

Calgary Safer Mobility Plan – Annual Report 2020

Introduction

2020 has been a busy year for implementation of the Vision Zero strategies of the 2019-2023 Safer Mobility Plan. We have ramped up construction of safety improvement projects such as the Shaganappi Trail and Dalhousie Drive NW intersection improvements, Barlow Trail and 114 Avenue SE right turn improvement, and ten new Leading Pedestrian Intervals (LPIs) at high pedestrian collision locations. Marking our first partnership with the insurance industry, Calgary was among ten Canadian cities selected to receive funding under the Aviva MicroTraffic Grant program for traffic safety studies using Video Analytics. Making our communities safer has been of focus with the Residential Speed Reduction in its final stages and our partnership with University of Calgary School of Medicine on the School Safety Research project resulted in safety improvements at more than 50 schools city-wide.



...Mobility free of major injuries and fatalities

A fundamental principle of Vision Zero is that humans are vulnerable to physical harm and the energy that our bodies are exposed to in a collision is primarily a function of the impact speeds. Many of our engineering efforts include aspects of moderating speeds to keep all users safe. We know Calgarians make mistakes, however they are getting around, but the result should not be a serious injury or death for themselves or others. The review of neighbourhood speed limits has identified that reducing the default speed limit has a higher benefit for the cost invested than spot treatments would in those areas. We will continue to provide information to Council to support the decisions to make Calgary neighbourhoods safer, but it is clear that reducing the speed of vehicles will result in fewer injuries and deaths for Calgarians and that there are cost effective ways to move toward a safer system.

Calgary Safer Mobility Plan Indicator Statistics 2018/2019

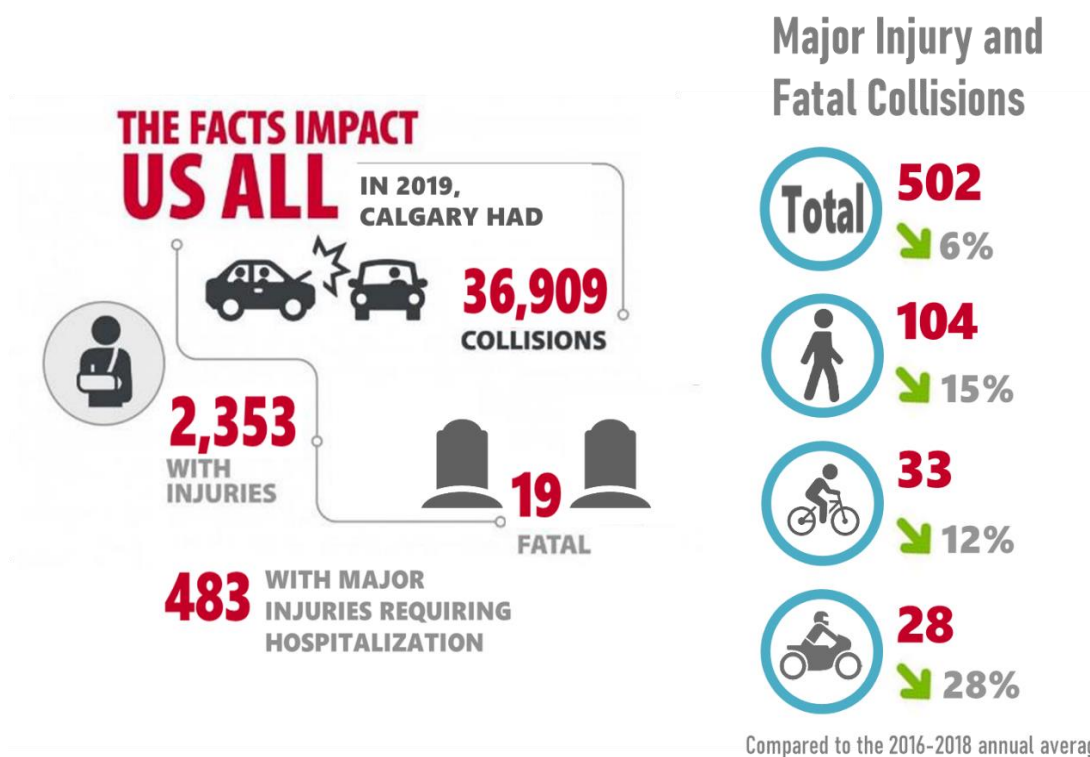
	2018	2019	% Change (Year over Year)	2016-2018 Average	2019	% Change (3-year Average)
Fatal Collisions	16	19	19	18	19	8
Major Injury Collisions	505	483	-4	516	483	-6
Pedestrian Involved Fatality+Major Injury Collisions	123	104	-15	123	104	-15
Bicyclist Involved Fatality+Major Injury Collisions	29	33	14	38	33	-12
Motorcyclist Involved Fatality+Major Injury Collisions	24	28	17	39	28	-28

