Item 29

City of Delta
COUNCIL REPORT
Regular Meeting

To: **Mayor and Council** File No.: **5270-50/VZ**

From: **Engineering Department**

Date: **August 16, 2024**

Delta's Vision Zero Strategy

The following report has been reviewed and endorsed by the City Manager's Office.

- **RECOMMENDATION:**

THAT Delta's Vision Zero Strategy be endorsed.

- **PURPOSE:**

The purpose of this report is to seek Council's endorsement of Delta's Vision Zero Strategy, included in Attachment A.

- **BACKGROUND:**

Vision Zero is an international traffic safety initiative that aims to achieve a road system with no fatalities or serious injuries. It originated in Sweden and has been embraced by a number of cities in North America in recent years.

In 2020, Council supported the development of a Vision Zero Strategy for City of Delta. This Strategy identified the following guiding principles:

- Reduce fatalities and serious injuries;
- Improve connections to schools and community services; and
- Address needs for older adults and vulnerable road users.

- **DISCUSSION:**

Delta's Vision Zero Strategy has now been finalized which provides a comprehensive approach focused on reducing traffic related fatalities and serious injuries.

Development of this Strategy was based on collision data analysis, public and stakeholder feedback as well as technical assessment of various road safety initiatives. Public feedback was received through two rounds of public engagement sessions and online surveys.

The objective of the Strategy is to foster a culture of shared responsibility for road safety. Through the existing Transportation Technical Committee, Engineering staff will collaborate with representatives from Delta Police, ICBC, Ministry of Transportation and Infrastructure, and other key community stakeholders. Working together with our partners is critical to delivering a holistic and comprehensive road safety program and policies and initiatives.

Delta's Vision Zero Strategy has set a goal of reducing serious injuries/fatalities by a minimum of 5% a year and at least 25% by the year 2030. To accomplish this, a 3-phase implementation plan was recommended as part of Delta's Vision Zero Strategy to deliver a comprehensive road safety program:

<u>Phase 1: Planning, Analyzing & Coming Together</u>

- Identify collision hot-spots, trends, and countermeasures;
- Create an implementation plan to design and construct engineering safety improvements at high-collision intersections;
- Collaborate with road safety stakeholders to conduct education, engagement, and enforcement; and
- Develop data-driven policies, plans, and tool kits for safety improvement.

<u>Phase 2: Implementing & Taking Action</u>

- Implement identified safety improvements;
- Collaborate with road safety stakeholders to address safety issues;
- Explore the use of emerging technologies to assist in improving road safety; and
- Collect pre and post-implementation data to support evaluation.

<u>Phase 3: Evaluating & Monitoring</u>

- Conduct evaluation on safety performance with road safety stakeholders; and
- Conduct a community survey to gather feedback.

Delta has already undertaken some tasks identified in Phase 1 of the implementation plan. This work includes the Scott Road Safety Review and high crash intersections study across the City. Recommended improvements from the Scott Road Safety Review, including protected left turns and center medians were implemented as part of the R6 Scott Road RapidBus Project.

Implications:

Financial Implications – Funding to implement the projects identified in Delta's Vision Zero Strategy will be presented for Council consideration during the 2025 to 2029 Financial Plan process this fall.

▪ CONCLUSION:

The Delta's Vision Zero Strategy embraces the right to safe mobility and the culture of shared responsibility, outlines key strategies, and provides a course of proactive approaches to improve overall road safety. The endorsement of the Delta Vision Zero Strategy by Council is being sought to formalize Delta's commitment to this important road safety initiative.

Steven Lan, P.Eng.
General Manager, Engineering

Department submission prepared by: Cavin Chow, EIT
CC/cc/sg/rc

This report has been prepared in consultation with the following listed departments.

Concurring Departments		
Department	Name	Signature
Finance	Navin Chand	NC
Police	Guy Leeson	

▪ ATTACHMENT:

A. Delta's Vision Zero Strategy Final Report

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Delta's Vision Zero Strategy 2025 - 2030



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Message from the Mayor and Delta Council

On behalf of the City of Delta, we are pleased to share with you an important initiative that underscores our city's unwavering commitment to community safety and well-being – Delta's Vision Zero Strategy – a comprehensive approach focused on reducing traffic-related fatalities and serious injuries on our streets. Every individual should be able to navigate our transportation network with confidence and with safety as the top priority.

Our Vision Zero Strategy is rooted in a simple yet powerful principle: that no loss of life or serious injury on our roads is acceptable. This strategy addresses safety for the most vulnerable users of our transportation system – pedestrians, school children, older adults, and cyclists – reflecting our commitment to addressing the needs of those most at risk in our efforts to make safety improvements to create conditions that reduce the likelihood of accidents involving vulnerable individuals.

Our strategy encompasses a range of initiatives, from enhancing pedestrian crossings and improving bike lanes, to making our streets more accessible for people of all abilities. However, Vision Zero is more than just a set of road improvements; it's a movement that challenges us to change the way we think about transportation. It encourages us to embrace a culture of shared responsibility where drivers, cyclists, pedestrians, and public transit users all play a role in creating safer streets.

We urge Delta residents and businesses to join the City in adopting our Vision Zero goals by making safer choices on our roads. Whether it's obeying speed limits, using designated crosswalks, or simply looking out for one another, every action counts. Ongoing community participation is instrumental in the success of our Vision Zero Strategy.

Through Delta's Vision Zero Strategy, Delta Council and the City of Delta are committed to helping save lives, prevent injuries, and prioritize public safety above all else. Together, we can make our streets safer and our neighbourhoods stronger. We invite you to be a part of this transformative movement as we pave the way for a safer, more connected Delta.

Mayor George V. Harvie and Delta Council



(left to right): Councillor Daniel Boisvert, Councillor Jessie Dosanjh, Councillor Dylan Kruger, Mayor George V. Harvie, Councillor Alicia Guichon, Councillor Rod Binder, Councillor Jennifer Johal

Our Vision

Delta residents are able to move around the city safely in a transportation network that is free from serious injury and death.



Our Mission

Road safety is a shared responsibility and we will work with the community towards safe roads using data, new technologies, and modern standards.

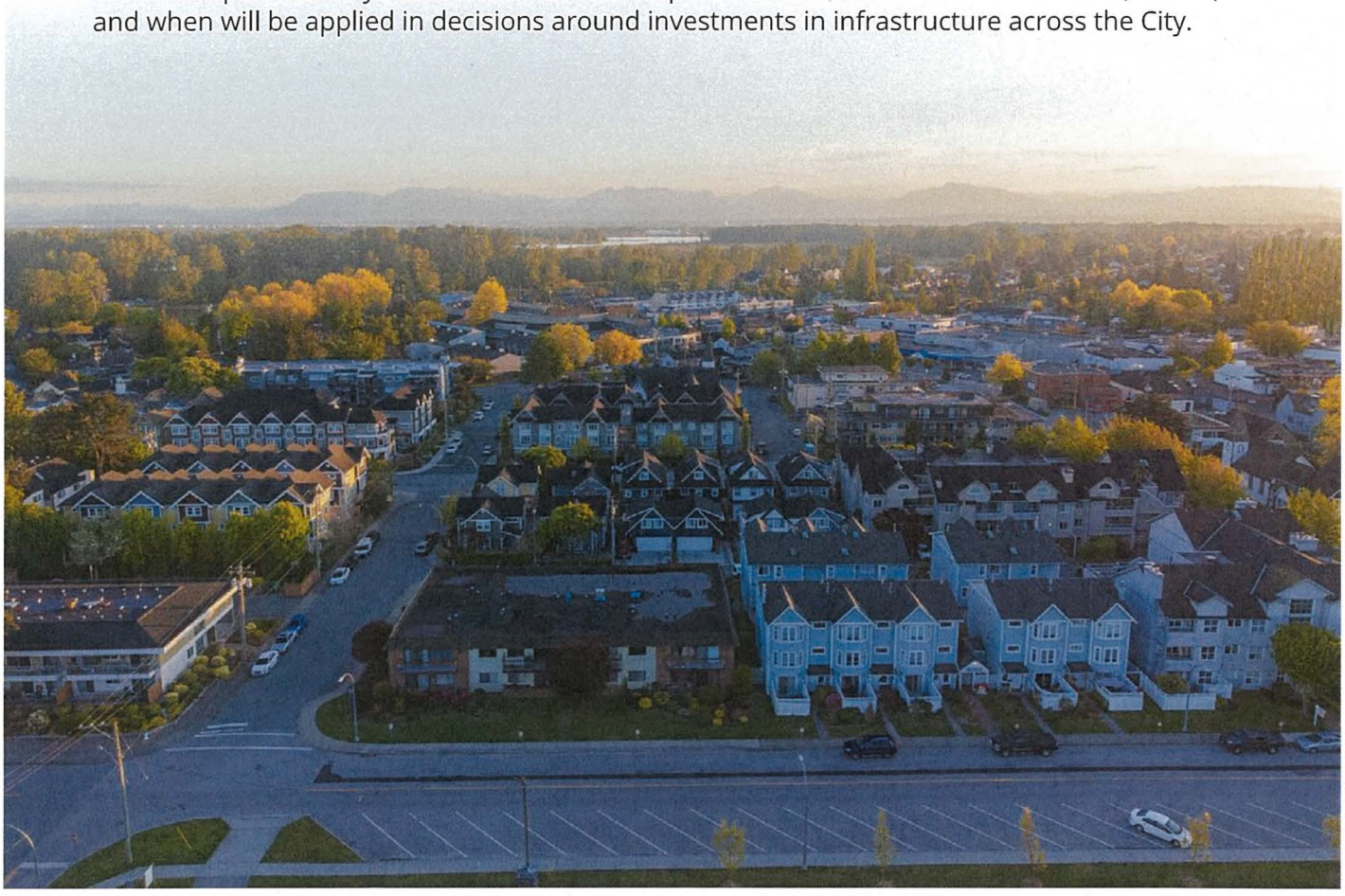


Introduction

There is a global recognition that a failure to prioritize road safety results in enormous social and economic impacts. According to the World Health Organization's (WHO) Global Plan for the 'Decade of Action', across the world, traffic collisions result in the loss of 1.35 million lives a year. They identified traffic collisions as being the leading cause of death for 5 to 25-year-olds. In Canada, we lose approximately 2,000 people as a result of traffic collisions each year and in B.C. 300 people die from traffic collisions. Transport Canada estimates annual costs to society at $36.6 billion (1.8% of Canadian GDP) annually[1].

