

Calgary



Safer Mobility Plan Annual Report 2020 TT2020-1263

December 16, 2020

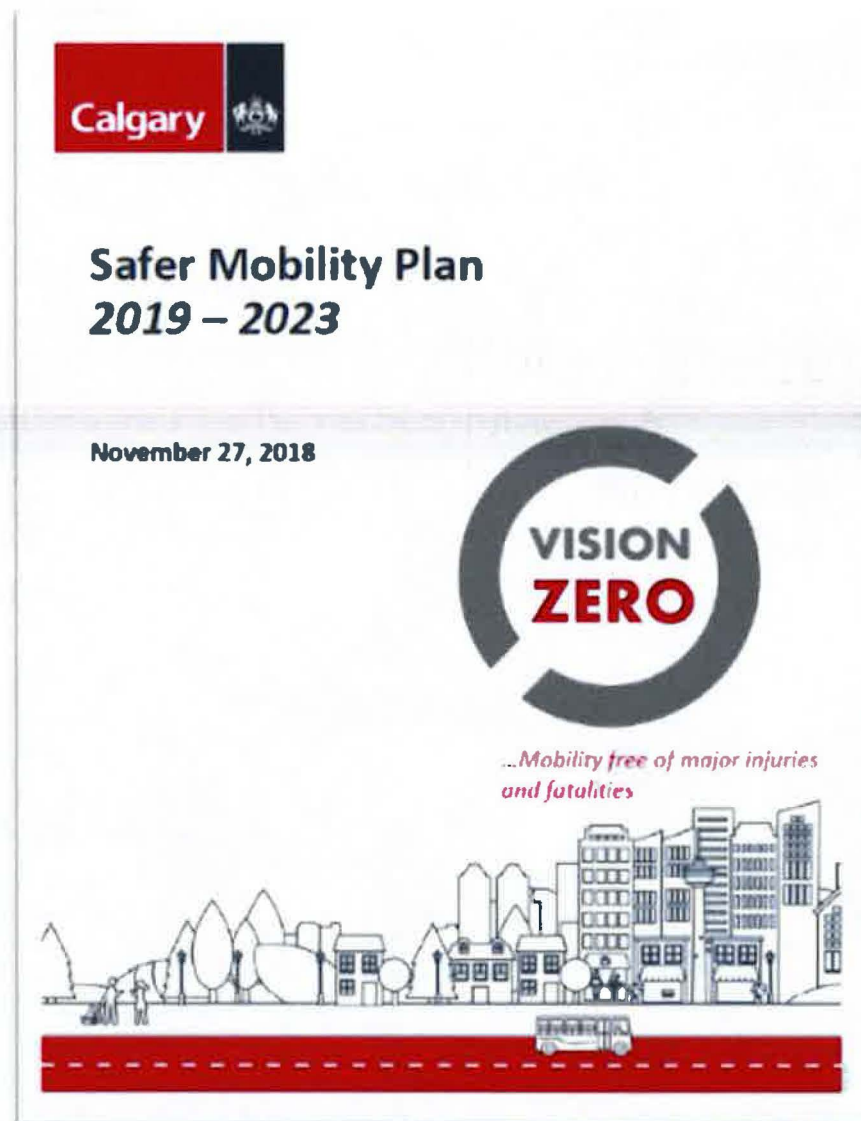
SPC Transportation & Transit

Joanna Domarad, P.Eng.



