Vision Zero Action Plan

APRIL 4, 2023

Transportation Planning Services
Public Works

Office of the Commissioner of Infrastructure

Contents

Cover Image: Protected Intersection (Initiative 34), Chicago, IL. Photo source: www.pedbikeimages.org / Toole Design Group

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Executive Summary

The Vision Zero Action Plan follows a Safe System Approach to achieve the goal of zero fatal and major injury collisions on Windsor streets. The Action Plan was developed based on three core components:

- Strategic Priorities
- Recommended Initiatives
- Interim Goals (including Implementation Plan)

Strategic priorities were developed based on a review of trends and patterns in fatal and major injury collisions. The priorities, grouped into four themes, are listed in Table 1.

Table 1: Themes and Strategic Priorities

Theme	Strategic Priority
1: Driver Behaviours	1A: Vehicle Speeds
	1B: Drug and Alcohol Impairment
	1C: Inattentive Driving
	1D: Failing to Yield at Intersections
2: Road User Types	2A: Vulnerable Road Users (Pedestrians, Cyclists, and Motorcyclists)
	2B: Data Gaps – People
3: Locations and Infrastructure	3A: High Injury Corridors
	3B: Signalized Intersections
4: Process Improvements	4A: Improved Data Sources and Information Sharing
	4B: Design Standards and Best Practices

Building on these themes, a set of 42 recommended initiatives was identified. These initiatives and their proposed implementation timelines are summarized in Table 2. Items where new funding is required will be presented as part of future annual budget submissions.

Table 2: Recommended Initiatives and Implementation Plan

Number	Recommended Initiative	Responsibility	Timeframe		
			Short 0-5 years	Medium 5-10 years	Long 10-15 years
1	Develop and Implement a Complete Streets Policy	*Development:* Transportation Planning	X		
		Implementation: Engineering Operations Planning	X	X	X
2	Construct Roadway Capital Projects (for certain corridors)	Engineering		X	X
3	Obtain Collision Data through Provincial ARIS System	Transportation Planning	X		
4	Continue to Implement the Transit Master Plan	Transit	X	X	X
5	Review Yellow and All-Red Intervals for Traffic Signals	Traffic Operations	X		
6	Install Retroreflective Backboards for Traffic Signals	Traffic Operations	X	X	
7	Increase Winter Roadway Maintenance	Operations	X		
8	Driver Simulation Training for Commercial Motor Vehicle Operators	Human Resources	X		
9	Commercial Motor Vehicle Driver Evaluation by Independent Party	Human Resources	X		
10	Conduct Road Safety Audits of Identified High Injury Corridors	Transportation Planning	X		
11	Carry out a Value Engineering & Road Safety Review of Existing Approved Preliminary Designs for Roadway Projects	Engineering	X	X	
12	Establish a Fatal Collision Response Team	Traffic Operations WPS Engineering Risk Management Coroner's Office	X		
13	Explore Data-Sharing Arrangements Between Agencies	Transportation Planning	X		
14	Carry out a Resident Survey	Transportation Planning	X		
15	Implement Target Speed Requirements for New Construction and Major Roadway Projects	Engineering Operations	X		
16	Implement Speed Limit Reductions – Neighbourhoods	Traffic Operations	X		
17	Implement Speed Limit Reductions – Major Streets	Traffic Operations	X		
18	Implement Speed Limit Reductions and Increased Fines – Construction Zones	Traffic Operations Operations	X		
19	Reduce Progression Speed for Traffic Signal Coordination	Traffic Operations	X		
20	Carry out Education Campaigns	Transportation Planning	X	X	X
21	Adjust Project Prioritization Criteria in the Active Transportation Master Plan to Place a Greater Emphasis on Safety and Collisions	Asset Planning Engineering Operations	X		
22	Include Collision History as a Factor in Prioritizing Capital Projects	Asset Planning Engineering	X		
23	Review Official Plan and Zoning By-laws for Vision Zero Opportunities	Planning	X	X	
24	Review Design Standards and Development Manual for Vision Zero Opportunities	Engineering	X	X	

Number	Recommended Initiative	Responsibility	Timeframe		
			Short 0-5 years	Medium 5-10 years	Long 10-15 years
25	Require Transportation Impact Studies for New Developments to Include a Full Multimodal Review	Transportation Planning Planning	X		
26	Develop Safety Performance Functions	Transportation Planning	X		
27	Implement Automated Speed Enforcement	Traffic Operations	X		
28	Install Transverse Rumble Strips at Select Locations	Transportation Planning	X		
29	Implement a Parking Ticket Forgiveness Program to Target Impaired Driving	Parking Enforcement	Pilot		
30	Provide Free (or Cost-Included) Transit Service for Alcohol-Oriented Special Events	Transit Windsor Special Event Resource Team	X		
31	Support the Development of a “Safe Ride Home” Service	Transportation Planning	X		
32	Provide Stop Bars and Crosswalk Markings at Unsignalized Intersections	Traffic Operations	Pilot		
33	Provide Ladder Crosswalk Markings at Signalized Intersections	Traffic Operations	Pilot		
34	Implement Fully Protected Intersections	Traffic Operations Operations Engineering		X	
35	Implement Leading Pedestrian Intervals	Traffic Operations	Pilot		
36	Install Pedestrian Countdown Signals	Traffic Operations	Pilot		
37	Implement Hardened Centrelines at Intersections with High Speed Left Turns	Traffic Operations Operations Engineering	X	X	
38	Adopt a “Roundabouts First” Policy or Best Practice for New Intersections and Major Roadway Projects	Engineering Transportation Planning	X		
39	Adopt a “No Right Turn Channels” Policy or Best Practice for New Intersections and Major Roadway Projects	Engineering Transportation Planning	X		
40	Implement a Road Diet Program	Engineering Transportation Planning	X	X	
41	Develop a Comprehensive GIS-based Collision Information System	Geomatics Asset Planning	X		
42	Develop Safety-Related Vehicle Design Criteria for Future City Vehicle Fleet Purchases	Fleet Review Committee	X		

The overall goal of the Vision Zero Action Plan is the elimination of fatal and major injury collisions on streets under the jurisdiction of the City of Windsor within 15 years of adoption of the Vision Zero Action Plan. For each strategic priority, interim goals are identified in Table 3 and impact goals are identified in Table 4.

Table 3: Interim Goals by Strategic Priority

Strategic Priority	Indicator	2015-2019 Baseline	Goals		
			5 years	10 years	15 years
Overall	**Fatalities and major injuries (all causes and victim categories)**	**37.2 per year**	**24.8 per year**	**12.4 per year**	**0 per year**
1A: Vehicle Speeds	Fatalities and major injuries involving the following driver actions: • Exceeding speed limit • Speed too fast for conditions • Lost control	11.0 per year	7.3 per year	3.7 per year	0 per year
	Fatalities and major injuries involving either: • Traffic control type identified as "traffic controller" or • Road condition identified as "under construction"	0.8 per year	0.5 per year	0.3 per year	0 per year
1B: Drug and Alcohol Impairment	Fatalities and major injuries involving the following driver conditions: • Had been drinking • Ability impaired, alcohol • Ability impaired, alcohol (over 0.08) • Ability impaired, drugs	4.8 per year	3.2 per year	1.6 per year	0 per year
1C: Inattentive Driving	Fatalities and major injuries involving the driver condition "inattentive"	3.8 per year	2.5 per year	1.3 per year	0 per year
1D: Failing to Yield at Intersections	Fatalities and major injuries at intersections involving the following driver actions: • Failed to yield right-of-way • Disobeyed traffic control • Improper turn	12.2 per year	8.1 per year	4.1 per year	0 per year
2A: Vulnerable Road Users (Pedestrians, Cyclists, and Motorcyclists)	Pedestrian fatalities and major injuries	8.4 per year	5.6 per year	2.8 per year	0 per year
	Cyclist fatalities and major injuries	3.2 per year	2.1 per year	1.1 per year	0 per year
	Motorcyclist fatalities and major injuries	6.0 per year	4.0 per year	2.0 per year	0 per year
3A: High Injury Corridors	Pedestrian fatalities and major injuries – Tecumseh Road East (Jefferson to Forest Glade Drive)	0.8 per year	0.5 per year	0.3 per year	0 per year
	Pedestrian fatalities and major injuries – Wyandotte Street (Ouellette to Chilver)	0.8 per year	0.5 per year	0.3 per year	0 per year

Strategic Priority	Indicator	2015-2019 Baseline	Goals		
			5 years	10 years	15 years
	Cyclist fatalities and major injuries – Wyandotte Street (Pelissier to Parent)	0.6 per year	0.4 per year	0.2 per year	0 per year
	Motor vehicle driver and passenger fatalities and major injuries – EC Row Expressway (Howard to Banwell)	1.8 per year	1.2 per year	0.6 per year	0 per year
	Motor vehicle driver and passenger fatalities and major injuries – Wyandotte Street (Pelissier to Gladstone)	1.0 per year	0.7 per year	0.3 per year	0 per year
3B: Signalized Intersections	Fatalities and major injuries at signalized intersections	11.6 per year	7.7 per year	3.9 per year	0 per year
4A: Improved Data Sources and Information Sharing	N/A				
4B: Design Standards and Best Practices	N/A				

Table 4: Impact Goals by Strategic Priority

Strategic Priority	Indicator	2015-2019 Baseline	Goals		Notes
			Target	Timeframe	
1A: Vehicle Speeds	% of treated locations with operating speed within 5 km/h of target speed	N/A	80%	Immediate after treatment	This indicator should be summarized by category (e.g. speed limit reduction, radar speed feedback sign, permanent traffic calming, Complete Street installation)
	# of automated speed enforcement citations issued	0	Downward trend in citations issued at each treated intersection	1 year after treatment	
1B: Drug and Alcohol Impairment	# of riders per year using “Safe Ride Home” service	0	To be determined	To be determined	Goals to be identified as part of service development
1C: Inattentive Driving	N/A				
1D: Failing to Yield at Intersections / 3B: Signalized Intersections	# of red light camera citations issued	0	Downward trend in citations issued at each treated intersection	1 year after treatment	

Strategic Priority	Indicator	2015-2019 Baseline	Goals		Notes
			Target	Timeframe	
2A: Vulnerable Road Users (Pedestrians, Cyclists, and Motorcyclists)	N/A				
3A: High Injury Corridors	See note	N/A	To be determined	To be determined	As part of each road safety audit, impact goals will be developed based on the audit's conclusions and recommendations
4A: Improved Data Sources and Information Sharing	Mean days from crash date to date crash report is entered into City database	477 days	60 days	Immediate after implementation of ARIS-based collision data system	
	Percentage of crash reports entered into the database within 90 days after the crash	0%	90%	Immediate after implementation of ARIS-based collision data system	
	% of fatal collisions where Fatal Collision Response Team was activated	N/A	100%	Immediate after establishment of the Fatal Collision Response Team	
4B: Design Standards and Best Practices	N/A				
Multiple	Education campaign reach	N/A	To be determined	To be determined	Campaign goals will be developed individually for each educational campaign

Ongoing reporting and review is recommended as follows:

- **Annual reporting:** revise the format of the annual Road Safety Report to include details on each of the identified Vision Zero Action Plan goals and indicators.
- **Ongoing review:** review the Vision Zero Action Plan to identify recommended revisions, if any, that will be needed to better achieve the Action Plan's goals. Recommended intervals for these ongoing reviews, measured in terms of time from adoption of the Vision Zero Action Plan:
  - 2.5 to 3 years
  - 5 years
  - 10 years
  - 15 years

Additional updates to the Vision Zero Action Plan may be proposed to Standing Committee and/or Council by way of Administration report at any time if the need arises.

1. Introduction and Background

What is Vision Zero?

Vision Zero was first launched in Sweden in 1995 and adopted as policy by the Swedish government in 1997. Since then, it has been implemented by many jurisdictions around the world.

In Canada, as of the date of this report, Parachute Canada identifies that 18 cities, 2 regional municipalities, and 2 provinces have implemented Vision Zero programs and an additional 10 cities and 3 regional municipalities have Vision Zero programs under development.

Vision Zero's overall goal is zero fatalities and severe injuries due to road crashes. Key principles of Vision Zero are:

- **Humans are fragile:** the human body has a finite capacity for injury; beyond a certain limit, severe injury or death will occur. Road safety systems – including roadway design, vehicle design, and policies – should respect these limits.
- **Humans are fallible:** road users are human beings, and as such, will not behave perfectly at all times. Roadways should be designed so that foreseeable human mistakes and misbehaviours do not have fatal consequences. Policies should – as much as possible, endeavour to create a *safe system* approach where a single point of failure or misjudgement would not result in a fatality or severe injury.

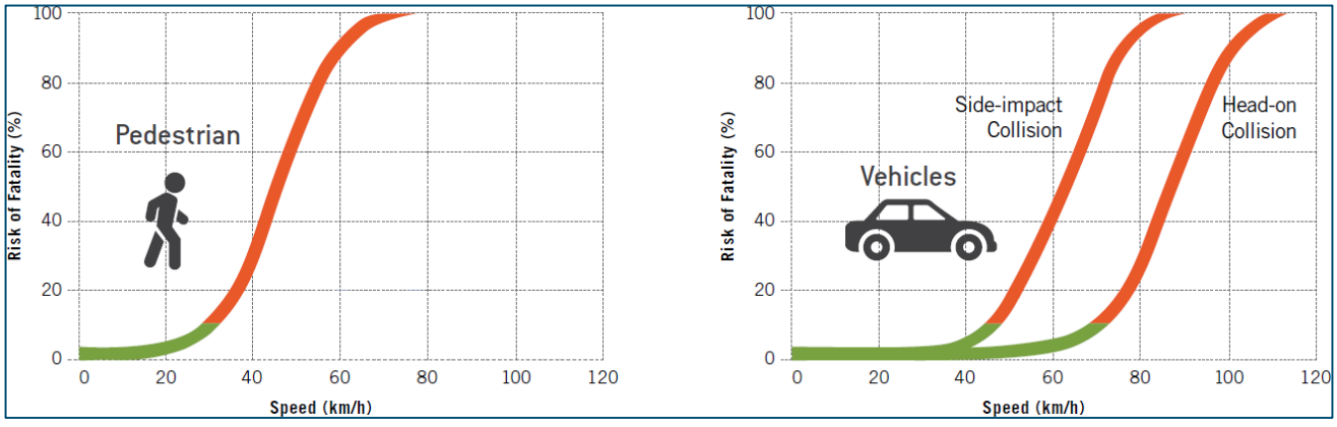


Figure 1: Risk of Fatality as a Function of Impact Speed (source: Waikato District Council)

Table 5: Differences Between a Traditional Road Safety Approach and Vision Zero (source: Vision Zero Network)

Traditional Approach	Vision Zero
Traffic deaths are inevitable	Traffic deaths are preventable
Perfect human behaviour	Integrate human failing in approach
Prevent collisions	Prevent fatalities and severe injuries
Individual responsibility	Systems approach
Saving lives is expensive	Saving lives is not expensive

To support these principles, the Vision Zero approach also includes a number of foundational elements:

- A robust data framework
- Measurable goals
- Clear timeline for implementation
- Accountability
- Transparency

Safe System Approach

The Safe System approach is not synonymous with Vision Zero, but Safe System principles are incorporated into the Vision Zero approach.