We are beginning to see that the combination of an evidence-based approach, ongoing concerted effort by all partners and dedicated funding is resulting in better safety outcomes for Calgarians with 75 fewer incidents resulting in life changing or ending injuries compared to four years ago. Nevertheless, this change represents a 13.5% collision reduction and must be doubled over the next four years to achieve the Safer Mobility Plan target of 25%.

With more work to do, our focus in 2021 will be on implementing proven safety improvements, collaborating with our partners to help them achieve best possible safety outcomes and identifying new strategies to more effectively improve traffic safety outcomes for the future years.

Collision Statistics

In 2019, there were 19 fatal collisions (16 in 2018), 2,353 injury collisions (2,496 in 2018) and 34,537 property damage only collisions (34,788 in 2018) on Calgary roads. The societal cost of these collisions was estimated to be \$1.15 billion in 2019. Pedestrians were involved in 3 fatal collisions (8 in 2018), and 101 (115 in 2018) major injury collisions, while cyclists were involved in 32 major injury collisions (28 in 2018), with 1 fatal cyclist collision (1 in 2018).



For comparison purposes, selected cities are shown in the table below, using the most recently available comparable data. While Calgary is continuing to improve its performance year over year, we need to do more to reduce major injury and fatality collisions to close the gap to other major Canadian cities.

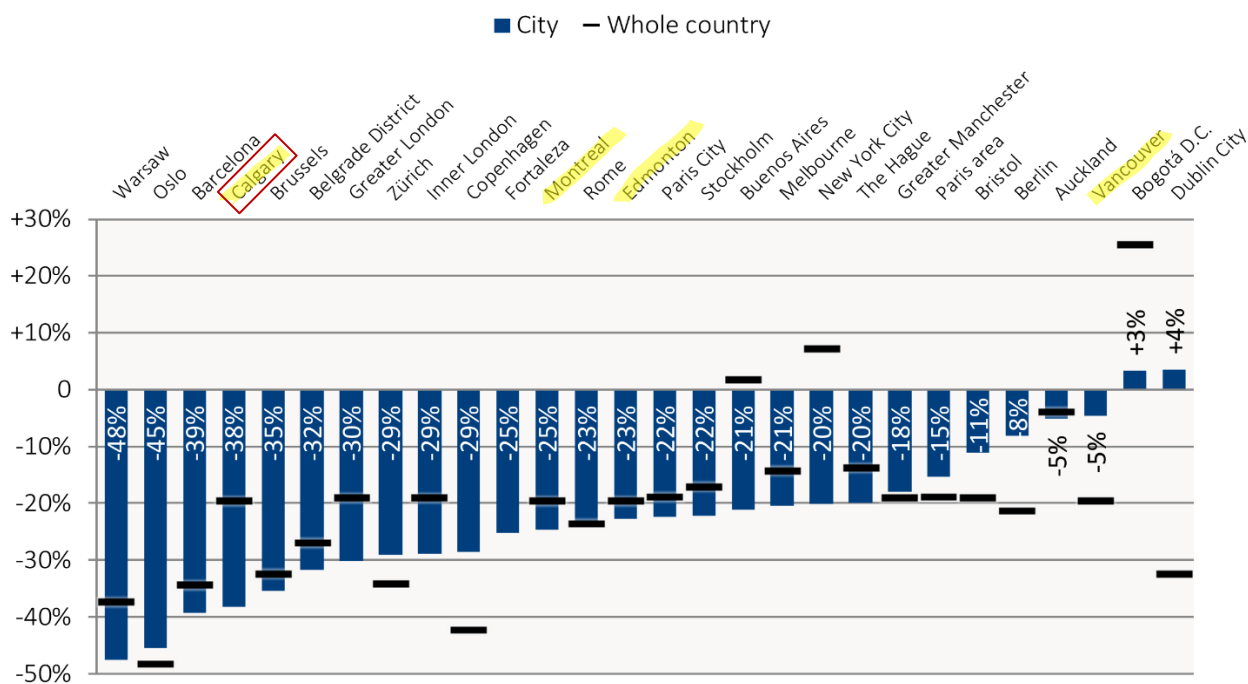
Summary of Traffic Injuries and Fatalities for Various Canadian Cities

