

Calgary Safer Mobility Plan  
Annual Report 2019  
Transportation Department  
The City of Calgary  
December 18, 2019



*...Mobility free of major injuries  
and fatalities*

## 1. Introduction

The 2013-2017 Calgary Safer Mobility Plan (SMP) was the first step towards a formal, Calgary-specific, and evidence-driven transportation safety management process. The 2019-2023 Safer Mobility Plan update proposed to continue the course and build on the work accomplished previously. The Vision Zero approach and key performance indicators have been refocused on major injury and fatality collisions and a reduction target of 25%. This was made possible by the One Calgary budget increase resulting in increased resources for implementation of specific capital improvements to address safety issues reactively and proactively. This plan works in conjunction with the efforts of the Calgary Police Service and their Residential Traffic Safety Strategy.

With increased emphasis on Vision Zero, we have taken steps to align with the Vision Zero and focus on reducing the most severe collisions. Key steps toward a Vision Zero approach include:

- Eliminating situations where common driver errors lead to collisions with severe outcomes
- Mitigating roadside elements with increased risk of severe injuries
- Achieving operating speeds that reduce the likelihood of fatality or serious injury for all users by reducing impact energy

In its inaugural year, a significant amount of work was completed to begin implementation of cost-effective changes aimed at reducing collisions on our roads. These included infrastructure improvements at intersections, reducing operating speeds, traffic calming and evaluating speed limit modifications. The expanded application of Traffic Calming (TC) curbs has allowed quick responses to traffic safety concerns at a low cost and low impact to existing infrastructure. In September 2019, the Transportation Association of Canada *Road Safety Engineering Award* was presented to the City of Calgary for the development and deployment of Traffic Calming curbs, which are now used in cities across Canada.

We have made many upgrades to pedestrian crosswalks and continue to evaluate new and promising countermeasures by implementing them at locations with highest risk, based on network screening studies using collision data. In the upcoming years, the impact of these improvements will be reflected in our progress towards Vision Zero targets. In the meantime, this report presents 2018 collision statistics and progress towards the targets for actions and activities accomplished in 2017 and prior in Section 2. The actions accomplished in 2019 and planned for 2020 are outlined in Section 3 based on the 2019-2023 SMP Traffic Safety Strategy redefined in terms of five E's of transportation safety (Engagement, Engineering, Education, Enforcement and Evaluation / Innovation). Several project evaluation sheets have been developed and are included in Appendix B of this report.

**Calgary Safer Mobility Plan Indicator Statistics**

	2017	2018	Change	2015-2017 Average	Change vs 3 Year Average
Fatal Collisions	11	16	45%	21	- 24%
Major Injury Collisions	517	505	- 2%	531	- 5%
Pedestrian Involved Fatality+Major Injury Collisions	115	123	7%	121	2%
Bicyclist Involved Fatality+Major Injury Collisions	36	29	- 19%	42	- 30%
Motorcyclist Involved Fatality+Major Injury Collisions	27	24	- 11%	49	- 51%

## 2. Collision Statistics and Focus Area Targets

In 2018, there were 16 fatal collisions (11 in 2017), 2,496 injury collisions (2,646 in 2017) and 34,788 property damage only collisions (35,280 in 2017) on Calgary roads. The societal cost of these collisions was estimated to be \$1.14 billion in 2018.

In 2018, pedestrians were involved in eight fatal collisions (two in 2017) and 308 (352 in 2017) injury collisions, while cyclists were involved in 106 injury collisions (146 in 2017), with one fatal cyclist collision (zero in 2017). While injury collisions were lower, fatalities were higher than the previous year but in line with the 5-year average.

For comparison purposes, a selection of cities are shown in the table below, using the most recently available comparable data. While Calgary is continuing to perform well compared to other major Canadian cities with respect to all casualty collisions (minor/major injuries and fatalities combined), our performance from the perspective of more severe collisions (major injury and fatality focus of Vision Zero approach) leaves room for improvement with rates two to three times higher compared to other Canadian cities. Nevertheless, we may have turned the curve as the outcomes have been gradually improving since 2015/2016. Additional jurisdictional comparisons are provided in Appendix A.