Traffic Collisions are both a road safety issue and a public health issue as they impact the health and well being of people. Based on an analysis of crash data from the Police and the Insurance Corporation of British Columbia (ICBC), the City of Delta experiences approximately 22 killed and seriously injured (KSI) collisions each year, along with 1,500 total injury collisions[2]. This is unacceptable and requires a data-driven and evidence-led approach which targets areas of harm both geographically and socially.

This plan sets out the vision for the next five years (2025-2030) for how the City of Delta will tackle this public safety issue. Research of best practices and evidence of what works, where, and when will be applied in decisions around investments in infrastructure across the City.



Background

Delta Council approved the creation of a Delta Vision Zero Strategy in October 2020. In 2021 a road safety analysis was conducted using collision data from ICBC and the police based Traffic Accident System (TAS) to identify the top 20 highest crash locations in Delta. In depth analysis of the contributing factors involved in such collisions, as well as the trends over time, was used to inform the development of appropriate countermeasures to prevent crashes from happening and also to reduce the harm associated with them.

Given that Road Safety is a shared responsibility, Delta recognizes the need for an over-arching strategic approach to govern their road safety efforts, which is inclusive of partner and stakeholder efforts and contributions. This strategic framework for road safety includes Vision, Mission, Focus areas and Key Performance Measures, which were developed through analysis and mapping of collision data trends; evidence of best practices and stakeholder engagement. The result is an informed and robust road safety plan which will guide Delta's efforts to reduce/ eliminate death and serious injury resulting from traffic collisions in its transportation network today and for years to come.

While there are several municipal governments across Canada who have either developed or are working towards developing a Vision Zero Strategy, there has been a recent increase of interest amongst B.C. municipalities to adopt this proven approach to road safety. The City of Delta is well placed to build on the road safety initiatives already put in place by the Engineering Department and to create a holistic and comprehensive strategic approach to road safety moving forward. The following have been identified as guiding principles for the Delta Vision Zero Strategy:

- Reduce fatalities and serious injuries
- Improve connections to schools and community services
- Address needs for older adults and vulnerable road users

Delta Vision Zero Strategy Guiding Principles

Reduce fatalities and serious injuries

Improve connections to schools and community services

Address needs for older adults and vulnerable road users

Policy Context

The current policy context of the City of Delta is an important lever that can help with making progress towards having zero people killed and seriously injured on it's roads. The Foundations for the Future presented to Council in June 2020 identifies areas that the City of Delta will pursue to ensure that efforts to implement Council's direction and serve the community are planned and implemented in a holistic manner. The "Ours to Preserve" pillar emphasizes a continued effort to reduce greenhouse gas emissions within City operations and work with the community to reduce community-wide emissions, support active transportation and transit, and enhance biodiversity.

Additionally, Delta's Social Action Plan (2022-2027) has key objectives that align well with those of this Delta Vision Zero Strategy. Under strategic objective 2.1 Community Health and Connections, a key goal is to "improve walkability of the residential environment and advocate for the expansion of public transit options."

The City recognizes the role of the built environment in creating safe spaces for people to adopt active modes of transportation which are linked to positive health outcomes and community connections being achieved. As the level of government which works in closest proximity to the community, municipal governments can play an integral role in creating healthy and safe living conditions for their residents.

We are the City of Delta

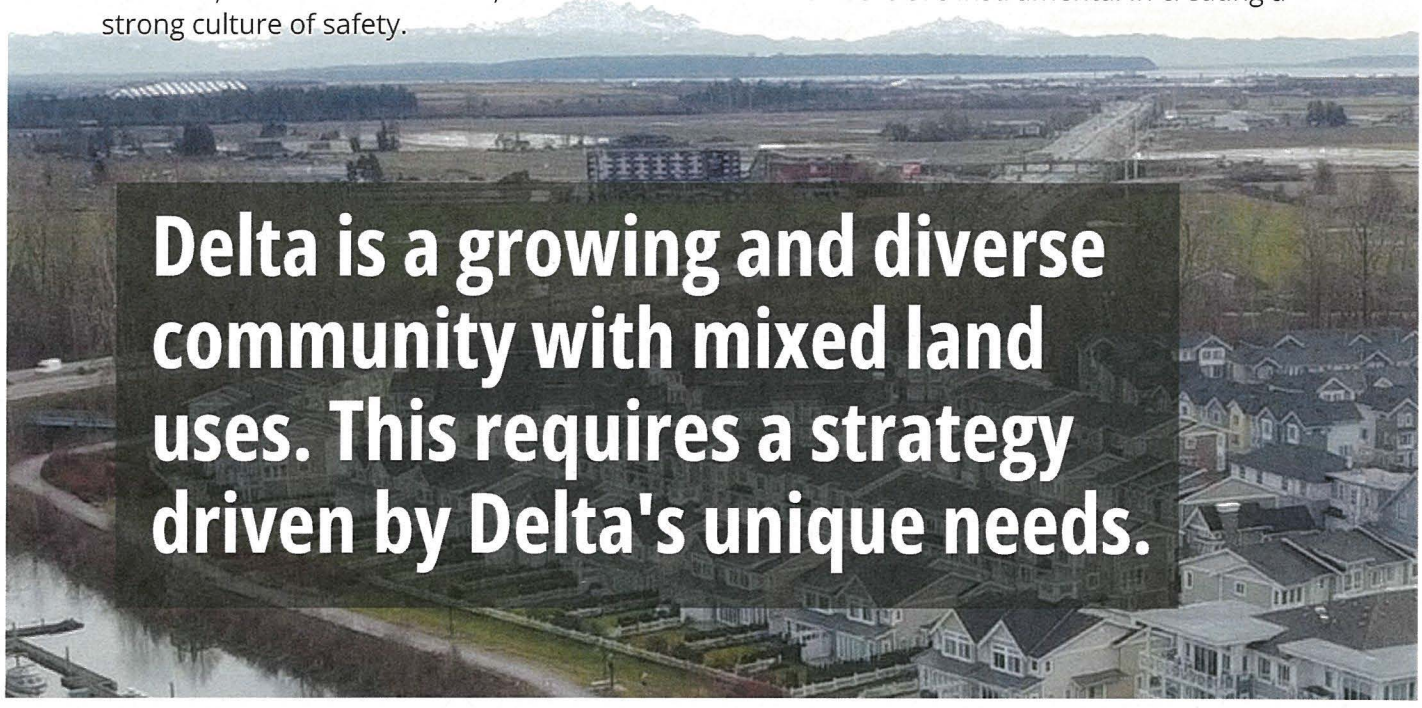
The social and economic characteristics of a city are important considerations when we build plans and strategies that are designed to serve residents. Delta's unique characteristics have been considered during the creation of this Delta Vision Zero Strategy.

Diverse Land Area: Delta encompasses 180 square kilometres bordered by the Fraser River to the north, the US border and Boundary Bay to the south, the City of Surrey to the east and the Salish Sea to the west.

Land Use: The ecological conservancy area of Burns Bog takes up almost one fifth of Delta's land mass. While almost half of Delta land is agricultural, the Tilbury Industrial Park and Annacis Island are two of the largest industrial areas in Metro Vancouver. Delta can therefore be described as a large, mixed land use municipality.

Population Growth: Delta's current population is approximately 108,455 people[3], with population growth of approximately one percent each year. Notably, the largest growth in population is amongst seniors aged between 65-84 years of age. Age friendly mobility requires that we reimagine the requirements for travel amongst those who may no longer have access to a vehicle and may also require mobility assisted devices in order to travel for their daily needs.

Diversity: Diversity and inclusion are a key cornerstone of the City of Delta's values. Over one third of Delta's population is racialized. This rich and diverse cultural community creates opportunities and also challenges for the safety of vulnerable road users. Research shows that strong education initiatives aimed at orienting newcomers to the various travel options available, the rules of the road, and safe road user behaviours are instrumental in creating a strong culture of safety.



What is Vision Zero?

Vision Zero is a philosophy that aims to eliminate all traffic fatalities and severe injuries, while increasing safe and equitable mobility for all. Vision Zero is a worldwide movement which has achieved international recognition and was endorsed by the World Health Organization in 2004. It originated in Sweden in the 1990s and, following its success in reducing injury and fatal collisions, it spread across Europe with many countries adopting the philosophy that no loss of life is acceptable and that safe mobility is a human right. It is based on the recognition of the simple fact that we are human and make mistakes and the transportation system should be forgiving of human error and protect those who use it.

The Vision Zero approach has now been widely adopted in North America. Several Canadian jurisdictions have adopted and implemented Vision Zero Plans towards eliminating death and serious injury from their roads. The plans are a holistic approach to road safety, shifting the effort from a focus on changing human behaviours to a focus on system-wide changes which accommodate human mistakes and create an environment which prioritizes the preservation of human life in the transportation system.

Vision Zero focuses on injury and fatal collisions seeking to target the reduction of harm to human life. The economic cost of a transportation system can transcend the costs associated with building and maintaining physical infrastructure to include the costs of loss of human life and life-altering injuries. This cost becomes more significant as it relates to impacts on vulnerable road users such as pedestrians, cyclists, and micro-mobility (scooters, etc.) users because without the protection afforded by being inside of a vehicle, such road users suffer more harm when a collision with a vehicle occurs.

Vision Zero aligns with the *Canadian Charter of Rights and Freedoms*, which states:

"Everyone has the right to life, liberty, and security of the person and the right not to be deprived thereof except in accordance with the principles of fundamental justice."

