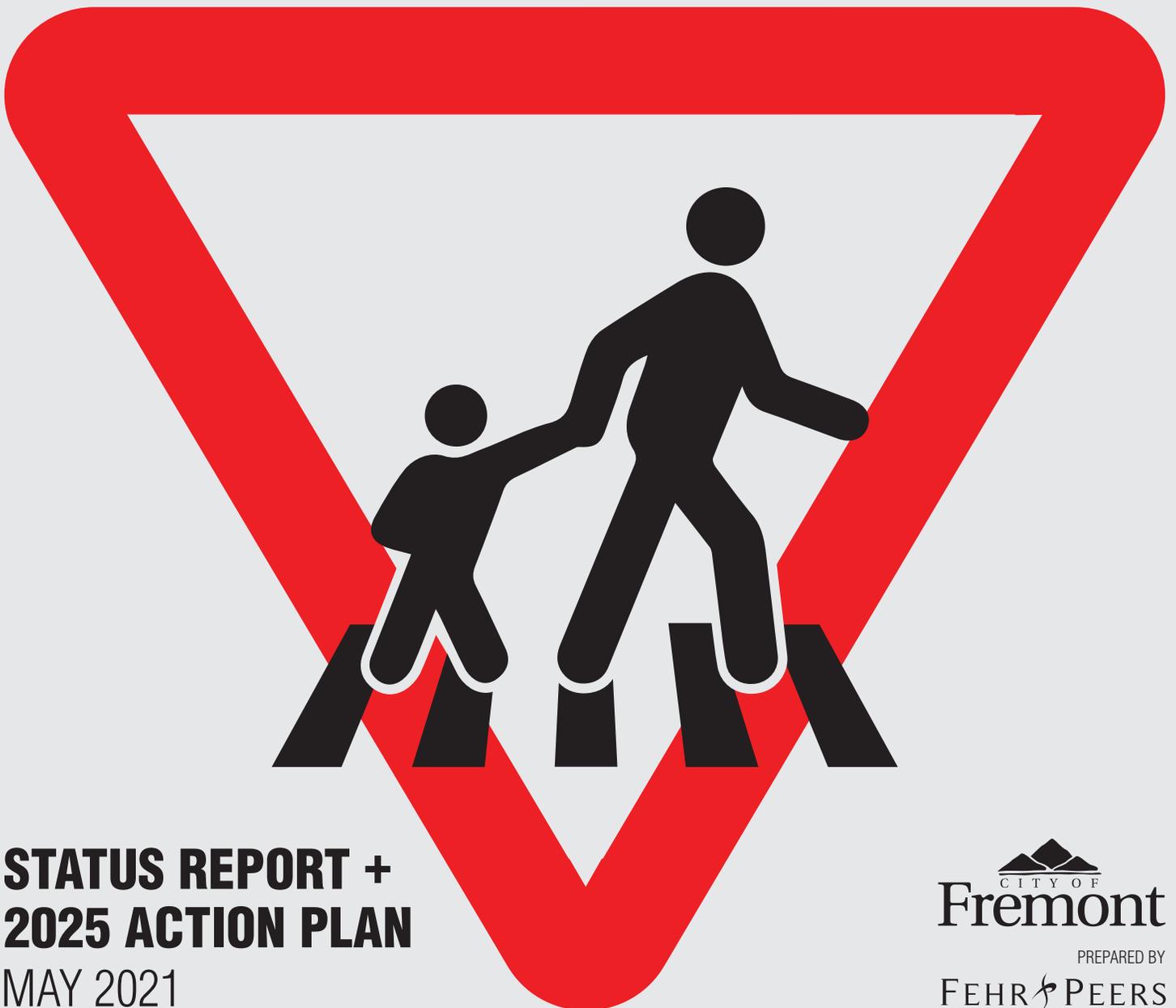


# FREMONT VISION ZERO

Five Years of Progress &  
A Renewed Effort Towards  
“Getting to Zero”

