speeding and encourage yielding, but we're not collectively united enough – the public, City officials, and groups and organizations – to act on a sufficient scale to make a difference.

The SMS proposes to change the conversation in two critical ways.

First, the SMS will explicitly tie traffic safety to the vision and goals of *ConnectEdmonton* and *The City Plan*. There is a growing realization that issues affecting traffic safety are interdependent with broader policy areas such as land use, climate resilience, and health, as well as with more traditional transportation policies such as promoting transit and active transportation.

Second, the SMS will look beyond the traditional disciplines of engineering, education, and enforcement to facilitate the difficult decisions necessary to change the status quo and achieve a more livable and equitable Edmonton where everyone can move safely. People make decisions based on emotion and empathy, not solely facts and figures. There is an ethical dimension to every choice we make around street design, the use of technology, and the priority we give to the convenience of driving over the safety of others. Gathering the lived experience of Edmontonians affected by traffic violence is an important data point to put alongside the quantitative data that typically guides traffic safety programs.

# Safe Mobility Today

Almost 2,000 people a year are killed in traffic crashes in Canada<sup>1</sup>; more than 35,000 are killed annually in the United States.<sup>2</sup> These numbers have remained stubbornly high despite dramatic improvements in vehicle technology and trauma care in recent years.

There are many reasons this has happened. Responsibility for traffic safety has often been sidelined to departments far removed from core planning and engineering groups. The focus of road safety strategies has rarely challenged the convenience of driving. Until very recently, the pervasive global and local assumption was that serious injuries and the loss of life on our roads are the unfortunate but inevitable consequences of living in a modern society.

The emergence of Vision Zero policies and strategies has successfully challenged this last assumption, as recent progress in Edmonton shows. Traffic safety is finally being taken seriously: the loss of life on our roads is now considered unacceptable and preventable. Government agencies and the media are starting to refer to “crashes” rather than “accidents” to acknowledge that traffic-related deaths and injuries can be avoided. International cities such as Oslo and Helsinki, which are similar in size to Edmonton, are now proving that it is possible to achieve the goal of zero traffic fatalities.

## Oslo, Helsinki, and Edmonton: A Tale of Three Cities

	Oslo	Helsinki	Edmonton
<b>Population</b>	693,000	650,000	932,000
<b>Urban Area</b>	1,019,000	1,062,000	1,062,000
<b>Metro Region</b>	1.7million	1.5 million	1.3 million

Oslo recorded one traffic death in 2019. The victim was a car driver who crashed into a railing at a train station. Oslo's mayor credits large investments in public transport, bicycle lanes, and facilities for people walking for part of its success. It has also reduced the speed limit for cars, removed 1000 parking spots, installed more traffic calming, and created car-free zones, including “heart zones” where children play. Figures from the Norwegian Public Roads Administration show the number of deaths on Oslo's roads has fallen sharply, down from 41 deaths in 1975. On average, 3.6 people have died in traffic in Oslo in the last five years. Ten years ago, eight people were killed.<sup>3</sup>

1 <https://www.tc.gc.ca/eng/motorvehiclesafety/canadian-motor-vehicle-traffic-collision-statistics-2018.html>

2 <https://www.nhtsa.gov/press-releases/roadway-fatalities-2018-fars>

3 <https://www.independent.co.uk/news/world/europe/oslo-traffic-road-deaths-accidents-norway-a9269441.html>

Helsinki recorded no deaths for people walking for the first time since records began in 1960, down from an average of 20–30 per year in the 1990s. Speed limits have been tightening for decades and were reduced again last year. Now the speed limit is 30 km/h on most residential streets and the city centre, 50 km/h on main streets in suburban areas, and 40 km/h on main streets in the inner city.

“Of course, it's not only a question of speed limits, although I think all our specialists do say that is the most important single thing affecting traffic safety,” said Anni Sinnemäki, the deputy mayor of urban environment in Helsinki. “In the last few years, we have also focused on how we build the street environment. Streets are being better divided between pedestrians, cycle lanes and cars – the car lane is not the widest possible.”

Along with narrower driving lanes, Helsinki has also built dozens of roundabouts and installed speed bumps since the 1990s to reduce speed.