Calgary Safer Mobility Plan

1. Update on Collision Statistics for 2019
2. Accomplishments in 2020
3. Planned actions for 2021





2019 Collisions in Calgary

Major Injury and Fatal Collisions

THE FACTS IMPACT ALL CALGARIANS

IN 2019,
CALGARY HAD



36,909
COLLISIONS



2,353
WITH
INJURIES



19
FATAL

483 WITH MAJOR
INJURIES REQUIRING
HOSPITALIZATION



Total **502**
↓ 6%



104
↓ 15%



33
↓ 12%



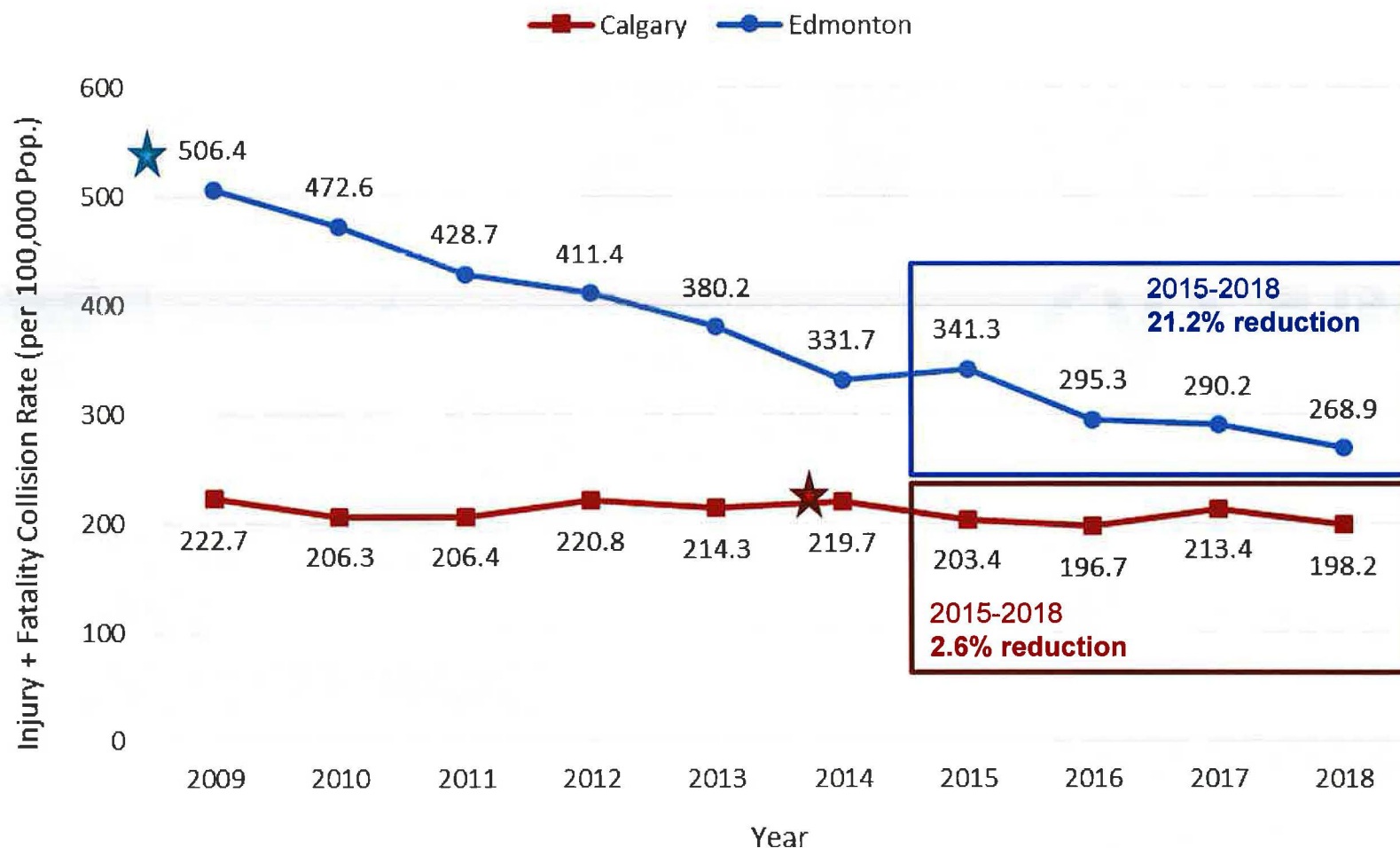
28
↓ 28%

Compared to the 2016-2018 annual average



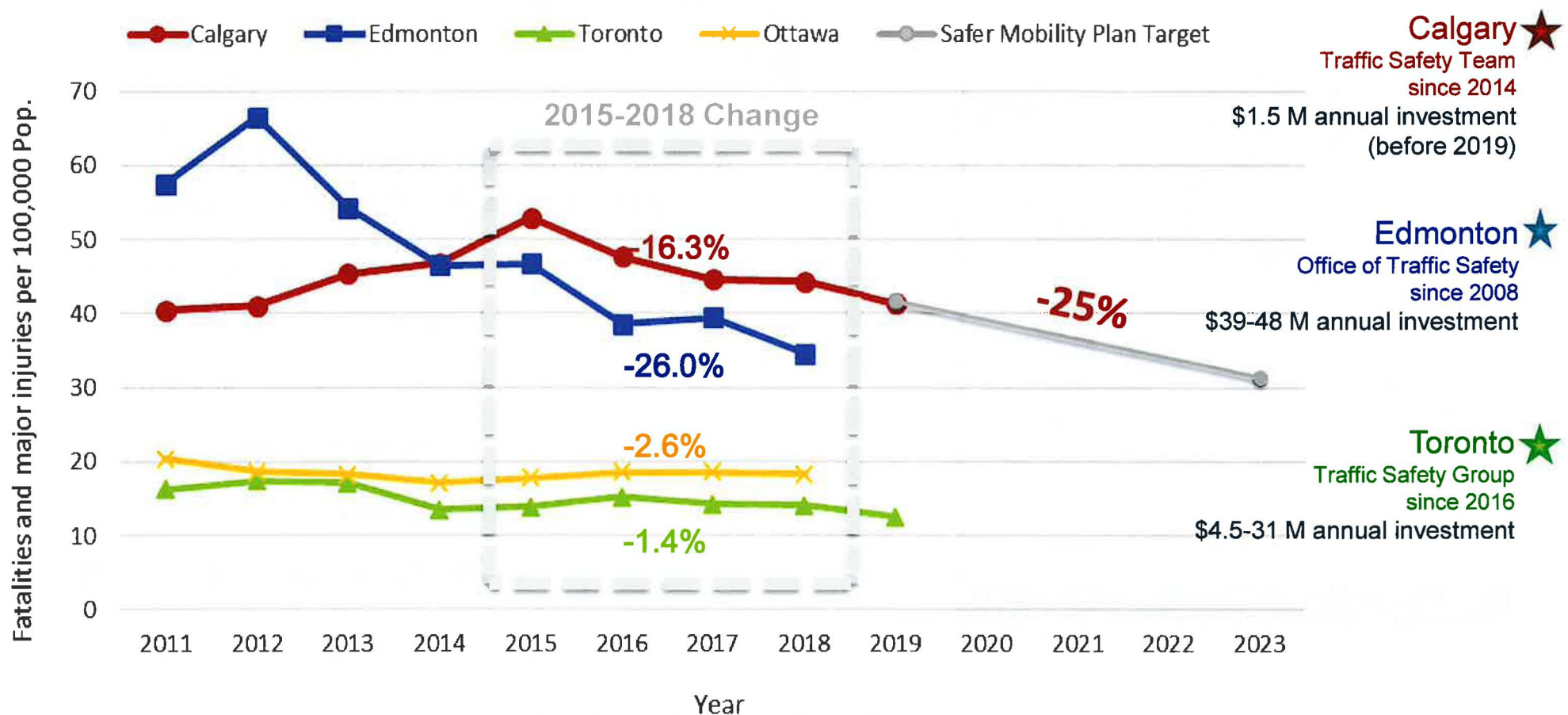
Comparison of Traffic Safety Overall Injury/Fatality Rate

