**CITY OF HAMILTON**  
**PUBLIC WORKS DEPARTMENT**  
Roads and Traffic Division

| TO:                  | Chair and Members  
|                     | Public Works Committee |
| COMMITTEE DATE:     | February 4, 2019 |
| WARD(S) AFFECTED:   | City Wide |
| PREPARED BY:        | David Ferguson, C.E.T.  
|                     | (905) 546-2424, Extension 2433 |
|                     | Martin White, C.E.T.  
|                     | (905) 546-2424, Extension 4345 |
| SUBMITTED BY:       | Edward Soldo, P.Eng.  
|                     | Director, Roads & Traffic  
|                     | Public Works |
| SIGNATURE:          | |

**RECOMMENDATION**

(a) That the Hamilton Strategic Road Safety Program and the Vision Zero Action Plan 2019-2025 as described in Report PW19015, be approved;

(b) That an increase of $1,700,000 be approved and deferred to the 2019 Tax Operating Budget process for consideration as a 2019 Tax Operating Budget amendment with zero net levy impact to be funded by the Red Light Camera (RLC) reserve #112203;

(c) That the Outstanding Business List item, Strategic Road Safety Program update (Vision Zero) be identified as completed and removed from the list.

**EXECUTIVE SUMMARY**

On August 15, 2014 City Council approved report PW14090 to re-establish the Hamilton Strategic Road Safety Program. The Hamilton Strategic Road Safety Committee was formed to provide guidance, oversight, and direction to the Hamilton Strategic Road Safety Program. The Committee is formed of members from Roads and Traffic, Transportation Planning, Public Works Communications, Hamilton Police Services,
Hamilton Public Health Services, and the Ministry of Transportation Road Safety Marketing Division.

Funding for identified Strategic Road Safety initiatives is financed by the revenues from the Red Light Camera Program (RLC). There is approximately $6.3 million dollars accumulated in the RLC reserve. Since the Hamilton Strategic Road Safety Committee was re-established, the City of Hamilton has funded approximately $2,000,000 each year on various safety initiatives.

As identified in the City of Hamilton Annual Collision Report, prior to re-establishing the Hamilton Strategic Road Safety Program, collisions involving injuries were increasing by 5% annually. Since the program was re-established and various safety initiatives implemented, collisions resulting in injuries have declined by 10% to 15%, even though total collisions continue to increase.

Many of the initiatives that have been implemented over the years through the Hamilton Strategic Road Safety Program, have become part of the annual work plan of the Roads and Traffic division. It is recommended that these works continue on an annual basis. Items such as ladder crosswalks, pedestrian crossovers, pedestrian signal modifications and traffic calming be funded through the Capital and Operations Budget process to ensure a sustainable funding model for the Hamilton Strategic Road Safety Program.

Staff have prepared the Vision Zero 2019-2025 Action Plan attached to Report PW19015 as Appendix “A” which aligns with the City of Hamilton’s 2016-2025 Strategic Plan, 2018 Transportation Master Plan Update and Canada’s Road Safety Strategy 2025 Towards Zero. This Action Plan is consistent with City of Hamilton policies which call for a safe, balanced, and integrated transportation network that offers a choice of integrated travel modes.

A road safety program to address transportation related injuries and fatalities, requires a multifaceted program that is coordinated with various stakeholders. The action items that are identified in this report, were developed through review of best practices, public survey, and public/stakeholder engagement. There are five main sections aligned with this Vision Zero Action Plan, Evaluation, Engineering, Enforcement, Education and Engagement (5 E’s).

The Action Plan, identifies key actions on two levels. The first level is to address action items that cover the 5 E’s and are high-level actions of road safety improvement. The second level of action items, are attached to Report PW19015 as Appendix “B”, address specific collision types that are occurring in Hamilton and are based on information from the Annual Collision Report, Hamilton Police Services and Hamilton Public Health.
The City of Hamilton has made great strides in traffic safety over the past 5 years and this action plan takes the City to the next level of traffic safety with a focus on analytic collision data analysis and public engagement.

**Alternatives for Consideration – See Page 9**

**FINANCIAL – STAFFING – LEGAL IMPLICATIONS**

Financial: Recognizing the delayed timing of the report in relation to the budget process, staff is requesting that an increase of $1,700,000 to be approved as a 2019 Tax Operating Budget Amendment with zero net levy impact to be funded by the Red Light Camera (RLC) Reserve #112203.

The RLC Reserve is funded from the issuance of violations through the Red-Light Camera program. As directed by Council, this reserve is to be used to address identified road safety issues throughout the City of Hamilton. This reserve account currently has a balance of $6.3 million dollars.

The following is a breakdown of estimated annual costs associated with the Hamilton Strategic Road Safety Program and the Vision Zero Action Plan in 2019.

Projects to be funded through RLC Reserve in 2019

<table>
<thead>
<tr>
<th>Evaluation Priorities</th>
<th>Annual Funding Amount</th>
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<tbody>
<tr>
<td>Safety performance functions and collision counter</td>
<td>$ 50,000</td>
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<tr>
<td>Measure software and system maintenance</td>
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<table>
<thead>
<tr>
<th>Engineering Priorities</th>
<th>Annual Funding Amount</th>
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<tbody>
<tr>
<td>Variable message boards (RHVP/LINC)</td>
<td>$ 650,000</td>
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<tr>
<td>Q-end warning system (RHVP/LINC)</td>
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<tr>
<td>Consulting, contract and design works</td>
<td></td>
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<tr>
<td>Safety committee and road safety training</td>
<td></td>
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<tr>
<td>Dynamic speed boards</td>
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<table>
<thead>
<tr>
<th>Engagement Priorities</th>
<th>Annual Funding Amount</th>
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<tbody>
<tr>
<td>Road safety app</td>
<td>$ 400,000</td>
</tr>
<tr>
<td>Environment Hamilton public neighbourhood engagement</td>
<td></td>
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<tr>
<td>Development of open data portals</td>
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<thead>
<tr>
<th>Education Priorities</th>
<th>Annual Funding Amount</th>
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<tbody>
<tr>
<td>Pedestrian and cycling safety</td>
<td>$ 400,000</td>
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<tr>
<td>Safety programs (distracted driving and speeding campaign)</td>
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Our vision: To be the best place to raise a child and age successfully.

Our mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

Our culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

Lawn signs
Other potential initiatives or partnerships $200,000
Total 2019 RLC reserve funded initiatives $1,700,000

Projects submitted as part of the 2019 Capital Budget Process
Pedestrian crossovers – 4661720721 $300,000
Traffic calming - 4661916102 $350,000
Neighbourhood speed limit reductions – 4661920930 $400,000
Total 2019 proposed capital funded initiatives $1,050,000

Staffing: There are no staffing implications related to this report.

Legal: There are no legal implications related to this report.

Historical background
On August 15, 2014, City Council approved report (PW14090), re-establishment of the Hamilton Strategic Road Safety Program (City Wide). The Committee is comprised of members from Roads and Traffic, Transportation Planning, Public Works Communications, Hamilton Police Services, Hamilton Public Health and the Ministry of Transportation Ontario.

The mission and vision of the Hamilton Strategic Road Safety Program is to provide a safe road network for all road users and to eliminate incidents that result in injury or fatality.

Prior to the Hamilton Strategic Road Safety Program, collisions involving injuries were increasing by 5% annually. Since the program was re-established, collisions resulting in injuries have declined by 10% to 15%. In summary, the total number of collisions continues to increase on a yearly basis, yet the number of collisions that result in injuries is declining.

At the General Issues Committee (Budget) Date, January 22, 2016, the following motion was approved.

That the Director of Transportation Services be directed, in consultation with other City Departments, as appropriate, to report to the Public Works Committee in coordination with the Transportation Master Plan, with a comprehensive plan to improve road safety to include, but not be limited to, the following:
(i) A review of best practice from comparable jurisdictions including Vision Zero;
(ii) A review of existing City policies, strategies and guidelines that respecting road safety;
(iii) An enhanced analysis of city-wide traffic collision data;
(iv) Specific recommendations to improve road safety, particularly for pedestrians and cyclists, over the short term, medium and long terms;
(v) An implementation plan and funding strategy, as appropriate;
(vi) A regular reporting mechanism and track progress;
(vii) Continued consultation with the Hamilton Cycling Committee, Hamilton Wentworth District School Board Hamilton Wentworth Catholic District School Board, public Health, Hamilton Police Services, Cycle Hamilton and the Advisory Committee for Person with Disabilities; and,
(viii) The creation of a Road Safety Task Force to be led by the Transportation Services Division.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

There are no policy implications or legislated requirements associated with this report.

RELEVANT CONSULTATION

The Vision Zero Action Plan was developed through stakeholder and public engagement. City staff, from various departments throughout the organization, were engaged in a workshop to review and discuss Vision Zero. Comments from this workshop and the public/stakeholder workshop were included in the development of the plan.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

Many of the initiatives that have been implemented over the years through the Hamilton Strategic Road Safety Program have become a regular part of the Annual Work Plan for Roads and Traffic Division.