The goal hasn't been achieved yet, however. Although both cities recorded zero fatalities for people walking in 2019, in Helsinki three people driving died in traffic crashes last year, while one person driving died in Oslo.<sup>4</sup>

## Safe Mobility in Edmonton

Edmonton has been a leader in traffic safety in Canada. The *Road Safety Strategy 2016–2020* uses the language of Vision Zero and includes a call to action to eliminate traffic violence in the community by focusing on eliminating fatalities and serious injuries. The City of Edmonton (City) also understands that as people shift from driving cars to active modes and transit, traffic safety is likely to improve. The City recognizes that preventing fatalities and serious injuries in Edmonton is the primary task at hand, rather than placing equal emphasis on fender benders.

The City has made the most of the conventional 5 E's approach to traffic safety (Engineering, Education, Enforcement, Engagement, and Evaluation) and has reduced fatalities by 56% in recent years. Engineering programs have effectively focused on high crash and high injury locations. Photo enforcement has been a powerful and effective tool to enforce speed limits and prevent red light running—two of the biggest contributors to serious and fatal crashes. Recent steps taken by City Council to move forward with reduced speed limits in residential areas, Whyte and Jasper avenues, as well as high pedestrian areas will further reduce crashes and crash severity across the city. Education campaigns have encouraged compliance with traffic laws and street ambassadors have brought traffic safety messages to thousands.

The City has completed many of the high priority traffic safety projects, such as engineering solutions at the highest crash locations. The remaining actions are expected to be more difficult,

4 <https://www.theguardian.com/world/2020/mar/16/how-helsinki-and-oslo-cut-pedestrian-deaths-to-zero>

because the remaining serious traffic crashes are more widely dispersed and many locations with characteristics that would contribute to higher severity crashes still exist across the city as a result of systemic challenges and past decisions (e.g., permitted left turns across multiple lanes at posted speed limits of 50 km/h and higher, marked crosswalks without signals across multi-lane undivided arterial roads). For this reason, a new approach is necessary; one that shares responsibility fully throughout the many departments that affect traffic safety outcomes. Academics contrast the “shallow change” that has been achieved to date with a deep change (i.e., sustainable and systemic) that comes about through institutional reform.<sup>5</sup> This new approach, a holistic implementation of the Safe System Approach within the City of Edmonton and across the community, is as much an internal initiative to align the City’s practices and Vision Zero goal as it is an external effort to make the case for the Safe Mobility Strategy.

For decades, most cities in North America have been caught in a cycle of automobile dependency which has limited efforts to eliminate traffic fatalities and promote alternatives to driving. Edmonton has recognized the need and the opportunity to step back, reassess, and take a new path that embraces health, safety, and success for all people in Edmonton.

The Safe Mobility Strategy is the impetus to change the conversation, connect the dots between City agencies and external partners, and engage stakeholders and residents alike in a campaign to ensure Edmonton has a sustainable and safer transportation system.

## A Global Context

The year 2020 is the conclusion of the UN *Global Decade of Action on Road Safety*.<sup>6</sup> Traffic violence is a persistent global problem claiming more than 1.35 million lives a year, and traffic crashes are the leading cause of death for children and youth aged 5–29 years old around the world.<sup>7</sup> The *Decade of Action* has successfully highlighted the problem, helped make traffic safety a significant policy issue at all levels of government in Canada, and identified effective strategies for combating fatal and serious injury crashes—many of which Edmonton has adopted. While the death toll has stayed unconscionably and stubbornly high globally, and the full reduction targets in global traffic fatalities were not met, there is some hope in having helped stem the massive rise in fatalities that was projected at the start of the decade.<sup>8</sup>

In planning for new road safety strategies at the *Third Global Ministerial Conference on Road Safety* in Stockholm, Sweden in February 2020, nine “Road Safety Recommendations” were published by a panel of academic experts who examined the previous decade and formalized what additional steps must be taken to achieve greater success in the coming decade.<sup>9</sup>

5 May, Tranter, and Warn, Progressing road safety through deep change and transformational leadership, *Journal of Transport Geography* Volume 19, Issue 6, November 2011, Pages 1423–1430.

6 World Health Organization, *Global Plan for the Decade of Action for Road Safety 2011–2020*, 2011.

7 World Health Organization, *Global Status Report on Road Safety*, 2018.

8 Third Global Ministerial Conference on Road Safety, Stockholm, Sweden, February 19–20, 2020. *Preliminary conclusions on the Decade of Action for Road Safety and the 2030 Agenda*.