City	Overall casualty collisions (injuries + fatalities) per 100,000 population		Major injuries + fatalities per 100,000 population		Pedestrian major injuries + fatalities per 100,000 population	
	2018	2019	2018	2019	2018	2019
Calgary	201.6	184.4	44.3	41.4	10.4	8.1
Edmonton	-	-	39.4	28.8	-	-
Ottawa*	-	242.8	-	-	-	-
Toronto	-	-	13.9	12.6	6.5	5.8

*2018 data for Ottawa specified 199.6 overall casualties per 100,000 population which was replaced by casualty collisions in 2019 and is not directly comparable.

Great progress has been made since 2010 as shown in the below chart from the International Transport Forum, indicating that our road fatalities have decreased significantly in line with other European cities with strong focus on traffic safety.

- Road Traffic Deaths by City, 2010-2018
(Source: Monitoring Progress in Urban Road Safety, International Transport Forum)



Note: The number of deaths is captured by a three-year average, in both cities and countries. The chart, therefore, represents the percentage change from the 2008-2010 average to the 2016-2018 average.

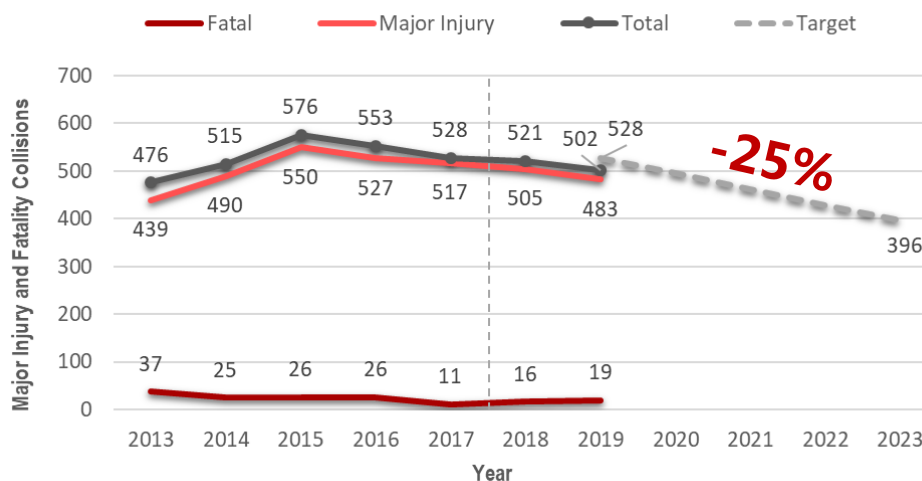
Source: <https://www.itf-oecd.org/sites/default/files/docs/monitoring-progress-urban-road-safety.pdf>

Focus Area Targets

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 2019, we had three more fatal collisions compared to the previous year. Major injury collisions continued the downward trend initiated in 2015. Overall, major injury and fatal collisions combined decreased by 3.6% compared to the previous year and by 12.8% since the peak in 2015. This report presents 2019 collision statistics and progress towards the targets for actions taken in 2018 and before.

Key Actions:

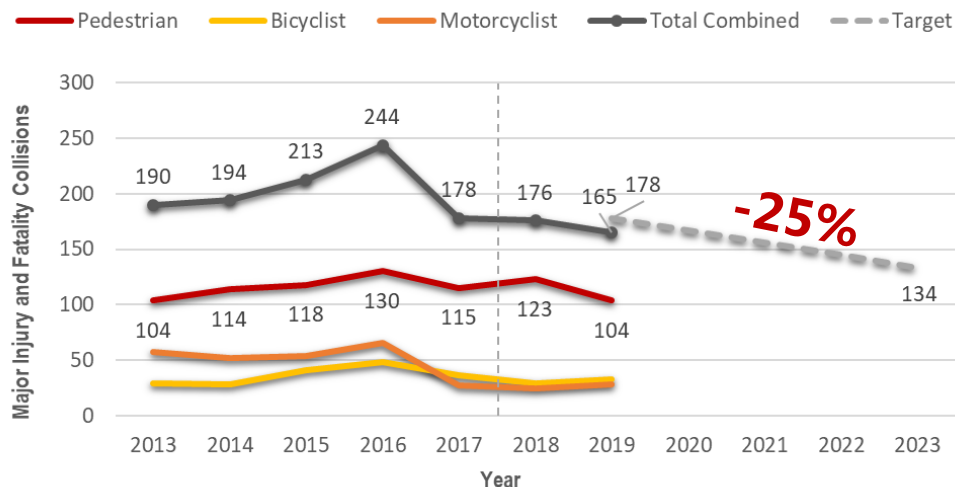
- Implementation of network improvements focused on reducing most severe collisions
- Speed-related engagement, education, and speed reductions, where appropriate
- Support of Calgary Police Service (CPS) targeted enforcement activities