The following is a list of some of those initiatives:

- Lawn sign program;
- Ladder crosswalks;
- Pedestrian crossovers;
- Audible/Accessible pedestrian signals;
- Dynamic speed boards;
- School zone reviews and Safe Routes to School;
- Pedestrian countdown signals and extended pedestrian crossing times;
- Red light camera program; and
• Traffic calming and collision counter measures which are attached to Report PW19015 as Appendix “C”.

It is recommended these works continue annually and some items such as ladder crosswalks, pedestrian crossovers, pedestrian signal modifications and traffic calming be funded through Capital and Operating Budgets.

With the approval of the Transportation Master Plan in 2018, Council approved supporting the principles of Vision Zero.

The basic principles of Vision Zero are as follows:

- No loss of life is acceptable – traffic fatalities and injuries are preventable.
- We all make mistakes – the transportation system should be designed to anticipate error, so the consequences are not injury or fatality.
- We are all responsible for road safety – those of us who design and maintain the roads, those of us who make and enforce the rules of the road, and those of us who use the roads.
- Working together – will contribute to a safer road network.

Staff have prepared the Vision Zero Action 2019-2025 Action Plan which aligns with the City of Hamilton’s 2016-2025 Strategic Plan, 2018 Transportation Master Plan Update and Canada’s Road Safety Strategy 2025 Towards Zero. This Plan is consistent with City of Hamilton policies which call for a safe, balanced, and integrated transportation network that offers a choice of integrated travel modes.

A road safety program to address transportation related injuries and fatalities, needs a multifaceted program that is a coordinated effort amongst various stakeholders. The key action items identified in Appendix “A” and “B” to Report PW19015, were developed through review of best practices, public survey, and public/stakeholder engagement.

The following is a summary of each of the 5 E’s and priority actions for each section.

Evaluation

The evaluation component includes identifying the root causes behind traffic related injuries and fatalities while focusing on methods of collecting, sharing, maintaining, and improving data collection. This evidence-based approach to safety allows for the strategic deployment of effective countermeasures in addressing fatalities and injuries within the transportation network. Enhancing the availability of traffic and collision data is essential to finding programs for use in Engineering, Enforcement, Engagement and Education.
Priority Actions

- Annual collision reporting;
- Leverage technology to identify collision trends and “hot spots” through an open data portal;
- Purchase of the Traffic Safety Module for collision software program which will provide industry standard Safety Performance Functions evaluation of road network and recommend collision counter measures for identified high collision locations; and
- Through the Hamilton Strategic Road Safety Committee, evaluate each fatality collision including field reviews within one week of incident.

Engineering

The Vision Zero approach to safety is to design and operate roads to minimize the impacts of the mistakes made by road users. Considering the increasing trend in active transportation, proactive design approaches, including a review of speed limits, are required to ensure the safe accommodation of all road users. Consistent monitoring of the road network using safety and traffic data will allow for the incorporation of strategic engineering countermeasures in street design, traffic engineering, transportation planning and land use to prevent collisions involving injuries and fatalities.

Priority Actions

- Implementation of neighbourhood speed limit reductions as part of Bill 65;
- Evaluation of network screening priority locations and identifying collision counter measures for 2020 implementation through Capital Budget process;
- Evaluation and review of implementations including two-way conversions; and
- Continued development of cycling and pedestrian networks.

Enforcement

Considering that human error is the main cause of the collisions, efficient and effective law enforcement is necessary in improving roadway safety. The collaborative, data driven Vision Zero process will result in the efficient allocation of limited law enforcement resources for maximized effectiveness.

While redesigning roadways is key to achieving results, traffic enforcement is required to reduce inappropriate driving behaviours. Offenses such as distracted driving, speeding, failing to yield to pedestrians, failing to stop on a signal and improper turns all expose vulnerable users to potential catastrophic consequences.

Priority Actions:
OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

- Report on the financial and staff impacts to establish a Traffic Enforcement Unit;
- Implement targeted enforcement at high speed, high collision locations and reporting;
- Provide officer training on producing clear, detailed and error free MVC reports; and
- Automated Speed Enforcement Program as part of Bill 65.

Engagement

The Vision Zero engagement program should inspire Hamiltonians to become part of the solution on this journey towards zero fatalities and injuries. It should engage citizens of all ages and support engineering and enforcement initiatives.

Priority Actions

- Expand membership of Hamilton Strategic Road Safety Committee;
- Implement an open data approach to sharing information;
- Develop an interactive Vision Zero website and Road Safety app; and
- Develop a neighbourhood Vision Zero tool kit working in partnership with Environment Hamilton to undertake neighbourhood reviews.

Education

An education plan should be developed every year in consultation with the Hamilton Strategic Road Safety Committee. These identified education programs will primarily focus on issues identified through network screening and enforcement statistics. Education campaigns should continue re-enforcing previous messages that been communicated to ensure continued education for the residents of Hamilton. The education plan must also be flexible to undertake campaigns that are unexpected education opportunities and address unexpected challenges in terms of road safety

Priority Actions:

- Pedestrian and cycling safety campaign focused on elementary and high school children; and
- Speeding and distracted driving campaign.

In addition, staff are recommending Secondary Vision Zero Action Items, attached to Report PW19015 as Appendix “B”. These action items are specific to identified causes and actions related to collisions and have been identified by collision analysis and comments from the Hamilton Strategic Road Safety Committee members.
The City of Hamilton has made great strides in traffic safety over the past 5 years and this action plan takes the City to the next level of traffic safety with a focus on analytic collision data analysis and public engagement.

**ALTERNATIVES FOR CONSIDERATION**

Council has made significant investment into improving road safety for all road users since the re-establishment of the Hamilton Strategic Road Safety Committee and program. The Hamilton Strategic Road Safety Program and this Vision Zero Action Plan aligns with the various Council approved policies as well as the Corporate Strategic Plan.

Recognizing the delayed timing of the report in relation to the budget process and the requirement for a 2019 Tax Operating Budget Amendment, Council could choose to modify the program, through a reduction or increase in funding. Any modifications to the recommended program would require staff to review the impacts to the implementation of the Program and Action Plan.

**ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN**

**Healthy and Safe Communities**

_Hamilton is a safe and supportive City where people are active, healthy, and have a high quality of life._

**APPENDICES AND SCHEDULES ATTACHED**

Appendix “C” – List of Potential Safety Counter Measures
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Executive Summary

The City of Hamilton continues to be an attractive place to live for people moving into the Greater Toronto Hamilton Area, providing a high quality of life, surrounded by the escarpment, and well connected to surrounding areas. It is one of the fastest growing communities in Ontario, playing a role as a key urban node within the GTHA. As a result, roadway utilization, traffic collisions and the safety of all road users have become a growing concern.

On average, there are over 8200 collisions a year in Hamilton (average over a 5-year period from 2013–2017). The majority of these collisions are vehicle-only collisions. However, on average 415 vulnerable road user collisions occur every year and the majority of these collisions result in injury or fatality. Not only are fatalities and severe injuries on the road unacceptable from an ethical perspective, they are also unacceptable from a societal cost perspective.

A safety survey completed as part of this study found that over 90% of Hamiltonians agree or strongly agree that Hamilton’s roads could be safer.

The City of Hamilton is already addressing many aspects of road safety through its educational programs and campaigns, as well as its policies. Its commitment to road safety is shown with the re-establishment of the Strategic Road Safety Program (HSRSP) in 2014. However, despite these successes, the City recognizes that more must be done. In January 2016, City of Hamilton Council directed City staff to provide a comprehensive plan to further improve road safety in Hamilton. Part of this direction was to examine the Vision Zero approach to road safety.

Vision Zero uses a data-based approach to road safety with the goal of reducing traffic-related serious injuries and fatalities towards the only acceptable goal: zero.
The Vision Zero concept originated in Sweden in 1997. Sweden has since experienced the lowest annual rates of road fatalities in the world through 20 years of implementation, resulting in one of the most successful Vision Zero campaigns. Cities across North America have started to adopt this new approach to road safety with measureable success.

The basic principles of Vision Zero are as follows:

- **No loss of life is acceptable** – traffic fatalities and serious injuries are preventable;
- **We all make mistakes** – the transportation system should be designed to anticipate error so the consequences are not serious injury or fatality
- **We are all responsible for road safety** – those of us who design and maintain the roads, those of us who make and enforce the rules of the roads, and those of us who use the roads;
- **Working together** will contribute to a safer road network.

Vision Zero can be achieved by addressing road safety holistically through five main elements (the five E’s).

All of the elements need to be implemented in a coordinated and strategic manner to achieve improvements to road safety and to strive towards the goal of zero fatalities and severe injuries on the City of Hamilton’s roads.

**Evaluation** – Identification of key challenges on Hamilton’s road network using a data driven approach.

**Engineering** – Strategic use of resources to improve existing engineering practices and policies, as they pertain to road safety.