9 Third Global Ministerial Conference on Road Safety, Stockholm, Sweden, February 19–20, 2020. *Saving Lives Beyond 2020: The Next Steps*.

## Road Safety Recommendations from the Third Global Ministerial Conference on Road Safety

1. **Sustainable Practices and Reporting:** Including road safety interventions across sectors as part of Sustainable Development Goals
2. **Procurement:** Utilizing the buying power of public and private organizations across their value chains
3. **Modal Shift:** Moving from personal motor vehicles towards safe and more active forms of mobility
4. **Child and Youth Health:** Encouraging active mobility by building safer roads and walkways
5. **Infrastructure:** Realizing the value of Safe System design as quickly as possible
6. **Safe Vehicles Across the Globe:** Adopting a minimum set of safety standards for motor vehicles
7. **Zero Speeding:** Protecting road users from crash forces beyond the limits of human injury tolerance
8. **30 km/h:** Mandating a 30 km/h speed limit in urban areas to prevent serious injuries and deaths to vulnerable road users when human error occurs
9. **Technology:** Bringing the benefits of safer vehicles and infrastructure to low- and middle-income countries.

These are highly relevant to the Edmonton traffic safety story, as several of these approaches are new to Edmonton or set higher targets than the City has previously adopted.

# Getting to Zero through *ConnectEdmonton:* A Holistic Traffic Safety Initiative

Safety and sustainability are, in the context of the transportation system, synonymous and mutually reinforcing. When the mobility system offers a high degree of safety, it also generates many broader societal benefits related to public health, accessibility, physical activity, air quality, climate change, and environmental sustainability, and vice-versa.

Promoting walking and cycling can help mitigate climate change and improve air quality by reducing carbon dioxide emissions from transportation; safer roads are a necessary prerequisite for a significant number of people to make this mode choice. Increasing the safety and accessibility of public transit also supports the choice to walk and bike and are necessary to connect people with bus and rail transit services that connect to community and city destinations. Greater access to walking, biking, and public transit has been shown to increase people's physical activity, enhance their quality of life, and augment their ability to access jobs and education. Moreover, a mobility system that offers a variety of safer transportation options can equitably address the needs of all demographic groups, including women, lower income people, elderly people, the very young, and people with limited mobility.

A Safe System prevents the tragic loss of human life and all the associated economic costs of traffic crashes. While it is impossible to put a price on a life, economists estimated the cost of traffic crashes in 2016 in Canada was \$37 billion, or 2.2% of GDP.<sup>10</sup> The cost attributed to a single fatal traffic crash in Alberta is approximately \$10 million<sup>11</sup> – there were 14 fatalities in Edmonton in 2019.

There are significant health benefits to increasing physical activity as part of people's daily routine. A recent report by the US Centers for Disease Control and Prevention confirmed that, compared with taking 4,000 steps per day, a number considered to be low for adults, taking 8,000 steps per day was associated with a 51% lower risk for all-cause mortality (or death from all causes). Taking 12,000 steps per day was associated with a 65% lower risk compared with taking 4,000 steps.<sup>12</sup> There are huge economic benefits to the health care system of reducing cardiovascular disease, diabetes, cancers and a host of other ailments that physical activity can reduce or eliminate.

There are also benefits to the local economy of increasing active transportation and transit use: people on foot and bike spend more money in the local economy than people in cars;<sup>13,14</sup> and active transportation projects generate more jobs per dollar spent than road building projects.<sup>15,16</sup> There are also significant opportunity costs of not having to build additional infrastructure for cars and car parking (especially around transit)

The primary responsibility for road safety rests with the decision makers and public officials who contribute to the design and management of the transportation system. A core tenet of Vision Zero holds that policymakers and lawmakers, law enforcement officials, planners, administrators, designers, and engineers, among others, must collaborate to ensure their individual program areas contribute to a Safe System.