Five Principles of Vision Zero

Vision Zero is the philosophy that guides all road safety actions. It is based on the premise that road fatalities and serious injuries are preventable and that they can and should be eliminated to increase safe, healthy and equitable mobility for all road users. The five foundational principles are:

1. Collisions are predictable and preventable and should not lead to injury or death.



2. Human life is a priority within the transportation system and it should be designed to protect road users.



3. People make mistakes but they should not result in injury or death.



4. Responsibility for safe mobility is shared between designers, operators, vehicle manufacturers, and road users. Focus is on system-level changes.



5. Speed is a key factor in crash severity and occurrence and must be managed.



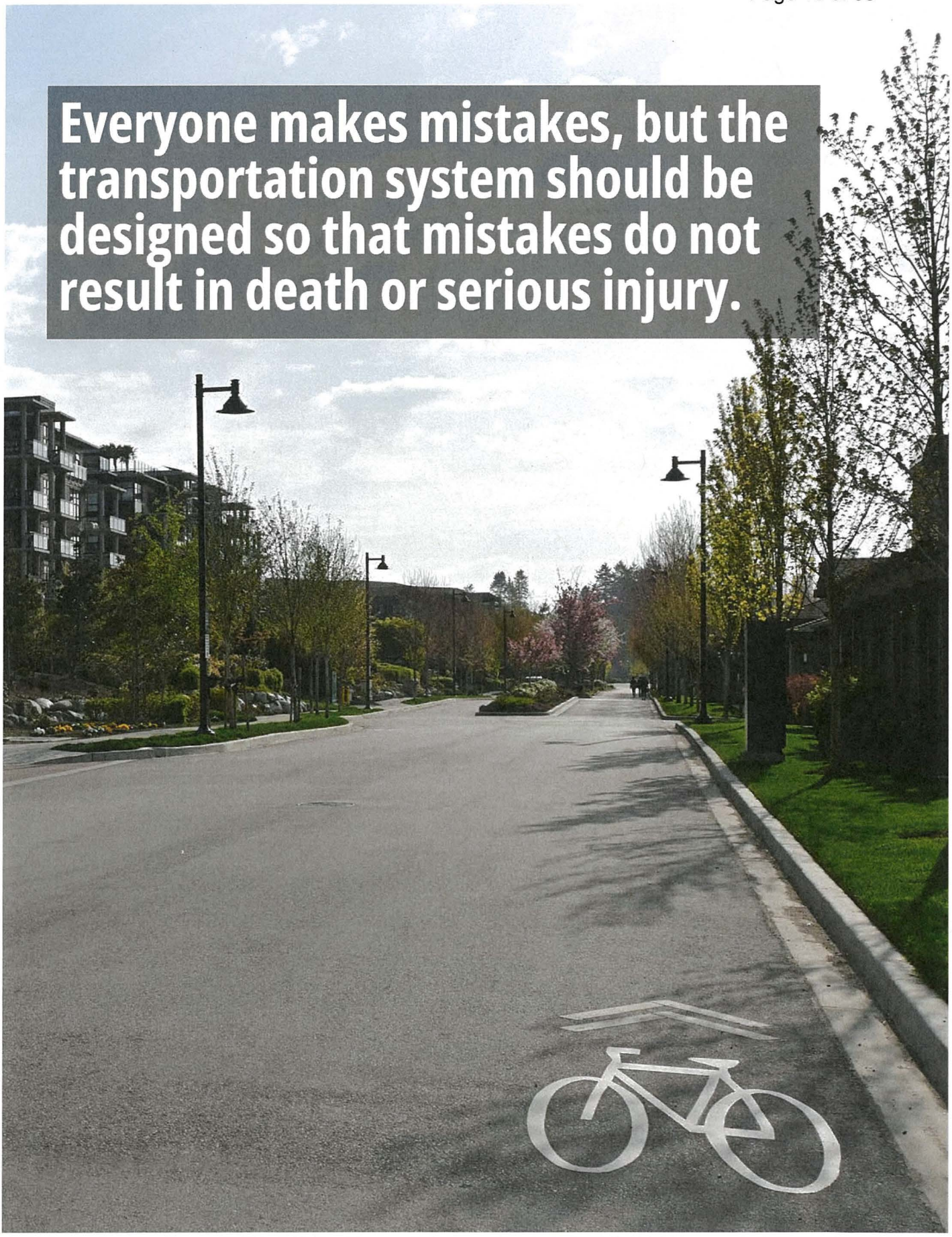
Traditional Road Safety vs. Vision Zero

Traditional approaches to road safety have focused on errors of judgement made by individual road users. Historically traffic safety measures focused on changing individual behaviours to align with the road transport system rather than adapting the road transport system to the individual's capacities.

It is now understood that the fundamental causes of the traffic safety issues are attributable in large part to shortcomings in the design and function of the road transport system. Structural shortcomings in road design can cause road users who make a mistake to become severely injured or even lose their lives.

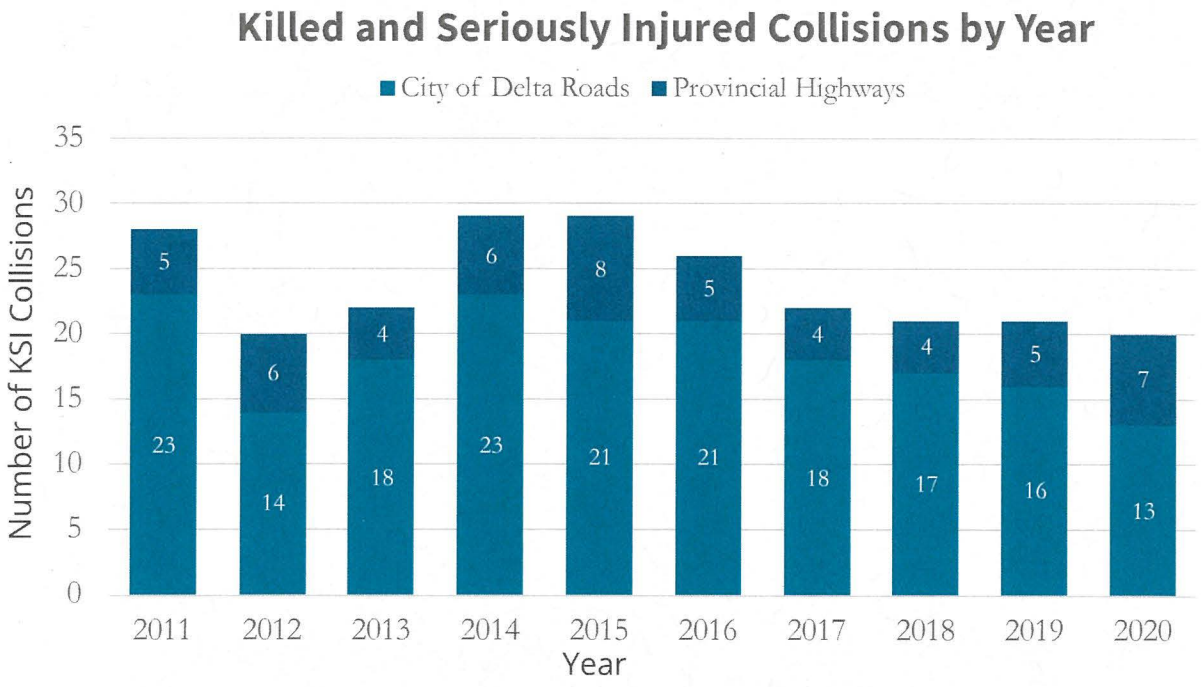
TRADITIONAL APPROACH		VISION ZERO APPROACH
Focus on crashes and aim to reduce the risk of crashes	→	Focus on injuries and aim to eliminate death and serious injury
Road user has primary responsibility for road safety	→	System design is a key component of road safety
Change individual road user behaviour to create a safe environment	→	Change the environment to enable road users to tolerate crash forces
Roads are made as safe as reasonably possible	→	Roads are self-enforcing and forgiving of mistakes

Vision Zero is about shifting from a traditional approach which centered on designing roads for moving vehicles, to a proactive approach where all road authorities, enforcement, and policy makers work together to create safe roads for all road users regardless of ability and mode of travel.


Everyone makes mistakes, but the transportation system should be designed so that mistakes do not result in death or serious injury.

CALL TO ACTION

Over the past ten years, on average, 22 people were killed or seriously injured on Delta's roads each year.