**Enforcement** – Strategic use of enforcement resources in key areas for maximized effectiveness.

**Education** – Targeted and collaborative campaigns to address safety for all road users.

**Engagement** – Enhanced community engagement to create a safe roads culture.

In addition to successes worldwide, the Vision Zero approach to road safety is consistent with Canada’s Road Safety Strategy 2025 (Towards Zero: The Safest Roads in the World) and the Ministry of Transportation’s (MTO) Vision to be a leader in moving people and goods safely, efficiently and sustainably, and to support a globally competitive economy. It is also consistent with the City of Hamilton’s existing plans and policies which call for a safe, balanced and integrated transportation network that offers a choice of integrated travel modes. In particular, Vision Zero will support the City of Hamilton’s 2016-2025 Strategic Plan by being an engaging and open program, which embraces the community and supports local prosperity by striving towards a safe, reliable road network. Vision Zero further supports the Strategic Plan by encouraging active modes of transportation – it addresses road safety for vulnerable road users of all ages and abilities, thus reducing Hamilton’s carbon footprint while encouraging a healthy lifestyle.

Transportation-related fatalities and serious injuries are multifaceted problems that require a coordinated effort to address. This Action Plan was developed using the five E’s to direct this effort. Action items were identified as a result of the review of best practices, input from the Vision Zero engagement program, consultation with City staff from the City of Hamilton Strategic Road Safety Program (HSRSP), and from a collision analysis completed as part of this study. This Action Plan is a fluid plan that will likely evolve as the Vision Zero program develops and as the safety data becomes more targeted to the program’s needs.

Implementing a Vision Zero program is a significant undertaking. It will take time, resources, commitment and funding. Changes as outlined in this Action Plan and those forthcoming from an established Task Force, will take time and funding to transform. Collecting and analyzing data is the cornerstone of the Vision Zero approach: more robust data, analyzing and sharing that data can help direct resources where they are most needed and help the City of Hamilton move towards its goal of eliminating serious injuries and fatalities.

The success of this program should be viewed as the benefit it would provide the City as a whole. The vision of zero fatalities or serious injuries on Hamilton roads is ambitious. It will take time. It will take all of us to achieve.
Introduction

The City of Hamilton continues to be an attractive place to live for people moving into the Greater Toronto Hamilton Area, providing a high quality of life, surrounded by the escarpment and well connected to surrounding areas. It is one of the fastest growing communities in Ontario, playing a role as a key urban node within the GTHA. As a result, roadway utilization, traffic collisions and the safety of all road users have become a growing concern.

On average, there are over 8200 collisions a year in Hamilton (average over a 5-year period from 2013–2017). The majority of these collisions are vehicle-only collisions. However, on average 415 vulnerable road user collisions occur every year and the majority of these collision result in injury or fatality. A safety survey completed as part of this study found that over 90% of Hamiltonians agree or strongly agree that Hamilton’s road could be safer.

In January 2016, City of Hamilton Council directed City staff to provide a comprehensive plan to improve road safety in Hamilton. Part of this direction was to examine the Vision Zero approach to road safety.

Through progressive growth and development, Hamilton is playing a role as a key urban node within the Greater Toronto Hamilton Area.
What is Vision Zero?

Data-Based Approach

Vision Zero uses a data-based approach to road safety with the goal of reducing traffic-related serious injuries and fatalities towards the goal of zero. The Vision Zero concept originated in Sweden in 1997 and has since been adopted in countries world-wide, including Canada and the United States.

Vision Zero is based on the following Principles:

No loss of life is acceptable – traffic fatalities and serious injuries are preventable;

We all make mistakes – the transportation system should be designed to anticipate error so the consequences are not serious injury or fatality;

We are all responsible for road safety – those of us who design and maintain the roads, those of us who make and enforce the rules of the roads, and those of us who use the roads; and

Working together will contribute to a safer road network.

Vision Zero uses a data-based approach to road safety with the goal of reducing traffic-related serious injuries and fatalities towards the only acceptable goal: zero.
A New Approach

Vision Zero is a new way of looking at how we deal with collisions on our roads. The Vision Zero way of thinking recognizes that we all make mistakes. Instead of blaming and trying to only correct human behaviour, it focuses on how we can minimize the impacts of our mistakes.

**TRADITIONAL APPROACH**
- Traffic deaths are **INEVITABLE**
- PERFECT human behavior
- Prevent **COLLISIONS**
- INDIVIDUAL responsibility
- Saving lives is **EXPENSIVE**

**VISION ZERO**
- Traffic deaths are **PREVENTABLE**
- Integrate HUMAN FAILING in approach
- Prevent **FATAL AND SEVERE CRASHES**
- SYSTEMS approach
- Saving lives is **NOT EXPENSIVE**

Vision Zero recognizes we all make mistakes.
Elements of Vision Zero

Vision Zero can be achieved by addressing road safety holistically through five main elements.

All of the elements need to be implemented in a coordinated and strategic manner to achieve improvements to road safety and to strive towards the goal of zero fatalities and severe injuries on City of Hamilton roads.

**Evaluation** – Identification of key challenges on Hamilton’s road network using a data driven approach.

**Engineering** – Strategic use of resources to improve existing engineering practices and policies, as they pertain to road safety.

**Enforcement** – Strategic use of enforcement resources in key areas for maximized effectiveness.

**Education** – Targeted and collaborative campaigns to address safety for all road users.

**Engagement** – Enhanced community engagement to create a safe roads culture.
**Vision Zero Network** is an organization that has been established to be a resource for Cities that are committed to Vision Zero.

This Action Plan is being developed under the Core Principles and Elements as defined by the Vision Zero Network and will continue to be further developed as stakeholders are engaged and areas of improvement identified.
Leadership and Commitment is identified as a key component to any Vision Zero Program. Through the approval of the Transportation Master Plan Update 2018, the City of Hamilton, Mayor and elected officials approved operating under the principles of Vision Zero.

The Safe Roadways and Safe Speeds component, have begun to be implemented with neighbourhood speed reductions and the approval of the Complete Street Policy developed by Transportation Planning.

Through this Action Plan, the Data-driven Approach, Transparency & Accountability component will be established to direct staff to focus on counter measures for identified trends and patterns involving injury and fatal collisions.

Vision Zero is not a “quick fix” solution program, there will be challenges and require a fundamental shift in thinking to insure traffic safety for all road users is the primary focus. With strong municipal leadership, the City of Hamilton can continue on its path to Vision Zero.
**Success Worldwide**

**Vision Zero has had successes worldwide.**
North America is driven by the car and as a result is at great risk of experiencing greater instances of car collisions. The Vision Zero approach, first perfected in Sweden, has proven that reducing fatalities and serious injuries on our roads is not only realistic but achievable.

1. **Sweden**
   Has experienced the lowest annual rates of road fatalities in the world through 20 years of implementation, resulting one of the most successful Vision Zero campaigns.

2. **North America**
   Cities across North America have started to adopt this new approach to road safety with measureable success.

3. **City of Edmonton**
   The City of Edmonton adopted Vision Zero in 2015 with a 5-year road safety improvement plan with the target of 2020 as the safest year in Edmonton. The strategy relies heavily upon an evidence based approach through partnerships with road safety stakeholders, educators, the Office of Traffic Safety, the Edmonton Police Service and the City of Edmonton.

4. **City of Toronto**
   The City of Toronto has developed a five-year Vision Zero Action Plan that identifies and focuses on six main areas of emphasis: pedestrians, school children, older adults, cyclists, motorcyclists, aggressive driving and distraction.
City of San Francisco
The City of San Francisco is committed to working together through Vision Zero to prioritize street safety and eliminate traffic fatalities by 2024. A comprehensive Transportation-related Injury Surveillance System is being developed under the leadership of a Vision Zero Epidemiologist, using Public Health tools and approaches to get to the root of the problem.

City of New York
The City of New York has established a Vision Zero taskforce with community driven initiatives which have have major successes in identifying and engaging the public into solving many of the safety issues on New York streets. These new initiatives have continued to have city wide success resulting in the City of New York having the safest year on record in 2016.

City of Austin
The City of Austin’s goal is to begin reducing traffic fatalities using a two-year plan (2016-2018) and to eliminate transportation-related fatalities and serious injuries by 2025. Vision Zero partners are extensive – this is truly a City-wide initiative. The City of Austin is working to revise transportation policies and criteria with a focus on road safety and complete streets.
Vision Zero in Hamilton

The Vision Zero approach to road safety is consistent with Canada’s Road Safety Strategy 2025 (Towards Zero: The Safest Roads in the World) and the Ministry of Transportation (MTO)’s Vision to be a leader in moving people and goods safely, efficiently and sustainably, and to support a globally competitive economy.

It is also consistent with the City of Hamilton’s existing plans and policies which call for a safe, balanced and integrated transportation network that offers a choice of integrated travel modes. In particular, Vision Zero would support the City of Hamilton’s 2016-2025 Strategic Plan which, through extensive public consultation, identified seven priorities.

Community Engagement & Participation
Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community.

Our People & Performance
Hamiltonians have a high level of trust and confidence in their City government.

Economic Prosperity & Growth
Hamilton has a prosperous and diverse local economy where people have opportunities to grow and develop.

Culture and Diversity
Hamilton is a thriving, vibrant place for arts, culture, and heritage where diversity and inclusivity are embraced and celebrated.

Clean and Green
Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

Healthy & Safe Communities
Hamilton is a safe and supportive city where people are active, healthy, and have a high quality of life.