Table 6: Traditional Approaches Versus the Safe System Approach (source: Transportation Association of Canada)

Traditional Approach	Safe System Approach
Focuses on crashes	Focuses on injuries
Aims to reduce risk of crashes	Aims to eliminate death and serious injury
Road user has primary responsibility	System designer has primary responsibility
Change individual road user behaviour	Change the environment (safe roads, safe vehicles, safe speeds) to enable road users to tolerate crash forces

Traditional Approach	Safe System Approach
Safety is “optimized” once mobility and accessibility objectives have been achieved	Safety is a fixed parameter with threshold levels that cannot be exceeded – mobility and accessibility are variables in this framework
Roads are made as safe as reasonably practical	Roads are self-explaining and forgiving of mistakes so that road users are protected from crash forces that exceed human biomechanical injury thresholds

Key aspects of the Safe System Approach not already addressed above include (source: Transportation Association of Canada):

- **Safety is proactive.** Proactive tools can be used to identify and mitigate latent risks in the transportation system, rather than waiting for crashes to occur and reacting afterwards.
- **Overlapping measures are crucial.** Reducing risks requires that all parts of the transportation system are strengthened, so that if one part fails the others continue to protect people.

Elements of the Safe System Approach identified by the Transportation Association of Canada’s “Vision Zero and the Safe System Approach: A Primer for Canada” (2023) are as follows:

- **Safe land use planning** – To achieve a truly safe system, road safety policy should be integrated into broader community planning that influences travel patterns and the attractiveness of different modes.
- **Safe speeds** – In the Safe System Approach, speed management is critical for aiding crash avoidance and respecting the human body’s limit for physical trauma. It seeks to:
    - Establish appropriate speed limits
    - Engineer roads for the appropriate speed limit
    - Enforce speed limits
    - Educate road users
- **Safe road users** – Designing and building safe roads to minimize human error is insufficient if road users fail to comply with the rules of the road.
- **Safe vehicles** – Vehicles should be regulated, designed and built to minimize the occurrence and consequences of crashes, with an emphasis on crash survivability.
- **Safe road design** – In the Safe System Approach, roads are designed, operated and maintained to reduce the risk of crashes occurring and the severity of an injury in case of a crash. Road infrastructure can promote safety by:
    - Separating different modes

    - Separating traffic streams
    - Designing for safe speed limits
    - Designing self-explaining roads
- **Post-crash care** – While most injury control strategies focus on primary prevention (i.e. preventing the occurrence of injuries or minimizing their severity), secondary prevention (i.e. providing adequate emergency medical response to enhance treatment) can minimize the harm that follows an injury (e.g. disability or premature death).

These principles and elements have been incorporated into the Vision Zero Action Plan.

Nominal and Substantive Safety

The Vision Zero approach recognizes the distinction between nominal safety and substantive safety.

Traditional approaches to roadway design and policy often rely on nominal safety without explicitly considering substantive safety:

- **Nominal safety** refers to compliance with relevant design codes and standards.
- **Substantive safety** refers to the measurable safety performance – either actual or forecast – in terms of collision frequency, collision rate, or injury rate.

Figure 2 provides a graphical comparison of nominal versus substantive safety.

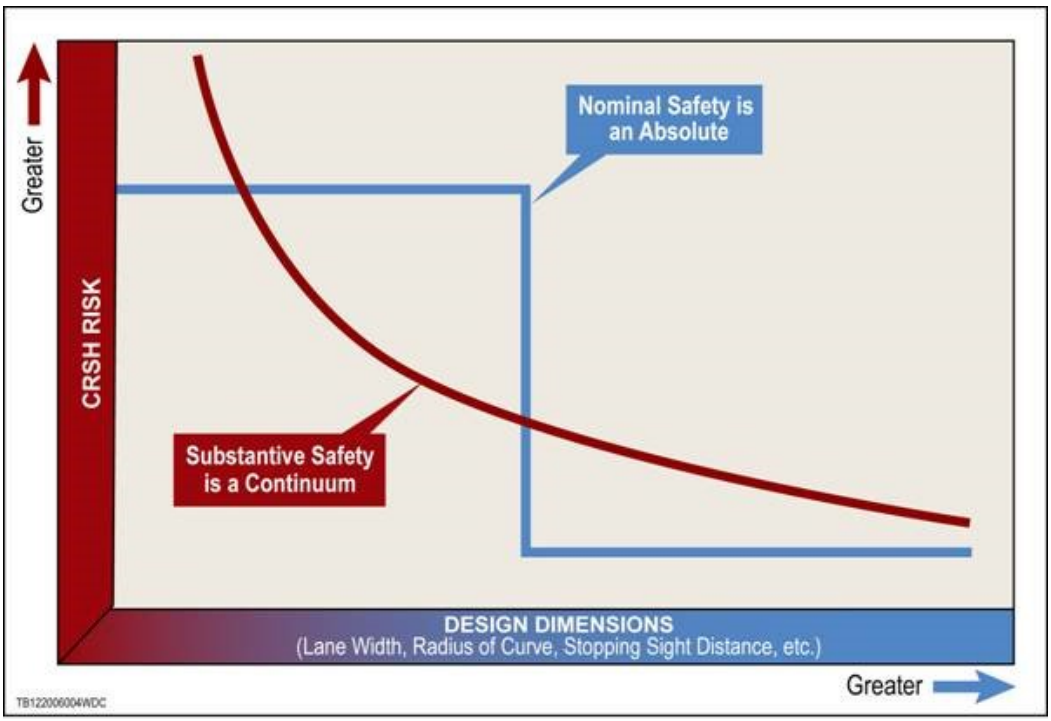


Figure 2: Nominal vs. Substantive Safety (source: US Federal Highway Administration)

In the Vision Zero approach, key goals and metrics are based on substantive safety: the number or rate of severe injuries.

While the use of design standards, codes and guidelines as the basis for roadway infrastructure design is an important part of the approach to minimize crash risk generally, in a Vision Zero context, it is also important to recognize that:

- All else being equal, the risk of crashes or injuries (i.e. the level of substantive safety) can be nearly identical if a design standard is *almost* met versus *barely* met, even though one case is “nominally unsafe” while the other is “nominally safe.”

- It is possible for a piece of infrastructure to be nominally safe (i.e. meets relevant design standards) but also substantively unsafe (i.e. has a high rate of crashes or injuries).

- Adhering to design guidelines can produce low crash or injury risk in most situations; however, when a location experiences a high frequency of severe injuries, consideration should be given that the location may be one of the minority where design standards are not producing the intended level of substantive safety.

    - At these locations, deviations from normal design standards may be justified based on engineering judgment and a careful review of the location, its collision pattern, and other relevant factors.

Injury Terminology

Vision Zero is focused on eliminating severe injuries due to road crashes. Since Vision Zero is a worldwide program, no specific definition of “severe injury” is mandated as part of the Vision Zero approach; individual jurisdictions are able to decide the level of injury to be addressed by their Vision Zero policies and action plans based on available data and local priorities.

The main source of collision data for Windsor is information obtained from MVA reports prepared by police. Descriptions of injury severity in these reports use the province-wide standard for MVA reports:

- **Fatal:** victim died of their injuries within 30 days of the collision
- **Major:** victim was admitted to hospital for treatment of their injuries (and was not classified as fatal)
- **Minor:** victim was treated in a hospital emergency department for their injuries (and was not classified as fatal or major injury)

- **Minimal:** victim received any other injuries not included in the above categories, including first aid on scene, treatment by family doctor or walk-in clinic, complaints of pain, etc.

Windsor's Vision Zero Action Plan builds on this classification by identifying fatalities and major injuries – as described above – as the severe injuries that are the focus of this plan.

Action Plan Development

Vision Zero Policy

The City of Windsor's Vision Zero Policy was adopted by Council on February 20, 2020 by Council Resolution CR82/2020, including the overall statement of endorsement of Vision Zero:

> *The Corporation of the City of Windsor endorses the Vision Zero goal of zero traffic deaths or serious injuries on roadways under its jurisdiction and commits to collaborating with all stakeholders in working to realize this goal.*

Additionally, the Vision Zero – and the accompanying Vision Zero Procedure and Vision Zero Stakeholder Group Terms of Reference:

- Directed Administration to develop a Vision Zero Action Plan;
- Established a Vision Zero Task Force and a Vision Zero Stakeholder Group (see Table 7);
- Outlined the process for development of the Vision Zero Action Plan, including:
    - Points of consultation with the Vision Zero Task Force and Vision Zero Stakeholder Group, and
    - Points in the process where progress reports would be provided to the Environment, Transportation & Public Safety Standing Committee.

Table 7: Task Force and Stakeholder Group Roles

	Vision Zero Task Force	Vision Zero Stakeholder Group
Members	City & emergency services departments responsible for implementing road safety actions	Members of public and stakeholder organizations impacted by road safety issues
Role	• Approves Vision Zero Action Plan elements • Leads implementation of the Vision Zero Action Plan	• Provides input and feedback to inform and shape the Vision Zero Action Plan

Vision Zero Task Force

The Vision Zero Task Force was made up of representatives of City departments and external agencies that are responsible for road safety-related initiatives and will be taking part in the implementation of Vision Zero Action Plan recommendations. Staff who participated on the Task Force are listed in Table 8.

Table 8: Vision Zero Task Force Members

Member	Department / Agency
Chris Nepszy	City of Windsor – Infrastructure Services
Jeff Hagan Laura Ash Awele Italiano Allaina Lucier Seun Daniel Oluwajana Kathleen Quenneville Rania Toufeili	City of Windsor – Transportation Planning Services
Jason Moore Jill Braido	City of Windsor – Communications
John Revell Sherry Ducedre	City of Windsor – Building
Adam Mourad	City of Windsor – Engineering
Shawna Boakes Dwayne Dawson Phong Nguy	City of Windsor – Public Works Operations
Ian Day	City of Windsor – Traffic Operations
Ryan Lemay Stacey Shepley Larry Trpkovski	Essex Windsor EMS
Kelsey Amlin Jason Scott	Transit Windsor
Insp. Jennifer Crosby Sgt. Morgan Evans Sgt. Craig Judson	Windsor Police Services

Vision Zero Stakeholder Group

The Vision Zero Stakeholder Group was made up of representatives of external agencies, vulnerable road user groups, and other road safety stakeholder groups. The committee membership is given in Table 9.

Table 9: Vision Zero Stakeholder Group Members

Member	Organization
Councillor Chris Holt *Stakeholder Group Chair to October 2022* Councillor Gary Kaschak *Stakeholder Group Chair from March 2023*	Windsor City Council
Kenneth Acton	Windsor Bicycling Committee
Todd Awender	Greater Essex County District School Board
Diane Bradford	Windsor Regional Hospital
Julie Di Domenico	Windsor-Essex Catholic District School Board
Nathanael Hope	Downtown Windsor Community Collaborative
Wes Hicks	
Kevin Morse	Windsor Essex County Health Unit
Abdul Naboulsi	
Tom Schnekenburger	University of Windsor
James Summerdyk	
Const. Colin Wemyss	Windsor Police Services

Progress Reports

Progress reports were prepared at key points in the development of the Vision Zero Action Plan, as specified in the Vision Zero Policy.

Table 10: Progress Reports

Report Number & Title	Report Focus	Meeting Date	
		Environment, Transportation & Public Safety Standing Committee	City Council
S 92/2021 Vision Zero Action Plan Development - Progress Report #1	Proposed Strategic Priorities	Oct. 27, 2021	Nov. 15, 2021
S 87/2022 Vision Zero Action Plan Development - Progress Report #2 - City-Wide	Proposed Recommended Initiatives	Jul. 27, 2022	Sep. 6, 2022

2. Strategic Priorities

Strategic priorities were developed based on the trends and patterns noted in Section 2 and Vision Zero principles. The proposed strategic priorities are grouped into themes as summarized in Table 1.

Table 11: Themes and Strategic Priorities

Theme	Strategic Priority
1: Driver Behaviours	1A: Vehicle Speeds
	1B: Drug and Alcohol Impairment
	1C: Inattentive Driving
	1D: Failing to Yield at Intersections
2: Road User Types	2A: Vulnerable Road Users (Pedestrians, Cyclists, and Motorcyclists)
	2B: Data Gaps – People
3: Locations and Infrastructure	3A: High Injury Corridors
	3B: Signalized Intersections
4: Process Improvements	4A: Improved Data Sources and Information Sharing
	4B: Design Standards and Best Practices

Each strategic priority is discussed in further detail below.

Theme 1: Driver Behaviours

Priority 1A: Vehicle Speeds

For 2015-2019, the driver actions “exceeding speed limit,” “speed too fast for conditions,” or “lost control” were identified in 29% of fatal and major injury collisions. Additionally, impact speed plays a major role in collision severity regardless of the driver action(s) that contributed to the collision. For these reasons, vehicle speed is identified as a key strategic priority for the Vision Zero Action Plan.

Priority 1B: Drug and Alcohol Impairment

For 2015-2019, alcohol-related driver conditions (had been drinking, ability impaired – alcohol, ability impaired – alcohol over 0.08) were identified in 12% of fatal and major injury collisions. Alcohol-related driver conditions were the most common non-normal driver condition in fatal

and major injury collisions. They are also markedly over-represented in fatal and major injury collisions: alcohol-related driver conditions were present in only 1.8% of collisions overall. During consultation with the Vision Zero Stakeholder Group, the representatives of both Windsor Regional Hospital and the Windsor Police Service both noted that a significant number of the severe collisions that both organizations respond to involve impairment by drugs (either individual drugs or combinations of drugs) or drugs combined with alcohol. For this reason, this strategic priority was expanded from addressing only alcohol impairment to include also drug impairment.

Priority 1C: Inattentive Driving

For 2015-2019, the driver condition "inattentive" was identified in 10% of fatal and major injury collisions.

Priority 1D: Failing to Yield at Intersections

Motor vehicles failing to properly yield right-of-way at intersections or disobeying traffic controls (especially red light running) was identified as an issue of concern in both the overall review of fatal and major injury trends as well as the systematic collision reviews for all three vulnerable road user groups (pedestrians, motorcyclists, and cyclists).

For 2015-2019, "improper turn," "failed to yield right-of-way," and "disobeyed traffic control" were identified in 35% of fatal and major injury collisions.

Theme 2: Road User Types

Priority 2A: Vulnerable Road Users (Pedestrians, Cyclists, and Motorcyclists)

Typically, pedestrians, cyclists and motorcyclists are identified as vulnerable road users. For 2015-2019, these groups are involved in 5% of collisions, but represent 46% of fatalities and major injuries, as shown in Table 2. As a strategic priority, focusing on these vulnerable road users is recommended.