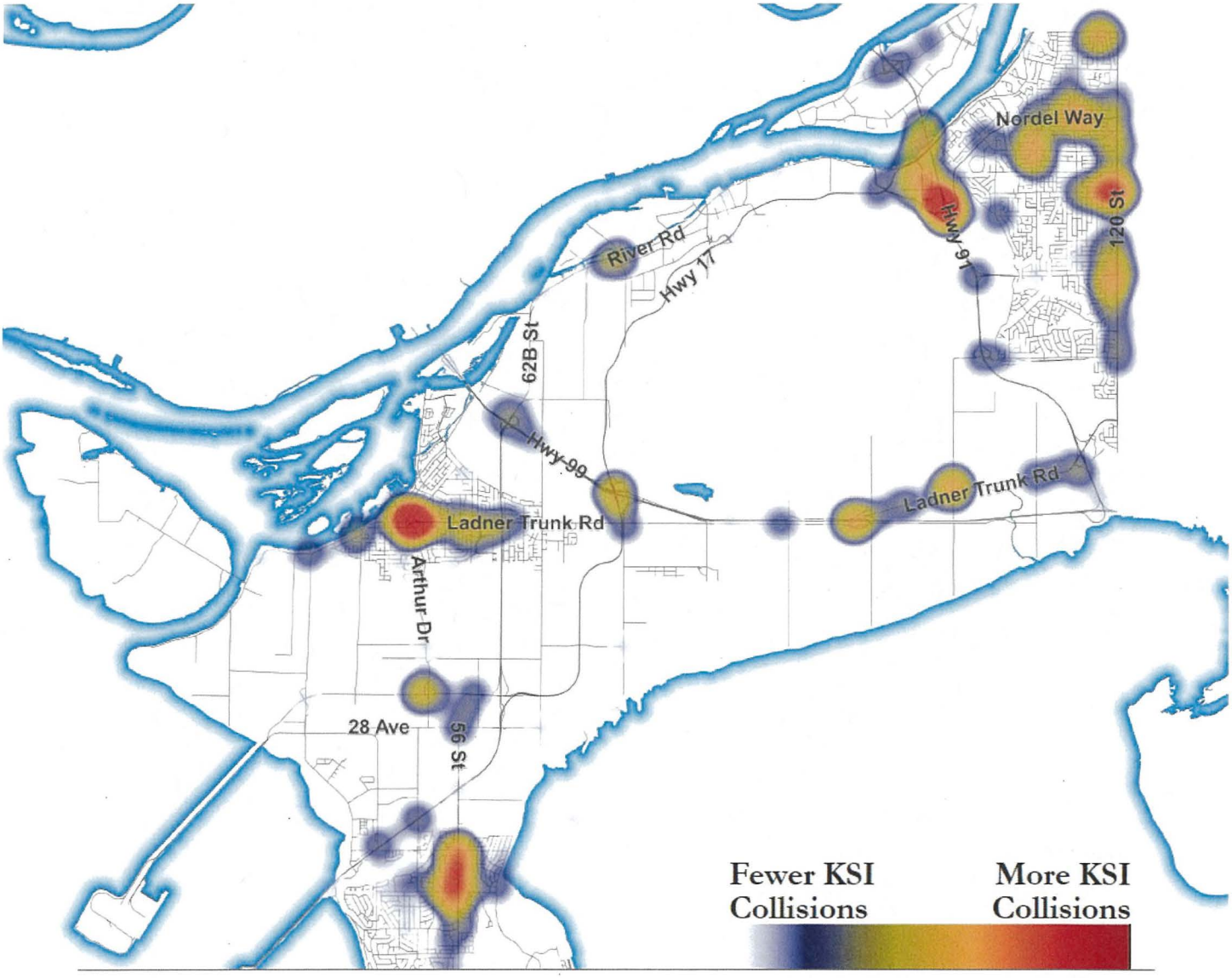


Each number represents a person, a family member, a neighbour, a co-worker, or a community member. Delta Vision Zero aims to eliminate the harm of these unacceptable injuries that result from collisions.

Provincial highways are under the jurisdiction of the BC Ministry of Transportation and Infrastructure. These roads carry high volumes of traffic at high speeds and account for roughly 25% of Killed and Seriously Injured (KSI) collisions occurring in Delta each year. Collaboration with the ministry to address safety issues along the provincial highway network will be required in order to reduce the number of people killed and seriously injured in Delta to zero.

Road safety is a shared responsibility. Road designers, community planners, police, road maintenance, and all road users contribute to our collective safety as we travel through Delta.

By working together, and incorporating data into our decision making, we can save lives. The map below was created by plotting the location of each KSI collision on a map of the city. These collisions were then visualized as a heat map with dark red areas indicating more KSI collisions, and white/blue areas indicating fewer KSI collisions. The map demonstrates that some areas of Delta experience more serious collisions than other areas. This strategy takes a data driven approach that prioritizes locations for safety improvements where the most harm is occurring, while also responding to community concerns. This ensures we make the most effective use of our time and funding and address the highest risk issues.

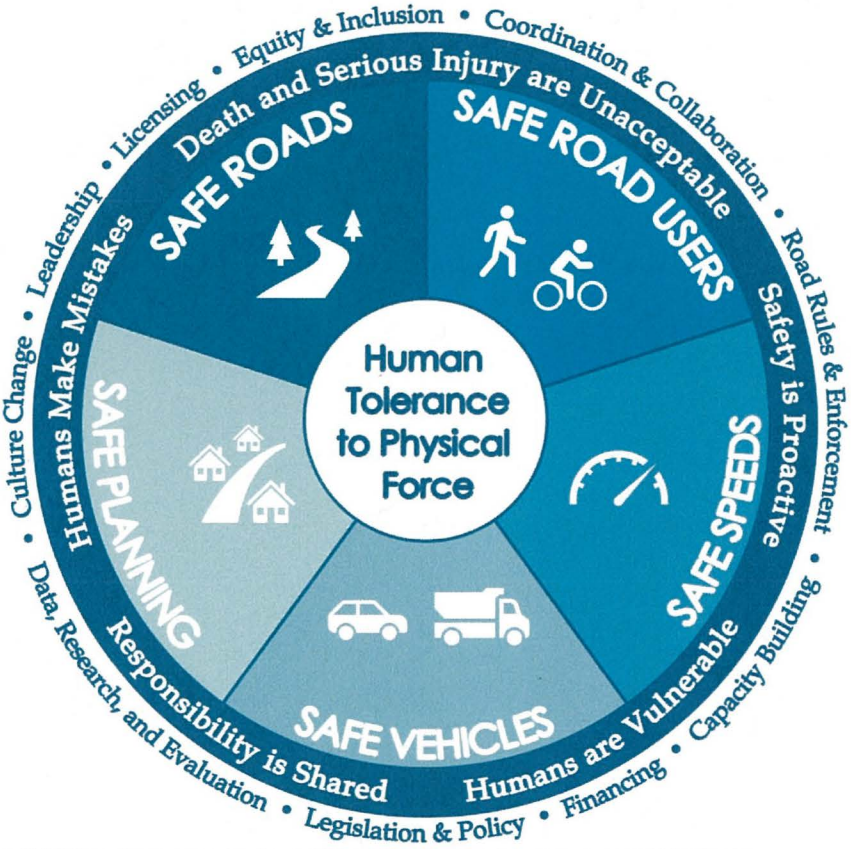


Safe Systems Approach

As Vision Zero principles indicate, crashes can be avoided and they are not inevitable. The Safe Systems Approach is used for putting the Vision Zero principles into action. Just as road safety is a shared responsibility, we must use a systemic approach to collaborate across different sectors to make our roads safer. A safe system is one in which roads are planned, designed, and operated to be forgiving of human error so that when someone makes a mistake it doesn't result in them being killed or severely injured. Responsibility is shared among system managers (planners, designers, builders, operators, maintenance personnel), vehicle manufacturers, enforcement, post-collision response and care, and road users. The road transportation system is designed to protect people from death and serious injury.

The Safe Systems Approach can be described as different layers of protection for the road user, so that if one part of the system fails another part activates to ensure a collision does not result in death or serious injury. There are different pillars that emphasize particular areas for action that, when combined, lead to safe mobility.

Humans make mistakes and this approach anticipates the mistakes we make as road users and works to minimize their impact, with a goal of reducing fatal and serious injury crashes.



Safe Roads

The way in which a road is designed impacts the way it is used. As transportation professionals, we can incorporate prompts and design features that help drivers and other road users to make safe choices. Vision Zero roads prevent crashes leading to injury from occurring. We can separate different road user groups in time and space so that each road user has a level of protection.



Safe Road Users

Following the 'Rules of the Road' helps to ensure we are safe. Sadly, distracted driving, impairment, and speeding are leading contributing factors to collisions. This pillar of the safe system focuses on education and engagement to enhance understanding of the risks associated with unsafe road use as well as the creation of a road safety culture. Enforcement of road rules helps to support compliance and safety of all road users.



Safe Speeds

The faster we drive the longer it takes us to stop or take necessary action to avoid a crash. In fact, travel speeds are a key factor in determining whether a crash will happen and also how severe it will be. By managing driving speeds, we can reduce the number of people killed or seriously injured in a collision. That's why speeds must be managed through road design, enforcement, and education and engagement efforts.



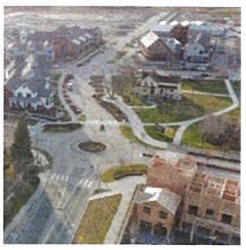
Safe Vehicles

Advances in technology mean that the safety of people travelling in a vehicle has increased greatly. Autonomous vehicles, automated braking systems, pedestrian detection, and lane assist are all examples of how safe vehicles can help to prevent serious injury. Creating partnerships to encourage the adoption of enhanced safety features into vehicle design also helps to reduce injury collisions.



Safe Planning

Safety needs to be embedded into the planning of our communities. What we build, where we build it, and how we use it are important factors that influence travel patterns and modes. By building homes and amenities closer together we can encourage the adoption of safe active transportation options that allow people to lead healthier lives and create more sustainable communities.



Community Engagement

You Spoke, We Listened.

Road safety issues impact every single resident of Delta in some way and so it's not surprising that there was a great turnout at the two Vision Zero Open Houses held in March 2023 to inform the development of the Delta Vision Zero Strategy to reduce injury and death on our roads. Staff and consultants prepared informative poster boards and engaged with residents to take a deeper look at what the collision data was revealing and also to take stock of residents experiences and concerns relating to road safety.

For residents who were unable to attend in person, the 'Let's Talk Delta' platform was used to survey residents on road safety issues. Perceptions of safety are related to each person's experience of the various elements of the transportation network. The results of the engagement are shown as an illustration in the Word Cloud. The larger the size of a particular word, the more residents shared this view.



The results from the engagement sessions have been integrated into the planning of this strategy and will inform the collaborative execution of various road safety initiatives. It is interesting to note that there was broad alignment in residents' views and observations and the actual issues identified in the collision data. For example, many of the most prominent words within the word cloud are captured within the five data-driven focus areas of this strategy. The community of Delta places a high priority on people, pedestrians, intersections, and safe streets. These sentiments have been embedded throughout this strategy.

Focus Areas & Action Plan

The focus areas of this plan have been identified through careful analysis of the collision data and using input from stakeholders and the Delta community. Each focus area represents an issue of importance in Delta, and together they capture the most critical over-represented road safety issues within the City. While the focus areas represent issues of particular importance, Delta will implement road safety interventions for all road users and respond to emerging issues as appropriate. The plan has the following four areas of focus:



Older Adults & Youth

As people age they encounter increasing challenges in using the transportation system, including reduced visual capabilities, slower walking speeds, reduced mobility, or declines in mental ability. Youth can take greater risks leading to increased involvement in KSI collisions. People from both theses age groups are seriously injured and killed at a higher rate than average given their proportion of the population.