All Injury + Fatality Collision Rate (per 100,000 population)



Comparison of Trends Among Major Cities Vision Zero Approach

Fatalities and Major Injuries per 100,000 pop.



Contributing Factors to Collisions

Contributing factors

- Alcohol impairment 13-20%
- Distraction 20-30%
- Unsafe Speed 25-40%
- Vehicle factors ~1%
- Medical incident <1%
- Failing to yield right of way 45-70%
(70% of pedestrians has ROW overall
and 90% at traffic signals/flashing
devices)

**DISTRACTED DRIVING
INCREASES THE RISK OF COLLISION**

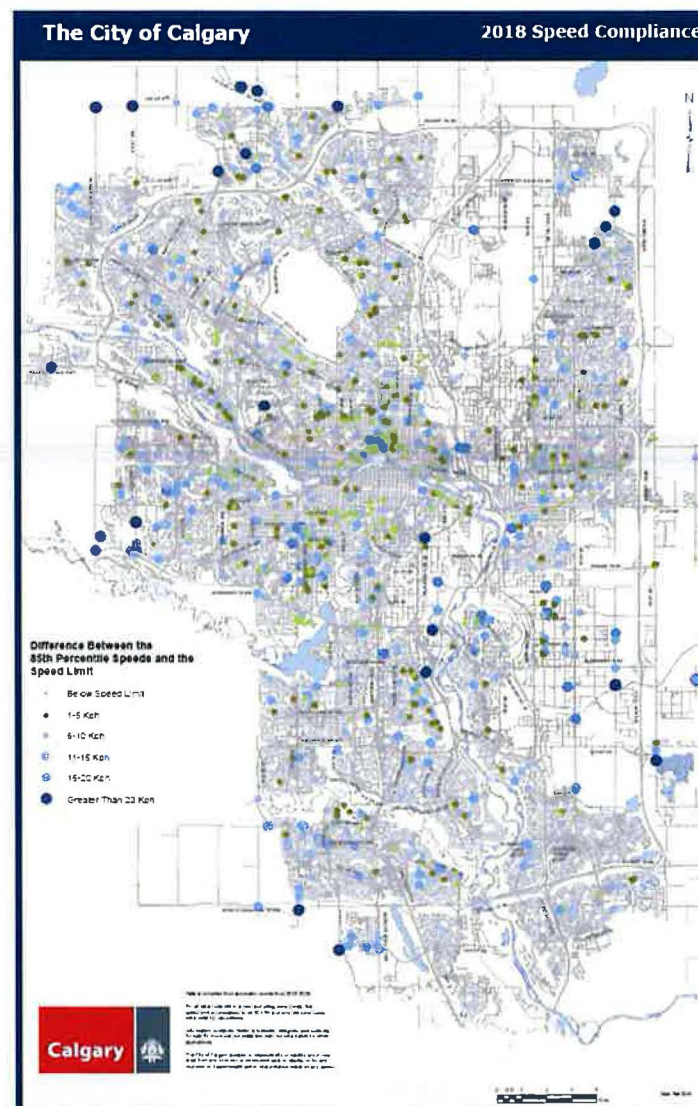
**5X WHEN
PHONING**



**24X WHEN
TEXTING**

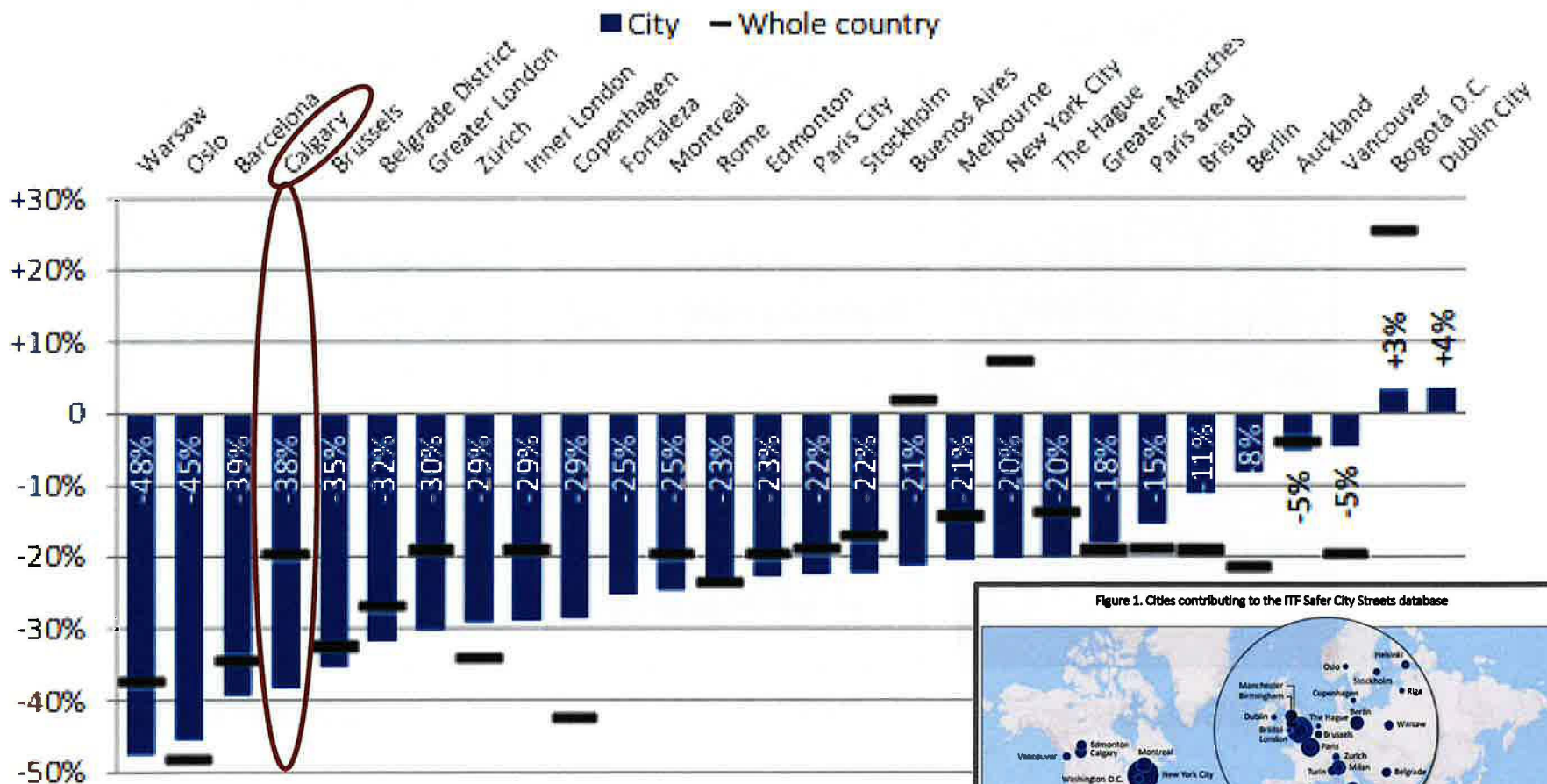


- Speed is the major factor for collision severity, regardless of contributing factors



National and International Leadership

Road traffic deaths by city and country, 2010-2018



Source: *Monitoring Progress in Urban Road Safety*,
International Transport Forum (ITF)



Examples of 2020 Key Achievements

Evaluation

250+ design safety reviews

100+ safety studies, reviews and checks

12 new RRFBs
(160+ total)

Engagement

60,000 hours of SLOWS speed trailer messaging

200+ citizen concerns through 311

10 Leading Pedestrian Intervals (LPI)

Engineering

21 new traffic signals

Deployment of 160 traffic calming curbs

11 overhead and side-mounted flashers

Examples of Successes - Corridor

CITY OF CALGARY TRAFFIC SAFETY IMPROVEMENTS

Calgary

Project Details:

Date: 2017-2019

Location: 36 Street NE between
8 Avenue and 26 Avenue

Improvements:

- Signal controller upgrade
- Signal operational improvements

- Smart, Connected Corridor
- Reduce delay and improve safety for pedestrians
- Improvements to train detection and efficiency
- Mental health benefit for train operators and public



26 Ave NE