Built Environment & Infrastructure
Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

Vision Zero supports the City of Hamilton’s 2016-2025 Strategic Plan priorities by being an engaging and open program, which embraces the community and supports local prosperity by striving towards a safe, reliable road network. Vision Zero further supports these priorities by encouraging active modes of transportation by addressing road safety for vulnerable road users of all ages and abilities, thus reducing Hamilton’s carbon footprint while encouraging a healthy lifestyle.
Vision Zero in Hamilton

Input from stakeholders, including City staff as well as citizens of Hamilton was considered an integral part of developing the Vision Zero Action Plan. As such, a robust and comprehensive engagement program was developed to engage City staff and the community.

This engagement program followed the spirit of the Hamilton Engagement Charter. Elements of the program included a Vision Zero page on the City’s website and a safety survey, which was created to gauge the appetite and demand for a program such as Vision Zero. The survey was opened to Hamiltonians October 7th, 2016 to December 31st, 2016 and resulted in 2,274 responses. The program also included two workshops and an open house, designed to educate and engage City staff and residents on road safety and Vision Zero.

Safety Survey

The results of the safety survey are clear: over 90% of respondents agree or strongly agree that Hamilton roads could be safer, with almost 60% having been involved in a collision.

Driving a personal vehicle was found to be the primary mode of daily transportation for respondents, followed by walking, public transit, and lastly cycling.

The survey found that the top challenges faced by road users included distracted driving and road users ignoring the laws, or rules of the road.
Collision History

An overview of total collisions from 2011 to 2017 shows that collisions are steadily increasing from year to year. As such, to further understand safety issues and challenges faced by Hamilton Road users, and to pinpoint emerging collision trends, analysis of the collision data between 2013 and 2017 was carried out. The assessment found that on average, from 2013 – 2017, there are approximately 8,200 total collisions a year in Hamilton, 95% of which were vehicle-only.
Vulnerable Road Users

Out of the nearly 8,200 annual collisions, approximately 5% involve vulnerable road users (pedestrians and cyclists).

**2013-2017 Pedestrian & Cyclist Collisions per Year**

<table>
<thead>
<tr>
<th>Year</th>
<th>Pedestrians</th>
<th>Cyclists</th>
<th>Ped. Collisions/100,000 Pop.</th>
<th>Cyc. Collisions/100,000 Pop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>234</td>
<td>168</td>
<td>234</td>
<td>168</td>
</tr>
<tr>
<td>2014</td>
<td>235</td>
<td>157</td>
<td>235</td>
<td>157</td>
</tr>
<tr>
<td>2015</td>
<td>250</td>
<td>165</td>
<td>250</td>
<td>165</td>
</tr>
<tr>
<td>2016</td>
<td>278</td>
<td>179</td>
<td>278</td>
<td>179</td>
</tr>
<tr>
<td>2017</td>
<td>239</td>
<td>173</td>
<td>239</td>
<td>173</td>
</tr>
</tbody>
</table>

When a vulnerable road user is involved in a collision, a fatality or injury occurs 87% of the time.
Who Is At Risk On Hamilton Roads?

In order to fully understand who is at risk on Hamilton roads, a more detailed assessment was undertaken of injury and fatal collisions involving vulnerable road users. In total, there were 2,078 collisions involving cyclists and pedestrians on Hamilton roads between 2013 to 2017.

These collisions resulted in 1,236 involving pedestrians and 842 involving cyclists on which over 1,750 incidents resulted in injuries. These collisions tragically also resulted in 27 fatalities, 2 cyclists, 25 pedestrians.

Total Collisions Involving Pedestrians & Cyclists 2013-2017

- 842 collisions
- 1,236 collisions

2013-2017
1,700 Injury Collisions

2013-2017 Cyclist Collisions by Age

2013-2017 Pedestrian and Cyclist Fatal Collisions

CITI OF HAMILTON vision zero | 16
Societal Cost of Collisions

Over the 5-year period from 2011-2015, there was on average 16 fatal collisions a year and over 1800 non-fatal injury collisions. These fatal and injury collisions together represented less than 25% of all collisions in Hamilton over that time period but resulted in approximately 90% of the total collision cost to society.

Not only are fatalities and severe injuries on the road unacceptable from an ethical perspective, they are also unacceptable from a societal cost perspective.

<table>
<thead>
<tr>
<th>AVERAGE COLLISION TYPES</th>
<th>AVERAGE COST TO SOCIETY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Per Year</strong></td>
<td><strong>Per Year</strong></td>
</tr>
<tr>
<td><strong>Fatalities</strong></td>
<td><strong>(Total Estimated at $608 Million)</strong></td>
</tr>
<tr>
<td>0.2%</td>
<td>65%</td>
</tr>
<tr>
<td>(16)</td>
<td>$395 Million</td>
</tr>
<tr>
<td><strong>Non-Fatal Injury</strong></td>
<td>25%</td>
</tr>
<tr>
<td>23%</td>
<td>$152 Million</td>
</tr>
<tr>
<td>(1824)</td>
<td></td>
</tr>
<tr>
<td><strong>Property Damage Only</strong></td>
<td>10%</td>
</tr>
<tr>
<td>77%</td>
<td>$61 Million</td>
</tr>
<tr>
<td>(6060)</td>
<td></td>
</tr>
</tbody>
</table>

Building On Success

The City of Hamilton is already addressing many aspects of road safety through its many educational programs and campaigns, including Complete, Livable, Better Streets and Neighbourhood 40km/h Speed Limit Reductions. Its commitment to road safety is shown with the re-establishment of the Strategic Road Safety Program (HSRSP) in 2014. This program laid out a plan to tackle road safety by the addition of highly skilled staff and the re-introduction of the Hamilton Strategic Road Safety Committee.

Despite these successes, the City recognizes that more must be done. In January 2016, City of Hamilton Council directed City staff to provide a comprehensive plan to further improve road safety in Hamilton. Part of this direction was to examine the Vision Zero approach to road safety.

This Vision Zero plan ties together the existing initiatives and recommends others by providing an overarching goal to unite the City’s transportation safety initiatives.
Safety Initiatives in Hamilton 2000 – 2012

2000

Active & Sustainable School Transportation

The Active and Sustainable School Transportation (ASST)’s vision is that Hamilton schools exist in a safe, healthy, and complete community that enable the use of active and sustainable transportation daily.

2000

Red Light Camera Program

This program was intended to improve road safety by reducing incidents of angle collision at traffic signals. Its revenues are used to fund other safety initiatives.

2000

Network Screening Program

A program and process to evaluate collisions on each roadway and rank highest to lowest risk locations based on a weighted scoring system.
Safety Initiatives in Hamilton 2000 – 2012

2004
Collision Counter Measure Program (CCM)

As a result of this program, a report titled Hamilton Strategic Road Safety Action Plan was released in 2009. It focused on two primary areas: Aggressive Driving and Vulnerable Users.

Several initiatives resulted from this program including the Red Light Camera program and the Active & Safe Routes to School program.

2007
Hamilton Strategic Road Safety Program

As a result of this program, a report titled Hamilton Strategic Road Safety Action Plan was released in 2009. It focused on two primary areas: Aggressive Driving and Vulnerable Users.

Several initiatives resulted from this program including the Red Light Camera program and the Active & Safe Routes to School program.
Safety Initiatives in Hamilton 2013 – 2016

2013
Ladder Crosswalk Program
To highlight pedestrian crossing conditions and vulnerable users at priority locations

2013
Pedestrian mobility Plan
The City of Hamilton Pedestrian Mobility Plan focuses on rebalancing pedestrian and vehicular mobility on Hamilton’s streets by providing for pedestrians needs, while accommodating vehicular traffic within the streetscape.

2013
Hamilton Helmet Initiative
The HHI is a comprehensive health promotion and injury prevention initiative focused on reducing brain injury by promoting access to helmets, educational and skill-building programming and messaging about using the right helmets and the right fit.

2013
Complete, Livable, Better Streets
The City of Hamilton intends and expects to realize long-term cost savings in improved public health, better environmental stewardship, reduced fuel consumption, and reduced lifecycle costs of motor vehicle infrastructure through the implementation of its Complete, Livable, Better Streets policy. Complete, Livable, Better Streets also contribute to walkable neighborhoods, which can foster interaction, strengthen street-level retail business, create a sense of community pride, and increase safety for all residents. In addition, Complete, Livable, Better Streets will contribute to reducing health disparities between Hamilton’s high, middle and low income neighbourhoods.

2014
Establishment of the Hamilton Strategic Road Safety Program
The Mission and Vision of the Hamilton Traffic Road Safety Program is to make roadways throughout the City of Hamilton the safest throughout North America and to address safety for ALL road users, including vulnerable road users such as seniors and children.

2014
School Zone Safety Program
The goal is to provide designated safe routes to school, focused on providing children a safer, calmer environment to commute and also to encourage walking and cycling modes of travel compatible with a safer healthy lifestyle.

2014
Dynamic Radar Feedback Sign Program
This program is intended to enhance driver awareness of travel speeds as well as collect valuable traffic data for later analysis. Signs are rotated on a request basis throughout the City for a 4-8 week period per location.
Safety Initiatives in Hamilton
2013 – 2016

2016
New Permanent Traffic Calming Program
A pilot program to remove temporary traffic calming measures and construct permanent features using hard surface materials.