10 [https://cacp.ca/index.html?asst\\_id=1934](https://cacp.ca/index.html?asst_id=1934)

11 <http://www.transportation.alberta.ca/Content/docType233/Production/ATBCMUserGuideV2.pdf>

12 <https://www.cdc.gov/media/releases/2020/p0324-daily-step-count.html>

13 <http://cityobservatory.org/portlands-green-dividend/>

14 <http://content.tfl.gov.uk/walking-cycling-economic-benefits-summary-pack.pdf>

15 [http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP08-36\(103\)\\_FR.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP08-36(103)_FR.pdf)

16 <https://www.peri.umass.edu/publication/item/427-pedestrian-and-bicycle-infrastructure-a-national-study-of-employment-impacts>

The Safe Mobility Strategy therefore emphasizes coordination and leadership where system designers and government execute a proactive approach to create multiple layers of safety protection in the system, rather than primarily reacting to isolated traffic collisions after they occur. Beyond the traditional E's approach, a Safe System has a multi-disciplinary, multi-agency approach to reducing fatal and serious injury crashes by changing the entire transportation system to be more people-centered.<sup>17,18</sup>

## Safe System

The Safe System Approach is a people-centered approach and views human life and health as paramount to all else and should be the first and foremost consideration when designing, maintaining, and activating the transportation system. A Safe System is based on reducing serious injury and fatal crashes through a holistic philosophy that addresses the primary known causes of traffic-related collisions by:

- Making the transportation system more accommodating and "forgiving" of human error
- Managing the forces that injure people in a crash to the level a human body can tolerate without serious injury
- Minimizing the level of unsafe user behaviour

Most Safe System frameworks include consideration of Safe Roads, Safe Vehicles, Safe Speed, and Safe People coupled with post-crash care.

The Dutch Sustainable Safety program is an example of a Safe System approach. It includes traditional reactive strategies to address crashes that have occurred as well as efforts to improve vehicle design. The improved safety outcomes achieved in The Netherlands, however, are largely obtained by the preventative strategy to roadway design which strives to prevent serious crashes and to minimize the risk of serious injury from the crashes that do occur. This results in roadway design practices which strive to minimize situations where there are likely to be large differences in speed and mass operating together or at conflict points.

17 SVOV Institute for Road Safety Research, 2018. *Sustainable Safety 3rd Edition – The advanced vision for 2018–2030*, The Hague, 34 p.

18 Reason, J, 2000. *Human Error: Models and Management*. British Medical Journal 320 (7237): 768–70.



The Dutch Sustainable Safety approach shifts the primary responsibility for safety from the system users (an approach that focuses on education and enforcement strategies) to requiring transportation system designers to accept the primary responsibility to achieve safety goals. The following explains the five core elements of the Dutch Sustainable Safety Program.<sup>19</sup>

### **1. Functionality**

Road sections and intersections have only one function for all modes of transport (mono-functionality): a traffic flow function or an exchange function. The road network is organized in a hierarchical and structure of these functions.

### **2. (Bio)mechanics**

Traffic flows and transport modes are compatible with respect to speed, direction, mass, size and degree of protection. This is supported by the design of the road, the road environment, the vehicle, and, where necessary, additional protective devices.

### **3. Psychologics**

The design of the traffic system is well-aligned with the general competencies and expectations of road users. Information from the traffic system is perceivable, understandable ("self-explaining"), credible, relevant, and feasible.

### **4. Responsibility**

Responsibilities are allocated and institutionally embedded in such a way that they guarantee a maximum road safety result for each road user and optimally integrate with the inherent roles and motives of the parties involved. Thanks to a forgiving traffic system, road users will not be punished for their errors and weaknesses by crashing and sustaining serious injuries.

### **5. Learning and Innovating**

Traffic professionals continually learn how they can improve their policy. The Deming cycle (Plan-Do-Check-Act) is relevant here: it starts with the development of effective and preventive system innovations based on knowledge of causes of crashes and hazards (Plan). By implementing these innovations (Do), by monitoring their effectiveness (Check), and by making the necessary adjustments (Act), system innovation ultimately results in fewer crashes and casualties.

<sup>19</sup> SWOV Institute for Road Safety Research, 2018. *Sustainable Safety 3rd Edition – The advanced vision for 2018–2030*, The Hague.

The following sections identify how the previously noted expert *Road Safety Recommendations* for Safe System approaches from the *Third Global Ministerial Conference on Road Safety* in Sweden can be used to simultaneously advance the *ConnectEdmonton* Strategic Goals and objectives. By identifying this alignment, the City can understand how to best collaborate and lead to advance both efforts. The table identifies the level of relevance of *ConnectEdmonton* to road safety recommendations.