8 Ave NE



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

Examples of Successes – Schools

CITY OF CALGARY TRAFFIC SAFETY IMPROVEMENTS

Calgary

School Safety Research Project

Date: Summer 2020

Location: 50 schools city-wide

Improvements:

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

- Low cost, quick implementation, high benefit improvements
- Data based evaluation
- Initial results indicate we will add these measures to our toolbox

In-Street Pedestrian Signs



1.0 km/h
Average Speed
Reduction

Traffic Calming Curb Extensions



0.5 km/h
Average Speed
Reduction

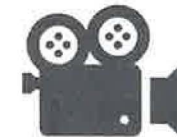


1,280+
Survey Responses

-200



Average Change in
Number of Vehicles on
the Road per Location



2,880
Collected Hours of
Video Recordings

Continuing Pilot
of “Starburst”
pedestrian
crosswalk sign



Examples of Successes - Intersection

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



- Highest left turn across path collision location in the City
- Further improvements to address right angle collisions at closely spaced intersections underway

Collision Cost to Society



54%
Reduction of
Collision Cost
to Society



28%
Reduction of
All
Collisions



95%
Reduction of
Left Turn
Across Path
Collisions



73%
Reduction of
Injury
Collisions

Benefit Cost Ratio

>100:1



Examples of Actions Planned for 2021

- Pedestrian improvements (RRFBs, curb extensions, median refuges, signs and pavement markings, etc.)
- Right turn improvements and roadside barriers
- Adopt new measures of perception and leading indicators of safety
- Develop virtual educational materials and innovative ways to share safety messages with Calgarians
- Continue to pilot innovative measures
- Identify opportunities to make winter mobility safer