2016
Slow Down, Safety Zone Lawn Sign Program
This is a Hamilton Strategic Road Safety Program collaborative initiative designated to raise awareness about road safety and to remind motorists to drive cautiously on residential streets.

2015
Establish the Hamilton Strategic Road Safety Program
The City of Hamilton along with other stakeholder Municipalities is working with the Provincial Government on an initiative to support a change in legislation to the Highway Traffic Act (H.T.A.) to enable Municipalities to reduce default neighbourhood speed limit on municipal roadways.

A reduction in speed limits on local residential roadways would contribute to improved safety for all road users.

2016
Distracted Driving Campaign
The Just Drive Campaign was launched by the Hamilton Strategic Road Safety committee to address this serious safety concern.

2016
Pedestrian Crossover Program
On January 1, 2016, Bill 31 legislative amendment to the Highway Traffic Act came into effect requiring drivers to stop and yield the entire right of way to pedestrians and school crossing guards at designated pedestrian crossover locations and school crossings. An education program launched by the City is raising awareness about these regulations.
Vision Zero Action Plan

Transportation-related fatalities and serious injuries are multifaceted problems that require a coordinated effort to address. The Vision Zero Action Plan was developed to direct this coordinated effort.

Action items were identified as a result of the review of best practices, input from the workshops and open house, consultation with City staff from the City of Hamilton Strategic Road Safety Program (HSRSP), and from a collision analysis completed as part of this study.

This Action Plan is a fluid plan that will likely evolve as the Vision Zero program develops and as the safety data becomes more targeted to the program’s needs.

**Evaluation** – Identification of key challenges on Hamilton’s road network using a data driven approach.

**Engineering** – Strategic use of resources to improve existing engineering practices and policies, as they pertain to road safety.

**Enforcement** – Strategic use of enforcement resources in key areas for maximize effectiveness.

**Education** – Targeted and collaborative campaigns to address safety for all road users.

**Engagement** – Enhanced community engagement to create a safe roads culture.
Evaluation

The evaluation component includes identifying the root causes behind traffic related fatalities and severe injuries while focusing on methods of collecting, sharing, maintaining and improving data collection.

This evidence-based approach to safety allows for the strategic deployment of effective countermeasures in addressing fatalities and serious injuries within the transportation network. Enhancing the availability of traffic and collision data is essential for identifying programs for use in engineering, enforcement, engagement and education.

Evaluation – Key Actions

1. Evaluate the current Collision and Traffic Data Collection Program and make recommendations for improvements in order to identify and report on collision patterns, trends and hot spots.

2. Incorporate all collision reports into the database, and evaluation process, including self-reports.

3. Research innovative ways to monitor and collect data.

4. Coordinate a data-driven program to prioritize high volume/severity collision locations and corridors, as well as collision trends, to strategically focus resources. Identify the need for targeted programs and priority projects. Consider using a cost-benefit analysis to prioritize programs and projects.

5. Through regular reviews, get to the root causes behind traffic related fatalities and severe injuries. This includes a field review of each fatality within a week to assess the conditions/circumstances that led to the occurrence. Follow-up with Hamilton Police Services should also occur, as required.

6. Evaluate the Vision Zero initiatives and programs and recommend any adjustments or new programs using a multi-disciplinary committee within the City to gain a broader perspective of the successes and challenges. Evaluate the effectiveness of the engineering, education, enforcement and engagement programs as a cohesive and collaborative effort.

7. Identify secondary emphasis areas of focus.
2 Engineering

Work toward synergizing engineering best practices to encourage safer streets through design with all road users in mind

The Vision Zero approach to safety is to design and operate roads to minimize the impacts of the mistakes we make as road users. Considering the increasing trend in active transportation, proactive design approaches, including a review of speed limits, are required to ensure safely accommodate all road users.

Consistent monitoring of the road network using safety and traffic data will allow for the incorporation of strategic engineering countermeasures in street design, traffic engineering, transportation planning and land use to prevent fatal and severe collisions.

Engineering – Key Actions

1. Clearly identify Roads and Traffic as the City’s road authority.

2. Implement five Priority Safety Projects yearly, as identified through the evaluation of collision and safety data.

3. Implement a Safe Speeds Review based on input from the evaluation of collision and safety data and make recommendations.

4. Review Road Maintenance practices, identify areas for improvement (ie. keep cycling and pedestrian facilities clear of snow and ice) and implement changes, as appropriate.

5. Traffic Engineering priority focus to become identified areas of concern through industry standards.

6. Establish a review mechanism within the City to ensure that road safety best practices, complete street, and cycling and pedestrian networks and needs, are implemented on all new or rehabilitation projects, and are integrated as part of all development projects.

7. Investigate opportunities to include cost of collisions in capital works budget / asset management – return on investment for all new and rehabilitation work.

8. Review construction budget practices to ensure safety is incorporated and reviewed for each project. Review projects to ensure funds are available to address identified locations of concerns.

9. Complete a cross-section and design standard review, from a complete streets perspective, and make recommendations for changes to the City’s current standards to better support safe speeds, address collision trends and to better accommodate vulnerable road users, including those who are visually impaired. Evaluate traffic calming/speed reduction methods, other design details before implementation.

10. Research safety initiatives related to design, maintenance and operation of roadways and make recommendations for inclusion in the Action Plan.

11. Identify opportunities for changes to City Policies (ie. assess need for New Roadway Classification, evaluate and address current road uses throughout City such as trucking and bike routes).

12. Identify and fill in gaps in the cycling and pedestrian networks.
13. Confirm the issue of secondary incidents occurring due to driver frustration in the event of a road closure. If warranted, review contingency plans for scheduled (construction, special events) and unscheduled (collision, emergency) road closures to address the issue of secondary incidents occurring and make recommendations for improvements.

14. Identify opportunities for changes to policies and legislation related to traffic operations and engineering (ie. making winter tires a requirement).

15. Review the performance of improvements made as part of previous year’s Priority Safety Projects and Safe Speeds Review, and apply any “lessons learned” to future projects.

Consistent monitoring of the road network using safety and traffic data will allow for the incorporation of strategic engineering countermeasures in street design, traffic engineering, transportation planning and land use to prevent fatal and severe collisions.
Enforcement

Provide clear and focused policing services directed to areas of concern.

Considering that human error is the main cause of fatal and serious injury vehicle collisions, efficient and effective law enforcement is necessary in improving roadway safety. The collaborative, data-driven Vision Zero process will result in the efficient allocation of limited law enforcement resources for maximized effectiveness.

Enforcement – Key Actions

1. Establish a Traffic Enforcement Unit.
2. Implement targeted enforcement at high speed, high collision locations.
3. Provide officer training on producing clear, detailed, Motor Vehicle Collision (MVC) Reports.
4. Establish a protocol for identifying and tracking locations with safety concerns and relaying these concerns to the Vision Zero office.
5. In conjunction with Engagement and Education, develop and implement an education and enforcement program that includes teaching, is community driven, and enforces the rules of the road equally for all road users.
6. Identify the need for, and recommend targeted enforcement and education programs for issues such as distracted driving, speeding, school zone enforcement and parking violations impeding road users.
7. Review Road Maintenance practices, identify areas for improvement (i.e. keep cycling and pedestrian facilities clear of illegally parked vehicles) and implement changes, as appropriate.
8. Review current Red Light Camera Program and identify changes to existing locations and additional locations to target, as appropriate.
9. Research other safety initiatives (ghost cars, radar message boards, speed cameras, school bus cameras) and make recommendations.
10. Identify opportunities for changes to policies and legislation related to traffic operations and enforcement.
Engagement

An effective Engagement Program will help create a safe roads culture.

The Vision Zero engagement program should inspire Hamiltonians to become part of the solution on this journey towards zero fatalities and serious injuries. It should engage citizens of all ages and support engineering and enforcement initiatives.

Engagement – Key Actions

1. Expand the Hamilton Strategic Road Safety Committee with membership consisting of City departments, external agencies, neighbourhood representatives and committees, private company representatives and external organizations that support road safety.

2. Follow an open data approach in sharing information by enabling the public to make more informed decisions resulting in improvements to their lives.

3. Develop an interactive Vision Zero website to provide information to the community, to provide a means for road users to communicate safety concerns, comments, to advertise new Vision Zero programs and initiatives, etc.

4. Leverage Technology to enhance Road Safety and encourage safe driving behaviours.

5. Explore other opportunities to use both conventional and social media outlets in a format the community can relate to or understand.

6. Create a Road Safety Pledge.

7. Create an Engagement Program for the community to promote the program, identify concerns and challenges, as well as successes. Figure out how to engage those who don’t want to be engaged. This could include local Vision Zero working groups.

8. Develop a specific road safety program for school-age children (i.e. consider bringing back the Safety Village). Consult with school boards, educators, Public Health, as well as the Vision Zero team.

9. Based on the results of the collision analysis completed as part of this study, develop specific road safety programs for various age categories. Consult with community partners, Public Health, as well as the Vision Zero team.