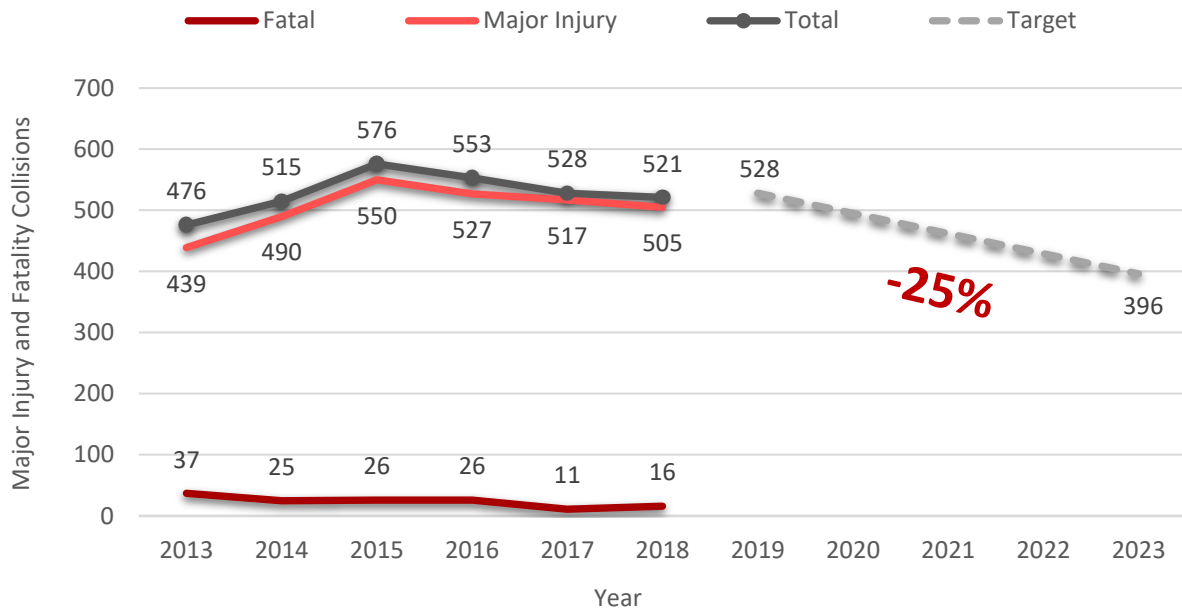
**Summary of Traffic Injuries and Fatalities for Various Canadian Cities**

City	Overall casualties (injuries + fatalities) per 100,000 population		Major injuries + fatalities per 100,000 population		Pedestrian major injuries + fatalities per 100,000 population	
	2017	2018	2017	2018	2017	2018
Calgary	215.7	205.9	44.6	44.3	9.5	10.4
Edmonton	397.9	340.2	39.4	34.6	7.4	7.1
Ottawa	214.6	199.6	17.5	17.2	-	-
Toronto	-	-	14.2	13.9	5.9	6.5

## 2.1 Target #1: Major Injury and Fatality Collision Target

Target: 25% reduction in major injury and fatality collisions

Baseline: 528 major injury and fatality collisions (2017)



*Progress summary:* In 2018, fatal collisions experienced an increase compared to the previous year but were below the 5-year average. Major injury collisions continued on the downward trend initiated in 2015. Overall, major injury and fatal collisions combined decreased by 1.3% compared to the previous year and by 9.5% since the peak in 2015.