Vehicle Speeds

As emphasized within the Safe Systems Approach, vehicle speeds are of critical importance in collision frequency and collision severity. In addition, vehicle speeds were identified as an area of significant concern among residents and stakeholders during the Delta Vision Zero Strategy engagement.



Vulnerable Road Users

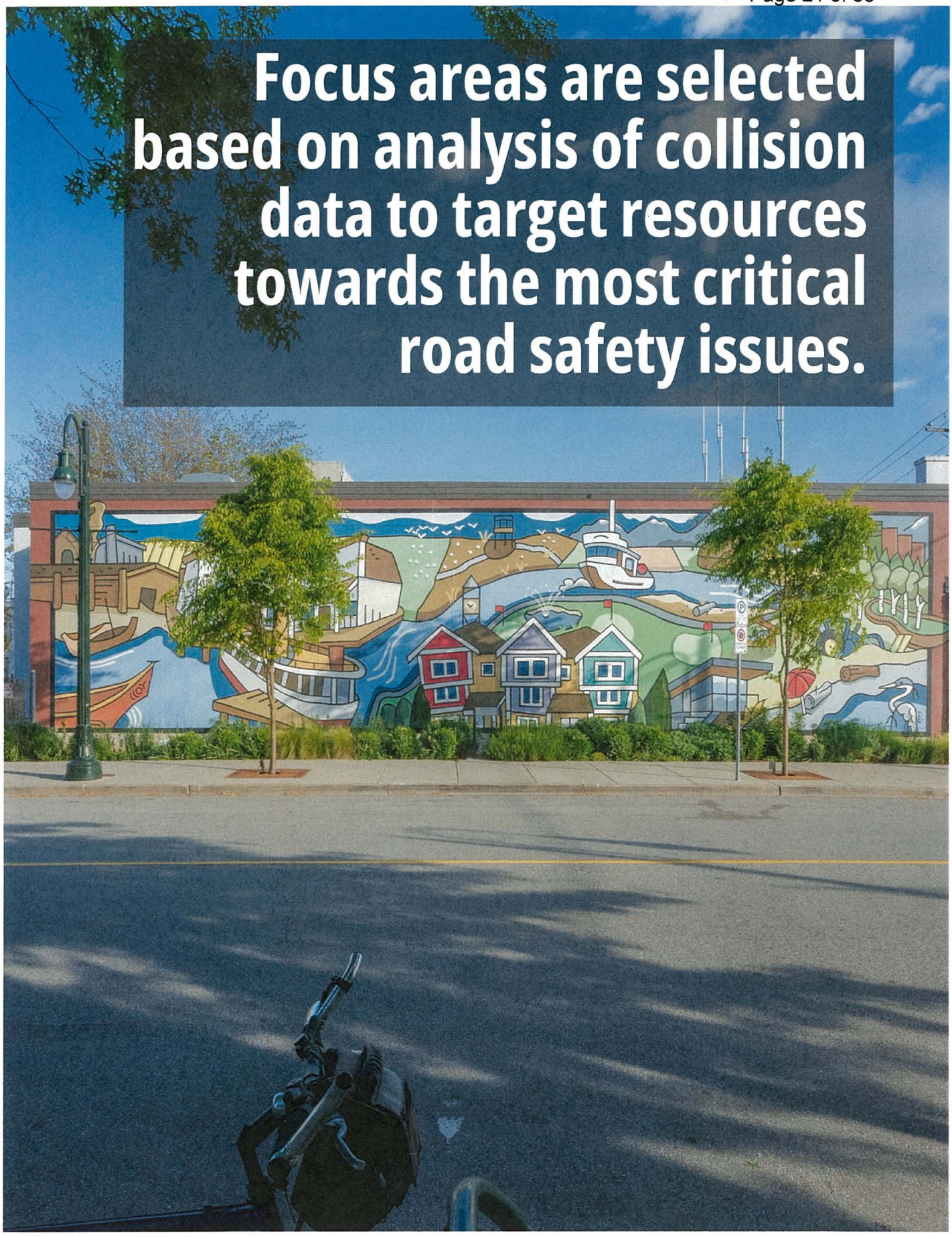
Vulnerable road users refer to pedestrians, cyclists, and motorcyclists, and micromobility users. Delta's collision data shows that almost half of those killed or seriously injured on Delta's transportation system are walking, cycling, rolling, or riding a motorcycle.



Intersections

Intersections are complex locations within the transportation system where multiple road users from several directions are permitted to use the same road space. As with many municipalities, about 65% of KSI collisions occur at intersection locations in Delta.

The following pages provide data analysis, community input, and core actions for each focus area. All core actions detailed in this strategy are "examples" of successful countermeasures that are proven to improve safety within certain conditions. They are not all appropriate in every circumstance. Their application is governed by engineering principles and best practices.

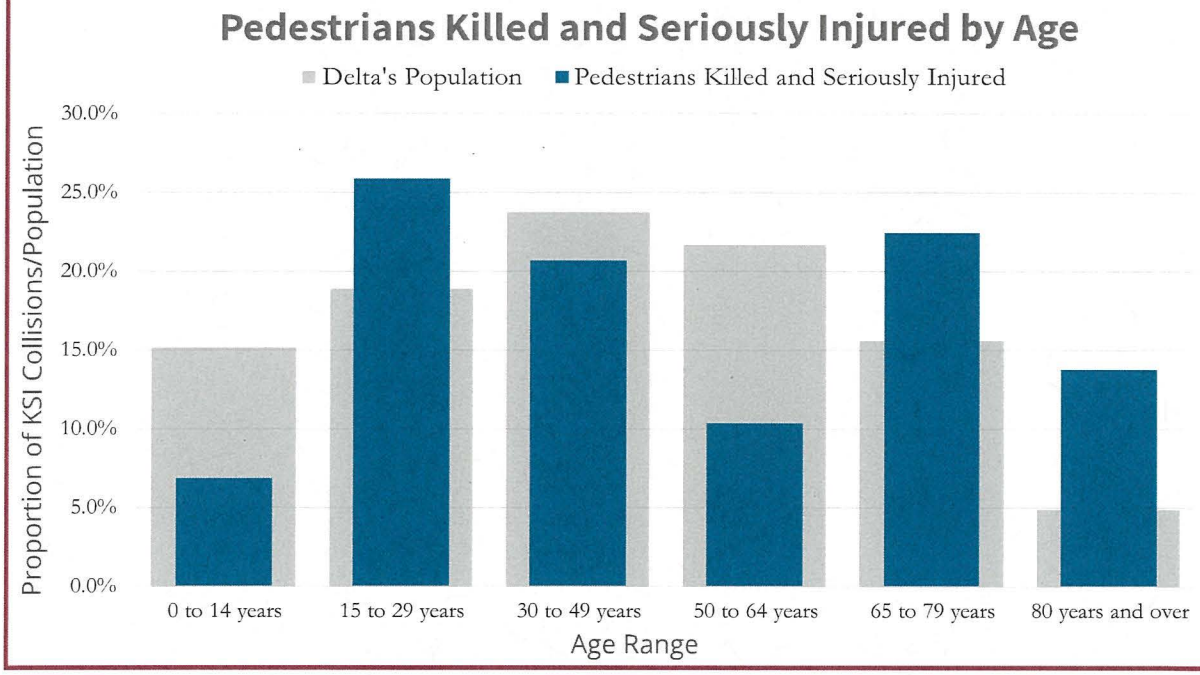

Focus areas are selected based on analysis of collision data to target resources towards the most critical road safety issues.

Older Adults & Youth

COLLISION DATA & RESEARCH

Delta residents are generally living longer and older people represent a larger proportion of the total population. Notably, the largest growth in the population of Delta is amongst seniors between 65-84 years of age. Age-friendly mobility requires that we reimagine the requirements for travel amongst those who may no longer have access to a vehicle and may also require mobility assisted devices in order to travel for their daily needs. Youth tend to take more risks while using the transportation network, which increases their risk of death or serious injury.

Unfortunately, the data shows that older adults and youth are over-represented in the KSI collision data. The collision data shows that those aged 65 and older account for more than 33% of those killed and seriously injured while walking in Delta, but make up only about 20% of Delta's population. Similarly, those aged 15 to 29 years old account for about 25% of those killed and seriously injured, but make up less than 20% of Delta's population.



COMMUNITY INPUT

Residents reported that parts of Delta were not walkable neighbourhoods, especially for older adults or those with disabilities.

Over 95% of residents surveyed strongly supported this strategy's guiding principle of addressing the needs of older adults.

Older Adults & Youth

CORE ACTIONS

Age Friendly Routes Program
The City will work with community stakeholders and community members to identify where the highest concentration of seniors are located and also the amenities they regularly access. This will allow the City to better understand seniors' transportation needs and will work to improve community connections in areas of high priority to older adults.

Leading Pedestrian Intervals
Leading pedestrian intervals provide pedestrians with a head start to begin crossing the road at a traffic signal before motor vehicle traffic is permitted to enter the intersection. This safety measure will be applied in Delta where appropriate and has been shown to result in significant improvements to pedestrian safety by increasing their visibility to drivers.

Longer Crossing Times
As people age, the speed at which they walk tends to decrease. This can create challenges in safely crossing the road at a traffic signal before the light turns red. Where engineering best practices allow, Delta will increase the crossing time for pedestrians at signalized intersections across the city.

Median Refuge Islands
At some midblock pedestrian crossing locations, it is possible to provide a space within the centre median where pedestrians can pause. This allows pedestrians to cross a single direction of traffic at a time which reduces the decision making complexity required to safely cross the street. Wherever it is feasible and appropriate, the City will install median refuge islands at midblock pedestrian crosswalks.