10. Develop and initiate a pedestrian and cyclist road safety programs.

11. Create a Vision Zero Neighbourhood toolkit working in partnership with local community groups.

12. Establish a single point of contact/resource for Vision Zero for both internal Councillors/City staff and the community.
13. Develop a Community Vision Zero Events program. Consider fund-raising opportunities such as Fun Runs.


15. Engage other levels of government for financial resources.

16. Require established neighbourhood Vision Zero working Committees to develop full neighbourhood Traffic Calming plans rather than individual street requests.

17. Engage other partners (CAA, business leaders, and insurance companies) for financial or other resources.

18. Engage other levels of government for changes to policy or legislation, as identified through Engineering or Enforcement assessments.

19. Publish Yearly Vision Zero Reports.
The education component of this Vision Zero Plan plays a supporting role to the other E’s, in particular Engineering, Enforcement and Engagement.

An education plan should be developed every year in consultation with the Vision Zero Task Force and the Hamilton Strategic Road Safety Committee. These identified Education programs will primarily focus on issues identified through Network Screening and Enforcement patterns.

Education campaigns should continue reinforcing previous messages that have been communicated to ensure continued education for the residents on Hamilton.

The education plan must also be flexible in resources to undertake campaigns that are unexpected education opportunities and address unexpected challenges in terms of road safety.
Implementation

Future resources may be required to implement the Vision Zero Action Plan, however, a number of Action Items are simply a different way of doing business at the City and would have negligible cost implications. For instance, the recommended review mechanism for all new or rehabilitation projects would not have any capital costs. Investigating opportunities to include cost of collisions in capital works budget / asset management would not require significant resources and could ultimately result in cost savings for the City.

In addition, by addressing safety as part of all construction projects and by including it in the planning and design process of all new development, significant cost savings would be realized by not having retrofit an existing condition at a later date.

Cost savings could also be realized to the City’s Risk Management by reducing the severity of collisions and therefore magnitude of claims against the City. By reducing fatalities and severe collisions, there would be a significant savings to society as a whole, benefitting all Hamiltonians.

The success of the program can be considered in many different ways. A reduction in number of fatalities and serious injuries would be a clear indicator that the program is effective. However, the success of the program could also be seen with respect to how changing engineering practices and reducing fatalities and serious injuries would reduce overall costs to the City.

Finally, success can also be considered in terms of public response to the program and confidence that the City is making the safety of all road users a priority.
Conclusion

Implementing a Vision Zero Action Plan is a significant undertaking. However, based on the Safety Survey completed as part of this study, there is a clear perception by Hamiltonians that the City roads could be safer; this is confirmed by the collision data.

Based on a review of existing best practices, a rigorous consultation program, and an analysis of the available collision information, an Action Plan was developed for the City of Hamilton.

This plan should be considered fluid and will likely evolve over time. The success of this program should be viewed as the benefit it would provide the City as a whole.

The vision of zero fatalities or serious injuries on Hamilton roads is ambitious. It will take time. It will take all of us to achieve.
<table>
<thead>
<tr>
<th>Program</th>
<th>Lead Agency</th>
<th>Support Team</th>
<th>Action Description</th>
<th>Historical Effectiveness</th>
<th>Maintain, Enhanced or New</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggressive Drivers Hot Line (A.D.H.L.)</td>
<td>Police Services</td>
<td>▪ Public Health</td>
<td>Phone number that citizens can call to report offenders. Review how ADHL can be more effective and efficient.</td>
<td>No information available</td>
<td>Enhanced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Safe Communities Coalition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ HW Catholic School Board</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>▪ HW District School Board</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Reporting system for school bus drivers to report people that violate the School Bus Safety Laws. Warning letters are sent and serious violators are charged.</td>
<td>No information available</td>
<td>Maintain annually</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>High Visibility Enforcement</td>
<td>Police Services</td>
<td>▪ Communications</td>
<td>Focus on high collision areas and roadways with identified high operation speed. Divisional Crime managers to incorporate monthly traffic statistics into their traffic deployment focus.</td>
<td>High-visibility aggressive driving enforcement can be effective.</td>
<td>Enhanced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Public Health</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Traffic Engineering</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased Penalties for Chronic Speeders and Aggressive Drivers</td>
<td>Police Services</td>
<td>▪ MTO</td>
<td>Changing the Highway Traffic Act to increase the penalties. Consider use of Community Safe Zone designations for identified high operation speed roadways</td>
<td>Believed to be effective, but no effectiveness information available.</td>
<td>New</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ External Road Safety Committees</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Traffic Engineering</td>
<td></td>
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</tbody>
</table>

**Aggressive Driving**: is defined as operating a motor vehicle in a manner that is considered selfish, pushy, impatient and often unsafely in that it directly affects other drivers.

- Disobey Traffic Control
- Exceed Speed Limit
- Follow Too Close
- Improper Passing
- Improper Turns
<table>
<thead>
<tr>
<th>Program</th>
<th>Lead Agency</th>
<th>Support Team</th>
<th>Action Description</th>
<th>Historical Effectiveness</th>
<th>Maintain, Enhanced or New</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop Just Drive Campaign and Speed Kills Campaign</td>
<td>Communications</td>
<td>All</td>
<td>Implement various initiatives to address driver behavior, surveys, challenges, and pledges.</td>
<td>No information available.</td>
<td>Enhanced</td>
</tr>
<tr>
<td>Speed Watch/Road Watch</td>
<td>Police Services</td>
<td>Public Works</td>
<td>Portable Electronic boards which display motorists’ speed as they pass. Program offered to residents and recording of information which results in warning letters to registered owners who exceed speed limits.</td>
<td>Electronic boards have been shown to be an effective tool for short-term speed control.</td>
<td>New</td>
</tr>
<tr>
<td>Summer Safe Program</td>
<td>Police Services</td>
<td>Public Health, Public Works</td>
<td>Enforcement initiative that focuses on equipment (lights, tires, horn, seatbelts) and impaired driving during July and August. Includes R.I.D.E. spots.</td>
<td>20% estimated reduction in impaired driver collisions estimated because of the R.I.D.E. component.</td>
<td>Enhanced</td>
</tr>
<tr>
<td>Red Light Cameras</td>
<td>Public Works</td>
<td>Police Services</td>
<td>Minimum 5 locations per year, consider future options of full operations city wide and impacts. Focus on high collision locations.</td>
<td>RLC Locations having a positive impact, full evaluation of system is required.</td>
<td>Maintain</td>
</tr>
<tr>
<td>Educational and Mass Media Campaigns</td>
<td>Police Services</td>
<td>Public Works, Seniors Advisory Committee, Public Health, Police Services</td>
<td>Mass media campaigns on radio, television, newspapers, social media to promote a change in driving behavior. Look at attending community events.</td>
<td>Education campaigns having a positive impact in the reduction of collisions, must work in conjunction with other initiatives.</td>
<td>Enhanced</td>
</tr>
</tbody>
</table>
### Vision Zero Action Plan
#### Secondary Emphasis Areas #2 – Intersections

<table>
<thead>
<tr>
<th>Performance Measures</th>
<th>Intersection Collisions: represent collisions occurring within an intersection area if it involves vehicles waiting at or proceeding towards the intersection regardless of the distance from the intersection.</th>
</tr>
</thead>
</table>
| ▪ Number of intersection related collisions | ▪ Disobey Traffic Control  
▪ Vulnerable road user incidents |
| ▪ Number of implemented counter measures | ▪ Incidents involving turning vehicles |
| ▪ Enforcement operations | |
| ▪ Number of red-light camera locations | |

<table>
<thead>
<tr>
<th>Program</th>
<th>Lead Agency</th>
<th>Support Team</th>
<th>Action Description</th>
<th>Historical Effectiveness</th>
<th>Maintain, Enhanced or New</th>
</tr>
</thead>
</table>
| Add Left-turn Lanes | Public Works  
Traffic Engineering | ▪ Asset Management  
▪ Construction Services | Provide dedicated left-turn lanes on existing or reconstructed roadways. Identify priority list of locations that require dedicated turn lanes. | Improved safety and operations | Enhanced |
| Improve Signal Operations | Public Works | | Improve signal operations (i.e. phasing, timings, traffic responsive control, etc.) to improve traffic flow | Reduces the triggers which contribute to aggressive driving. | Enhanced, Complete 20% retiming of Hamilton traffic signal system yearly |
| Improve Visibility of Signal Heads and Street Name signs | Public Works | | Includes increasing signal lens and sign size, install new backboards, add reflective tape to existing backboards, and/or installing additional signal heads. | | Maintain |
| In-Service Road Safety Reviews | Public Works  
▪ Police Services  
▪ Public Health  
▪ School Boards | | Conduct safety reviews of high collision intersections and implement recommendations. | Variable and dependent on problem and mitigating measures. | Enhanced |
| Install Dilemma Zone Detection | Public Works | | Extends the yellow or red signal phase for vehicles caught in the dilemma zone. Will require video detection and support from ATMS | | New |