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 by 6.3% in 2019 compared to 2018. This is mainly driven by a decrease in pedestrian collisions, with slight increases among bicyclist and motorcyclist collisions where more 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

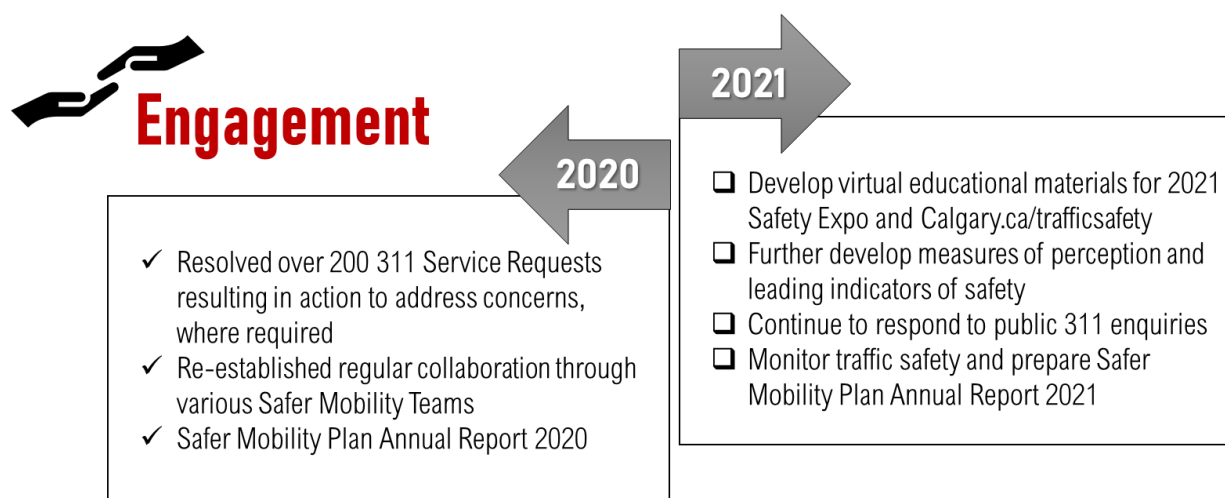


Progress on SMP Strategies in 2020 and Planned Actions for 2021

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 2020 by various groups. Some of these have been completed while others are ongoing. The planned actions for 2021 are also identified for each area of focus.

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.



Engineering

In 2020 we were able to make progress on several important projects that alter the road environment to reduce collisions. Projects with the highest collision reduction potential particularly among more severe collisions were prioritized, including roadway geometry improvements, high entry angle right turns (smart rights), and pedestrian safety improvements. Below are some highlights.



Engineering

2020

Studies to support evidence-based approach:

- ✓ 3 In-Service Road Safety Reviews
- ✓ Over 100 Collision Reviews, Safety Assessments, and checks

Pedestrian crosswalk improvements:

- ✓ 21 new traffic signals
- ✓ 12 Rectangular Rapid Flashing Beacons
- ✓ 11 overhead and side-mounted flashers
- ✓ 18 temporary curb extensions/treatments

Targeted, cost effective geometric safety improvements (Safety Improvements Capital Program) for example:

- ✓ Shaganappi Trail & Dalhousie Drive NW
- ✓ Country Hills Bv & Harvest Hills Bv NW
- ✓ 16 Avenue & 68 Street NE
- ✓ 114 Avenue & Barlow Trail SE
- ✓ 40 AV & Market Mall Access NW

Signal phasing and timing improvements:

- ✓ 5 protected left turns
- ✓ Leading Pedestrian Interval trial expended to 10 high pedestrian collision locations
- ✓ Signal phasing changes targeting right angle collisions (Glenmore Tr & 5 St SW, Glenmore Tr & Elbow Dr SW, etc.)