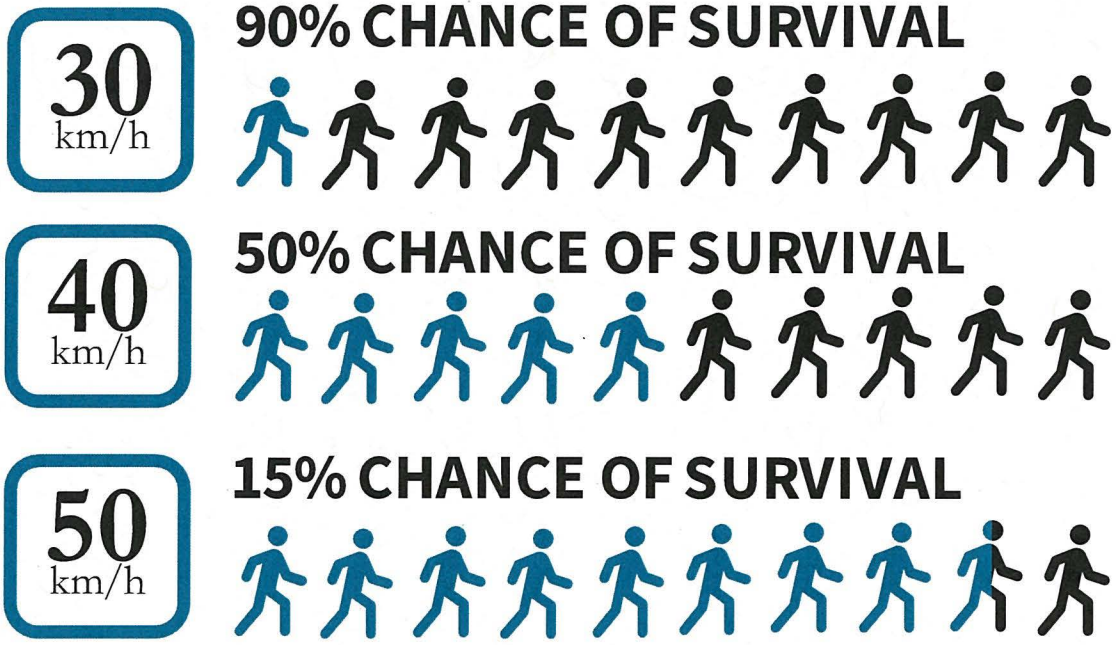
School Safety
The City of Delta will continue to address school safety through campaigns aimed at educating drivers to slow down and comply with parking regulations around schools in partnership with Delta Police and ICBC. In addition, the city will create a plan for addressing school safety that promotes active transportation use as a way to travel to and from school. The plan will incorporate the use of data to prioritize action at schools with the most significant road safety issues.



Vehicle Speeds

COLLISION DATA & RESEARCH

Research shows that small changes in how fast we drive can have a large impact on the severity of collisions. Most pedestrians will survive if struck by a car travelling 30 km/h, but few will survive if struck by a car travelling at 50 km/h.



Beyond resulting in increased risk to pedestrians and other vulnerable road users, provincial statistics show that speed is one of the most common contributing factors to fatal collisions in British Columbia. Vehicle speeds contribute to over one in four fatal collisions in BC.

COMMUNITY INPUT

During the community consultation, many residents reported concerns about vehicle speeds in their community and reported they wanted the City to prioritize speed management.

Residents suggested a variety of interventions they felt could help to reduce vehicle speeds, including narrow travel lanes, reduced speed limits, and speed humps.

Vehicle Speeds

CORE ACTIONS

How fast we drive is influenced by a variety of factors, including nearby land uses, the road design (e.g., road width), personal beliefs about our driving capabilities, familiarity with the area we are driving, the mix of road users (e.g., pedestrians or cyclists) present, and much more. As a result, no single intervention can create safe speeds on its own.

Instead, a comprehensive set of tools must be thoughtfully applied at appropriate locations in order to set the right speed limits that keep everyone safe while ensuring drivers respect and comply with speed limits. The core actions presented provide examples of key interventions; however, not all interventions are appropriate at every location and they will be applied using engineering judgement, best practices research, stakeholder input, and community consultation.

Vision Zero Toolkits

The City will work with the community to engage their neighbours and educate them about the need for safe neighbourhood speeds. Through this project the city will empower the local community to take action for safe vehicle speeds where they live.

Speed Humps

When applied appropriately, speed humps can help to reduce vehicle speeds by creating a vertical deflection in the road surface that requires drivers to slow down at the location of the speed hump. Delta will continue to implement speed humps at appropriate locations, in line with national guidance, and using data to prioritize the highest need.

Speed Limit Reductions

Speed limits are set with consideration of a variety of factors, including the road users who are using the road facility, the design of the road (e.g., driveway access points), and the surrounding land use (e.g., schools and parks). Delta will implement reduced speed limits at appropriate locations using engineering best practices.

Roundabouts and Traffic Circles

Roundabouts and traffic circles are used at intersections as an alternative to stop controlled intersections or traffic signals because research has shown they slow vehicle speeds and prevents right angle collisions, which results in better road safety outcomes. Delta will continue to implement roundabouts and traffic circles throughout the city where feasible.

Education and Enforcement

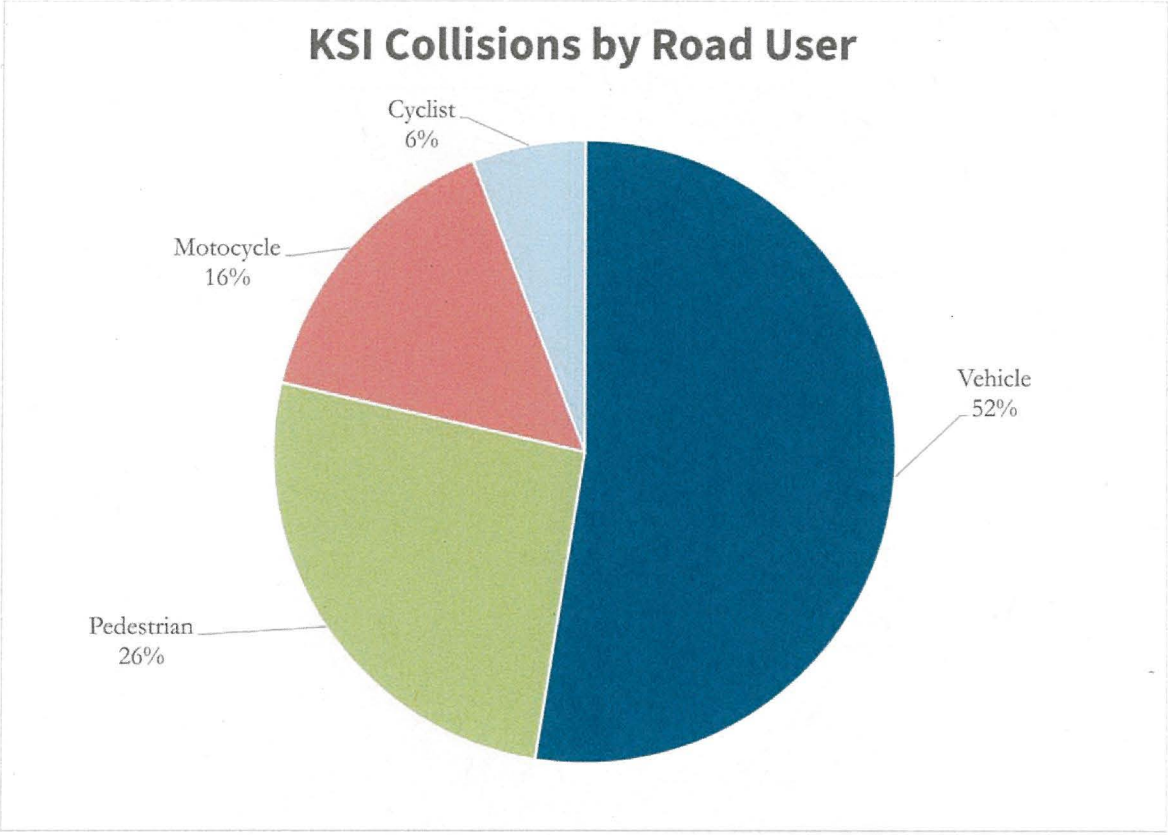
While roads can be engineered to promote safe travel speeds, drivers are ultimately in control of the speed they choose to drive. The City of Delta will continue to work with education and enforcement partners to increase compliance with speed limits.



Vulnerable Road Users

COLLISION DATA & RESEARCH

Pedestrians, cyclists, and motorcyclists do not have the protective infrastructure of a vehicle to absorb collision forces, they are at increased risk of severe injury or death in the event of a collision. The data shows that although pedestrians, cyclists, and motorcyclists make up a small proportion of road user volumes, they account for close to half of those killed or seriously injured in collisions in Delta.



COMMUNITY INPUT

During the community consultation, residents reported wanting the City to prioritize more use of active transportation modes by investing in safety improvements for these users.

Over 95% of residents surveyed strongly supported the guiding principle of improving connections to schools and community services within the Vision Zero Strategy.

Vulnerable Road Users

CORE ACTIONS

Leading Pedestrian Intervals
Leading pedestrian intervals provide pedestrians with a head start to begin crossing the road at a traffic signal before motor vehicle traffic is permitted to enter the intersection. This safety measure will be applied in Delta where appropriate and has been shown to result in significant improvements to pedestrian safety by increasing their visibility to drivers.

Separated Cycling Facilities
Cyclist safety is enhanced when cyclists have a network of safe facilities to move along key cycling routes. Cyclist safety is typically greatest when cyclists are provided with a separate facility instead of a painted bike lane, especially on roads with more traffic and higher speeds. The City will implement best practices, such as those contained in the BC Active Transportation Design Guide, to implement cycling facilities that are safe for cyclists of all ages and abilities.

Safety for Micromobility Users
Micromobility use (e.g., scooters) is becoming more widespread; however, detailed data on the prevalence of these road users and their involvement in collisions is not yet available. City staff will work with partners to support legislative change which accomodates safe use of micromobility devices, create safe facilities for these road users, and educate the community on micromobility use.