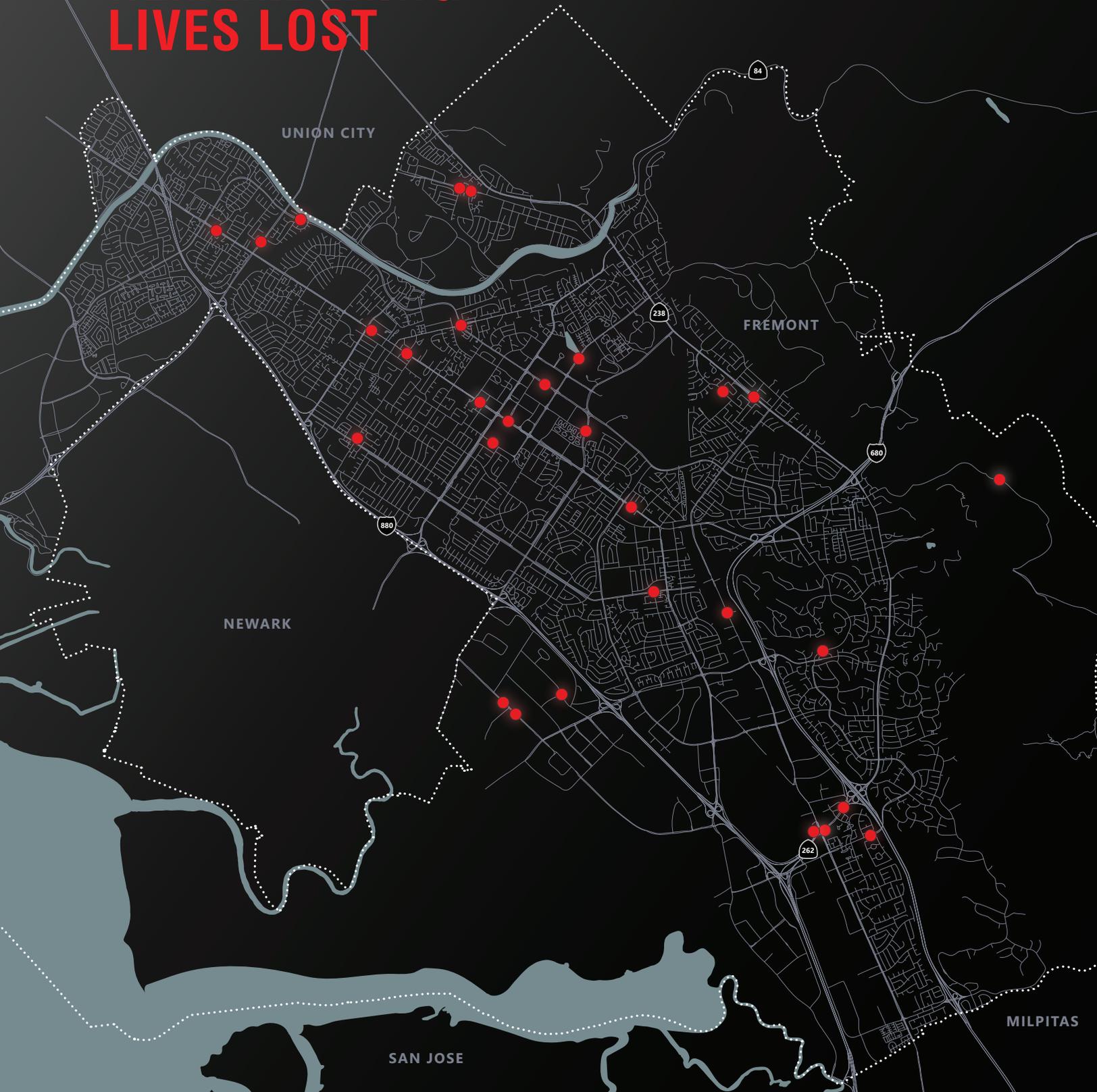


**STATUS REPORT +  
2025 ACTION PLAN**  
MAY 2021

  
CITY OF  
**Fremont**  
PREPARED BY  
FEHR & PEERS

2016-2020

# REMEMBERING LIVES LOST



This report is dedicated to the 29 people who lost their lives on Fremont streets and local state highways over the past five years. Their loss reminds us that every life is precious and inspires us all to continue our efforts toward the vision of zero traffic deaths.

# MESSAGE FROM CITY LEADERS

The community of Fremont, California is renowned as a safe, livable and happy city, having great neighborhoods, parks, schools, and a wonderfully diverse population, all located within the vibrant economy of Silicon Valley and as part of the cultural richness and environmental beauty of the San Francisco Bay Area. With our population of 240,000 residents, we value public safety as among our highest priorities. That is why in 2015, we embraced “Vision Zero” as a traffic safety strategy with the goal to continually improve street safety and eliminate traffic fatalities.