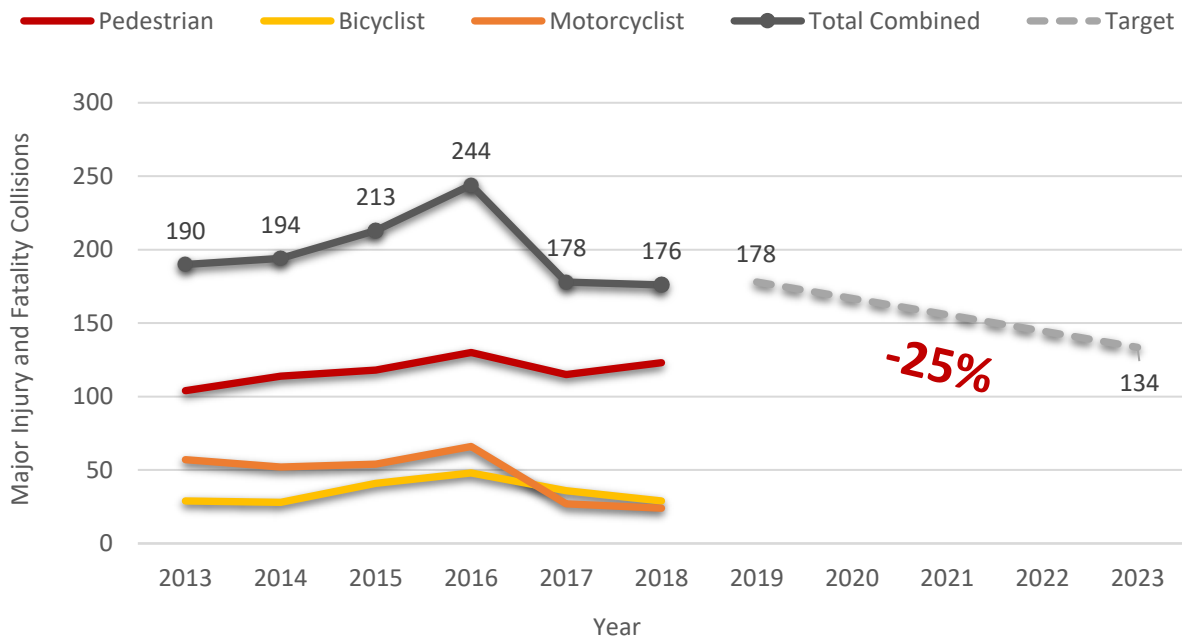
Key Actions:

- Implementation of network improvements
- Speed-related engagement and education and speed reductions, where appropriate
- Support of Calgary Police Service (CPS) targeted enforcement activities

## 2.2 Target #2: Vulnerable Road User Collision Target

Target: 25% reduction in major injury and fatality collisions

Baseline: 178 major injury and fatality collisions (2017)



*Progress summary:* Major injury and fatality collisions involving vulnerable road users decreased slightly in 2018 compared to 2017. This is mainly driven by a decrease within the bicyclist and motorcyclist categories and a slight increase in pedestrian collisions where continued effort is required.

### Key Actions:

- Network screening and focused application of mitigation measures
- Video based conflict analysis to identify improvements
- Continued application of Traffic Calming Curbs to address collision issues
- Engagement and awareness activities related to speed
- Support of CPS targeted enforcement activities

### 3. Progress on SMP Strategies in 2019 and Planned Actions for 2020

The Traffic Safety Strategy in the 2019-2023 Safer Mobility Plan is centered on building momentum achieved in the previous version of the plan and focuses on the five E's of transportation safety. This section highlights a selection of actions that have been undertaken in 2019 by various groups. Some of these have been completed while others are ongoing. The planned actions for 2020 are also identified for each area of focus.

#### 3.1 Engagement

The management of the SMP is primarily done through the collaborative teams of the SMP. One of the main actions is to report on the progress of the plan annually and to re-assess the SMP at the end of the 2019-2023 period, once data is available.