Table 12: Fatalities, Major Injuries and Total Collisions by Road User Category (2015-2019) [Note 1]

Road User Category	**Fatalities and Major Injuries**		**Collisions (All Severities)**		**Collisions per Fatality or Major Injury** *On average, how many collisions would we have to prevent to prevent 1 fatality or major injury?*
	Number	**Percentage**	**Number**	**Percentage**	**Ratio**
Pedestrians	38	20%	435	2%	11.4
Motorcyclists [Note 2]	30	16%	202	1%	6.7
Cyclists [Note 3]	17	9%	412	2%	24.2
Hangers-On [Note 4]	1	1%	3	0%	3.0
All Other Categories	100	54%	21,032	95%	210.3
Total	**186**		**22,084**		**118.7**

Notes:

1. Values in this table reflect corrections resulting from the detailed review carried out for the 2019 Road Safety Report. As a result, some values vary slightly from the version of this table presented to the Vision Zero Stakeholder Group.
2. Includes motorcycle passengers and moped riders/passengers
3. Includes bicycle passengers and e-bike riders/passengers
4. “Hangers-on”: persons riding on the outside of a vehicle or being pulled by a vehicle.

Priority 2B: Data Gaps – People

To ensure compliance with applicable privacy laws, personally identifying information is redacted from the MVA reports used for the analysis to date. Because of this, there is limited information currently available to help understand key questions related to road safety in Windsor:

- Are there patterns or trends based on where people involved in fatal and major injury collisions work or live (as opposed to where the collision occurred) that should inform the Vision Zero Action Plan?
- How are social determinants of health related to road safety outcomes in Windsor?
- How much of a role do repeat high-risk offenders play in Windsor’s fatal and major injury collisions?
    - Certain other jurisdictions have found that a small number of high-risk drivers are disproportionately involved in high-risk driving behaviour (e.g. impaired driving or driving under suspension) and severe collisions.
- What proportion of the people involved in fatal and major injury collisions had previous interactions with police, social services, or the health care system?
    - Certain other jurisdictions have identified these interactions as opportunities for interventions to address ongoing behaviours that may lead to severe collisions (e.g. impaired driving).

Addressing these data gaps is identified as a priority. However, further dialogue with other agencies and departments, including WPS, Social Services, and Windsor Regional Hospital, will be needed to determine how these data gaps can be addressed while still complying with applicable law.

During consultation with the Vision Zero Stakeholder Group, the potential for data-sharing agreements between agencies responsible for responding to collisions (e.g. emergency services and Windsor Regional Hospital) and agencies responsible for road safety interventions (e.g. the Corporation and Windsor Police Service) was suggested. Administration will consult with these agencies to determine whether any new data-sharing programs can be included as recommended initiatives in the Vision Zero Action Plan. In addition, 2022 budget submission will include recommendations to advance the City’s data analytics capacity and capability.

Theme 3: Locations and Infrastructure

Priority 3A: High Injury Corridors
The following locations were identified as high injury corridors and should be considered higher priority when implementing the Vision Zero Action Plan:

- Pedestrian collisions:
    - Tecumseh Road East (Jefferson to Forest Glade Drive)
    - Wyandotte Street (Ouellette to Chilver)
- Cyclist collisions:
    - Wyandotte Street (Pelissier to Parent)
- Motor vehicle-only collisions:
    - E.C. Row Expressway (Howard to Banwell)
    - Wyandotte Street (Pelissier to Gladstone)

Priority 3B: Signalized Intersections
For 2015-2019, signalized intersections were the location type with the largest proportion of fatal and major injury collisions for all road user groups except motorcyclists:

- Motor vehicles (excluding motorcycles): 38%
- Pedestrians: 33%
- Cyclists: 29%
- Motorcyclists: 28%
    - Note: for motorcyclists, the location type with the largest proportion of fatal and major injury collisions was unsignalized intersections (34%)

For this reason, signalized intersections are recommended to be priority locations for implementing the Vision Zero Action Plan.

Priority 3C: Pedestrians Crossing Mid-block
For 2015-2019, 28% of pedestrian fatalities and major injuries occurred at midblock locations where the pedestrian was crossing the roadway. This represents the largest group of pedestrian collisions apart from signalized intersections (addressed with Priority 3A, above).

Theme 4: Process Improvements

Priority 4A: Improved Data Sources and Information Sharing
Improving and speeding up the exchange of road safety data between departments and agencies is identified as a strategic priority, particularly with regard to two initiatives that have already been discussed or have recently been launched:

- **Fatal collision review team:** initial discussions have occurred about creating a fatal collision review team that would be activated in the event of a fatal collision. This multi-

disciplinary team would review available information quickly after a fatal collision with the aim of identifying improvements that could be made in response.

- **Ford Safety Insights (see note below):** this tool maps out anonymized safety-related data from Ford connected vehicles (e.g. harsh braking events, lane departure warnings, ABS activations) to identify hot spots. This system has the potential to provide rapid feedback on the effectiveness of road safety countermeasures.

Note: after the Vision Zero strategic priorities were identified in Progress Report 1, Ford announced that they would be discontinuing their Safety Insights product. City Administration is currently seeking other products that accomplish similar goals – i.e. providing quick feedback on the effectiveness of safety improvements.

Priority 4B: Design Standards and Best Practices

To ensure that future infrastructure is aligned with Vision Zero goals, reviewing and updating design standards and best practices is recommended as a strategic priority.

One action related to this priority – development of a Complete Streets Policy – was identified and committed to through *Walk Wheel Windsor*, Windsor's Active Transportation Master Plan. Further to this, it will be important to provide a process that allows the City's standards to be updated to reflect road safety "lessons learned" on an ongoing basis.

3. Recommended Initiatives

Recommended initiatives build on the strategic priorities and fall into two categories:

1. **Inventory of Existing Road Safety Initiatives:** this component involved cataloguing existing programs – regardless of agency or organization – that address the Vision Zero strategic priorities. This inventory serves as a foundation for new initiatives to build upon, and also provides insight into gaps between current road safety programs and a Vision Zero approach focused on all of the Vision Zero strategic priorities.

2. **New Initiatives:** this component involved identifying additional initiatives that could be undertaken to address the Vision Zero strategic priorities. Except as noted, new initiatives were focused specifically on areas of City responsibility.

Inventory of Existing Road Safety Initiatives

Table 13: Existing Road Safety Initiatives

Existing Initiative	Lead Agency or City Department
Enforcement and Emergency Response	
Traditional Enforcement	Windsor Police Service
High Visibility Enforcement (HVE)	Windsor Police Service
Selective Traffic Enforcement Program (STEP)	Windsor Police Service
Road Watch	Windsor Police Service
Report Impaired Driving (RID) program	MADD Windsor Essex County Windsor Police Service
Emergency response to collisions	Essex Windsor EMS Windsor Fire & Rescue Services Windsor Police Service Windsor Regional Hospital
City Programs and Policies	
Traffic Calming Policy	City – Transportation Planning
Community Safety Zone Policy	City – Transportation Planning
Radar Trailer Program	City – Traffic Operations
School Neighbourhood Policy	City – Transportation Planning
Bikeways Development Project	City – Transportation Planning
Pedestrian Generator Sidewalk Program	City – Operations
Pedestrian Safety Improvement Program	City – Engineering
Intersection Improvements Program	City – Engineering
Audible/ accessible pedestrian signal program	City – Traffic Operations
Pedestrian crossover program	City – Transportation Planning

Existing Initiative	Lead Agency or City Department
Winter maintenance program	City – Operations
Pavement marking maintenance program	City – Traffic Operations
Sign maintenance program	City – Traffic Operations
Sight line clearing at intersections	City – Traffic Operations
Before-after analysis of road safety countermeasures	City – Transportation Planning
Red light cameras	City – Traffic Operations
Vehicle operator training	City – Human Resources Transit Windsor
Periodic driver's abstract review	City – Human Resources Transit Windsor
Collision Review Group (for collisions involving City vehicles)	City – Fleet Review Committee
Fleet vehicle standard development	City – Fleet Review Committee
Education Programs	
Children's Road Safety Programs	Safety Village Bike Windsor Essex
PARTY (Prevent Alcohol and Risk-related Trauma in Youth) Program	Windsor Regional Hospital

Table 14 provides a summary of existing initiatives that address the Vision Zero Strategic Priorities. Abbreviations used in the table are as follows:

- EWEMS: Essex Windsor EMS
- WFRS: Windsor Fire and Rescue Services
- WPS: Windsor Police Service
- WRH: Windsor Regional Hospital

Table 14: Summary of Existing Initiatives

Existing Initiative	Lead Agency or City Dept.	Theme 1: Driver Behaviours				Theme 2: Road User Types		Theme 3: Locations and Infrastructure			Theme 4: Process Improvements	
		1A: Vehicle Speeds	1B: Drug and Alcohol Impairment	1C: Inattentive Driving	1D: Failing to Yield at Intersections	2A: Vulnerable Road Users	2B: Data Gaps – People	3A: High Injury Corridors	3B: Signalized Intersections	3C: Pedestrians Crossing Mid-block	4A: Improved Data Sources and Information Sharing	4B: Design Standards and Best Practices
Enforcement and Emergency Response												
Traditional Enforcement	WPS	X	X	X	X	X		X	X			
High Visibility Enforcement (HVE)	WPS	X	X	X	X	X		X	X			
Selective Traffic Enforcement Program (STEP)	WPS	X	X	X	X	X		X	X			
Road Watch	WPS	X	X	X	X	X						
Report Impaired Driving (RID) program	MADD Windsor Essex County WPS		X									
Emergency response to collisions	EWEMS WFRS WRH WPS	*Mitigation measure for all collision types*										
City Programs and Policies												
Traffic Calming Policy	City – Transportation Planning	X				X				X		

Existing Initiative	Lead Agency or City Dept.	Theme 1: Driver Behaviours				Theme 2: Road User Types		Theme 3: Locations and Infrastructure			Theme 4: Process Improvements	
		1A: Vehicle Speeds	1B: Drug and Alcohol Impairment	1C: Inattentive Driving	1D: Failing to Yield at Intersections	2A: Vulnerable Road Users	2B: Data Gaps – People	3A: High Injury Corridors	3B: Signalized Intersections	3C: Pedestrians Crossing Mid-block	4A: Improved Data Sources and Information Sharing	4B: Design Standards and Best Practices
Community Safety Zone Policy	City – Transportation Planning	X			X	X		X	X			X
Radar Trailer Program	City – Traffic Operations	X										
School Neighbourhood Policy	City – Transportation Planning					X						X
Bikeways Development Project	City – Transportation Planning					X		X	X			
Pedestrian Generator Sidewalk Program	City – Operations					X		X	X	X		
Pedestrian Safety Improvement Program	City – Engineering					X						
Intersection Improvements Program	City – Engineering	X			X	X		X	X			

Existing Initiative	Lead Agency or City Dept.	Theme 1: Driver Behaviours				Theme 2: Road User Types		Theme 3: Locations and Infrastructure			Theme 4: Process Improvements	
		1A: Vehicle Speeds	1B: Drug and Alcohol Impairment	1C: Inattentive Driving	1D: Failing to Yield at Intersections	2A: Vulnerable Road Users	2B: Data Gaps – People	3A: High Injury Corridors	3B: Signalized Intersections	3C: Pedestrians Crossing Mid-block	4A: Improved Data Sources and Information Sharing	4B: Design Standards and Best Practices
Audible/ accessible pedestrian signal program	City – Traffic Operations					X		X	X			
Pedestrian crossover program	City – Transportation Planning					X		X		X		
Winter maintenance program	City – Operations				X							
Pavement marking maintenance program	City – Traffic Operations				X	X			X			
Sign maintenance program	City – Traffic Operations	X			X	X						
Sight line clearing at intersections	City – Traffic Operations				X	X						
Before-after analysis of road safety countermeasures	City – Transportation Planning										X	X
Red light cameras	City – Traffic Operations				X			X	X			

Existing Initiative	Lead Agency or City Dept.	Theme 1: Driver Behaviours				Theme 2: Road User Types		Theme 3: Locations and Infrastructure			Theme 4: Process Improvements	
		1A: Vehicle Speeds	1B: Drug and Alcohol Impairment	1C: Inattentive Driving	1D: Failing to Yield at Intersections	2A: Vulnerable Road Users	2B: Data Gaps – People	3A: High Injury Corridors	3B: Signalized Intersections	3C: Pedestrians Crossing Mid-block	4A: Improved Data Sources and Information Sharing	4B: Design Standards and Best Practices
Vehicle operator training	City – HR Transit Windsor	X		X	X	X						
Periodic driver's abstract review	City – HR Transit Windsor	X	X	X	X	X						
Collision Review Group (for collisions involving City vehicles)	City – Fleet Review Committee	X		X	X	X						
Fleet vehicle standard development	City – Fleet Review Committee											X
Educational Programs												
Children's Road Safety Programs	Safety Village Bike Windsor Essex					X						
PARTY (Prevent Alcohol and Risk-related Trauma in Youth) Program	WRH		X									

Future Road Safety Initiatives

A number of new City road safety initiatives are already planned, as summarized in Table 3. These initiatives have been incorporated into the overall list of recommended initiatives for the Vision Zero Action Plan.

Table 15: Future Road Safety Initiatives – Already Planned

Number	Planned Initiative	Lead Agency or City Department
1	Develop and Implement a Complete Streets Policy	City – Transportation Planning
2	Construct Roadway Capital Projects (for certain corridors)	City – Engineering City – Transportation Planning
3	Obtain Collision Data through Provincial ARIS System	City – Transportation Planning
4	Continue to Implement the Transit Master Plan	Transit Windsor
5	Review Yellow and All-Red Intervals for Traffic Signals	City – Traffic Operations
6	Install Retroreflective Backboards for Traffic Signals	City – Traffic Operations
7	Increase Winter Roadway Maintenance	City – Operations
8	Driver Simulation Training for Commercial Motor Vehicle Operators	City – Human Resources
9	Commercial Motor Vehicle Driver Evaluation by Independent Party	City – Human Resources

A list of potential new Vision Zero initiatives was presented to the Vision Zero Task Force and Vision Zero Stakeholder Group, then revised based on feedback received. The initiatives considered not only the City's role as a road authority, but also its role as a fleet operator, land development authority, provider of social services, and its other functions and responsibilities.

These varied roles provide a wide range of ways in which the City of Windsor can exert influence to encourage a culture of road safety throughout the region and beyond.

New recommended initiatives are summarized in Table 4; initiatives identified by the Stakeholder Group as especially high priority are highlighted.