By boldly applying a “Safe System” approach to street design, operations and public education, over the past five years we have achieved a 45% reduction in major traffic crashes involving a fatality or severe injury. Our strong leadership in the area of traffic safety is evidenced by having an average fatality rate of 2.1 (annual traffic deaths per 100,000 population), well below the 9.1 rate for California and the 11.0 rate for the nation. We commend our Public Works and Police staff, the City organization as a whole, and the entire Fremont community for this remarkable achievement.

But there is more work to do to meet our goal of eliminating the tragedy of traffic deaths on our streets. At this time, we are renewing our commitment to Vision Zero and updating our action plan for “getting to zero” by 2025. We look forward to having you join us!



**Lily Mei**  
Mayor



**Teresa Keng**  
Councilmember  
District 1



**Rick Jones**  
Councilmember  
District 2



**Jenny Kassin**  
Councilmember  
District 3



**Yang Shao**  
Vice Mayor  
Councilmember  
District 4



**Raj Salwan**  
Councilmember  
District 5



**Teresa Cox**  
Councilmember  
District 6



**Mark Danaj**  
City Manager

# ACKNOWLEDGEMENTS

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Chief Kim Petersen

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## Fremont Mobility Commission

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Melissa Avery, Vice Chair

Erin Vaca

Flavio Poehlmann

Ken Wu

Nissar Ahmed

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# CONTENTS

## 01

### INTRODUCTION & BACKGROUND

PAGE 1

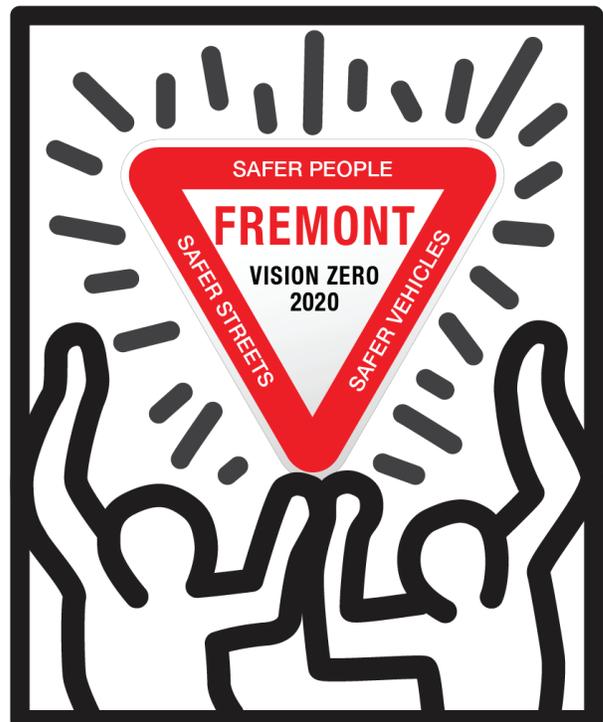
Getting to Zero in Fremont

Crash Summary

Principles & History

Vision Zero Communities

Fremont Vision Zero Origin Story



## 02

### FREMONT'S APPROACH TO VISION ZERO 11

Organizational Practices  
Partnerships  
Using Data for High-Impact Work  
Updating Plans & Community Engagement  
Safety on a Shoestring  
Core Staff Team  
The Joy of Safe

## 03

### ACCOMPLISHMENTS FROM FIRST FIVE YEARS 19

Safe & Complete Streets  
Safe Crossings  
Speed Management  
Brighter Street Lighting  
Safe Routes to Schools & Safe Neighborhoods  
Hot Spot Response  
State Highways

## 04

### DEVELOPING A NEW ACTION PLAN 33

A Needs-Based Approach  
People Walking & Biking Are Most Vulnerable  
Major Crashes Remain Highest on Wide, Fast Streets  
Older People & Unhoused People Are Killed & Injured Disproportionately

## 05

### VISION ZERO 2025: NEXT LEVEL ACTION PLAN 41

Get State Legislation for Safer Speeds  
Continue Local Actions for Safer Streets  
Encourage Support from Regional Partners

## A

### APPENDICES A

Details on Safety Projects Delivered and Funding Sources  
Fatal Crash Narratives: Understanding Safety Issues Is More Than Dots on a Map  
A Deeper Data Dive