**Table 1: Comparison of *ConnectEdmonton* and Road Safety Recommendations**

■ ■ ■ Strongest relevance ■ ■ Strong relevance ■ Some relevance

ConnectEdmonton Goals	Road Safety Recommendations for Safe System Approach								
	Sustainable Practices & Reporting	Procurement	Modal Shift	Child and Youth Health	Infrastructure	Safe Vehicles	Zero Speeding	30 km/h	Technology
Strategic Objectives									
Health City			■ ■ ■	■ ■ ■		■	■	■ ■	■
Urban Places			■ ■	■	■ ■ ■		■	■ ■ ■	
Regional Prosperity			■ ■		■ ■ ■			■	
Climate Resilience			■ ■ ■		■ ■			■	■
Service Objectives									
Recreation & Culture			■ ■ ■	■ ■	■			■ ■	
Social Support					■			■	
Civic Services									
Public Safety		■ ■	■ ■	■ ■	■ ■	■ ■ ■	■ ■ ■	■ ■ ■	
Community Development			■	■					
Movement of People & Goods			■ ■ ■	■ ■ ■	■ ■ ■	■ ■	■ ■	■ ■	
Land Development			■ ■		■ ■			■	
Economic Development			■		■				
Environmental Protection	■		■	■ ■	■ ■			■ ■	■
Supporting Objectives									
People, Relationships & Partnerships			■	■ ■					
Project & Asset Management		■ ■	■ ■ ■	■	■ ■ ■	■ ■	■ ■	■ ■ ■	■ ■
Strategy & Business	■ ■					■	■		
Technology & Data	■				■ ■			■	■ ■ ■
Employer Experience & Safety		■	■ ■		■	■	■ ■ ■		
Environmental Stewardship	■ ■ ■		■ ■	■				■ ■	
Financial Management	■	■ ■				■			



Edmonton has established the Healthy City goal for a "**neighbourly** city with **community** and **personal wellness** that embodies and promotes **equity** for all Edmontonians." Strategic actions under this broad goal include several with direct relevance to the Safe Mobility Strategy.

Affordable housing and poverty elimination are both directly influenced by the cost of transportation to individuals. Owning and operating a motor vehicle is typically the second largest household cost after housing and, for people with low or moderate incomes, this can be a considerable burden if there are no alternatives. Neighbourhoods that are walkable, bike-friendly, and well-served by transit can enable people to avoid the high costs of automobile ownership and allow residents to use that money for other purposes. There is also a strong connection between low income neighbourhoods and the high injury network that needs to be reversed. The Ride Transit Program will be stronger and more effective if people can safely access the transit system on foot and/or on bike (e.g., by ensuring people can safely cross major streets and roadways to get to bus stops and stations).

The Vision Zero goal under the Healthy City strategy speaks directly to several of the recommendations of the *Third Global Ministerial Conference on Road Safety*.

## Child and Youth Health

A renewed focus on a broad-based Safe Routes to School initiative is important to establish healthy behaviours and protect the most vulnerable. Inherent in this approach is realizing that children in traffic have different needs and an "all ages and abilities" approach to transport is essential. Teaching kids to cross the road and ride a bike safely is important and needs to continue; re-engineering schools and neighbourhoods to put the safety of kids first is even more important in creating systemic change. Expansion of the "school zone" to a "playground zone" is an example of action that has been taken by the City to support safety of children in recent years.

## Modal Shift

The Healthy City goal will promote active travel, while eliminating fatalities and serious injuries, directly contributing to road environments that allow greater active mobility and a healthier city for everyone. Globally, 5.3 million deaths a year are attributed to inactivity, making active transportation, such as walking and cycling, even more essential.<sup>20</sup>

20 Designed to Move. 2012. *Designed to Move: A Physical Activity Action Agenda*. Web videos. <http://www.designedtomove.org>

## Additional Strategy Area: Pollution Reduction

Globally, air pollution from vehicles causes 184,000 deaths a year from ischemic heart disease, stroke, lower respiratory infections, chronic obstructive pulmonary disease, and lung cancer.<sup>21</sup> Noise pollution from transport, particularly roads, affects quality of life, mental health, and physical health.<sup>22,23</sup> Although sometimes considered a minor nuisance, the World Health Organization estimates that more than a million healthy life-years are lost each year in Western Europe alone from traffic noise due to sleep loss, cognitive impairment of children, and stress.<sup>24</sup>

## Urban Places

Under this strategic goal, Edmonton neighbourhoods “are more vibrant as density increases, where people and businesses thrive and where housing and mobility options are plentiful.” Vibrant places are those where walking, biking, and transit serve the majority of users and motor vehicle traffic is kept to a minimum. Places built to accommodate the motor vehicle are dominated by parking, major roads, busy intersections, poor air quality, and traffic danger and they lack a sense of place or community.