##### Actions initiated /completed in 2019

- Developed a process to engage/inform citizens of upcoming Temporary Traffic Calming treatments in their community
- Supported a community led initiative to pilot “Look” sidewalk markings along a route to school
- Resolved over 260, 311 Service Requests and developed specific information pages to address certain concerns at the time of initial call for enhanced customer service
- Engagement with Advisory Committee on Accessibility to identify and address navigation challenges at high entry angle right turns for the visually impaired
- Ongoing review and action on citizen feedback received at Ward Traffic Safety Meetings
- Coordination of six Community Speed Watch events, a volunteer-lead speed awareness program, with support from the Calgary Police Service
- Production of the 2019 Safer Mobility Plan Annual Report.



*Photo Credit: Krystal Lamb*

##### Planned actions for 2020

- Develop the strategy for the next round of Ward Traffic Safety Meetings/events
- Reestablish regular meetings and collaboration through various Safer Mobility Teams
- Monitor the traffic safety related results of the Roads Annual Survey to track trends in public perception and satisfaction
- Continue to respond to 311 enquiries from the public
- Monitor traffic safety and share findings through SMP Annual Report 2020

### 3.2 Engineering

With increased funding for traffic safety capital projects we were able to complete several engineering improvement projects that alter the road environment to reduce collisions. Projects with highest collision reduction potential for the investment and higher than expected risk of major injury or fatality were prioritized, including roadway geometry improvements, high entry angle right turns, and pedestrian safety improvements. Below are some highlights.

#### Actions initiated /completed in 2019

- Completion of *In-Service Road Safety Reviews* (ISRSR) at high collisions intersections and Video Based Conflict Analysis studies – nine locations
- Completion of over 60 Collision Reviews and Safety Assessments based on concerns raised by members of the public or Administration, resulting in:
  - Numerous sign and pavement marking improvements
  - Traffic Calming curb treatments – 32 locations
- Pedestrian crosswalk improvements:
  - RRFBs – 23 planned (16 completed)
  - Overhead flasher crosswalks – nine planned (one completed, eight in progress)
  - Side-mounted flashers at pedestrian corridors – 27 planned (24 completed)
  - Pedestrian median refuges (e.g. 3 Avenue & 34 Street NW)
  - New signalized crosswalks (e.g. Parkdale Blvd & Kensington Road NW)
  - Street lighting improvements
- LRT corridor pedestrian improvements (e.g. new signal controllers/cabinets, and timing changes along 36 Street NE)
- Coordination and implementation of targeted, cost effective measures identified through the ISRSR and Collision Review processes to improve safety under the Safety Improvements Capital Program and as part of other projects, for example:
  - Saddletowne Circle and 80 Avenue NE (east intersection)
  - Crowchild Trail and 50 Avenue SW (east intersection)
  - Anderson Road and Bonaventure Drive SE
  - Edmonton Trail and McKnight Blvd NE
  - Shaganappi Trail and Dalhousie Drive NW
- Signal phasing and timing improvements including:
  - Protected left turns – 8 locations
  - Preliminary Leading Pedestrian Interval (LPI) trial evaluated at two locations with positive impacts to reduce pedestrian collisions.
  - Targeted signal phasing changes to improve safety (Glenmore Trail and 5 Street SW, Glenmore Trail & Elbow Drive SW, Saddletowne Circle and Falconridge Blvd NE, etc.)



- Development of the Vision Zero Safety Improvement Program targeting major injury and fatality collision reduction:
  - Network screening to identify locations of most concern, laying groundwork for detailed safety assessments, to reduce the severity using targeted, evidence-based improvements
  - Expand traffic safety intelligence with further analyses of clusters and risk factors

### Planned actions for 2020

We will continue to prioritize the recommendations identified in previous studies (e.g. ISRSRs, Collision Reviews and Safety Assessments, Video Based Conflict Analysis, network screening studies, etc.) along with other improvements with high potential for reduction of high severity collisions. Additional ISRSRs and Road Safety Audits may be undertaken as required.

- Leading Pedestrian Interval trial expanded to 10 additional locations with an overrepresentation of pedestrian collisions
- City-wide prioritization of locations for countermeasures including Advanced Warning Flashers, high friction surface treatment, and more appropriate speeds
- Continued implementation of geometric improvements, traffic signal improvements, with focus on vulnerable road users
- Implementation of roadside improvements including median barriers and bridge pier protection
- Ongoing traffic safety support and coordination of programs.