**01**



INTRODUCTION  
& BACKGROUND

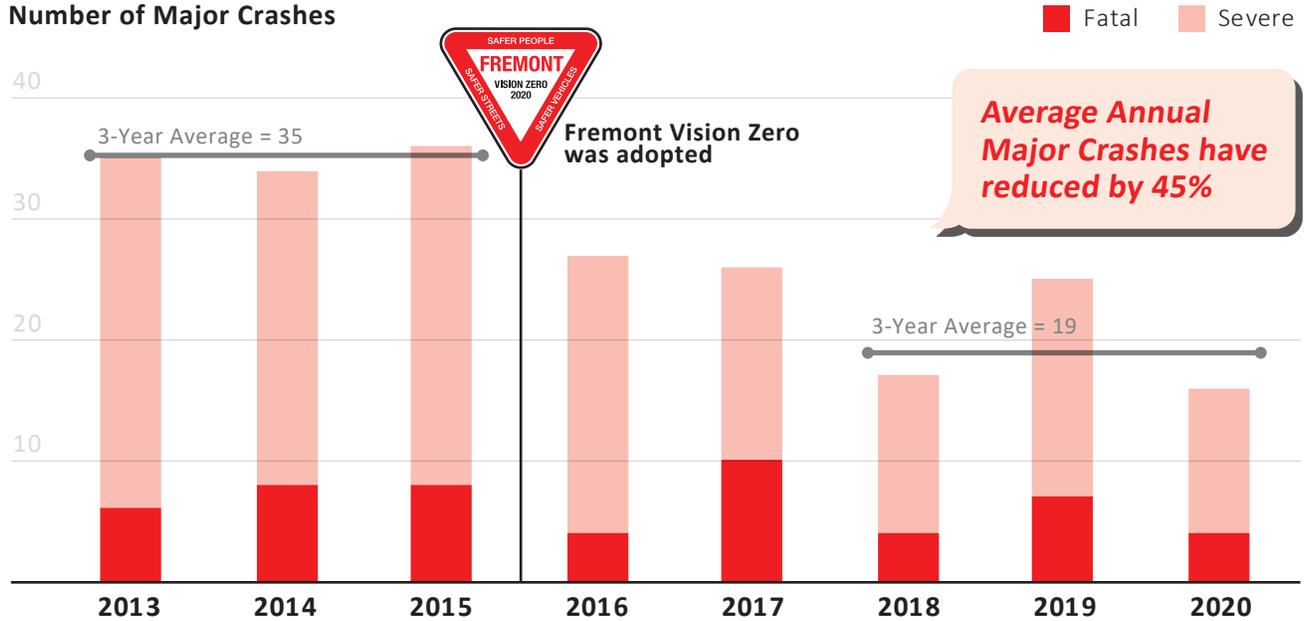
# Getting to Zero in Fremont

**The City of Fremont is a mid-sized city** located in the Silicon Valley. Over the past five years, Fremont has achieved a remarkable 45% reduction in fatalities and severe injuries caused by traffic crashes. This significant safety accomplishment was facilitated through hard work, leadership, and diligent investment in safety infrastructure and programs. Fremont's concerted organizational focus on traffic safety began in 2015 with the adoption of a Vision Zero policy by the Fremont City Council.

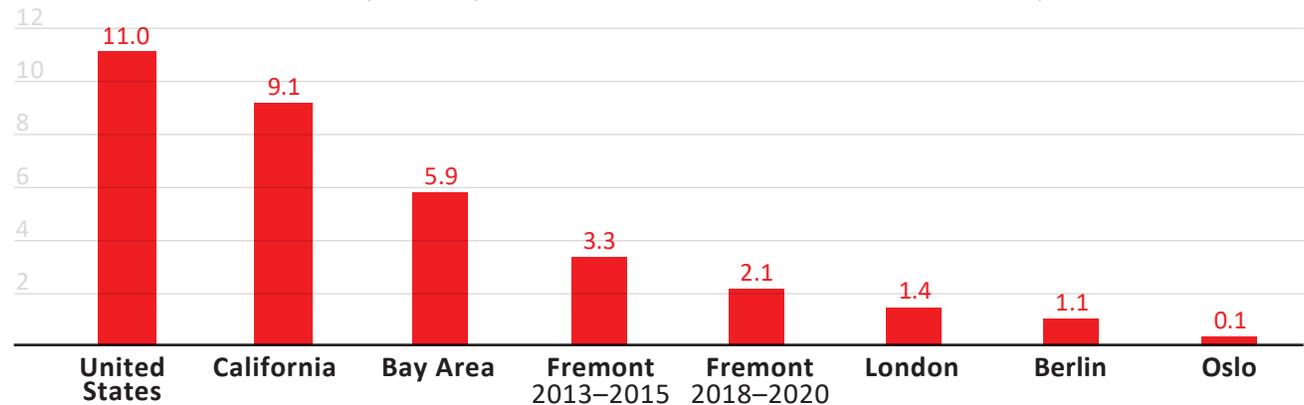
**The Fremont Vision Zero 2025 Action Plan provides a next-generation plan for getting to zero.**