The Blatchford development project is a new canvas on which to create a community that learns from the past 50 years of automobile-centric development. Street design standards should ensure low vehicle speeds, safer options for walking and biking, easy transit access, and an appealing public realm, all by design from the outset. Blatchford, other major land developments (e.g., Edmonton Exhibition Lands Area), and the broader Evolving Infill 2.0 initiative are all opportunities to create a Safe System playbook to guide land use and transportation decisions for the next 20 years. Similarly, expansion of the light rail system is a tremendous opportunity to reduce car travel and increase active transportation options through widespread transit-oriented development, which will in turn help create a Safe System and reduce serious traffic crashes.

Several of the recommendations of the *Third Global Ministerial Conference on Road Safety* academic experts apply to this strategic goal of ConnectEdmonton.

21 Global Road Safety Facility and Institute for Health Metrics and Evaluation. 2014. *Transport for Health: The Global Burden of Disease from Motorized Road Transport*. Washington, DC, and Seattle, WA: World Bank and IHME.

22 Job, R.F.S. 1996. *The influence of Subjective Reactions to Noise on Health Effects of Noise*. *Environment International* 22:93–104.

23 Carter, N. L. and R.F.S. Job, eds. 1998. *Proceedings of the Seventh International Congress on Noise as a Public Health Problem*. Vols. 1 and 2. Sydney, Australia: Noise Effects.

24 World Health Organization. 2011. *Burden of Disease from Environmental Noise: Quantification of Healthy Life Years Lost in Europe*. Copenhagen: WHO Regional Office for Europe.

## Zero Speeding

Edmonton is well ahead of the curve in using photo enforcement to manage speed. This progress needs to be preserved and expanded (e.g., adding other moving traffic violations) by demonstrating its many benefits. Actions are already underway to enhance the transparency of mobile enforcement activities. In the short- and medium-term, enforcement is essential to achieving zero speeding. Over time, engineering projects and new design standards can create streets that are designed to be driven at a safer speed without being reliant upon education or enforcement to achieve this goal. Streets can be designed and built and existing streets transformed to achieve desired speeds and make it physically impossible to travel at unsafe speeds.

## 30 km/h Speed Limits

In the North American context, Edmonton is already a leader in shifting from 50 km/h to 40 km/h for residential speed limits. The City needs to continue that trend and build on success. As cultural norms shift and a stronger culture of safety emerges in Edmonton, lowering residential speeds to 30 km/h may become feasible in the future.

## Additional Strategy Area: Compact Land Use

Edmonton can reduce the need for larger, higher-speed arterial roads designed to move lots of single occupancy vehicles quickly over long distances by pursuing the nodes and corridors approach laid out in *The City Plan* and *ConnectEdmonton* coupled with a high frequency transit system defined in the *Bus Network Redesign* and the expansion of the LRT Network.

# Regional Prosperity

Achieving the goal of Regional Prosperity is going to be a real challenge at a time when oil prices are at historic lows and the global, federal, provincial, and local economies have been rocked by the COVID-19 pandemic. Major infrastructure investments based around massively expensive highway expansion and sprawling suburban development is simply not affordable, nor will it deliver the economic benefits of transit and active transportation-oriented development. Attracting and keeping Millennial and Generation Z working populations hinges on the creation of affordable, walkable, bike-friendly, and transit accessible communities that have a mix of uses on a human scale.

The following Vision Zero focus areas defined by the *Third Global Ministerial Conference on Road Safety* academic experts directly relate to the *ConnectEdmonton* Regional Prosperity goal.

## Infrastructure

Investment decisions that focus on creating a Safe System will result in infrastructure that supports smart growth: mixed use development nodes (communities) connected by efficient and accessible transit as outlined in *The City Plan*'s nodes and corridors approach and one of its Big City Moves, A Community of Communities. This development pattern will encourage alternatives to driving, consume less land, and help eliminate fatal and serious traffic crashes.