Table 16: Future Road Safety Initiatives – Recommended

Number	Recommended Initiative *(highlighting indicates initiatives identified by members of the Stakeholder Group as high priority)*	Lead Agency or City Department
10	Conduct Road Safety Audits of Identified High Injury Corridors	City – Transportation Planning
11	Carry out a Value Engineering & Road Safety Review of Existing Approved Preliminary Designs for Roadway Projects	City – Transportation Planning City – Engineering
12	**Establish a Fatal Collision Response Team**	To be determined
13	Explore Data-Sharing Arrangements Between Agencies	City – Transportation Planning
14	Carry out a Resident Survey	City – Transportation Planning
15	Implement Target Speed Requirements for New Construction and Major Roadway Projects	City – Transportation Planning
16	Implement Speed Limit Reductions – Neighbourhoods	City – Transportation Planning
17	Implement Speed Limit Reductions – Major Streets	City – Transportation Planning
18	Implement Speed Limit Reductions and Increased Fines – Construction Zones	City – Traffic Operations
19	Reduce Progression Speed for Traffic Signal Coordination	City – Traffic Operations
20	Carry out Education Campaigns	City – Transportation Planning
21	Adjust Project Prioritization Criteria in the Active Transportation Master Plan to Place a Greater Emphasis on Safety and Collisions	City – Transportation Planning
22	Include Collision History as a Factor in Prioritizing Capital Projects	City – Engineering City – Operations
23	Review Official Plan and Zoning By-laws for Vision Zero Opportunities	City – Planning City – Transportation Planning
24	Review Design Standards and Development Manual for Vision Zero Opportunities	City – Engineering City – Transportation Planning
25	Require Transportation Impact Studies for New Developments to Include a Full Multimodal Review	City – Transportation Planning
26	Develop Safety Performance Functions	City – Transportation Planning
27	**Implement Automated Speed Enforcement**	City – Traffic Operations
28	Install Transverse Rumble Strips at Select Locations	City – Transportation Planning

Number	Recommended Initiative *(highlighting indicates initiatives identified by members of the Stakeholder Group as high priority)*	Lead Agency or City Department
29	**Implement a Parking Ticket Forgiveness Program to Target Impaired Driving**	City – Transportation Planning
30	**Provide Free (or Cost-Included) Transit Service for Alcohol-Oriented Special Events**	Transit Windsor City – Special Event Resource Team
31	Support the Development of a "Safe Ride Home" Service	To be determined
32	Provide Stop Bars and Crosswalk Markings at Unsignalized Intersections	City – Traffic Operations
33	Provide Ladder Crosswalk Markings at Signalized Intersections	City – Traffic Operations
34	**Implement Fully Protected Intersections**	City – Transportation Planning City – Engineering
35	**Implement Leading Pedestrian Intervals**	City – Traffic Operations
36	**Install Pedestrian Countdown Signals**	City – Traffic Operations
37	Implement Hardened Centrelines at Intersections with High Speed Left Turns	City – Transportation Planning
38	**Adopt a "Roundabouts First" Policy or Best Practice for New Intersections and Major Roadway Projects**	City – Engineering
39	**Adopt a "No Right Turn Channels" Policy or Best Practice for New Intersections and Major Roadway Projects**	City – Engineering
40	**Implement a Road Diet Program**	City – Engineering City – Transportation Planning
41	**Develop a Comprehensive GIS-based Collision Information System**	City – Transportation Planning
42	Develop Safety-Related Vehicle Design Criteria for Future City Vehicle Fleet Purchases & Leases	City – Fleet Review Committee

Initiative 1: Develop and Implement a Complete Streets Policy

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	1A: Vehicle Speeds 1D: Failing to Yield at Intersections 2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections 3C: Pedestrians Crossing Mid-block 4B: Design Standards and Best Practices

> *"Complete Streets are streets that are safe for all users, regardless of age, ability, income, race, ethnicity, or mode of travel. By using a Complete Streets approach to designing road networks, we can create spaces that allow all users to thrive — not only motorists."*
>
> *- Complete Streets for Canada*

The following strategy and actions from the Active Transportation Master Plan, *Walk Wheel Windsor*, relate to Complete Streets:

- Strategy 2A: Develop Complete Streets
    - Action 2A.1: Develop And Adopt A Complete Streets Policy And Design Guidelines
    - Action 2A.2: Follow Complete Street Design Principles In All New Development And Road Projects

A Windsor Complete Streets Policy is currently under development.
Developing and implementing a Complete Streets Policy will support Vision Zero goals by:

- Identifying target speeds for all street types and implementing features that discourage drivers from travelling faster than the target speed.
- Ensuring that all users are accommodated in the right-of-way appropriately, comfortably and safely.

The Complete Streets Policy is intended as a City-wide policy, but high injury corridors could be prioritized for implementation.

Initiative 2: Construct Roadway Capital Projects (for certain corridors)

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	1A: Vehicle Speeds 1D: Failing to Yield at Intersections 2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections 3C: Pedestrians Crossing Mid-block

For some high injury corridors, there are capital projects in the current capital budget that will address the current collision patterns:

Table 17: Current Capital Projects for High Injury Corridors

High Injury Corridor	Capital Project
Tecumseh Road East (Jefferson to Forest Glade)	Tecumseh Road East Infrastructure Improvements (ECP-005-07)
EC Row Expressway (Howard to Banwell)	EC Row Expressway Environmental Assessment (Transportation Planning Environmental Study Reports – OPS-009-07)

Initiative 3: Obtain Collision Data through Provincial ARIS System

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	4A: Improved Data Sources and Information Sharing

Currently, City staff obtain collision data from the Windsor Police Service's Collision Reporting Centre contractor. There are issues with this current approach:

- Police resources involved in manually redacting collision reports to remove personally identifying information are considerable. Because of this, the lag between when the collision occurs and when the collision data is provided to City staff is significant: the process typically takes at least several months and often takes more than a year.
- Collision reports prepared by other police agencies are not reflect in the collision data received by City staff. Collisions where another police force responds, even if they occur on Windsor streets, are not reflected in the collision data currently received. This has led to concerns that the collision database may not provide a full picture of the collisions occurring on City streets, particularly at intersections along the City boundary, where OPP or LaSalle Police may be the first police force to respond to some collisions.

All police forces in Ontario are required to transmit all collision reports to the Province. The Ontario Ministry of Transportation has recently made collision data available to municipalities

through its ARIS (Authorized Requestor Information Service) system. City staff are actively pursuing access to collision data through the ARIS system. Anticipated benefits of this new approach:

- Much quicker access to collision data after a collision: the ARIS service standard is to make the collision report available within four weeks of the collision.
- Collision data from all police forces will be available, ensuring that City staff have a full picture of the collisions occurring on City streets.

Initiative 4: Continue to Implement the Transit Master Plan

Lead Agency/Department	Transit Windsor
Strategic Priorities Addressed	1B: Drug and Alcohol Impairment 1C: Inattentive Driving

The 2019 Transit Master Plan, *More than Transit*, provides a long-term vision to grow and improve transit service in Windsor. Increasing the convenience and appeal of transit as a travel mode is complementary to Vision Zero goals in many ways; in particular, providing an alternative to driving a motor vehicle will help to directly address the safety issues caused by driver impairment and inattentive driving by providing these road users with another travel mode besides driving.

Initiative 5: Review Yellow and All-Red Intervals for Traffic Signals

Lead Agency/Department	Traffic Operations
Strategic Priorities Addressed	1D: Failing to Yield at Intersections 3A: High Injury Corridors 3B: Signalized Intersections

Increasing the length of yellow and all-red intervals at signals can be an effective collision countermeasure, particularly for right angle collisions. In the short term, Traffic Operations will be carrying out a review of their yellow and all-red interval lengths against Ontario Traffic Manual guidelines to determine if adjustments are needed.

Initiative 6: Install Retroreflective Backboards for Traffic Signals

Lead Agency/Department	Traffic Operations
Strategic Priorities Addressed	1D: Failing to Yield at Intersections 3B: Signalized Intersections

Retroreflective backboards are included in the US Federal Highway Administration's (FHWA) list of "Proven Safety Countermeasures;" the FHWA notes that they can reduce total collisions at a signalized intersection by up to 15%. Retroreflective backboards help to improve driver compliance with traffic signals by making them more conspicuous in both daytime and nighttime conditions, as can be seen in Figure 3.

Figure 3: Retroreflective Backboards (source: Virginia DOT / FHWA)

Traffic Operations has installed retroreflective backboards at some intersections as a pilot measure, and will be implementing them City-wide at all traffic signals over time. Currently, the plan is to install retroreflective backboards at new and reconstructed signals.

Initiative 7: Increase Winter Roadway Maintenance

Lead Agency/Department	Operations
Strategic Priorities Addressed	1D: Failing to Yield at Intersections 2A: Vulnerable Road Users

Operations is currently planning to bring forward a budget issue to the 2023 budget recommending increased levels of winter roadway maintenance (e.g. salting and plowing). This measure will help to address collisions involving failing to yield at intersections by improving pavement friction under existing conditions, and vulnerable road user collisions by ensuring that painted and buffered bicycle lanes are kept clear during winter conditions.

Initiative 8: Driver Simulation Training for Commercial Motor Vehicle Operators

Lead Agency/Department	Human Resources
Strategic Priorities Addressed	1A: Vehicle Speeds 1C: Inattentive Driving 1D: Failing to Yield at Intersections 2A: Vulnerable Road Users

This measure, aimed at improving the City's Commercial Vehicle Operator Registration rating, will involve training the City's commercial motor vehicle drivers in a simulator. The training will focus on spatial awareness, with the goal of reduced collision rates for City vehicles.

Initiative 9: Commercial Motor Vehicle Driver Evaluation by Independent Party

Lead Agency/Department	Human Resources
Strategic Priorities Addressed	1A: Vehicle Speeds 1C: Inattentive Driving 1D: Failing to Yield at Intersections 2A: Vulnerable Road Users

This measure, aimed at improving the City's Commercial Vehicle Operator Registration rating, will involve contracting with an outside, independent service provider to carry out driver evaluation of the City's commercial motor vehicle drivers.

Initiative 10: Conduct Road Safety Audits of Identified High Injury Corridors

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections

Road safety audits for each of the identified high injury corridors will identify road safety issues that are specific to these areas. The key deliverable for each road safety audit will be a report including recommended countermeasures.
The identified high injury corridors are as follows:

- Motor vehicle collisions:
    - E.C. Row Expressway (Howard to Banwell)
    - Wyandotte Street (Pelissier to Gladstone)
- Pedestrian collisions:
    - Tecumseh Road East (Jefferson to Forest Glade Drive)
    - Wyandotte Street (Ouellette to Chilver)
- Cyclist collisions:
    - Wyandotte Street (Pelissier to Parent)

Initiative 11: Carry out a Value Engineering & Road Safety Review of Existing Approved Preliminary Designs for Roadway Projects

Lead Agency/Department	Transportation Planning Engineering
Strategic Priorities Addressed	1A: Vehicle Speeds 1D: Failing to Yield at Intersections 2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections 3C: Pedestrians Crossing Mid-block

For major roadway projects, such as widenings and new streets, a preliminary design is selected and developed through the environmental assessment process. These preliminary designs are used as the basis for detailed design and construction.

These preliminary designs are often prepared well in advance of construction, and detailed design and construction of the preliminary design from a single environmental assessment can take multiple phases over several years. Windsor has a number of preliminary designs that have not yet proceeded to detailed design, or with phases that have not proceeded to detailed design.

Aspects of the designs that are expected to be of particular importance to this review:

- Lane widths
- Horizontal and vertical alignment
- Curb radii
- Cycling facilities
- Pedestrian crossings
- Intersection control

Initiative 12: Establish a Fatal Collision Response Team

Lead Agency/Department	To Be Determined
Strategic Priorities Addressed	4A: Improved Data Sources and Information Sharing

Certain other municipalities have successfully implemented fatal collision response teams to allow for rapid response to fatal collisions. These teams are typically made up of members from:

- Emergency response agencies (e.g. Police, Fire, EMS)
- Medical trauma care providers (e.g. hospitals)
- Agencies responsible for investigating collisions (typically Police)
- Agencies and departments responsible for carrying out road safety audits (typically the municipal Transportation Planning Department)

- Agencies and departments responsible for designing and maintaining transportation infrastructure and implementing transportation policy (e.g. Operations, Engineering, Traffic Operations, Transportation Planning)

In the Council resolution adopting the Vision Zero Policy (CR82/2020), Council requested that Administration provide information related to developing a fatal collision response team.
This initiative would entail setting up a multi-disciplinary, multi-agency fatal collision response team that would be activated as soon as possible after a fatal collision. The purpose of the committee would be to allow (within the limits of applicable legislation) a quick and free exchange of information in order to rapidly identify and address factors that could help to prevent or reduce the severity of future severe collisions.

Initiative 13: Explore Data-Sharing Arrangements Between Agencies

Lead Agency/Department	To be determined
Strategic Priorities Addressed	2B: Data Gaps – People 4A: Improved Data Sources and Information Sharing

Currently, information related to collisions and road safety is compartmentalized across several agencies:

- Emergency services agencies (Police, Fire, EMS) prepare their own records related to their response to collisions;
- EMS and hospital staff have records on injuries sustained by victims and the treatment they receive;
- Police have primary responsibility for investigating collisions, and carry out detailed investigations and collision reconstructions following severe collisions;
- Police, social services agencies, and medical providers may have records related to prior points of contact and interventions involving the people who were later in fatal and major injury collisions; and
- City departments have traffic data and information about road infrastructure design, as well as information on detailed road safety audits (when carried out).

In most cases, this information is not shared beyond the originating agency; notable exceptions include:

- Windsor Police Services provides the City of Windsor with redacted MVA reports to use as the data source for the City’s collision database, and

- City staff provide speed data to Windsor Police Services as it is collected, and consult with Windsor Police Services when road safety audits identify issues that can be addressed by enforcement.

While some of this lack of sharing of information is due to legal requirements for privacy and confidentiality, there may be some opportunities to share information – particularly anonymized or aggregated data – to inform road safety-related decisions of these agencies while still complying with relevant laws.

This initiative would entail reaching out to the departments and agencies that collect data related to road safety issues and determining information sharing arrangements that would be:

- Compliant with relevant law,
- Useful for informing road safety decisions, and
- Are within the scope of what the agency who is the custodian of the data is willing and able to provide.

Initiative 14: Carry out a Resident Survey

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	2B: Data Gaps – People

While collision data provides a wealth of information that can be used to inform road safety decisions, certain key details are not reflected in collision data, including:

- Locations that road users – particularly vulnerable road users – avoid because of perceived safety issues;
- The *reasons behind* behaviours that lead to increased likelihood or increased severity of collisions, including:
    - Speeding;
    - Inattentive driving;
    - Impaired driving; and
    - Failure to use safety equipment (or failure to use it properly) such as helmets, seat belts, and infant car seats.
- Details that are relevant for policy responses to road safety issues, but either are not collected in MVA reports or, due to privacy laws, cannot be obtained without the consent of the involved parties. Including:
    - How do social determinants of health correlate with road safety outcomes in Windsor?

- What opportunities exist *before* the collision (e.g. previous interactions with law enforcement or social services) to intervene to address risk-taking behaviours that can result in fatal or major injury collisions?

This initiative would entail developing one or more surveys for residents and – to the extent that these individuals can be identified – persons involved in fatal and major injury collisions.

Initiative 15: Implement Target Speed Requirements for New Construction and Major Roadway Projects

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	1A: Vehicle Speeds 2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections 3C: Pedestrians Crossing Mid-block 4B: Design Standards and Best Practices

Traditionally, streets and highway designs have been based on the concept of **design speed:** all aspects of the design – e.g. sight lines, curve radii, or roadside clear zones – accommodate a vehicle travelling at a speed equal to or greater than the design speed.

Recently, the concept of target speed is coming into broader use as well, though it is not yet incorporated formally into any City of Windsor design standards or best practices. A roadway's **target speed** is the intended speed for traffic; features of the street – lane widths, "optical width," curve radii, etc. – are chosen to encourage vehicles to travel no faster than the target speed.

Implementing this recommendation will involve identifying target speeds for each roadway type. This work is planned to be carried out as part of the development of the Complete Streets Policy, but could be accelerated to produce standalone target speed recommendations, which would then be incorporated into the Complete Streets Policy once the policy is completed.