Implemented **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 focusing on pedestrians
- ✓ Video Analytics at top ranking locations through the Aviva MicroTraffic Grant Program, where City of Calgary was selected as one of five Canadian cities to receive 75% funding towards studies at 10 locations

2021

- ❑ 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

Education

Public education and communication are essential to raising awareness of road safety issues, informing public attitudes, and promoting safe behaviours, with the ultimate goal of reducing the frequency and severity of collisions.



Education

2020

- ✓ Addressed increased demand for speed education with increased outdoor recreational activities due to COVID-19
 - ✓ Residential Sandwich Board program
 - ✓ 175 SLOWS speed trailer deployments
- ✓ Various awareness campaigns including Look and Look Again, and social media messaging
- ✓ Residential Speed Limit Reduction incorporating educational components into Calgary.ca/trafficsafety webpage
- ✓ Ongoing support for “Report Impaired Driving” signage.

2021

- 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.
- Develop technical bulletins on best performing design components for distribution to design teams

Enforcement

We continue to work closely with Calgary Police Service as a key partner to achieve our traffic safety targets.



Enforcement

2020

- ✓ 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.
- ✓ Continuous coordination and cooperation in the delivery of community improvements and initiatives

2021

- 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
- Coordinate deployment of speed trailers with speed enforcement activities

Evaluation and Innovation

Evaluation and innovation are key components of traffic safety and enable evidence-based assessment of the effectiveness of strategies and help in finding new solutions to longstanding problems.



Evaluation & Innovation

2020

- ✓ School Safety Research Project (collaboration with University of Calgary) – 24 Traffic Calming curb locations and 26 In-Road Pedestrian Sign locations
- ✓ Trial of Pedestrian Crosswalk signs with fluorescent yellow-green retro-reflective border (in progress)
- ✓ Evaluated the effect of recently implemented countermeasures at select locations and developed Project Sheets summarizing the findings (Appendix A)
- ✓ Investigation of residential speed reduction to make changes to posted speeds consistent with the Safer Systems Approach for all road users, and vulnerable road users in particular
- ✓ Application of Video Analytics for proactive evaluation of pedestrian related safety countermeasures.

2021

- Regular meetings of the Safer Mobility Research Team.
- Evaluate collision reduction of advanced yield lines, RRFBs, and other mitigation measures and elements of the roadway environment to better understand their impact on safety
- Explore opportunities to collaborate with internal groups and external partners to broaden safety data and understanding of incidents and near misses for all modes of travel that are not reported to police, e.g. Calgary Transit near miss data, Fleet near miss data, Alberta Health Services Ambulance and Emergency Room Data etc.)
- Pilot Centreline Hardening at signalized intersections

Appendix A - Project Evaluation Sheets

CITY OF CALGARY

TRAFFIC SAFETY IMPROVEMENTS



School Safety Research Project

Date: Summer 2020

Location: 50 schools city-wide

Improvements:

- Traffic Calming Curb (24 Schools)
- In-Street Pedestrian Signs (26 Schools)

- Partnership with University of Calgary School of Medicine
- Preliminary results on effectiveness of measures in reducing vehicle speed and improving public perception of safety
- First application of In-Street Pedestrian Signs in Calgary

In-Street Pedestrian Signs



1.0 km/h
Average Speed
Reduction

Traffic Calming Curb Extensions



0.5 km/h
Average Speed
Reduction



1,280+
Survey Responses

-200 

Average Change in
Number of Vehicles on
the Road per Location



1,440
Collected Hours of
Video Recordings

CITY OF CALGARY TRAFFIC SAFETY IMPROVEMENTS

Calgary



Project Details:

Date: September 2017

Location: Glenmore Trail & Elbow Drive SW
(eastbound and westbound ramps)

Improvements: Protected only left turn
signal phasing



28%
Reduction
of All
Collisions



95%
Reduction of
Left Turn
Across Path
Collisions



73%
Reduction
of Injury
Collisions

Collision Cost to Society



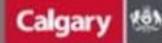
54%
Reduction of
Collision Cost
to Society

Benefit Cost Ratio

>100:1



CITY OF CALGARY
TRAFFIC SAFETY IMPROVEMENTS



Project Details:

Date: 2017-2019

Location: 36 Street NE between
8 Avenue and 26 Avenue

Improvements:

- Signal controller upgrade
- Signal operational improvements



11

Intersection Signal
Controllers Upgraded



4

in 24 hours

High risk vulnerable road
user conflicts eliminated



97%

Fewer pedestrians/ cyclists enter
crosswalk when train warning
system is activated



98%

Fewer vehicles enter
intersection when train
warning system is activated