The five-year status report presents Fremont's Vision Zero playbook as a model for similar cities. Fremont's successes (and lessons learned) may be helpful for other cities both big and small in making safer streets for everyone. *Everyone is in this together.*

**Number of Major Crashes**



**Traffic Fatalities Per 100,000** (2019 Population & Fatalities, Unless Otherwise Noted)



Sources: [Insurance Institute for Highway Safety](#), [City of Fremont](#), [U.S. Census](#), [European Transport Safety Council](#), [FleetNews](#), [Berlin Spectator](#).

FREMONT

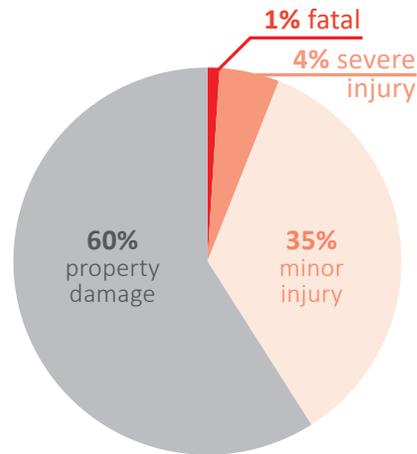
# Crash Summary

Major crashes have decreased for riskier road environments such as in the **🌙 DARK** and on **🛣️ ARTERIAL ROADS**. They have also decreased for Fremont’s **👶 YOUNGEST RESIDENTS**. Major crashes declined for all modes, with **🚗 DRIVER-involved** crashes seeing the greatest drop.

Comparison between  
2013–2015 & 2018–2020

	2013–2015	2018–2020
<b>🌙 DARK</b> ▼36%	14.0 /per year	9.3 /per year
<b>🛣️ ARTERIAL ROADS</b> ▼45%	29.0 /per year	16.7 /per year
<b>👶 YOUTH AGE 15 OR YOUNGER</b> ▼67%	3.0 /per year	<1 /per year
<b>🚶 PEDESTRIANS</b> ▼32%	11.3 /per year	7.7 /per year
<b>🚲 BICYCLISTS</b> ▼23%	4.3 /per year	3.3 /per year
<b>🚗 DRIVERS</b> ▼57%	19.3 /per year	8.3 /per year

## Crash Type Frequency



**Vision Zero aims to prevent the small percentage of fatal & severe injury crashes.**

**While reading this Report, keep the following details in mind:**

- A major crash results in a death or severe injury, and is also called a Killed or Severely Injured (KSI) crash. According to the California Highway Patrol, severe injuries include broken bones, dislocated limbs, severe lacerations, severe burns, or unconsciousness.
- Major crashes represent just a small percentage—approximately 5 percent—of overall crashes. Vision Zero’s goal is to get to zero fatal and life-altering injuries, not to eliminate all crashes. When cities create safe streets and systems minor traffic injuries will still occur, but people live and can walk away from the crash.
- Major crash locations include all Fremont city streets, railroad corridors, freeway interchanges, and State Highways with local access like State Route (SR) 238 (Mission Blvd) and SR 262 (Mission Blvd). Not included are I-680 and I-880 freeway corridors, SR 84 (Niles Canyon Rd) and private property.
- The COVID-19 pandemic changed when and how many people traveled in 2020. While COVID-19 resulted in significantly less travel overall, there is some evidence that less traffic led to more speeding, and severe crashes. Indeed, nationally, traffic deaths increased in 2020 by 8%, even as the number of miles people drove decreased by 13%.<sup>1</sup>

<sup>1</sup> <https://www.nsc.org/newsroom/motor-vehicle-deaths-2020-estimated-to-be-highest>

VISION ZERO

# Principles & History

**Each year approximately 40,000 people die on our nation's streets and highways** and hundreds of thousands more are severely injured, resulting in tragic personal loss and deep community impact. The effects include emotional trauma to affected individuals, families and friends; personal economic loss; long-term healthcare costs; and significant taxpayer spending on emergency response involving paramedics, police, ambulance services, and hospitals.