Initiative 16: Implement Speed Limit Reductions - Neighbourhoods

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	1A: Vehicle Speeds 2A: Vulnerable Road Users

Vehicle speed is a key factor in the severity of a collision. At the same time, the effect of speed limit reductions alone on vehicle speeds is usually minor without physical measures (e.g. traffic calming).

This initiative would entail reducing speed limits in neighbourhoods as follows:

Table 18: Interim and Ultimate Speed Limits – Neighbourhoods

Street Type	Interim Speed Limit (Without Physical Changes to Roadway)	Ultimate Speed Limit (After Physical Changes to Roadway to Reduce Vehicle Speeds)
Local Residential	40 km/h	Target speed [Note 1]
Class 2 Collector in residential areas	40 km/h	Target speed [Note 1]
Class 1 Collector in residential areas	Review case by case	Target speed [Note 1]

Notes:

1. Under the initiative "Implement Target Speed Requirements for New Construction and Major Roadway Projects," above, target speeds by road type would be determined. Once physical measures are installed on a street to encourage the target speed, the speed limit would be reduced to the target speed for the particular street.

There may be certain cases (e.g. school zones or local street bikeways) where a lower interim speed limit may be appropriate; this recommendation is not intended to prohibit enacting lower speed limits than those given in Table 18 where warranted. Streets with existing speed limits lower than the proposed interim speed limit would not have their speed limit increased.

Initiative 17: Implement Speed Limit Reductions – Major Streets

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	1A: Vehicle Speeds 2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections 3C: Pedestrians Crossing Mid-block

Most fatal and major injury collisions involving vehicle speed occur on higher-order streets and highways, such as arterials and expressways.

This initiative would entail reducing speed limits on major streets as follows:

Table 19: Interim and Ultimate Speed Limits – Major Streets

Street Type	Interim Speed Limit (Without Physical Changes to Roadway)	Ultimate Speed Limit (After Physical Changes to Roadway to Reduce Vehicle Speeds)
Scenic Parkway	40 km/h	Target speed [Note 1]
Local Commercial Industrial	Review case by case	Target speed [Note 1]
Class 1 Collector in non-residential areas	Review case by case	Target speed [Note 1]
Urban Class 2 Arterial	50 km/h	Target speed [Note 1]

Street Type	Interim Speed Limit (Without Physical Changes to Roadway)	Ultimate Speed Limit (After Physical Changes to Roadway to Reduce Vehicle Speeds)
Rural Class 2 Arterial	Review case by case	Target speed [Note 1]
Class 1 Arterial	60 km/h	Target speed [Note 1]
Expressway	No change	Target speed [Note 1]

Notes:

1. Under the initiative "Implement Target Speed Requirements for New Construction and Major Roadway Projects," above, target speeds by road type would be determined. Once physical measures are installed on a street to encourage the target speed, the speed limit would be reduced to the target speed for the particular street.

There may be certain cases (e.g. school zones or local street bikeways) where a lower interim speed limit may be appropriate; this recommendation is not intended to prohibit enacting lower speed limits than those give in Table 19 where warranted. Streets with existing speed limits lower than the proposed interim speed limit would not have their speed limit increased.

Initiative 18: Implement Speed Limit Reductions and Increased Fines – Construction Zones

Lead Agency/Department	Traffic Operations
Strategic Priorities Addressed	1A: Vehicle Speeds 2A: Vulnerable Road Users

The Highway Traffic Act and Traffic By-law 9148 allow for temporary reduced speed limits in construction zones, as well as doubling of speeding fines in construction zones. To date, the City of Windsor has only rarely implemented doubled speeding fines or reduced speed limits in construction zones.

This initiative would consist of:

- Installing "fines doubled when workers present" signage for all construction zones as standard practice; and
- Implementing temporary speed limit reductions in construction zones in cases where:
    - The normal design speed of the roadway cannot be maintained during construction,
    - There is the potential for conflicts between traffic and construction vehicles, or
    - A speed limit reduction would provide benefit for worker safety.

Initiative 19: Reduce Progression Speed for Traffic Signal Coordination

Lead Agency/Department	Traffic Operations
Strategic Priorities Addressed	1A: Vehicle Speeds 3B: Signalized Intersections

Traffic signals are coordinated along signalized corridors to provide a “green band” to allow vehicles to proceed along a corridor with a minimal amount of stopping.

Currently, the coordination is done to minimize delay based on current traffic behaviour. In the case of some corridors with high operating speeds, this practice can mean that the progression speed for the green band is higher than the speed limit.

This initiative would involve setting the progression speed used for signal coordination at the speed limit or lower. The effect of this change would be that drivers travelling significantly faster than the speed limit would tend to encounter more red lights, and drivers travelling at the speed limit would stay in the green band and encounter fewer red lights.

Initiative 20: Carry out Education Campaigns

Lead Agency/Department	To be determined
Strategic Priorities Addressed	1A: Vehicle Speeds 1B: Drug and Alcohol Impairment 1C: Inattentive Driving 1D: Failing to Yield at Intersections 2A: Vulnerable Road Users

This initiative would entail education and outreach activities as follows:

Target Group	Campaign Content

Drivers	• Messaging aimed at risky driver behaviours, including:
	  • Speeding
	  • Drug and alcohol impairment
	  • Inattentive driving and cell phone use
	  • Respecting and watching for vulnerable road users
	• Establishing positive driver behaviours and attitudes among new drivers (e.g. National Teen Safe Driver Week events).

Target Group	Campaign Content
Vulnerable road users	• Encouragement of helmet use for cyclists, motorcyclists, and scooter riders. • Cycling skills training. • Informing cyclists as new all ages and abilities routes are built out. • Commemoration of vulnerable road user crash fatalities, such as the Ride of Silence (third Wednesday in May each year).
Bar and restaurant owners and servers	• Messaging aimed at reducing impaired driving. • Information on initiatives aimed at reducing impaired driving (e.g. a safe ride home program, if provided).
General	• Commemoration of road crash fatalities generally, such as an event for the National Day of Remembrance for Road Crash Victims (third Sunday in November each year). • Information to the public to build awareness of the Vision Zero Action Plan, its contents, and the reasons behind Vision Zero initiatives.

Initiative 21: Adjust Project Prioritization Criteria in the Active Transportation Master Plan to Place a Greater Emphasis on Safety and Collisions

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	2A: Vulnerable Road Users 3A: High Injury Corridors

The prioritization criteria used in *Walk Wheel Windsor*, the Active Transportation Master Plan, are as follows. All criteria are weighted equally:

Table 20: Pedestrian and Cycling Network Prioritization Criteria – Active Transportation Master Plan

	Pedestrian Network	Cycling Network
1	Destination Density	Destination Density
2	Pedestrian Mode Share	Cycling Mode Share
3	Pedestrian Potential	Cycling Potential
4	Equity	Equity
5	Pedestrian Generators – Commercial Areas	Cycling Generators – Commercial Areas
6	Pedestrian Generators – Community Facilities	Cycling Generators – Community Facilities
7	Transit	Transit
8	Road Classification	Bicycle Network Classification

	Pedestrian Network	Cycling Network
9	Network Contribution	Level of Protection
10	Network Need	Network Need
11	**Pedestrian Collisions**	**Cyclist Collisions**
12	Traffic Volumes	Traffic Volumes
13	Road Rehabilitation	Road Rehabilitation

Currently, the collision criteria are based on total pedestrian or cyclist collisions only. Collisions are not weighted based on severity.

This initiative would entail:

- Increasing the weighting of pedestrian and cyclist collisions relative to other criteria, and
- Increasing the weighting of fatal and major injury collisions within the collision criteria.

Initiative 22: Include Collision History as a Factor in Prioritizing Capital Projects

Lead Agency/Department	Engineering Operations
Strategic Priorities Addressed	2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections

While road safety concerns are considered implicitly to some degree in the prioritization process for capital projects, the City of Windsor has no formal process to give collision history a specific weighting when prioritizing capital projects.
This initiative would entail:

- Determining weightings for safety improvement versus other prioritization factors;
- Determining the history of fatal and major injury collisions in the area of each roadway capital project;
- Identifying the likely safety improvement or collision reduction associated with the capital project.
- Applying this safety improvement – along with other factors – to prioritize capital projects for roadway works.

Initiative 23: Review Official Plan and Zoning By-laws for Vision Zero Opportunities

Lead Agency/Department	Transportation Planning Planning
Strategic Priorities Addressed	4B: Design Standards and Best Practices

A key element of achieving the Vision Zero goal of zero fatal and major injury collisions is speed reduction. Many elements that are addressed by the Official Plan and Zoning By-laws have an impact on vehicle speeds, including:

- "Optical width" of the street between fixed features (e.g. building face, substantial landscaping, fencing) on either side of the street influences the speed at which drivers feel comfortable driving.
- On-street parking: where on-street parking is allowed and actually used, it creates visual "side friction" that helps to encourage drivers to slow down.
- The number of institutional or commercial buildings/driveways along a street segment can suggest to drivers that they are in a pedestrian-oriented zone and cause them to lower their speed.

This initiative would entail developing a set of recommended amendments to the Official Plan and Zoning By-laws intended to encourage lower vehicle speeds. These recommended amendments would be brought forward to Council for approval.

Initiative 24: Review Design Standards and Development Manual for Vision Zero Opportunities

Lead Agency/Department	Transportation Planning Engineering
Strategic Priorities Addressed	4B: Design Standards and Best Practices

New streets and modifications to existing streets are governed by City design standards, Standard Engineering Drawings, Best Practices, and the Development Manual. This initiative would entail reviewing these existing governing documents to ensure that:

- The required characteristics for each road classification (e.g. curve radii and pavement widths) are in accordance with the street's target speed.
    - Note: developing target speeds by road classification is recommended as a separate initiative.
- The Complete Streets Policy is reflected in City standards and guidelines affecting City streets, and
- Street design aspects that impact the potential for fatal and major injury collisions (e.g. curb radii at intersections) are in compliance with Vision Zero principles.

This review would also consider whether additional standard drawings, best practices, etc., are required for other Vision Zero Action Plan initiatives.

Portions of this initiative would need to follow other work – for instance, a review for compliance with the Complete Streets Policy could not happen until the Complete Streets Policy is prepared and approved – but some aspects of the initiative may be able to proceed immediately.

Initiative 25: Require Transportation Impact Studies for New Developments to Include a Full Multimodal Review

Lead Agency/Department	Transportation Planning Engineering
Strategic Priorities Addressed	2A: Vulnerable Road Users

Currently, transportation impact studies (TISes) are required for development applications (e.g. site plans, rezonings, and Official Plan amendments) if they:

- Are large enough to generate 100 peak hour site trips,
- Include a new connection to an arterial road,
- Have the potential to increase collisions at an existing collision "hot spot," or
- Have the potential to adversely impact an intersection already experiencing capacity issues.

The standard scope for a TIS includes a discussion of impacts and issues for non-auto modes, but does not require a quantitative review for non-auto modes.

When a TIS is required for a development application, this recommendation would entail requiring the applicant's consultant to carry out a full multimodal transportation review to ensure that:

- The development will not adversely impact non-auto modes, such as walking, biking, and transit; and
- Appropriate infrastructure to support walking, biking and transit needed to support the development is provided as off-site improvements.

Procedures and criteria for this multimodal review would be identified as part of the Complete Streets Policy.

Initiative 26: Develop Safety Performance Functions

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	4A: Improved Data Sources and Information Sharing 4B: Design Standards and Best Practices

A safety performance function is a regression model used to predict the collision frequency for a particular facility type (e.g. signalized intersections) based on a set of variables. They can be

developed for total collisions or particular collision categories (e.g. cyclist collisions). Safety performance functions can be used in network screening to identify locations that experience a higher-than-expected number of collisions based on their characteristics. They can also be used to predict the safety impact of future changes (e.g. changes in road network due to infrastructure capital projects, or changes in traffic volumes due to land development) in order to identify and prevent potential safety concerns before construction.
Currently, the City of Windsor does not use safety performance functions; all network screening is carried out based on collision rate.
This initiative would entail:

- Identifying a range of safety performance functions to develop;
- Carry out the statistical analysis needed to generate and calibrate the safety performance functions; and
- On an ongoing basis, use these safety performance functions for safety reviews and network screening.

Initiative 27: Implement Automated Speed Enforcement

Lead Agency/Department	Traffic Operations
Strategic Priorities Addressed	1A: Vehicle Speeds 2A: Vulnerable Road Users 3A: High Injury Corridors 3C: Pedestrians Crossing Mid-block

The Ontario government recently introduced legislative changes to allow municipalities to implement automated speed enforcement (“photo radar”) in community safety zones and school zones. Council has directed City staff to investigate the feasibility of an automated speed enforcement (ASE) program for Windsor (CR258/2020).

This program would directly address vehicle speeds, which would indirectly address a number of other strategic priorities, particularly vulnerable road users, including pedestrians crossing mid-block.

Most of the high injury corridors meet the criteria in the City’s Community Safety Zone Policy for community safety zones and could be considered for automated speed enforcement. However, technical considerations might make installing speed cameras in some of these areas difficult (e.g. a lack of roadside space to install a pole and camera, or streetscaping obstructing the camera’s field of view).

Key issues to be considered when deciding whether to include this initiative in the Vision Zero Action Plan:

- The experience of other jurisdictions that have implemented automated speed enforcement
- Whether the provincially-mandated processing centre would have capacity to take on a Windsor ASE program, or, alternately, whether it would be feasible for Windsor to set up its own processing centre.

Initiative 28: Install Transverse Rumble Strips at Select Locations

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	1A: Vehicle Speeds 1D: Failing to Yield at Intersections

Transverse rumble strips are grooves cut across the road surface that encourage speed reduction by generating an uncomfortable noise and vibration when vehicles drive over them at high speed. They are typically used in rural contexts for alerting drivers to the need to reduce their speed, typically for a stop-controlled intersection or sharp curve ahead. An example installation is shown in Figure 4.

Figure 4: Transverse Rumble Strip Example (Source: Neal Hawkins/Iowa DOT)

Transverse rumble strips are effective at reducing vehicle speeds, but they can create a number of issues:

- Associated noise can create a disturbance for nearby residents.
- They can be difficult for cyclists to traverse.
- Water and ice can pond in the grooves.
- Cutting rumble strips into the road surface can reduce pavement life.

This initiative would entail identifying locations to install transverse rumble strips as a pilot program. The top candidates for this program would be the approaches to rural intersections that have a history of stop sign non-compliance or a collision pattern that suggests that stop sign non-compliance may be occurring.

Initiative 29: Implement a Parking Ticket Forgiveness Program to Target Impaired Driving

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	1B: Drug and Alcohol Impairment

This initiative would entail creating a framework that would allow for a parking ticket to be forgiven if an intoxicated person chose not to drive because they were impaired and instead used another way to get home.

Details of the program that would need to be resolved before implementation:

- How would it be determined that the person was intoxicated and got a safe way home?
- Where and when would the program be offered? What would the limits on the program be?