## Additional Strategies: Accessibility and Equity

Focusing on access as well as mobility across the city will help achieve the equity component of this goal. For example, creating greater access to mobility options for people of all ages and abilities, including a more robust transit system, will allow everyone to get around equitably.

### COVID-19

The world is going through a dramatic and unintentional case study in what happens when motor vehicle traffic is cut in half overnight. Early stages of the COVID-19 pandemic has seen a 50% to 60% drop in car traffic across North America as people work from home, stay at home, and shelter in place to limit the spread of the virus. Across the globe, air quality is improving almost instantaneously as motor vehicle traffic disappears from city streets. The domination of traffic in consuming public space, inhibiting social interaction, killing people, drowning out our ability to think or talk, and polluting our planet is being laid bare for all to see.

Early data reporting in 2020 indicates that Edmonton has seen a significant drop in crashes overall, including those resulting in serious injuries. Sadly, fatality collisions have not dropped at the same rate. The reduced volume of vehicles on the road has directly impacted Vision Zero outcomes.

We are learning what travel is truly essential, how much work can really be done remotely, and just how important daily physical activity is to our physical and emotional wellbeing. We are discovering the limited carrying capacity of our sidewalks, bike lanes, and trails just when we need them most.

At the same time, we are also learning just how pervasive a problem speeding is in our society. Despite the presence of speed enforcement and the obvious need to avoid motor vehicle crashes to prevent any additional strain on hospitals, the wide-open roads are encouraging drivers to speed in dramatic numbers. In Edmonton, as in cities across North America and Europe, excessive speeding throughout the COVID-19 pandemic has increased at times in excess of 30% even as traffic volumes plummet.

# Climate Resilience

Transportation and land use strategies that enhance climate resilience have a direct impact on safe mobility. It is not possible to achieve a safer transportation system without these concurrent policy shifts and investments. Achieving the *ConnectEdmonton* goal for Climate Resilience, “Edmonton is a city transitioning to a low carbon future, has clean air and water and is adapting to a changing climate,” will be directly supported by actions taken to better integrate land use and transportation as well as to improve the safety of the transportation system.

The following Vision Zero focus areas defined by the *Third Global Ministerial Conference on Road Safety* academic experts directly relate to the *ConnectEdmonton* Climate Resilience goals.

## Modal Shift

Increasing the percentage of trips made by walking, biking, micromobility, transit, and even shared vehicles—anything except single-occupant motor vehicle use—is increasingly recognized as a legitimate, stand-alone road safety strategy.<sup>25</sup> The “Safety in Numbers” phenomenon (i.e., in which increased numbers of people cycling and walking result in declining crash and exposure rates) is now well-documented.<sup>26</sup> Implementing the new *Bus Network Redesign* and *Bike Plan* as well as the *Electric Vehicle Strategy* are integral parts of the SMS and the growth of lower-carbon modes will lead to increased climate resilience.

In London, a “congestion charge” (i.e., a road pricing scheme which charges drivers for entering the central London area) to reduce vehicle emissions in the city centre created a 31% drop in traffic crashes as well as a 16% reduction in CO<sub>2</sub> equivalent emissions between 2003 and 2006.<sup>27</sup> Meanwhile, shifts to more cycling—which safer conditions can foster, and which will not happen without them—may reduce CO<sub>2</sub> emissions from transportation as much as 10% by 2050 worldwide.<sup>28</sup>

## Infrastructure

Ultimately, all this work boils down to creating a Safe System that includes a built environment and transportation system by design that does not allow crashes to happen at speeds the human body cannot tolerate. There is an important opportunity to build this into land development and redevelopment projects in Edmonton in a highly visible manner. It is critical we do not repeat the mistakes of the past. Edmonton can also re-engineer its streets to achieve Vision Zero in conjunction with initiatives such as the *neighbourhood and arterial renewal programs*. There is a unique opportunity to simultaneously make additional improvements to achieve greater climate resiliency, including the planting of street trees, introduction of green stormwater infrastructure, and introduction of public transit infrastructure that support a more climate-resilient future.

25 <https://www.planetizen.com/blogs/108401-vision-zero-meet-vmt-reductions>

26 [https://www.witpress.com/Secure/elibrary/papers/SC14/SC14065FU1.pdf?\\_sm\\_nck=1](https://www.witpress.com/Secure/elibrary/papers/SC14/SC14065FU1.pdf?_sm_nck=1)

27 Lefevre, B. K. et al. 2016 *Make Roads Safe by Reducing Greenhouse Gas Emissions from Urban Transport* Golden, CO: Low Emission Development Strategies Global Partnership.