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"APPENDIX B  
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<table>
<thead>
<tr>
<th>Program</th>
<th>Lead Agency</th>
<th>Support Team</th>
<th>Action Description</th>
<th>Historical Effectiveness</th>
<th>Maintain, Enhanced or New</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paint Curb Cuts</td>
<td>Public Works</td>
<td>▪ Advisory Committee for People with Disabilities</td>
<td>Paint curb cuts in order to assist visually impaired pedestrians.</td>
<td>New</td>
<td>New</td>
</tr>
</tbody>
</table>
| Prohibit or Protected turns at Intersections | Public Works      | ▪ Emergency Services  
▪ Police Services                                   | Restricting turning movements reduces the number of potential conflicts and incidents with pedestrians | Enhanced                 | Enhanced                  |
| Provide Protected/advanced Pedestrian crossing Phases | Public Works      | ▪ Planning  
▪ Public Health                                             | Provide modifications to improve safety for pedestrian crossings.                      | Enhanced                 | Enhanced                  |
| Roundabouts for New and Revised Intersections | Public Works      | ▪ Planning  
▪ Public Health                                             | Compared to intersections, roundabouts reduce the number conflicts and the frequency of angle collisions. | Maintain                 | Maintain                  |
| Media Campaign on Intersection Safety | Communications    | ▪ ALL                                               | Provide Education for all road users.                                                | Maintain                 | Maintain                  |
# Vision Zero Action Plan

## Secondary Emphasis Areas #3 – Vulnerable Roads Users

### Performance Measures
- Number of pedestrian collisions
- Number of cyclist collisions
- Number of motorcycle collisions
- Number of improved intersections
- Number of pedestrian crossover locations and protected cycling infrastructure implemented
- Number of schools completed 'Safe Routes to School' Plans and implementing bicycle safety training

### Vulnerable Road Users: do we need to define, as was done in #1 and #2?
Vulnerable road users involved in collision incidents are 90% more likely to incur injuries.

<table>
<thead>
<tr>
<th>Program</th>
<th>Lead Agency</th>
<th>Support Team</th>
<th>Action Description</th>
<th>Historical Effectiveness</th>
<th>Maintain, Enhanced or New</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active &amp; Safe Routes to School</td>
<td>Public Health</td>
<td>HW Catholic School Board, HW District School Board, Public Works, Police Services</td>
<td>Continued promotion of active modes of transportation for school trips. Also addresses school zone safety. Investigate enhancements to program to make schools and residents more aware of program. Review Technology that can assist in providing easy access to school with SRTS. Evaluate effectiveness of existing program.</td>
<td>School Travel Planning is an identified Best Practice and supported by City Council and School Boards</td>
<td>Enhanced</td>
</tr>
<tr>
<td>Bikes, Blades &amp; Boards Program</td>
<td>Public Health</td>
<td>HW District School Board, HW Catholic School Board, Hamilton Police Services</td>
<td>Program (administered by Hamilton Health Sciences Acquired Brain Injury Program) which targets Elementary students with education about the importance of wearing helmets for wheeled activities and includes helmet fitting.</td>
<td>Enhanced</td>
<td></td>
</tr>
<tr>
<td>Seniors Walking Education Class</td>
<td>Public Health</td>
<td>Public Works, Hamilton Police Services</td>
<td>With growing Senior population, host workshops in the community to educate Seniors on safe walking both in and outside of the home</td>
<td>New</td>
<td></td>
</tr>
<tr>
<td>Community Coalition Cycling &amp; Wheeled Activities</td>
<td>Public Health</td>
<td>Public Works, Police Services</td>
<td>Representation from agencies, community groups in Hamilton working to promote use of gear (helmets, other protective gear) for cycling, inline skating, skateboarding, etc.</td>
<td>Enhanced</td>
<td></td>
</tr>
<tr>
<td>Program</td>
<td>Lead Agency</td>
<td>Support Team</td>
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<tr>
<td>Safe Kids</td>
<td>Public Health</td>
<td>Police Services ▪ HW District School Board ▪ HW Catholic School Board ▪ Seniors Advisory Committee</td>
<td>National dedicated week focusing on child pedestrian safety combined with 3 days of “all hands-on deck” enforcement of zero tolerance of speeding in school zones. “Think of Me” cards which will be hand drawn by Hamilton School Children and distributed to all drivers who received a ticket during the increased enforcement blitz during this week.</td>
<td></td>
<td>Enhanced</td>
</tr>
<tr>
<td>Thinkfirst Assembly Presentations</td>
<td>Public Health</td>
<td>HW Catholic School Board ▪ HW District School Board</td>
<td>Interactive assembly presentations to Elementary school children. Includes pedestrian and cycling safety.</td>
<td></td>
<td>New</td>
</tr>
<tr>
<td>Thinkfirst Binder Distribution to Schools</td>
<td>Public Health</td>
<td>HW Catholic School Board ▪ HW District School Board</td>
<td>This project has produced binders with injury prevention content for grades kindergarten through grade 8. Binders have been distributed to every public and Catholic school in Hamilton. Includes material on pedestrian, vehicular and cycling safety.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify Main Pedestrian Routes and Ensure Sidewalk Continuity and Crossing Safety at Intersections and Mid-block</td>
<td>Public Works</td>
<td></td>
<td>Requires development of a sidewalk inventory for asset management.</td>
<td></td>
<td>New</td>
</tr>
<tr>
<td>Improve Signal Timing</td>
<td>Public Works</td>
<td></td>
<td>Improved signal timing to reduce potential for conflict.</td>
<td></td>
<td>Enhanced</td>
</tr>
<tr>
<td>Install Pedestrian Countdown Signal Heads</td>
<td>Public Works</td>
<td></td>
<td>Signal heads for pedestrians providing time in seconds for crossing.</td>
<td></td>
<td>Maintain</td>
</tr>
<tr>
<td>Program</td>
<td>Lead Agency</td>
<td>Support Team</td>
<td>Action Description</td>
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<tr>
<td>Plan and Implement Cycling Routes</td>
<td>Planning</td>
<td>Public Works</td>
<td>Construction of dedicated lanes for bicycles as per Cycling Master Plan. Develop 5-year implementation plan. Identify areas for dedicated protected lanes.</td>
<td>Enhanced</td>
<td></td>
</tr>
<tr>
<td>Through the City</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclemania</td>
<td>Police Services</td>
<td>Public Health, Public Works</td>
<td>Education program at playgrounds and summer camps for children age 6-12 on the rules of the road and bicycle safety.</td>
<td>Maintain</td>
<td></td>
</tr>
<tr>
<td>Campaign Events</td>
<td>Public Health</td>
<td>All</td>
<td>Partake in National and International dedicated dates, ex. Bike to School Week, Walk to school Day, etc.</td>
<td>New</td>
<td></td>
</tr>
<tr>
<td>Kids Safety Program</td>
<td>Police Services</td>
<td>HW District School Board, HW Catholic School Board, Public Health</td>
<td>Reintroduction of “Elmer the Safety Elephant” combined with flags to raise awareness of road safety in school children in grade 2 and under.</td>
<td>New</td>
<td></td>
</tr>
</tbody>
</table>
# Vision Zero Action Plan

## Secondary Emphasis Areas #4 – Young Drivers

### Performance Measures
- Number of collisions involving young drivers

<table>
<thead>
<tr>
<th>Program</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Assist Adults in Managing Teen Driving</td>
<td>Public Health</td>
<td></td>
<td>Develop and make available 'teen sensitive' young driver information for parents.</td>
<td></td>
<td>New</td>
</tr>
<tr>
<td>C.H.A.T. (Community Hospitals Against Trauma)</td>
<td>Public Health</td>
<td>HW Catholic School Board, HW District School Board</td>
<td>Communities and Hospitals Against Trauma (administered by Hamilton Health Sciences- Trauma Program- Public Health does not oversee this program but does actively promote it). This program targets high-risk youth and introduces them to the aftermath of aggressive or impaired driving. The program consists of a mock trauma conducted in hospital with debriefing afterwards and/or in-school presentation with a “survivor” of a trauma injury.</td>
<td>Maintain / Enhance if Needed</td>
<td></td>
</tr>
<tr>
<td>Youth Summit</td>
<td>Public Health</td>
<td>HW Catholic School Board, HW District School Board, Police Services</td>
<td>This is the revised version of the Party in the Right Spirit Program, with the goal to reduce the harm associated with risk behaviours in youth using a youth engagement approach. The program is attended by student leaders and teachers and is open to all Hamilton High Schools, including private schools.</td>
<td></td>
<td>New</td>
</tr>
<tr>
<td>Media Campaigns Directed at Young Drivers</td>
<td>Communications Subcommittee</td>
<td>Public Health</td>
<td>Educate young drivers on the perils of impaired driving, aggressive driving and not wearing seat belts</td>
<td></td>
<td>New</td>
</tr>
</tbody>
</table>
## Vision Zero Action Plan
### Secondary Emphasis Areas #5 – Collision Data Improvements

**Performance Measures**
- Number of collisions
- Access to data
- Initiatives implemented

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Enhance Safety Data Collection on Rural Roads</td>
<td>Public Works</td>
<td></td>
<td>Develop a roadway inventory / asset management database.</td>
<td></td>
<td>New</td>
</tr>
<tr>
<td>Link Traffic Database to GIS</td>
<td>Public Works</td>
<td>Police Services</td>
<td>Linking across traffic volume, roadway assets, and GIS allowing graphic analysis of collision trends. Implement Public portals for access by public.</td>
<td></td>
<td>New</td>
</tr>
<tr>
<td>Review Collision Reporting Centres Data</td>
<td>Public Works</td>
<td>Police Services</td>
<td>Ensuring Q/C of data prior to inputting.</td>
<td></td>
<td>Maintain</td>
</tr>
<tr>
<td>Improve Collision Data Collection and Consistency</td>
<td>Police Services</td>
<td>MTO, Public Works</td>
<td>Make presentations to enforcement explaining how collision data is used by agencies to improve safety.</td>
<td></td>
<td>Maintain</td>
</tr>
</tbody>
</table>
The following list of potential safety countermeasures is provided in order to assist staff in addressing identified safety concerns throughout the City of Hamilton. The most comprehensive resource is the Federal Highway Administration’s (FHWA) Crash Modification Factors Clearinghouse, a database of studies on most safety countermeasures.