Initiative 30: Provide Free (or Cost-Included) Transit Service for Alcohol-Oriented Special Events

Lead Agency/Department	Transit Windsor Special Event Resource Team
Strategic Priorities Addressed	1B: Drug and Alcohol Impairment

Under this initiative, attendees of special events oriented around drinking alcohol would be provided with a ticket or voucher (e.g. their event ticket) which they could use for a transit ride to and from the event at no additional charge to the attendee.
Options for funding this initiative:

- Fees collected from event organizers as a condition of their special event permit, or
- City funding (in whole or in part) as a budget item.

In the case of events that take place in areas not served by Transit Windsor or taking place outside Transit Windsor service hours, the event organizer would be required to make alternate arrangements to ensure that event attendees have travel options other than personal cars, such as:

- Taxi fares included in the event admission charge, or
- Chartered buses or vans to provide shuttle service to and from a transit terminal.

Initiative 31: Support the Development of a "Safe Ride Home" Service

Lead Agency/Department	To be determined
Strategic Priorities Addressed	1B: Drug and Alcohol Impairment

In certain other municipalities, "safe ride home" services such as Operation Red Nose/Opération Nez rouge help to deter impaired driving by providing a way for people to get themselves and their vehicles home.

Key questions that would need to be addressed before such a program could be offered in Windsor:

- Who would be responsible for operating the program?
    - In most other jurisdictions, these programs are run by not-for-profit organizations and not by municipal governments directly.
- How would the program be funded?
    - In the case of Operation Red Nose/Opération Nez rouge, the program is funded by a combination of corporate sponsorships, government grants, community donations and user donations. No user fee is charged, but service users have the option of making a voluntary donation.
- When and where should the program operate?
    - Operation Red Nose/Opération Nez rouge operates only in the month of December.

This initiative could entail:

- Canvassing existing not-for-profit organizations to determine interest in operating a safe ride home service
- Encouraging new or existing not-for-profit organizations to launch a safe ride home service by establishing a City grant program for this purpose.

Initiative 32: Provide Stop Bars and Crosswalk Markings at Unsignalized Intersections

Lead Agency/Department	Traffic Operations
Strategic Priorities Addressed	1D: Failing to Yield at Intersections 2A: Vulnerable Road Users 3A: High Injury Corridors

Currently, the City of Windsor does not typically paint stop bars or crosswalks at unsignalized intersections. Previously, four options for stop bars at unsignalized intersections have been identified; to date, none of these options have been selected for implementation:

Table 21: Options and Costs for Stop Bars and Crosswalks at Unsignalized Crossings

Option	Annual Cost Increase
1 – All Stop Bars and Crosswalks	$2,250,000
2 – Collectors and Arterials	$955,000
3 – Arterials, Scenic Parkway and Multi-Use Trail Crossings Only	$300,000
4 – Top 30 High Collision Unsignalized Intersections (from 2019 Road Safety Report)	$25,000

If this initiative is carried forward, it could entail some sort of stop bar and crosswalk pavement marking program; either one of the four options previously identified or an alternate option to implement the pavement markings at a limited number of intersections.

Initiative 33: Provide Ladder Crosswalk Markings at Signalized Intersections

Lead Agency/Department	Traffic Operations
Strategic Priorities Addressed	1D: Failing to Yield at Intersections 2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections

High-visibility crosswalk treatments such as ladder crosswalks can help emphasize the potential to drivers of pedestrians at an intersection; this tends to increase driver compliance when yielding to pedestrians.

The Ontario Traffic Manual identifies ladder crosswalks as an optional feature at signalized intersections.

This initiative would entail installing ladder crosswalk markings at a set of signalized intersections to be determined. Pedestrian high injury corridors could be prioritized for ladder crosswalks.

Figure 5: Ladder Crosswalks (Source: City of Hamilton)

Initiative 34: Implement Fully Protected Intersections

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	1D: Failing to Yield at Intersections 2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections

> *Protected intersections have been implemented across North America as cities have expanded their protected bikeway networks. Also known as setback or offset intersections, this design keeps bicycles physically separate from motor vehicles up until the intersection, providing a high degree of comfort and safety for people of all ages and abilities. This design can reduce the likelihood of high-speed vehicle turns, improve sightlines, and dramatically reduce the distance and time during which people on bikes are exposed to conflicts. For example, in San Francisco, a protected intersection design resulted in 98% of drivers yielding to people on bikes, and 100% yielding to people walking. A study in New York found that protected intersections had fewer vehicle-bike conflicts than even a dedicated turn lane with a dedicated bike signal phase.*
> (Source: NACTO)

An example of a protected intersection is provided in Figure 6.

This initiative would entail considering protected intersections in future environmental assessments for roadway projects as appropriate, with the aim of implementing protected intersections at a set of locations.

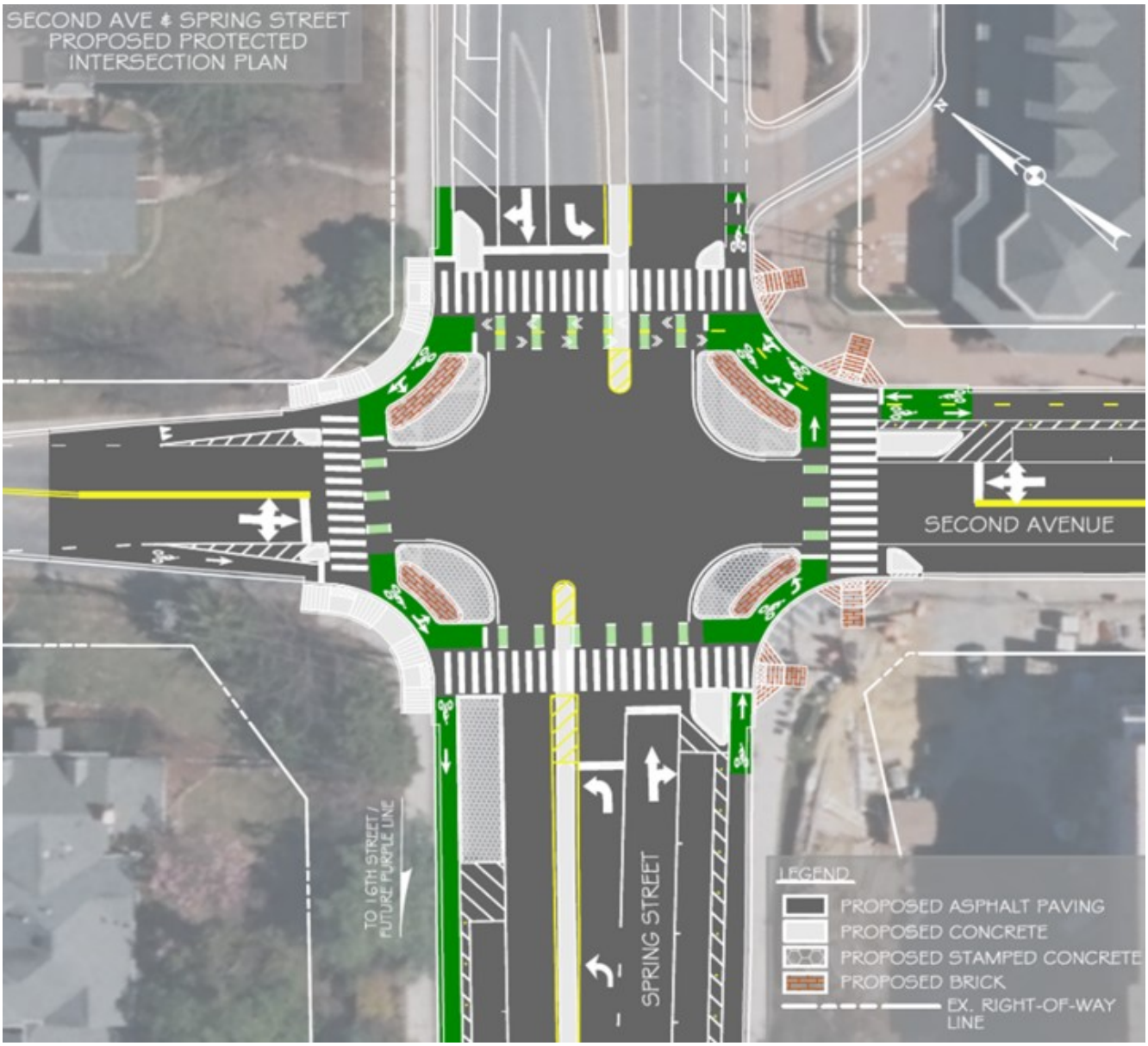


Figure 6: Protected Intersection (Source: Montgomery County Division of Transportation Engineering / Kittelson Associates)

Initiative 35: Implement Leading Pedestrian Intervals

Lead Agency/Department	Traffic Operations
Strategic Priorities Addressed	1D: Failing to Yield at Intersections 2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections

With a leading pedestrian interval, the walk signal is activated while the intersection remains in "all red" for vehicles, typically for 3 to 7 seconds. This allows the pedestrians to have a head start on vehicles, putting the pedestrians in a more visible position in the crosswalk before vehicles are released.

In other jurisdictions, leading pedestrian intervals have been found to reduce pedestrian collisions at treated intersections by up to 60%. Nevertheless, there are potential issues related to leading pedestrian intervals:

- Driver unfamiliarity with leading pedestrian intervals – particularly the long “all red” period for vehicles – may lead to misunderstandings of the purpose for the change as well as problems with driver compliance.
- At some intersections, holding vehicles for an additional 3 to 7 seconds per phase would create significant capacity issues, which could result in safety issues in some circumstances (e.g. increased queue spillback leading to increased rear end collisions).

This initiative would entail:

- Identifying candidate intersections,
- Implementing leading pedestrian intervals, and
- An education and outreach program to ensure that drivers and pedestrians are aware of the reasons for the change.

Initiative 36: Install Pedestrian Countdown Signals

Lead Agency/Department	Traffic Operations
Strategic Priorities Addressed	2A: Vulnerable Road Users 3B: Signalized Intersections

Pedestrian countdown displays have been found to provide a safety benefit, particularly in reducing pedestrian collisions. Pedestrian countdown displays are recognized by the Ontario Traffic Manual as optional.

There are issues with their use in some situations, however: most pedestrian countdown displays currently on the market do not communicate with the traffic signal controller, and instead base the countdown time shown on the length of the green interval from the *previous* cycle. Because of this, pedestrian countdown displays work best in cases where phase lengths are steady from cycle to cycle. In cases when phase lengths change significantly from one cycle to the next, the countdown display can show an incorrect time remaining, potentially creating confusion and discomfort for pedestrians.

This initiative would entail identifying intersections where pedestrian countdown displays could be installed, either:

- Locations that already operate with steady phase lengths from cycle to cycle, or

- Locations where the traffic signal timings and phasings could be adapted to suit the limitations of pedestrian countdown displays currently on the market.

Initiative 37: Implement Hardened Centrelines at Intersections with High Speed Left Turns

Lead Agency/Department	Transportation Planning
Strategic Priorities Addressed	1D: Failing to Yield at Intersections 2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections

Centreline hardening involves using features – typically rubber humps or bollards – at major intersections to discourage taking left turns at high speed. These measures improve pedestrian safety by:

- Reducing collision severity by forcing left turning vehicles to travel at lower speeds, and
- Improving pedestrian visibility to drivers by forcing vehicles to approach the crosswalk at a right angle.

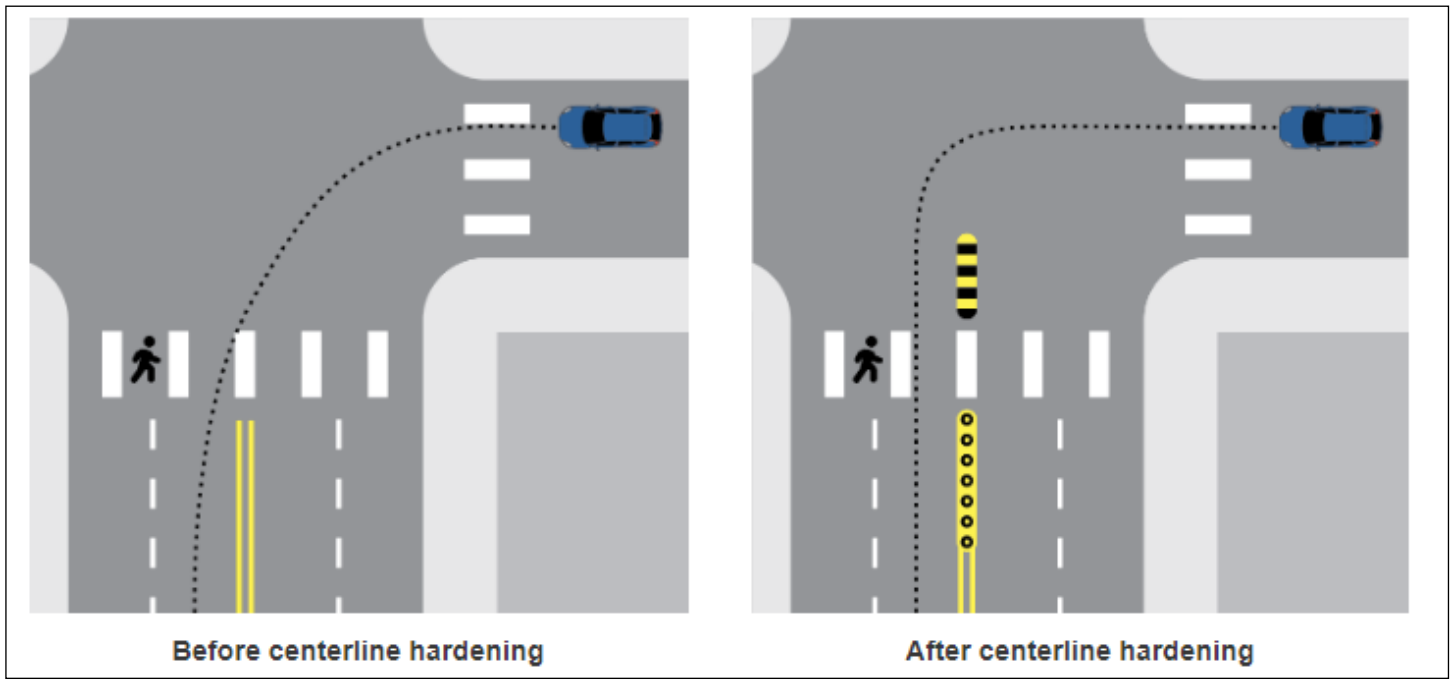


Figure 7: Centreline Hardening Example (source: Insurance Institute for Highway Safety)

Initiative 38: Adopt a "Roundabouts First" Policy or Best Practice for New Intersections and Major Roadway Projects

Lead Agency/Department	Engineering
Strategic Priorities Addressed	1D: Failing to Yield at Intersections 3A: High Injury Corridors 3B: Signalized Intersections 4B: Design Standards and Best Practices

Roundabouts are effective at reducing the severity of intersection collisions, since they virtually eliminate right angle ("T-bone") and turning collisions, two types of collisions with high injury potential.

Other jurisdictions, particularly the Region of Waterloo, have adopted policies that identify roundabouts as the preferred intersection control type. In that jurisdiction, before other intersection control types are considered, a screening is carried out to confirm that a roundabout is not appropriate.

This initiative would entail adopting a similar policy for Windsor.