### 3.3 Education

#### Actions initiated /completed in 2019

- Created online content to inform public of new countermeasures (e.g. Traffic Calming Curbs) and initiatives with answers to common questions.
- Expand the Residential Sandwich Board program with deployment of 23 additional signs to support concerned citizens
- Responded to requests for portable SLOWS speed trailer rotation with deployment to 167 locations in 88 communities
- Various awareness campaigns including *Look and Look Again* and *Stampede pedestrian safety, Residential Speed Limit Reduction*
- Ongoing support for “Report Impaired Driving” signage.

**Did you know:** Top five Communities for SLOWS trailer requests:

- South Calgary
- Cranston
- Lakeview
- Acadia
- Dalhousie





### Planned actions for 2020

- Incorporating educational components into the next round of Ward Traffic Safety Meetings/events, focused on the release of 2019-2023 Safer Mobility Plan, Vision Zero, results of evaluations, and communicate results of evaluations on [Calgary.ca/trafficsafety](http://Calgary.ca/trafficsafety) webpage
- Identify and create an educational campaign about blind spots/common errors that road users make and strategies to change the related habits
- Development of traffic safety factsheets, to disseminate traffic safety research and initiatives (including Vision Zero) to the public and Safer Mobility Teams
- Renewal of 'Take It Off the Road' campaign.

### 3.4 Enforcement

#### Actions initiated /completed in 2019

- Ongoing support of Calgary Police Service deployment of high-visibility targeted enforcement
- Participation in CPS Collision Reconstruction review meetings and sharing of collision data analysis
- Coordination of six Community Speed Watch events, a volunteer-lead speed awareness program, with support from the Calgary Police Service
- Continuous coordination and cooperation in the delivery of community improvements and initiatives.

#### Planned actions for 2020

- Coordinate deployment of SLOWs trailers with speed enforcement activities
- Deployment of traffic speed data collection devices to assist CPS in targeted speed enforcement
- Safer Mobility Operations Team meetings to facilitate knowledge sharing, collaboration, and coordination of activities.

### 3.5 Evaluation and Innovation

#### Actions initiated /completed in 2019

- Evaluated the effect of recently implemented countermeasures at select locations and developed Project Sheets summarizing the findings (Appendix B)
- The City of Calgary received the Transportation Association of Canada *Road Safety Engineering Award* for the development and deployment of Traffic Calming curbs, which are now used in cities across Canada.