Enhance Stakeholder Relationships
Supporting the safe accomodation of vulnerable road users within the transportation system and ensuring they are able to access the amenities they need requires collective and coordinated action. Through community engagement, collaboration with stakeholders such as TransLink and the BC Ministry of Transportation and Infrastructure, the city will work collaboratively towards additional safety work that addresses the needs of pedestrians, cyclists, and other vulnerable road users.

Study Vulnerable Road User Safety
Improving safety for vulnerable road users requires a comprehensive understanding of the safety issues faced by these road users in Delta that is informed by analysis of the collision data. The City will undertake studies of vulnerable road user collision trends for pedestrians, cyclists, and, as data becomes available, micromobility users.



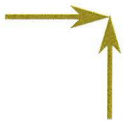
Intersections

COLLISION DATA & RESEARCH

In Delta, about 65% of KSI collisions and about 80% of all injury collisions occur at intersections. The collision data also shows that intersections involving an arterial road or a collector road account for a large proportion of all injury and fatal collisions in Delta.

In order to design effective interventions, understanding the collision history or common points of conflict is critical. The most common types of collisions occurring at intersection and midblock locations in Delta are shown below.

MOST COMMON KSI COLLISION TYPES AT INTERSECTIONS IN DELTA



Right Angle
16%



Rear End
15%



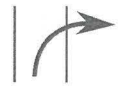
Left Turn Opposing
12%

MOST COMMON KSI COLLISION TYPES AT MIDBLOCK LOCATIONS IN DELTA

Rear End
20%



Off Road
19%



Head On
18%



In Delta, busier roads with higher traffic volumes tend to experience more KSI collisions. An analysis of the top 20 high crash intersections shows that they all involve a collector road, even though collector roads make up only 17% of Delta's road network.

COMMUNITY INPUT

During the community consultation, residents provided input related to intersection safety and reported a desire to see more investment in intersection safety measures.

Several residents recommended expanding the use of specific safety interventions, such as fully protected left turn phases.

Intersections

CORE ACTIONS

Improving safety at intersections typically involves a multi-step process. First, locations of highest concern are identified through analysis of the collision data. Next, each location of concern is reviewed in detail to identify specific safety issues that require interventions. Potential interventions, or countermeasures, that are appropriate for the given location are identified and reviewed through a cost-benefit analysis to help assess their feasibility. Finally, the most advantageous set of safety improvements are implemented. Over time, the improvements are monitored to ensure their effectiveness.

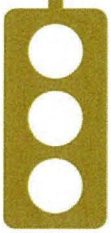
The core actions listed below are some of the common engineering countermeasures used at intersection locations.

Fully Protected Left Turn Phases
Fully protected left turn phases are implemented at traffic signals with frequent collisions involving left turning drivers. This provides left turning drivers with dedicated time to move through the intersection separately from other road users. This simplifies the decision making required to safely perform a left turn and prevents left turning drivers from crashing with other users (e.g., pedestrians, cyclists, oncoming traffic).

Speed Reader Boards
Speed reader boards display a driver's speed on a dynamic sign as they approach a location. They can be applied in advance of an intersection to help drivers slow down before they reach the intersection.

Improve Sightlines
In order to safely maneouver through an intersection, drivers need to be able to clearly see other road users. Sometimes, by removing trees, signs, or other visual clutter, it is possible to provide drivers with enhanced visibility at an intersection.

High Friction Pavement
At locations where there are a lot of rear end collisions, high friction pavement can be installed to help vehicles stop more quickly and reduce the number of rear-end collisions, especially in poor weather conditions.



Implementation Plan

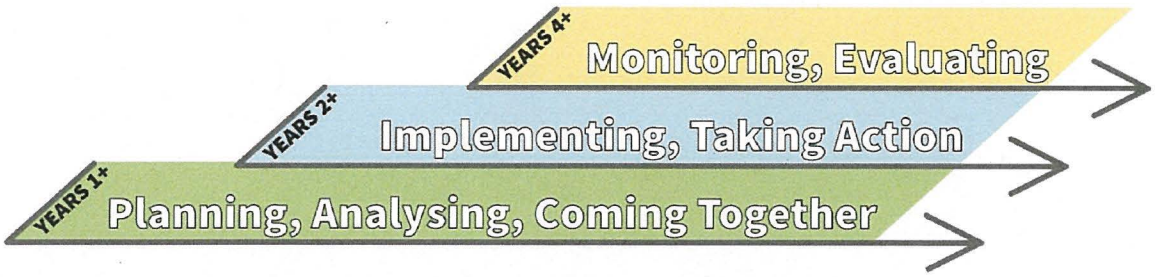
Taking action for safe streets requires a thoughtful combination of planning, data analytics, collaboration, implementation, and evaluation. The core actions identified for each focus area will be implemented in three phases that build towards a comprehensive road safety program with consideration for the careful investigation of road safety issues, implementation of road safety projects and programs, and the monitoring and evaluation of what has been done:

1. Planning, Analyzing & Coming Together - The initial phase of action involves developing an increasingly detailed understanding of road safety issues in Delta through data analysis, project identification, and stakeholder collaboration. The initial phase of Delta Vision Zero also includes the implementation of "Quick Wins" that support improved road safety.

2. Implementing & Taking Action - Because many major projects require several years of planning and design, the second phase of Delta Vision Zero is anticipated to begin in year two and is focused on allocating resources towards engineering, education, and enforcement projects that address the road safety issues identified in phase one.

3. Evaluating & Monitoring - As projects are underway and Delta Vision Zero moves towards zero people killed and seriously injured, the overall program and individual projects will be monitored and evaluated for effectiveness. Learnings from this phase will in turn contribute to new directions for analysis, new partnerships, and new road safety projects and programs. This will allow us to respond and adapt our actions according to what is providing the best safety benefits for our community.

Delta's Vision Zero Action Plan will be implemented in three phases



Together these three phases build towards a comprehensive road safety program for Delta

Planning, Analyzing, & Coming Together

The core focus of this phase of work is on data-driven and collaborative project identification and prioritization. By putting strategic effort towards the careful planning of which projects will have the highest safety impact, and allocating resources accordingly, Delta Vision Zero will effectively address the road safety issues of highest risk. In parallel, the city will continue our existing programs and projects.

Action	Related Focus Areas: Older Adults	Vehicle Speeds	Vulnerable Road Users	Intersections
Conduct a safety review of pedestrian collisions to identify pedestrian collision hot-spots, trends in pedestrian collisions, and possible countermeasures to improve pedestrian safety.	✓		✓	
Conduct a safety review of cyclist collisions to identify pedestrian collision hot-spots, trends in pedestrian collisions, and possible countermeasures to improve pedestrian safety.			✓	
Create an implementation plan to design and construct engineering safety improvements at the top 20 high collision intersections.		✓	✓	✓
Review data sources, data quality, and data collection and validation processes to ensure safety interventions can be evaluated.	✓	✓	✓	✓
Continue to engage with road safety stakeholders to conduct education, engagement, and enforcement.	✓	✓	✓	✓
Create and work with the community to distribute the community road safety toolkits.		✓		
Develop data driven policies and processes to prioritize road safety improvements so that they are targeted towards the areas of highest need.	✓	✓	✓	✓
Create a data-driven, equitable, and holistic plan for speed management that incorporates initiatives such as speed humps, reductions in speed limits, and collaborating with Delta Police for enforcement.		✓	✓	
Implement road safety pilot projects and short-term "quick win" countermeasures.	✓	✓	✓	✓

Implementing & Taking Action

The core focus of this phase of work is on leveraging the learnings and relationships developed during the initial phase of action to begin implementing safety improvements at the most critical locations.

	Related Focus Areas			
Action	Older Adults	Vehicle Speeds	Vulnerable Road Users	Intersections
Implement pedestrian safety improvements identified during the pedestrian safety review.	✓		✓	
Implement cyclist safety improvements identified during the cyclist safety review.	✓		✓	
Implement safety improvements at the top 20 high collision intersections.			✓	✓
Conduct regular public reporting of collision performance metrics and provide updates on road safety work that has been completed.	✓	✓	✓	✓
Collect data as needed before and after implementation of safety interventions in order to support evaluation.	✓	✓	✓	✓
Collaborate with the BC Ministry of Transportation and Infrastructure to address safety issues at locations of concern along the provincial highway network located in Delta.		✓		
Continue to implement speed humps, speed reader boards, and speed limit reductions at appropriate locations.		✓	✓	
Continue to address school safety while prioritizing enhanced actions at schools identified through the data as having the highest need.		✓	✓	✓
Explore use of emerging technologies to assist in improving road safety.	✓	✓	✓	✓

Evaluating & Monitoring

The core focus of this phase of work is on developing the capacity to monitor and evaluate Delta's road safety projects and the overall Vision Zero Strategy to verify it is trending towards improved safety for all. Learnings from the evaluation will be leveraged to adjust interventions and priorities as required.

	Related Focus Areas			
Action	Older Adults	Vehicle Speeds	Vulnerable Road Users	Intersections
Conduct an evaluation of safety improvements implemented at the top 20 high collision intersections.				✓
Work with partners to evaluate the safety performance of micromobility users in Delta.			✓	✓
Work with partners to evaluate education and engagement intiatives and identify opportunities to enhance these programs.	✓	✓	✓	✓
Conduct an evaluation of speed management actions to identify success factors and identify opportunities for improvement.	✓	✓	✓	
Evaluate safety interventions implemented near schools to determine whether they are adequately addressing the safety needs of Delta's students.		✓	✓	✓
Conduct a community survey to gather feedback on perceptions of the city's progress towards achieving Vision Zero targets.	✓	✓	✓	✓

Measuring Progress

While the ultimate goal of Vision Zero is to eliminate death and serious injury resulting from traffic collisions, it is understood that this will take time to achieve. Therefore, Delta Vision Zero will take into consideration targets from leaders in road safety such as the World Health Organization's Global Plan for the Decade of Action 2021-2030 which aims to cut in half the number of traffic deaths and injuries by 2030 (approximately 5% per year).