Partnerships and Collaboration

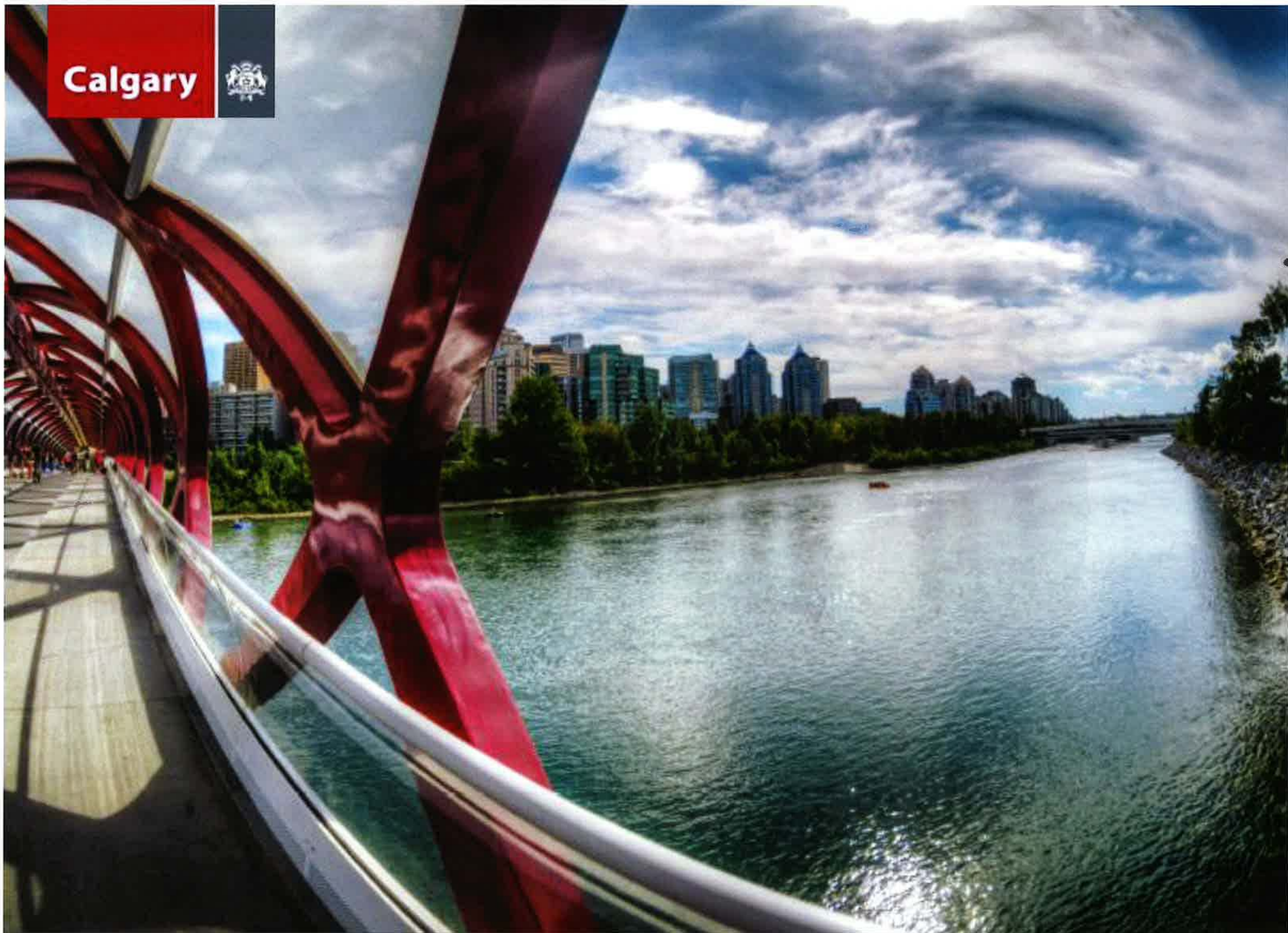


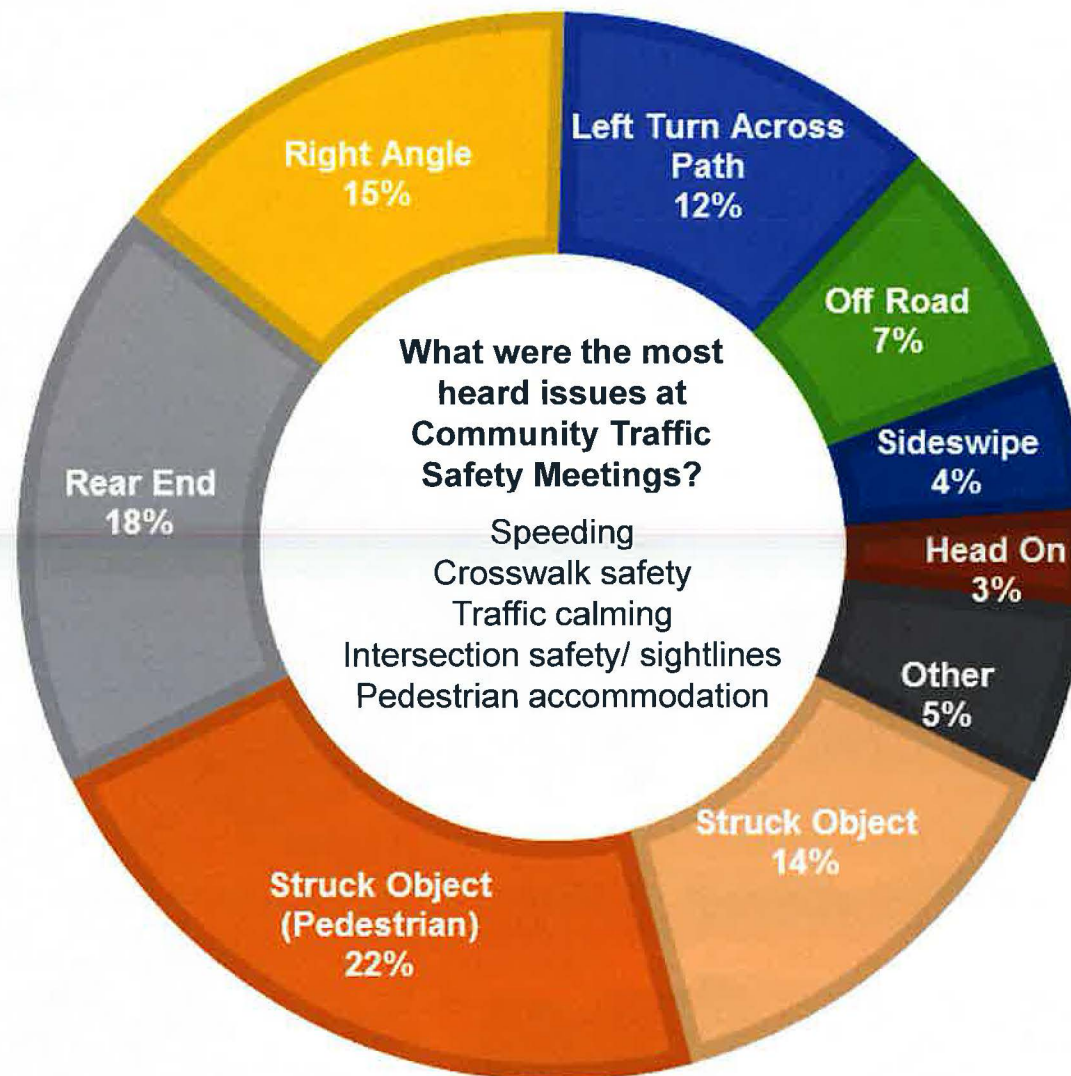
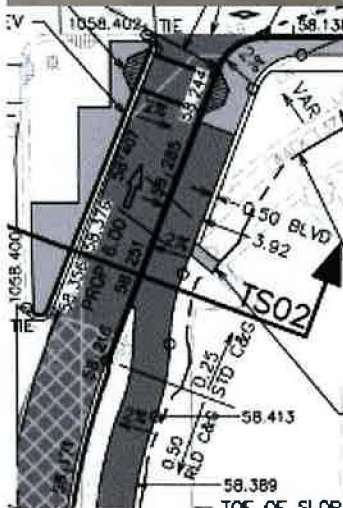