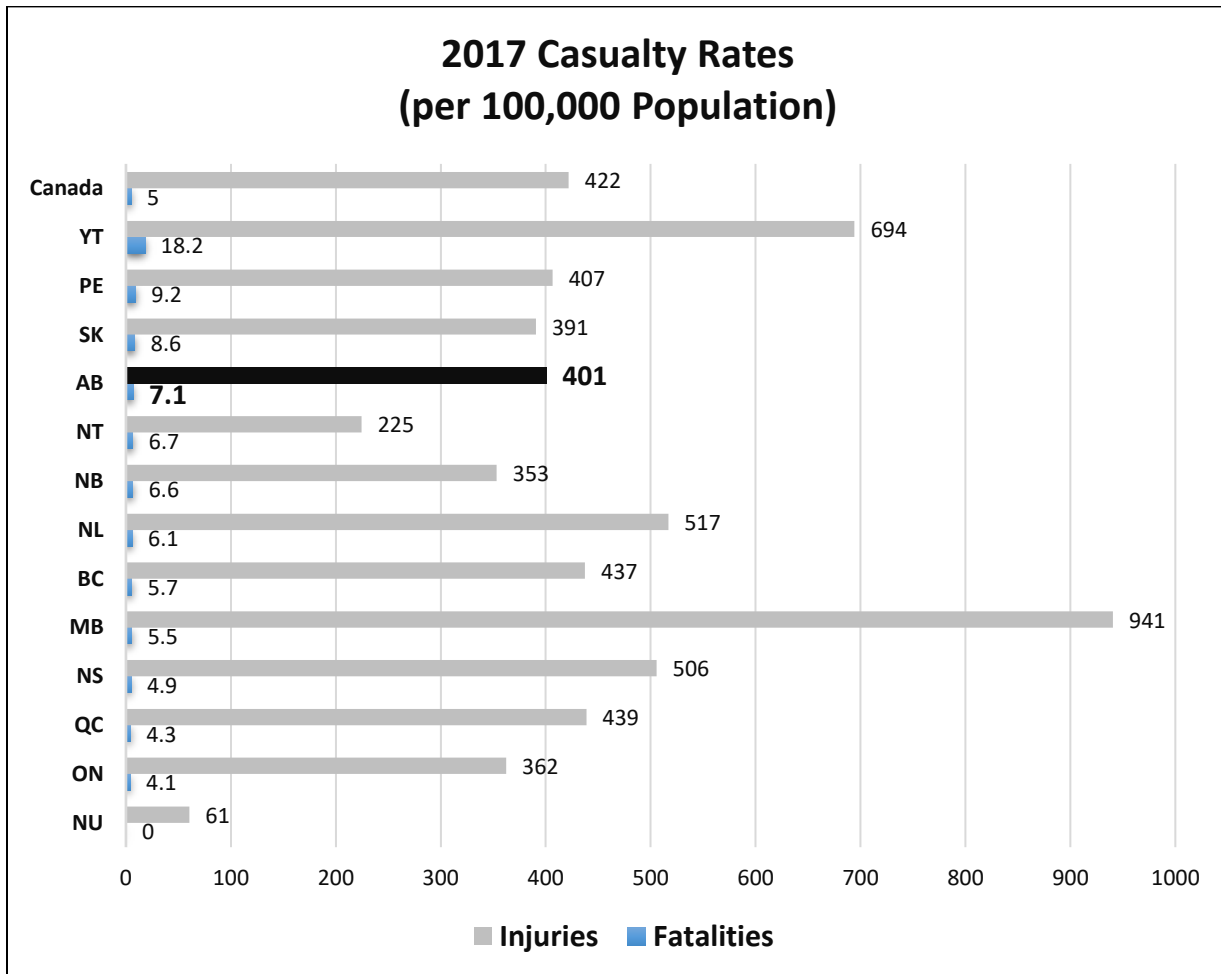
### **Actions initiated /completed in 2019**

- Trials of innovative countermeasures such as Leading Pedestrian Interval at signalized intersections
- Investigation of speed reduction initiatives to develop a strategy for moving towards speeds more consistent with the Safer Systems Approach for all road users, and vulnerable road users in particular
- Active participation on TAC committees guiding projects to develop application guidance for the safety impacts of bicycle infrastructure and u-turn signals
- Application of video based conflict analysis for proactive evaluation of pedestrian related safety countermeasures
- Support the University of Calgary's research such as applications to encourage uniform speeds
- Traffic safety knowledge exchange with the City of Edmonton, Alberta Transportation and other jurisdictions
- Calgary hosted the 2019 Canadian Association of Road Safety Professionals (CARSP) Conference with a Vision Zero theme.

### **Planned actions for 2020**

- Regular meetings of the Safer Mobility Research Team
- Evaluate the safety performance of advanced yield lines and other countermeasures
- Evaluate safety performance of Rectangular Rapid Flashing Beacons (RRFBs) as well as other mitigation measures and elements of the roadway environment to better understand their impact on safety
- Work with the Calgary Police Service and the Provincial Government to move toward an open data model for collision data which is currently not publicly available
- Broaden mobility safety data to include collisions not involving motor vehicles and near misses
- Establish use-based measures to monitor pedestrian, bicycle and motorcycle collisions.