Potential issues with this initiative:

- Navigating a roundabout, particularly a multi-lane roundabout, can be uncomfortable for pedestrians and cyclists.
- Visually impaired pedestrians can have more difficulty judging gaps in traffic at a roundabout than at a traffic signal.
- Roundabouts can have negative impacts on their surroundings:
    - Typically, roundabouts need more right-of-way space at the intersection than is needed for a similar signalized intersection.
    - Typically, access controls (e.g. restrictions on driveways) are needed for a longer distance from the intersection for a roundabout than for a signalized intersection.

Initiative 39: Adopt a "No Right Turn Channels" Policy or Best Practice for New Intersections and Major Roadway Projects

Lead Agency/Department	Engineering
Strategic Priorities Addressed	1A: Vehicle Speeds 1D: Failing to Yield at Intersections 2A: Vulnerable Road Users 3B: Signalized Intersections 4B: Design Standards and Best Practices

Conventional right turn channels can contribute to high vehicle turning speeds and poor visibility of pedestrians, creating the potential for severe collisions.

This initiative would entail adopting a policy or best practice against right turn channels for new construction. For road reconstructions and other major roadway projects, the preference would be to remove existing right turn channels where possible.

In situations where the right turn channel island is required (e.g. when there would be no suitable place for traffic signal poles without the island), a "smart" right turn channel would be acceptable, as shown in Figure 8.

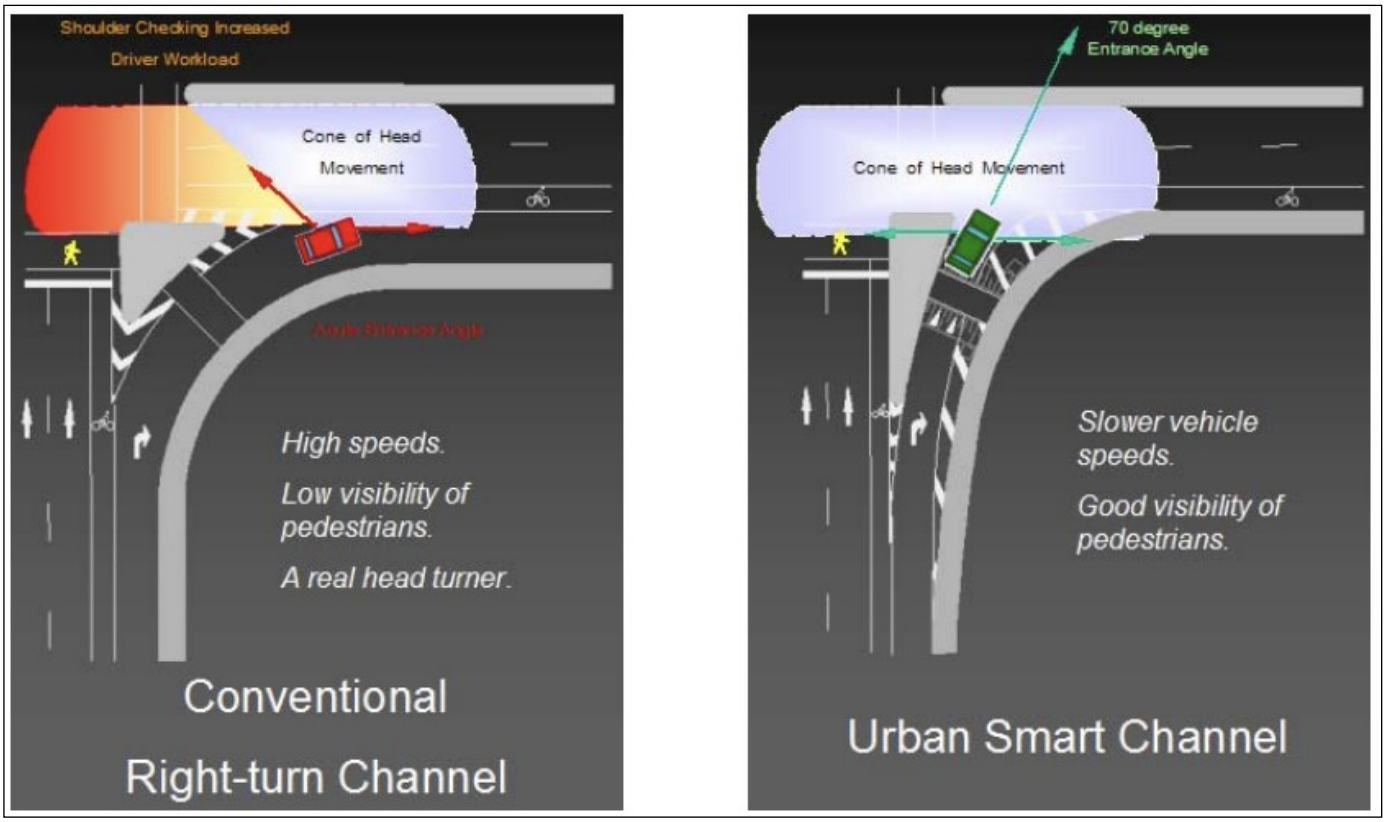


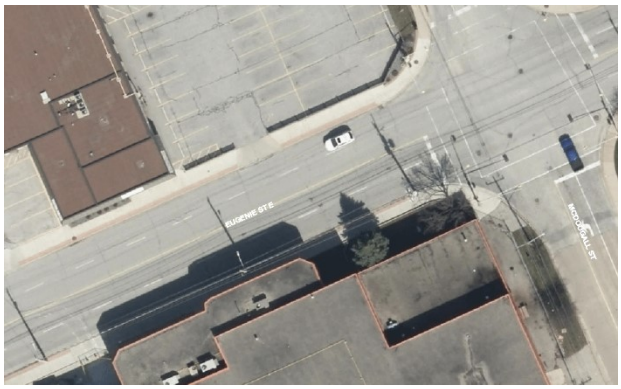
Figure 8: Conventional Right Turn Channel vs. "Smart" Right Turn Channel (source: City of Ottawa)

Initiative 40: Implement a Road Diet Program

Lead Agency/Department	Engineering Transportation Planning
Strategic Priorities Addressed	1A: Vehicle Speeds 2A: Vulnerable Road Users 3A: High Injury Corridors 3B: Signalized Intersections 3C: Pedestrians Crossing Mid-block

A road diet is the reallocation of roadway space to better serve road users, particularly for roads that have significant amounts of excess capacity.

A typical road diet is a “4 to 3” conversion, where a 4-lane undivided street (with 2 lanes in each direction and turns from shared lanes) is restriped so that there is a single lane in each direction and a two-way left turn lane. A recent example of a “4 to 3” conversion in Windsor is Eugenie Street; the layout before and after the road diet can be seen in Figure 9. Depending on turning volumes, a “4 to 3” road diet can often result in negligible decrease in capacity, since providing a two-way left turn lane allows through traffic to flow unimpeded by vehicles stopped waiting for a gap to turn.



Before Road Diet

After Road Diet

Figure 9: Road Diet Example: Eugenie Street

Road diets may also involve reducing the number of excess lanes on a street by physically reducing the pavement width. In these types of road diets, other benefits (e.g. a reduction in paved area resulting in lower flooding risk) can be achieved.

Road diets are effective at reducing speeding, which in turn tends to decrease collision severity, especially for vulnerable road users. The reallocation of roadway width can provide space for measures to improve conditions for vulnerable users, such as bikeway infrastructure or bump-outs or pedestrian refuges to reduce crossing widths. Some road diet types are effective at improving sight lines at signalized intersections.

This initiative would entail identifying candidate locations and then implementing road diets.

Initiative 41: Develop a Comprehensive GIS-based Collision Information System

Lead Agency/Department	Geomatics Transportation Planning
Strategic Priorities Addressed	4A: Improved Data Sources and Information Sharing

> *A geographic information system (GIS) is a system that creates, manages, analyzes, and maps all types of data. GIS connects data to a map, integrating location data (where things are) with all types of descriptive information (what things are like there). This provides a foundation for mapping and analysis that is used in science and almost every industry. GIS helps users understand patterns, relationships, and geographic context. The benefits include improved communication and efficiency as well as better management and decision making.*
> *(Source: ESRI.com)*

The City of Windsor uses GIS extensively and has a significant amount of data in GIS form. Currently, the Windsor Collision Database is a standalone database, not connected to other data sources. This initiative would entail translating data from the collision database into a GIS, which would allow more efficient analysis of collision data to identify collision "hot spots" and City-wide trends.

Having a GIS-based collision information system would also allow for comparisons with other mapped data, which would enable analyses that City staff have not been able to do to date, such as identifying correlations between road safety outcome and neighbourhood characteristics (e.g. social determinants of health), which could inform future road safety policies or outreach programs.

Initiative 42: Develop Safety-Related Vehicle Design Criteria for Future City Vehicle Fleet Purchases

Lead Agency/Department	Fleet Transit Windsor Windsor Fire Rescue Service Purchasing
Strategic Priorities Addressed	1D: Failing to Yield at Intersections 2A: Vulnerable Road Users

As the operator of a significant fleet of vehicles, the City of Windsor has the opportunity to directly reduce the likelihood of its own vehicles being involved in a fatal or major injury collision by developing and implementing safety-related criteria for use when purchasing vehicles. In doing so, Windsor may be able to indirectly influence other fleet operators – e.g. other major Windsor employers or other municipalities – to adopt similar measures and provide an indirect safety benefit beyond its own vehicle fleet.

The Fleet Review Committee (a staff committee chaired by the Executive Director of Operations, with representatives from several City departments) reviews and approves standard vehicle features for various vehicle categories in the City fleet, from compact cars to large trucks.

The current list of vehicle standard features includes some safety-related items (e.g. ABS brakes), but does not include measures such as:

- Air bags
- Vehicle features that reduce the likelihood of severe injury in a pedestrian collision
- Collision warning or lane departure warning systems
- Back-up cameras (all vehicles) or 360 degree camera systems (large trucks)

This initiative would entail recommending that the Fleet Review Committee:

- Explore additional safety-related features that could be added to the current list of vehicle standard features, and
- Consider the development of lists of additional safety-related features that could be used, as appropriate, in requests for proposals. This would allow vendors to receive preferential consideration for bids that would provide greater than the minimum level of safety.

Special considerations with this initiative:

- By Council-approved charter, vehicle standard features must be approved by the Fleet Review Committee, which has the authority to approve or deny new standard features.
- Requiring additional safety features has the potential to increase the cost of vehicle purchases. This increase in cost may be in excess of the value of the desired safety feature itself, since vehicle options are often bundled in option packages.

4. Action Plan Goals

Goal Types

All initiatives included in the Vision Zero Action Plan have an associated activity, impact and outcome, as summarized in Figure 10.

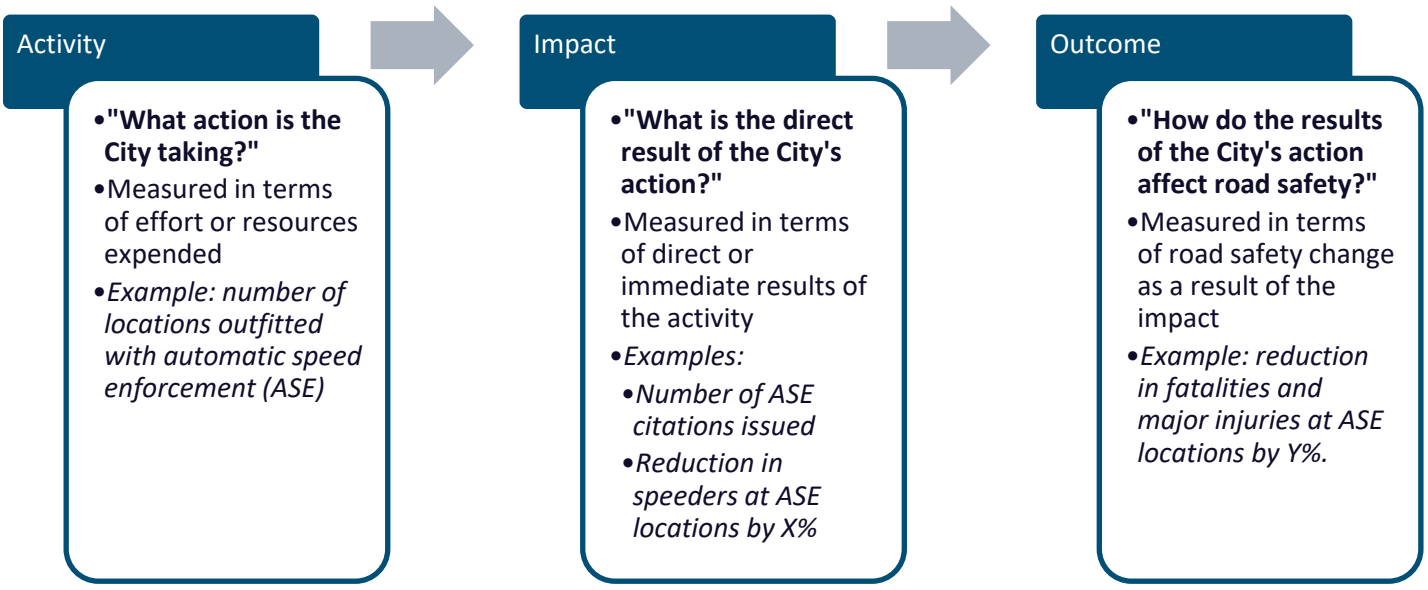


Figure 10: Activity, Impact and Outcome Goals

Identified goals in the Vision Zero Action Plan goals can relate to an activity, impact or outcome. Each has advantages and disadvantages, as noted in Table 22.

Table 22: Activity, Impact and Outcome Goals

Goal Type	Activity Goals	Impact Goals	Outcome Goals
Examples	• *Number of countermeasures installed* • *Lane-kilometers of street with reduced speed limit*	• *Change in operating speed for a treated roadway* • *Number of red light camera citations issued*	• *City-wide reduction in severe collisions* • *Reduction in severe collisions at a treated location*

Goal Type	Activity Goals	Impact Goals	Outcome Goals
Strengths	• City can exert direct control to achieve goal • Future performance can be predicted with high levels of certainty	• Provides timely feedback on the performance of road safety interventions	• Direct measurement of the focus of concern
Weaknesses	• Proxy measure for safety; relationship between activity and impact/outcome is subject to uncertainty	• Proxy measure for safety; relationship between impact and outcome is subject to uncertainty	• Significant lag in results (on the order of years) from when action is taken until outcome can be measured
Approach Used for Vision Zero Action Plan	• **Activity goals are reflected in the Implementation Plan**	• **Impact goals are identified where indicators are available**	• **Outcome goals are identified for all strategic priorities**

Activity goals are addressed in **Section 5 – Implementation Plan**. Impact and outcome goals are addressed in **Interim Goals – Road Safety Outcomes** and Error! Reference source not f ound. below.

Overall Goal

For all Vision Zero programs, the overall goal is zero fatalities and major injuries due to road crashes, ideally within an identified timeline.

The recommended overall goal of the Vision Zero Action Plan is zero fatal and major injury collisions **within 15 years** of adopting the Vision Zero Action Plan.