This list does not reflect details about the feasibility or appropriateness of a proposed countermeasure for a specific location. Location-specific constraints and existing facilities must be considered when determining the most appropriate countermeasure for a given location.

### Signals

**Pedestrian Countdown Heads**: Signal head that provides pedestrian countdown, as opposed to traditional WALK/DON’T WALK signal head.

**Flashing Beacons (includes Rectangular Rapid Flash Beacons – RRFB)**: Flashing beacons highlighting stop signs, warning signs, pedestrian crossings and school zones through the addition of a flashing light. RRFB’s provide a high visibility, brighter strobe-like flashing frequency.

**Leading Pedestrian Phase/Leading Pedestrian Intervals**: Traffic signals timed to allow pedestrians a short head start in crossing the intersection to minimize conflicts with turning vehicles.

**Protected/Permissive Left-Turn Phasing Conversion**: Protected left-turn phasing provides an exclusive phase for left-turning vehicles to enter the intersection separate from any conflicting vehicle or pedestrian movements. Permissive/protected left-turn phasing provides the exclusive left-turn phase in addition to a phase permitting left turns simultaneously with conflicting through movements.

**Signal Timing Improvements**: Modified signal cycle lengths and co-ordination, longer walk intervals.

**Pedestrian Detection to Extend Crossing Time When a Pedestrian is Detected Within the Intersection**: Sensors or push buttons that detect when pedestrians are present in a crossing and automatically increase crossing time when necessary.

**Pedestrian Scrambles/Exclusive Pedestrian Phasing**: Restricts all vehicular movements to provide an exclusive signal phase allowing pedestrians to cross in all directions, including diagonally.
Accessible Pedestrian Signals (APS): Pedestrian signals that provide audible or tactile cues to aid visually or cognitively impaired pedestrians in safely crossing the street.


Optimize Signal Timing for Bicyclists: Signal timing optimized for bicyclist speeds, reducing number of times bicyclists encounter red signals along a stretch of road.

Signal timing changes have been shown to reduce pedestrian and bicyclist injury collisions by 37%.

Additional countermeasures: The following countermeasures are currently being used in various municipalities throughout North America, but research is not yet available to indicate their effectiveness in reducing bicycle collisions.

- Bicycle Signal Detection (Push Button, Loop Detector)
- Bicycle Scramble
- Bicycle Signal Heads
- Leading Bicycle Interval
- Separate Bicycle Signal Phase

Geometrics

Painted Medians: Pavement striping that separates lanes of traffic but does not provide a raised surface.

Raised Pedestrian Crossing/Raised Crosswalks/Speed Tables and Raised Crosswalks: Pedestrian crossings that are elevated to the level of the sidewalk, with ramps on each vehicle approach.

Corner Bulb Outs and Curb Extensions: Raised devices, usually constructed from concrete and/or landscaping, that reduce the corner radius or narrow the roadway in order to reduce traffic speeds and shorten crossing distances.

Intersection Conversion to Roundabout: Roundabout installed at a previously unsignalized intersection or to replace a former traffic signal. Roundabouts are large circular islands, placed in the middle of an intersection, which direct flow in a continuous circular direction around the intersection.

Refuge Islands/Raised Median/Pedestrian Refuge Islands: Curbed sections in the center of the roadway that are physically separated from vehicular traffic. Raised medians or refuge islands shorten crossing distances across wider roadways.
Closed Crosswalk Removal/New Crosswalks: Removal of existing crosswalks, or installation of new crosswalks.

On-Street Parking Reconfiguration: Removing on-street parking near intersections and driveways, or reconfiguring parking to minimize conflict points with bicyclists.

Roadway Cross Section Reduction (Road Diet): Reduction in number of travel lanes in roadway.

Separated Bike Lane (Cycle Track): Designated bicycle lanes, separated from vehicle traffic, by a physical barrier, usually bollards, landscaping, parked cars, or through elevated separation.

Separate Shared-use or Bicycle Path: Off-street path, either for exclusive use by bicyclists or both bicyclists and pedestrians, usually with minimal street crossings, and designated by signs and/or pavement markings.

Wide Curb Lane: Provision of a wider curb lane that accommodates bicyclists and vehicles, where a dedicated bike lane or other bicycle facility is not possible.

Traffic Diverters: Physical barrier placed diagonally across an intersection, which restricts the flow of vehicular traffic, but allows for pedestrians and bicyclists to cross the intersection.

Additional countermeasures: The following countermeasures are currently being used, but industry research is limited to indicate the effectiveness in reducing collisions.

- Lane Narrowing
- Rumble Strips
- Paved Shoulder
- Curb Radius Reduction
- Mini-Circles
- Chicanes
- Full or Partial Street Closures

**Signs, Markings, Regulatory**

Intersection Lighting/Crosswalk Lighting: Lighting between the crosswalk and oncoming vehicles, usually beginning 3 to 4 metres before the crosswalk.

Segment Lighting: Quality and consistent placement of streetlights for drivers, as well as pedestrian scale lighting for sidewalks.
Right Turn on Red Restriction: Right turns prohibited on red to reduce conflicts between pedestrians and right-turning vehicles.

Left Turn Restriction: Left turns prohibited to reduce conflicts between pedestrians and left-turning vehicles.

Parking Restriction Near Intersections: Parking spaces removed near crossing locations to allow for improved sightlines for both pedestrians and drivers.

Pavement Friction (Textured Pavement): Textured pavement or a textured overlay on pavement to provide additional cues to drivers that they are reaching a pedestrian crossing, or other key area such as a tight radius corner.

High-Visibility Crosswalk: Distinct pavement markings, such as a continental, zebra or ladder pattern, or a reflective inlay or thermoplastic tape.

Pedestrian Warning Signage: Signs such as “Yield Here to Pedestrians” or “Stop Here for Pedestrians” that can be placed at the roadway surface level in advance of the crosswalk, on posts, or overhead.

Shared Bus-Bike Lane: Lanes designated for use only by public transit buses, bicycles and usually right-turning vehicles.

Shared Lane Markings: Pavement markings on travel lanes, also called a sharrow, which indicate that the road space should be shared between bicycles and vehicles.

Bike Lanes: Five to seven foot wide designated lanes for bicyclists adjacent to vehicle travel lanes, delineated with pavement markings.

Warning and Regulatory Signs for Drivers (“Share the Road,” “No Parking in Bike Lane”): Posted signs that provide warning and regulatory messages alerting drivers to the presence of bicyclists and shared roadway facilities.

Buffered Bike Lanes: Designated lanes for bicyclists, 1.2 to 1.5 metres wide, separated from vehicle travel lanes and/or parked cars by pavement markings, usually 1 metre wide and with a double-line, chevron or diagonal line pattern.

Bike Box: Designated area for bicycles to wait at red traffic signals in front of queuing vehicles, usually marked with green pavement, with the intent of reducing delay at signals, increasing visibility of bicyclists, and in some cases, facilitating left-turn positioning for bicyclists.

Green Colored Pavement Markings: Green markings, created with paint, epoxy, thermoplastic, or colored asphalt, used to designate bike lanes, cycle tracks, bike boxes, conflict zones or intersection crossings.
Speed Control Measures, Miscellaneous

**Speed Limit Reductions:** Speed limit reductions performed street by street or implemented as part of a speed reduction zone (often found near schools and parks) or bicycle boulevard program.

**Speed Tables, Humps, and Cushions:** Asphalt protrusions 30-40 cm high that extend the width of the roadway, varying in length depending on type. Speed humps are rounded, while speed tables have a flat top.

**Portable Speed Trailer/and Radar Speed Display Signs:** Portable speed trailers that display the speed limit as well as the speed of the approaching vehicle in real-time, and in some cases have changeable message display boards.

**Hazard Identification and Response Program:** Publicly-run program that allows for two-way communication between jurisdictions and the public, including temporary signage alerting bicyclists to potential hazards, as well as technology solutions that allows the public to submit real-time information (often via cell phone) on hazards, such as debris in the road.

**Red Light Camera's:** Use of digital camera’s at locations with identified collision concerns and specifically angle collisions that potentially occur as a result of motorists running a red signal.

**Automated Speed Enforcement:** Use of digital cameras at locations identified with high operational speeds or community sensitive areas, schools, parks, senior centers, heavy pedestrian areas.