The Delta Vision Zero Strategy has the bold goal of reducing death and serious injury on its roads by a minimum of 5% a year culminating in a total of a 25% reduction by the year 2030.



As part of the Delta Vision Zero Strategy, a monitoring and evaluation framework has been developed in order to respond to emerging road safety issues and also to measure the impact of our actions. The actions the City takes to improve road safety need to be monitored to ensure they are having the desired effect of reducing injury collisions. When we are able to evaluate our progress based on key performance metrics, we are able to change, modify, and enhance as needed in a timely fashion. The metrics in the following section have been developed in order to align with the data-driven focus areas identified for action.

Performance Measures and Interim Targets

The performance measures for the Delta Vision Zero Strategy are aligned with both the goal of reducing KSI collisions, and with strategy's four focus areas. This allows measurement of progress towards targets across several categories of focus within the strategy:

- **Locations:** Areas for action include location specific areas such as intersections where the majority of injury collisions are happening.
- **Populations:** Specific sub-groups of the Delta population suffer disproportionate amounts of harm from collisions. For example, older adults and youth are two groups who have high involvement in KSI collisions relative to their share of Delta's population. It is for this reason that Delta Vision Zero includes a special focus on the mode of travel and its impact on injury frequency within the metrics being tracked.
- **Travel Modes:** Being active is known to increase health and well-being as well as extend longevity and decrease green house gas emissions; yet the crash data reveals that Vulnerable Road Users – those who cycle, walk, or roll – are over represented in people being killed or seriously injured.
- **Driver Behaviours:** Speeding, distracted driving, and impaired driving are recognized risky behaviours that lead to increased crash risk. In addition, driver speeds are directly related to the severity of a crash with higher speeds closely related to higher severity of injury.

Performance Measure[1]	Baseline (2018-2020 Average)	2030 Target (minimum 25% reduction)
Key Performance Measure KSI collisions per 100,000 population	19.5	14.6
Focus Area Performance Measure Older adult KSI Collisions per 100,000 people aged 65 and older	14.3	10.7
Focus Area Performance Measure KSI Collisions with speed as a contributing factor per 100,000 population	2.5	1.9
Focus Area Performance Measure Vulnerable road user KSI Collisions per 100,000 population	9.8	7.4
Focus Area Performance Measure Pedestrian KSI Collisions per 100,000 population	6.0	4.5
Focus Area Performance Measure Cyclist KSI Collisions per 100,000 population	0.9	0.7
Focus Area Performance Measure Intersection KSI Collisions per 100,000 population	10.7	8.0

[1]To avoid annual fluctuations in the data, a three year average rate is used to mitigate random factors

Collaborating for Success

As noted earlier, road safety is a shared responsibility and so is the mandate to deliver safe roads. It requires action from the municipality, the police, health sector, members of the community, and the provincial government. As detailed in the Safe System Approach to road safety, collaborating with partners is critical to deliver holistic and comprehensive programs, policies and initiatives.

The City will work to establish a Delta Vision Zero Working Group consisting of representatives from city departments, Delta Police, Fraser Health Authority, ICBC, and others. This core group of stakeholders will grow as the city begins implementation of key initiatives.

Advocacy with regional and provincial road authorities is also an important element that supports the safety of Delta's community as they travel across the city. Working with TransLink and the BC Ministry of Transportation and Infrastructure allows the City of Delta to prioritize transit initiatives as well as address safety issues on highways running through the city.

Conclusion

In conclusion, the Delta Vision Zero Strategy will continue to support key strategic initiatives identified by community and Council alike. While Road Safety is a shared responsibility and it impacts everyone regardless of who they are, where they live, and how they travel, it is also one of the most complex societal problems to solve and the mandate for the delivery of policy and programs is dispersed amongst different levels of government and community members. Recognizing that the loss of life and the burden of serious injury is unacceptable as a result of our mobility helps us to set a good foundation for the necessary work to be done.

This Delta Vision Zero Strategy sets our direction and guides our investments so that we target our combined efforts to areas and people who suffer the most harm from collisions and where we can make the greatest impact. Our goal is to have zero people killed and seriously injured as we believe everyone has the right to safe mobility.

Bibliography

Except as noted, all collision data is from the Traffic Accident System (2011-2020), which provides details of police attended collisions.

[1]International Transport Forum (2023). Road Safety Country Profile: Canada 2023.

[2]Killed and seriously injured (KSI) collisions include those where a person was killed, or a person sustained injuries significant enough to require an overnight stay in hospital. Total injury collisions includes collisions where a person sustained an injury of any severity.

[3]Statistics Canada (2021). City of Delta Profile Table. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E

[4]ICBC Quick Statistics Contributing Factors Report (2022). https://public.tableau.com/app/profile/icbc/viz/QuickStatistics-Contributingfactors/Contributingfactors

[5]Virginia Tech Transportation Institute (2019). The prevalence of and crash risk associated with primarily cognitive secondary tasks

[6]ICBC Quick Statistics Contributing Factors Report (2022). https://public.tableau.com/app/profile/icbc/viz/QuickStatistics-Contributingfactors/Contributingfactors

[7]World Health Organization (2023).https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries Road Traffic Injuries.

[8]ICBC Quick Statistics Contributing Factors Report (2022). https://public.tableau.com/app/profile/icbc/viz/QuickStatistics-Contributingfactors/Contributingfactors

[9]The average proportion of trucks was calculated based on traffic volume data for roads across Delta. The proportion of trucks on each road was calculated, and then an average was calculated based on all roads.

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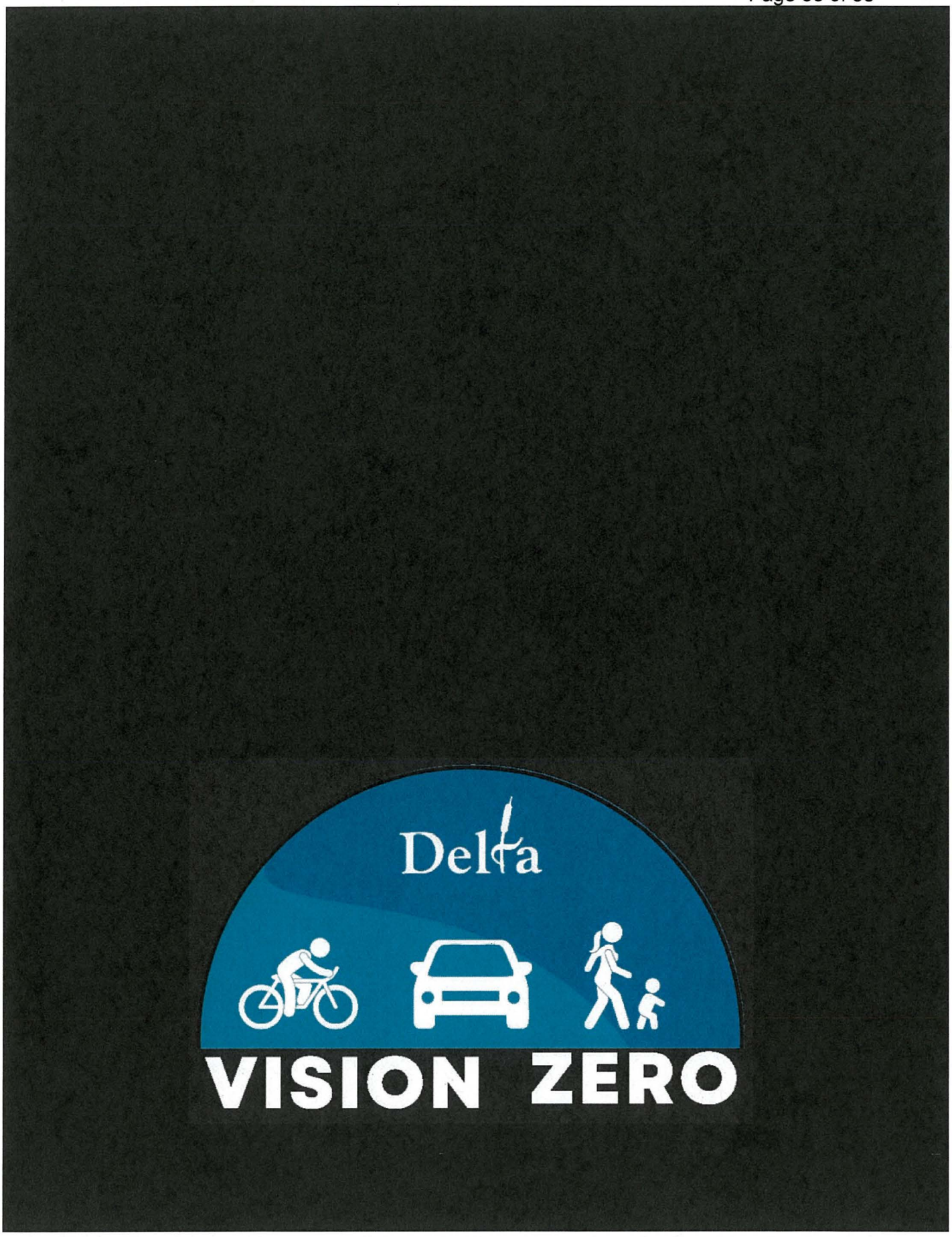
MORR TRANSPORTATION CONSULTING

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Disclaimer

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In preparing this strategy we have relied in good faith upon representations, information and instructions provided by the City concerning this work. In addition, all collision analysis has been conducted based on information contained in the Traffic Accident System. This data source was chosen because it is the only collision data in British Columbia which allows for analysis of KSI collisions. This allows for analysis of collisions resulting in the most harm to human life and aligns with the Vision Zero philosophy. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the strategy as a result of misstatements, omissions, misrepresentations, or other acts of the City or other persons providing information relied on by us. We are entitled to rely on such representations, information and instructions and are not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.


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