ADMINISTRATION RECOMMENDATION(S)

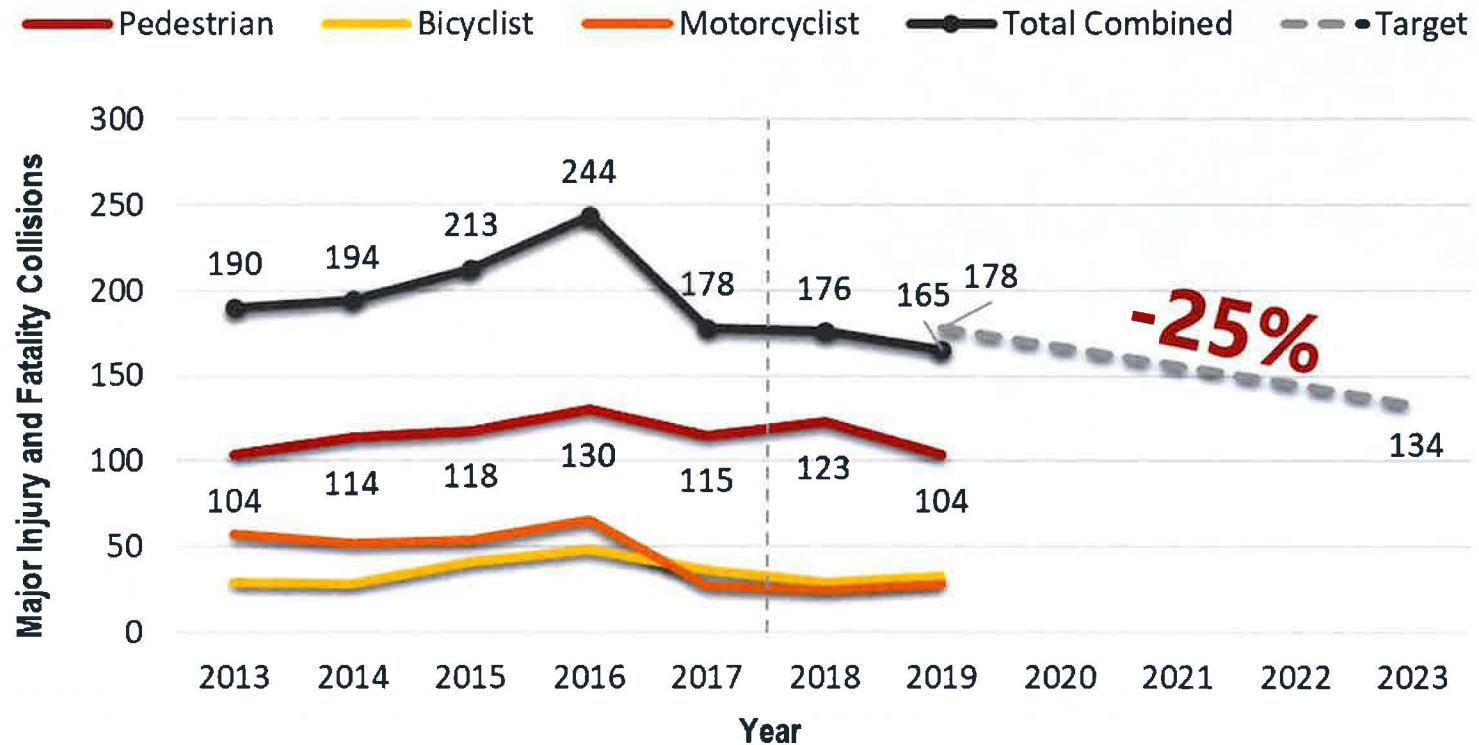
That the Standing Policy Committee on Transportation and Transit recommends that Council:

1. Direct Administration to report back to the Standing Policy Committee on Transportation and Transit on the Safer Mobility Annual Report 2021 by Q4 2021





Vulnerable Road User Collision Target



Key Actions:

- Strategic application of mitigation measures for pedestrian collisions, including RRFBs, Overhead Flashers, Traffic Calming Curbs.
- Engagement and awareness activities related to vulnerable road user safety.
- Support of CPS enforcement activities related to vulnerable road users.

Achievements: Engineering

- Pedestrian crosswalk and school-related improvements
- Network studies to identify issues and solutions
- LRT corridor pedestrian improvements
- High entry angle right turns
- Signal phasing changes
- Vision Zero focus
- Leading Pedestrian Interval



Achievements: Evaluation and Innovation

- Trials of innovative countermeasures such as Leading Pedestrian Interval at signalized intersections
- Calgary hosted Canadian Association of Road Safety Professionals (CARSP) Webinars
- Active participation on TAC committees guiding projects to develop application guidance for the safety impacts of bicycle infrastructure and u-turn signals.

Achievements: Enforcement Support



- Continuous coordination and cooperation in the delivery of community improvements and initiatives
- Coordination of six Community Speed Watch events



Examples of Successes



- Leading Pedestrian Interval
- 90% reduction of injury collisions
- Savings in collision cost to society: \$0.5M per year

Video Based Conflict Analysis

1 AV and 9 ST NE

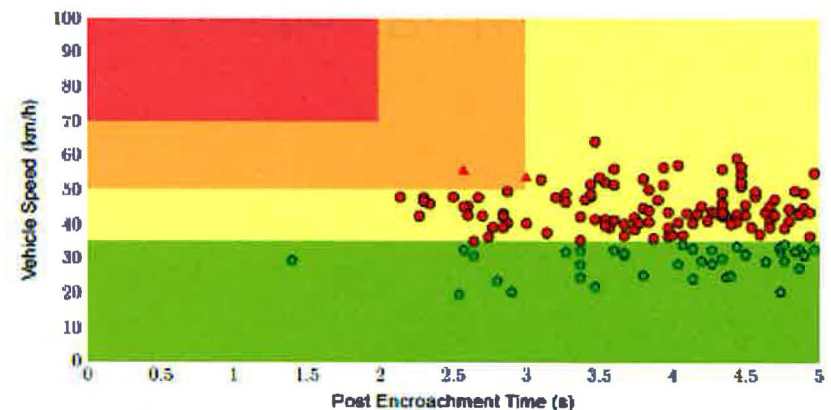
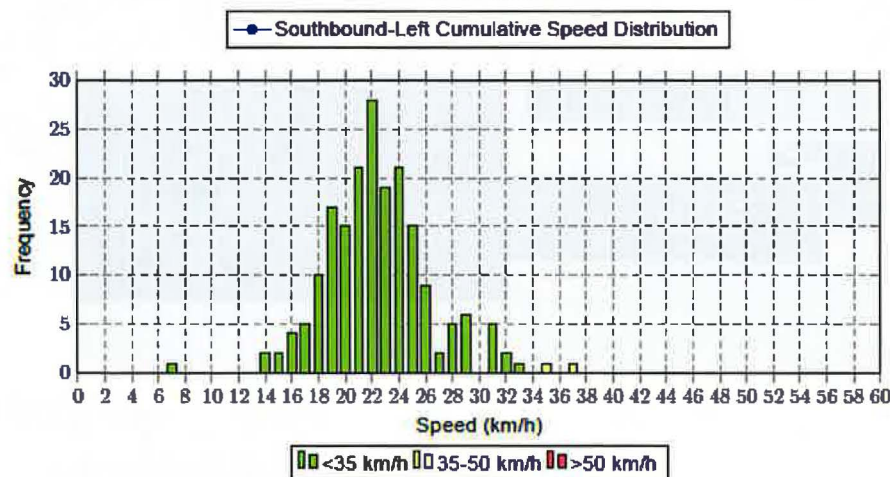
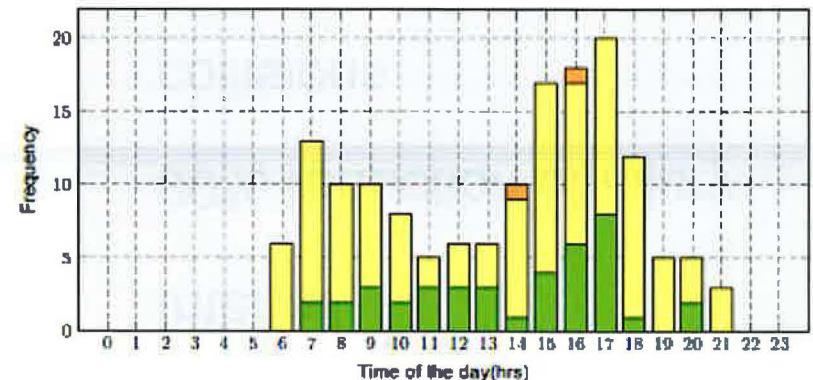
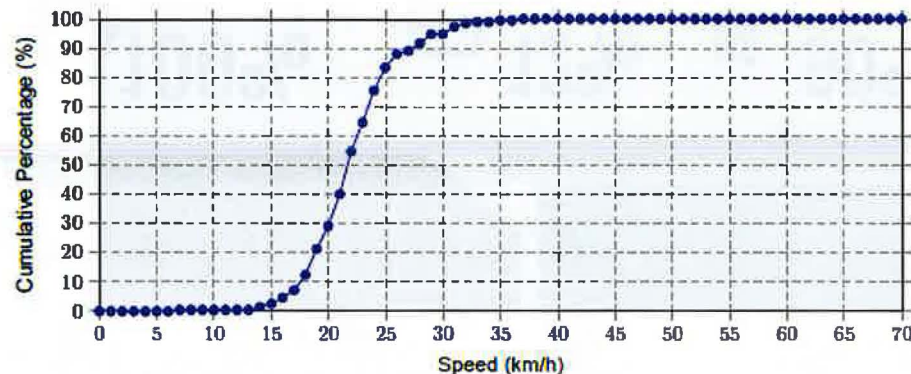
Detail 6: West-left vs East-through @ 1 Ave NE and 9 St NE- Calgary AB - August 28 2018 @6:00
-August 30 2018 @22:00(68 hours)