## Appendix A - Safety Data Comparisons



\*Source: Transport Canada, most recent available

# Appendix B - Project Evaluation Sheets

## CITY OF CALGARY

TRAFFIC SAFETY IMPROVEMENTS

### Project Details

**Location:** Crowchild TR NW & Kensington RD NW

**Date:** Summer 2018

**Improvements:** High Entry Angle Channelized Right Turn with Truck Apron (south west and north east corners)

#### ANNUAL RIGHT TURN COLLISIONS BEFORE AND AFTER IMPROVEMENTS

Category	Before	After
Total Collisions	32.5	3
Injury Collisions	1.5	0

## 94%

Reduction of Collision Cost to Society

## 91%

Reduction of Total Right Turn Collisions

## 100%

Reduction of Total Injury Right Turn Collisions

### Before Improvements:



large curve radius, higher speeds, low entry angle

### After Improvements:



small curve radius, lower speeds, high entry angle

## Project Details

**Location:** 9 Avenue SW & 7 Street SW

**Date:** Fall 2017

**Improvements:** Leading Pedestrian Interval Signal Phasing



100%

Reduction of Left Turn  
Pedestrian-Vehicle  
Collisions (Preliminary)



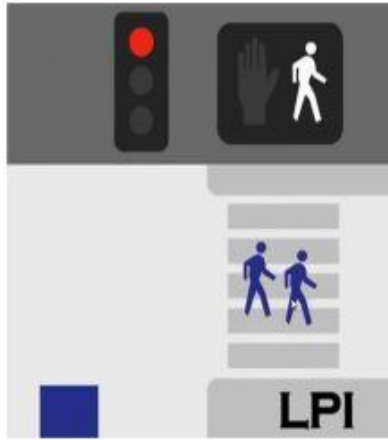
12%

Increase in Total  
Intersection  
Collisions



90%

Reduction of  
Injury Collisions

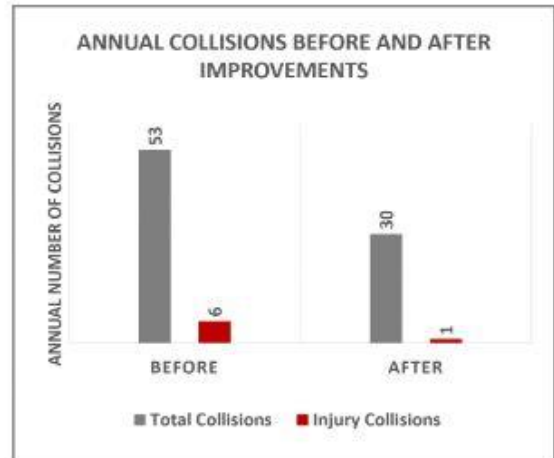


**Project Details**

**Location:** Macleod Trail SE & 162 Avenue SE

**Date:** 2017

**Improvements:** Diverging Diamond Interchange



**Before Improvements**



**After Improvements**



**83%**  
Reduction of  
Injury Collisions



**43%**  
Reduction of  
Total Collisions



**68%**  
Reduction of  
Collision Cost to  
Society

### Project Details

**Location:** Edenvold Drive NW & Edforth Way NW

**Date:** September 2018

**Improvements:** Temporary Traffic Calming Curbs



**100%**  
Reduction in Incidents of Aggressive Driver Behaviour



**7.0 km/hr**  
Reduction of Average Speed

Before Improvements



After Improvements



**8.5%**  
Increase in Yielding Compliance



**5.3%**  
Increase in Speed Compliance

### Project Details

**Location:** 36 Street NE  
(8 Avenue NE to 26 Avenue NE)

**Date:** 2017 - 2019

**Improvements:**

- Replacing Signal Controllers
- Signal Operation Improvements



**100%**

Reduction of Skipped Pedestrian Phase



**31%**

Average reduction of Pedestrian Violations during AM and PM Peak Periods



**35%**

Reduction of Average Pedestrian Expected Waiting Time (s)