28 Mason, J. L., L. Fulton, and Z. McDonald. 2015. *A Global High Shift Cycling Scenario*. New York and Davis, CA: Institute for Transportation and Development Policy Institute of transportation Studies, University of California—Davis.

## **Additional Strategy Area: Compact Land Use**

The previously referenced land use changes toward more compact urban centres would also improve climate resilience, while improving traffic safety. Cities with denser development patterns also have safer streets, lower vehicle kilometres travelled, and these development patterns have dramatic climate impacts. For example, by one estimate, the United States could prevent the release of 79 million tonnes of CO<sub>2</sub> per year by 2030 by adopting denser development patterns.<sup>29</sup>

# **ConnectEdmonton**

## **Corporate Business Plan**

Several of the goals of the *Third Global Ministerial Conference on Road Safety* fall squarely into the regulatory and operational function of the City of Edmonton as a corporation rather than the policy goals and broader vision of ConnectEdmonton. They are no less important to achieving the Vision Zero goal of zero traffic fatalities and serious injuries by 2032.

## **Safe Vehicles**

Canadian vehicle safety standards are certainly better than many developing countries, but there is room for improvement. Transport vehicle and bus safety standards may be an issue; the impact of trucks and SUVs with high front grills may need to be reviewed, as well as ubiquitous requirements for and installation of sideguards on heavy trucks operating in the city (on public as well as private vehicles). While vehicle safety standards are a Federal and Provincial responsibility, the City of Edmonton can lead the conversation on these kinds of standards. Similarly, vehicle safety regulations should be established for e-bikes and e-scooters to ensure these emerging modes contribute to, rather than compromise, the Vision Zero goal.

## **Sustainable Practices and Reporting**

This highlights the need for specific, measurable, actionable, realistic, and time-bound (SMART) goals for organizations that are cross-agency, multi-disciplinary, and which speak to the many benefits of improving traffic safety to other policy areas (e.g., sustainability, health, climate crisis). Inherent in pursuing SMART goals is having great data to inform and track progress; there is room for improvement in Edmonton crash reporting and analysis including data-sharing with Alberta Health Services and improving crash reporting procedures. Vision Zero and Safe System goals can be built into the City's *Enterprise Performance Management* process.

29 Ewing et al. 2008. *Growing Cooler: The Evidence on Urban Development and Climate Change*. Washington, DC: Urban Land Institute.



## Procurement

The City has immense buying power and influence over a wide range of vehicles, drivers, and the built environment, all of which can be used to improve traffic safety over time. Purchase of new vehicles and fleets for City departments, driver training and instruction among City staff, the regulation of vehicles that are used as part of City-contracted construction and maintenance activities, and the purchase of transit vehicles can all be managed to improve safety. There are also safety upgrades that can be made to existing fleet vehicles that are not yet ready to be replaced as identified through the City's Asset Management program.

## Technology

There is much to be gained from new vehicle technology, provided it is harnessed for safer and more resilient transportation systems. There are a variety of technologies available today that can reduce distracted and impaired driving, reduce and manage speeds, and improve climate resilience through more efficient vehicles, electrification of the vehicle fleet, and increased capacity of shared or public transportation systems. As noted under procurement, there are choices the City can make related to the regulation, management, and operation of new technologies to further safety goals rather than prioritizing vehicle performance improvements. An example from other communities includes the purchasing of smaller-sized emergency response vehicles (e.g., fire trucks) that can be better integrated within an urban environment.

# Conclusion

To place traffic safety at the centre of discussions about future growth and sustainability, build a healthy community, and ensure continued economic prosperity, Edmonton must integrate its Safe Mobility Strategy and the vision and goals of *ConnectEdmonton*. Zero traffic deaths and serious injuries cannot be achieved through traditional engineering, education, and enforcement efforts alone. Through the Safe Mobility Strategy, the City can foster new working relationships between departments, adjust operating procedures, coordinate with the external partners, continue to build the trust of the travelling public and residents, and reinforce its bold vision with robust, cross-cutting new policies and actions that are essential not only to achieve Vision Zero, but also to create a vibrant and dynamic place where people can live, work, and thrive.