Vehicles <35 km/h	190 (99%)
Vehicles 35-50 km/h	2 (1%)
Vehicles >50 km/h	0 (0%)
Average Speed (km/h)	22
Standard Deviation	4
85 th percentile (km/h)	25



Risk Level	Critical Risk	High Risk	Medium Risk	Low Risk
Measured Frequency	0	2	112	40
Annual Frequency	0	258	14428	5153
Conflict Rate (%)	0	0.11	5.92	2.11
Relative Risk	N-A	N-A	N-A	N-A



Vision Zero

Vision Zero is based on an ethical standpoint that “No loss of life is acceptable” and “In every situation a person might fail the road system should not” and ‘Speeds based on human limits”

CCMTA Canada Road Safety Strategy Vision Zero

“Downward trends in collision rates”

Vision Zero isn’t about pedestrians and cyclists

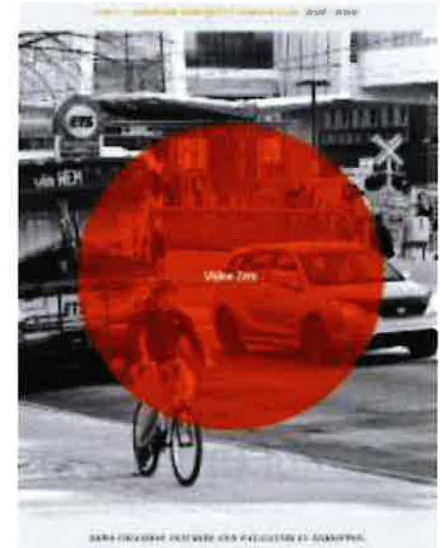
It is about improving safety for everyone

NOT a target of zero, focused on fatal and injury collisions (there will still be collisions) but a long term vision or goal

Toronto Vision Zero Plan adds \$16M per year to their traffic safety spending (\$41.2M/year total), the Traffic Safety Unit has 14 staff

Edmonton Vision Zero Plan added \$12M per year to safety spending (\$43.9M/year total)and the Traffic Safety Section has 12 staff

Calgary SMP, \$1.5M per year (~\$25 total) and Traffic Safety has 3 staff + 1 data analyst



Controlling Impact Energy

- 10 km/h over the speed limit feels like a safe speed and is seldom enforced, propagating the myth that it is ok to go a little over, recent AMA survey shows gap between beliefs and actions
- This requires changes to the road environment (to make speed limits more credible), social norms, user behavior, education and enforcement, judicial system, health system etc. Transportation is an every day thing and there are many factors that influence traffic safety – even the economy.
- Physics and Human Biomechanics – Kinetic Energy = $\frac{1}{2} \text{ Mass} \times \text{Velocity}^2$

1% increase in speed → ~ 2% increase in collisions, ~3% increase in injuries, ~4% increase in fatal collisions. (power model , i.e. exponential, relationship)



Figure E1: Fatality Risk for Three Major Collision Types and Different Impact Speeds