Interim Goals – Road Safety Outcomes

For all indicators that are given in terms of fatalities and major injuries, interim goals are as follows:

- 5 years after Vision Zero Action Plan adoption: 33% reduction from 2015-2019 baseline levels

- 10 years after Vision Zero Action Plan adoption: 67% reduction from 2015-2019 baseline levels
- 15 years after Vision Zero Action Plan adoption: 100% reduction from 2015-2019 baseline levels

Interim collision goals for each strategic priority are provided in Table 23. Impact goals are provided in Table 24.

Table 23: Interim Goals by Strategic Priority

Strategic Priority	Indicator	2015-2019 Baseline	Goals		
			5 years	10 years	15 years
Overall	**Fatalities and major injuries (all causes and victim categories)**	**37.2 per year**	**24.8 per year**	**12.4 per year**	**0 per year**
1A: Vehicle Speeds	Fatalities and major injuries involving the following driver actions: • Exceeding speed limit • Speed too fast for conditions • Lost control	11.0 per year	7.3 per year	3.7 per year	0 per year
	Fatalities and major injuries involving either: • Traffic control type identified as “traffic controller” or • Road condition identified as “under construction”	0.8 per year	0.5 per year	0.3 per year	0 per year
1B: Drug and Alcohol Impairment	Fatalities and major injuries involving the following driver conditions: • Had been drinking • Ability impaired, alcohol • Ability impaired, alcohol (over 0.08) • Ability impaired, drugs	4.8 per year	3.2 per year	1.6 per year	0 per year
1C: Inattentive Driving	Fatalities and major injuries involving the driver condition “inattentive”	3.8 per year	2.5 per year	1.3 per year	0 per year
1D: Failing to Yield at Intersections	Fatalities and major injuries at intersections involving the following driver actions: • Failed to yield right-of-way • Disobeyed traffic control • Improper turn	12.2 per year	8.1 per year	4.1 per year	0 per year
2A: Vulnerable Road Users	Pedestrian fatalities and major injuries	8.4 per year	5.6 per year	2.8 per year	0 per year

Strategic Priority	Indicator	2015-2019 Baseline	Goals		
			5 years	10 years	15 years
(Pedestrians, Cyclists, and Motorcyclists)	Cyclist fatalities and major injuries	3.2 per year	2.1 per year	1.1 per year	0 per year
	Motorcyclist fatalities and major injuries	6.0 per year	4.0 per year	2.0 per year	0 per year
3A: High Injury Corridors	Pedestrian fatalities and major injuries – Tecumseh Road East (Jefferson to Forest Glade Drive)	0.8 per year	0.5 per year	0.3 per year	0 per year
	Pedestrian fatalities and major injuries – Wyandotte Street (Ouellette to Chilver)	0.8 per year	0.5 per year	0.3 per year	0 per year
	Cyclist fatalities and major injuries – Wyandotte Street (Pelissier to Parent)	0.6 per year	0.4 per year	0.2 per year	0 per year
	Motor vehicle driver and passenger fatalities and major injuries – EC Row Expressway (Howard to Banwell)	1.8 per year	1.2 per year	0.6 per year	0 per year
	Motor vehicle driver and passenger fatalities and major injuries – Wyandotte Street (Pelissier to Gladstone)	1.0 per year	0.7 per year	0.3 per year	0 per year
3B: Signalized Intersections	Fatalities and major injuries at signalized intersections	11.6 per year	7.7 per year	3.9 per year	0 per year
4A: Improved Data Sources and Information Sharing	N/A				
4B: Design Standards and Best Practices	N/A				

Table 24: Impact Goals by Strategic Priority

Strategic Priority	Indicator	2015-2019 Baseline	Goals		Notes
			Target	Timeframe	
1A: Vehicle Speeds	% of treated locations with operating speed within 5 km/h of target speed	N/A	80%	Immediate after treatment	This indicator should be summarized by category (e.g. speed limit reduction, radar speed feedback sign, permanent traffic calming, Complete Street installation)
	# of automated speed enforcement citations issued	0	Downward trend in citations issued at each treated intersection	1 year after treatment	
1B: Drug and Alcohol Impairment	# of riders per year using “Safe Ride Home” service	0	To be determined	To be determined	Goals to be identified as part of service development

Strategic Priority	Indicator	2015-2019 Baseline	Goals		Notes
			Target	Timeframe	
1C: Inattentive Driving	N/A				
1D: Failing to Yield at Intersections / 3B: Signalized Intersections	# of red light camera citations issued	0	Downward trend in citations issued at each treated intersection	1 year after treatment	
2A: Vulnerable Road Users (Pedestrians, Cyclists, and Motorcyclists)	N/A				
3A: High Injury Corridors	See note	N/A	To be determined	To be determined	As part of each road safety audit, impact goals will be developed based on the audit's conclusions and recommendations
4A: Improved Data Sources and Information Sharing	Mean days from crash date to date crash report is entered into City database	477 days	60 days	Immediate after implementation of ARIS-based collision data system	
	Percentage of crash reports entered into the database within 90 days after the crash	0%	90%	Immediate after implementation of ARIS-based collision data system	
	% of fatal collisions where Fatal Collision Response Team was activated	N/A	100%	Immediate after establishment of the Fatal Collision Response Team	
4B: Design Standards and Best Practices	N/A				
Multiple	Education campaign reach	N/A	To be determined	To be determined	Campaign goals will be developed individually for each educational campaign

5. Implementation Plan

The implementation plan is provided in Table 25.

Table 25: Implementation Plan

Number	Recommended Initiative	Responsibility	Timeframe			Phasing Considerations
			Short 0-5 years	Medium 5-10 years	Long 10-15 years	
1	Develop and Implement a Complete Streets Policy	*Development:* Transportation Planning	X			
		Implementation: Engineering Operations Planning	X	X	X	
2	Construct Roadway Capital Projects (for certain corridors)	Engineering		X	X	Tecumseh Rd E: section of concern is "2032+" in current capital budget. EC Row Ave EA: should proceed after City-wide Transportation Master Plan (scheduled to start Fall/Winter 2022)
3	Obtain Collision Data through Provincial ARIS System	Transportation Planning	X			
4	Continue to Implement the Transit Master Plan	Transit	X	X	X	Has its own implementation plan
5	Review Yellow and All-Red Intervals for Traffic Signals	Traffic Operations	X			
6	Install Retroreflective Backboards for Traffic Signals	Traffic Operations	X	X		
7	Increase Winter Roadway Maintenance	Operations	X			
8	Driver Simulation Training for Commercial Motor Vehicle Operators	Human Resources	X			
9	Commercial Motor Vehicle Driver Evaluation by Independent Party	Human Resources	X			
10	Conduct Road Safety Audits of Identified High Injury Corridors	Transportation Planning	X			
11	Carry out a Value Engineering & Road Safety Review of Existing Approved Preliminary Designs for Roadway Projects	Engineering	X	X		Will proceed project-by-project prior to detailed design.
12	Establish a Fatal Collision Response Team	Traffic Operations WPS Engineering Risk Management Coroner's Office	X			
13	Explore Data-Sharing Arrangements Between Agencies	Transportation Planning	X			
14	Carry out a Resident Survey	Transportation Planning	X			
15	Implement Target Speed Requirements for New Construction and Major Roadway Projects	Engineering Operations	X			Can proceed as a standalone item or as part of Initiative #1.

Number	Recommended Initiative	Responsibility	Timeframe			Phasing Considerations
			Short 0-5 years	Medium 5-10 years	Long 10-15 years	
16	Implement Speed Limit Reductions – Neighbourhoods	Traffic Operations	X			
17	Implement Speed Limit Reductions – Major Streets	Traffic Operations	X			
18	Implement Speed Limit Reductions and Increased Fines – Construction Zones	Traffic Operations Operations	X			
19	Reduce Progression Speed for Traffic Signal Coordination	Traffic Operations	X			
20	Carry out Education Campaigns	Transportation Planning	X	X	X	
21	Adjust Project Prioritization Criteria in the Active Transportation Master Plan to Place a Greater Emphasis on Safety and Collisions	Asset Planning Engineering Operations	X			
22	Include Collision History as a Factor in Prioritizing Capital Projects	Asset Planning Engineering	X			
23	Review Official Plan and Zoning By-laws for Vision Zero Opportunities	Planning	X	X		Official Plan update can proceed in 2023, Zoning would follow.
24	Review Design Standards and Development Manual for Vision Zero Opportunities	Engineering	X	X		Some items will require the Complete Streets Policy (Initiative #1) to be approved first.
25	Require Transportation Impact Studies for New Developments to Include a Full Multimodal Review	Transportation Planning Planning	X			Cannot proceed until multimodal level of service guidelines are developed (part of initiative #1).
26	Develop Safety Performance Functions	Transportation Planning	X			
27	Implement Automated Speed Enforcement	Traffic Operations	X			
28	Install Transverse Rumble Strips at Select Locations	Transportation Planning	X			
29	Implement a Parking Ticket Forgiveness Program to Target Impaired Driving	Parking Enforcement	Pilot			Start with short-duration pilot project (e.g. over holidays for one year) Follow-up report from pilot program with recommendations going forward.
30	Provide Free (or Cost-Included) Transit Service for Alcohol-Oriented Special Events	Transit Windsor Special Event Resource Team	X			
31	Support the Development of a “Safe Ride Home” Service	Transportation Planning	X			
32	Provide Stop Bars and Crosswalk Markings at Unsignalized Intersections	Traffic Operations	Pilot			Start with a limited pilot program. Develop recommendations for future implementation based on the results of the pilot.

Number	Recommended Initiative	Responsibility	Timeframe			Phasing Considerations
			Short 0-5 years	Medium 5-10 years	Long 10-15 years	
33	Provide Ladder Crosswalk Markings at Signalized Intersections	Traffic Operations	Pilot			Start with a limited pilot program. Develop recommendations for future implementation based on the results of the pilot.
34	Implement Fully Protected Intersections	Traffic Operations Operations Engineering		X		For projects where the environmental assessment or preliminary design has already taken place, consideration of fully protected intersections can be considered as part of initiative #11.
35	Implement Leading Pedestrian Intervals	Traffic Operations	Pilot			Start with a limited pilot program. Develop recommendations for future implementation based on the results of the pilot.
36	Install Pedestrian Countdown Signals	Traffic Operations	Pilot			Start with a limited pilot program. Develop recommendations for future implementation based on the results of the pilot.
37	Implement Hardened Centrelines at Intersections with High Speed Left Turns	Traffic Operations Operations Engineering	X	X		Start with a limited pilot program. Identify locations as part of audit of high injury corridors. Develop recommendations for future implementation based on the results of the pilot.
38	Adopt a “Roundabouts First” Policy or Best Practice for New Intersections and Major Roadway Projects	Engineering Transportation Planning	X			
39	Adopt a “No Right Turn Channels” Policy or Best Practice for New Intersections and Major Roadway Projects	Engineering Transportation Planning	X			
40	Implement a Road Diet Program	Engineering Transportation Planning	X	X		
41	Develop a Comprehensive GIS-based Collision Information System	Geomatics Asset Planning	X			
42	Develop Safety-Related Vehicle Design Criteria for Future City Vehicle Fleet Purchases	Fleet Review Committee	X			

Cost Implications

Initiatives that can be implemented without a cost increase or that will result in a net cost savings are summarized in Table 26.

Table 26: Initiatives with No Cost Increase or Net Cost Savings

Number	Recommended Initiative	Notes
1	Develop and Implement a Complete Streets Policy (Development portion)	Policy development can be accommodated in existing budgets.
3	Obtain Collision Data through Provincial ARIS System	Application fees have already been paid. No ongoing fees for continued use of system.
5	Review Yellow and All-Red Intervals for Traffic Signals	No cost increase – this initiative involves adjusting the criteria for work that already occurs.
11	Carry out a Value Engineering & Road Safety Review of Existing Approved Preliminary Designs for Roadway Projects	The cost of the value engineering and road safety review is expected to be offset by savings in construction costs, particularly due to narrower proposed lane widths leading to reduced material quantities.
12	Establish a Fatal Collision Response Team	Can be accommodated in existing budgets.
13	Explore Data-Sharing Arrangements Between Agencies	Can be accommodated in existing budgets.
15	Implement Target Speed Requirements for New Construction and Major Roadway Projects	Zero cost to the City for this initiative. Ongoing, this initiative is expected to reduce construction costs for roadway projects, particularly due to narrower proposed lane widths leading to reduced material quantities.
18	Implement Speed Limit Reductions and Increased Fines – Construction Zones	Zero cost to the City for this initiative.
19	Reduce Progression Speed for Traffic Signal Coordination	No cost increase – this initiative involves adjusting the criteria for work that already occurs.
21	Adjust Project Prioritization Criteria in the Active Transportation Master Plan to Place a Greater Emphasis on Safety and Collisions	No cost increase – this initiative involves adjusting the criteria for work that already occurs.
22	Include Collision History as a Factor in Prioritizing Capital Projects	No cost increase – this initiative involves adjusting the criteria for work that already occurs.
23	Review Official Plan and Zoning By-laws for Vision Zero Opportunities	Can be accommodated in existing budgets.
24	Review Design Standards and Development Manual for Vision Zero Opportunities	No cost increase – this initiative involves adjusting the criteria for work that already occurs.
25	Require Transportation Impact Studies for New Developments to Include a Full Multimodal Review	Zero cost to the City for this initiative.
26	Develop Safety Performance Functions	Can be accommodated in existing budgets.
27	Implement Automated Speed Enforcement	Ongoing revenue is expected to offset the costs to set up and operate the program.
38	Adopt a “Roundabouts First” Policy or Best Practice for New Intersections and Major Roadway Projects	Zero cost to the City to implement the policy/best practice.

		Capital and operating cost of a roundabout is comparable to that of a signalized intersection designed for the same traffic volumes.
39	Adopt a “No Right Turn Channels” Policy or Best Practice for New Intersections and Major Roadway Projects	Zero cost to the City to implement the policy/best practice. Eliminating right turn channels – or using urban smart channels for retrofits – can create a cost increase or savings, depending on the project specifics. Overall, a net cost savings is expected.

Initiatives other than those listed in Table 26 will require funding allocation. In most cases, funding requests will be presented to Council for approval through the annual capital and operating budget process.

6. Monitoring and Reporting

Reports for the Vision Zero Action Plan will be prepared by Transportation Planning Services and presented to the Environment, Transportation & Public Safety Standing Committee.

Annual Reporting

The format of the annual Road Safety Report will be revised to include details on each of the identified Vision Zero Action Plan goals and indicators, including the difference between interim targets and actuals.

Accompanying the Road Safety Report will be a report summarizing Vision Zero Action Plan activities undertaken over the previous year.

Ongoing Review

At regular intervals for the life of the Vision Zero Action Plan, a review of the Vision Zero Action Plan will be carried out by City staff. Recommended revisions, if any, will normally be presented to the Environment, Transportation & Public Safety Standing Committee and subsequently to Council for approval.

Recommended intervals for these ongoing reviews, measured in terms of time from adoption of the Vision Zero Action Plan:

- 2.5 to 3 years
- 5 years
- 10 years
- 15 years

Additional updates to the Vision Zero Action Plan may be proposed to Standing Committee and/or Council by way of Administration report at any time if the need arises.