---

## **Vision Zero is a fundamental rethinking of street safety.**

---

A **Vision Zero approach** holds that any loss of life from traffic crashes is unacceptable and preventable. A Vision Zero philosophy accepts that humans will make mistakes and that traffic crashes will happen, but seeks to design and operate the transportation system so that crashes do not result in life-altering injuries or death. This is a fundamental shift from a **traditional approach**

to traffic safety that accepts loss of life as inevitable and unpreventable. Vision Zero requires a comprehensive approach that seeks to achieve safe roads, safe speeds, safe vehicles, safe road users, and post-crash care.

First created by Sweden in 1997, European Vision Zero programs have achieved 50% reductions in fatalities over a decade. The City of Oslo<sup>2</sup>, Norway reduced traffic fatalities by 68% from 2010 to 2018, and to a single fatality in 2019.

As of November 2020, the Vision Zero approach has been adopted by about 50 American cities. In support of the Vision Zero goal, the US Federal Highway Administration (FHWA) recommends a **Safe System approach** to transportation safety planning, design, and implementation. This approach is founded on the principles that humans are vulnerable and redundancy is crucial to reach the goal. The Safe System approach expands on Vision Zero principles by emphasizing separating road users in space and time and reducing the kinetic energy of crashes to improve safety.

---

## Traditional vs. Vision Zero Approach

### TRADITIONAL APPROACH

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

### VISION ZERO APPROACH

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

Source: Vision Zero Network

---

<sup>2</sup> Oslo, Norway's population in 2020 was approximately 698,000 according to [Statistics Norway](#).

## Why Safe Speeds?

Safer vehicle speeds are critical to reducing deaths and severe injuries. Human bodies are vulnerable. The faster a car or truck is traveling, the more likely a person is to be killed. Safer speeds also reduce the likelihood of crashes as at higher speeds cars require longer distances to slow down and drivers have a reduced field of vision.

If Hit By a Person Driving At

Person Survives the Collision

Results in a Fatality

20 MPH



30 MPH



40 MPH



Source: National Highway Traffic Safety Administration, Literature Reviewed On Vehicle Travel Speeds And Pedestrian Injuries, March 2000.

### How does Kinetic Energy affect Crashes?

Crash severity depends on the energy transfer involved in a collision. **Kinetic Energy** is higher when a vehicle is heavier, and increases quadratically as a vehicle moves faster. Reducing the system kinetic energy on the roads reduces major crashes.

## Lower Speeds Increases A Driver's Field of Vision

20 MPH



30 MPH



40 MPH



Source: Vision Zero Network

## The Safe System Approach

The Safe System approach aims to eliminate fatal and severe traffic injuries. This **FHWA-led strategy** uses a holistic view of the road system that first anticipates human mistakes and second keeps impact energy on the human body at tolerable levels. Vision Zero is one of several initiatives in the United States working to implement a Safe System approach and make this a reality.

NATIONAL

# Vision Zero Communities

Source: Vision Zero Network Map, November 2020



**VISION ZERO NETWORK**

IN NEWS, U.S. VISION ZERO CITIES

**Vision Zero-Not Just for Big Cities**  
**Fremont, California Shows Us Why**

Fremont, California, an early-adopter to Vision Zero in the U.S., has a lot in common with other Vision Zero cities, but it's not the population. It's a medium-sized, Silicon Valley city - population of 230,000 - with a relatively small budget.

Yet, leadership in this city has re-evaluated projects and programs through a Vision Zero lens and demonstrated success in a short period of time. Our Q&A below details key projects that have driven success. To learn more, check out a video where Fremont's public works director speaks in person.

**The Vision Zero Network** is a non-profit organization that helps cities reach their goals of Vision Zero. Founded in 2015, with support from Kaiser Permanente, the Network convenes leaders in the realms of public health, transportation planning & engineering, policy, community advocacy, and the private sector to develop and share promising strategies that make Vision Zero a reality. The Network recognizes cities that are taking demonstratable actions, such as the adoption of an “action plan” to advance the principles of Vision Zero to ensure safe mobility for all. Nearly 50 cities are recognized as Vision Zero communities.

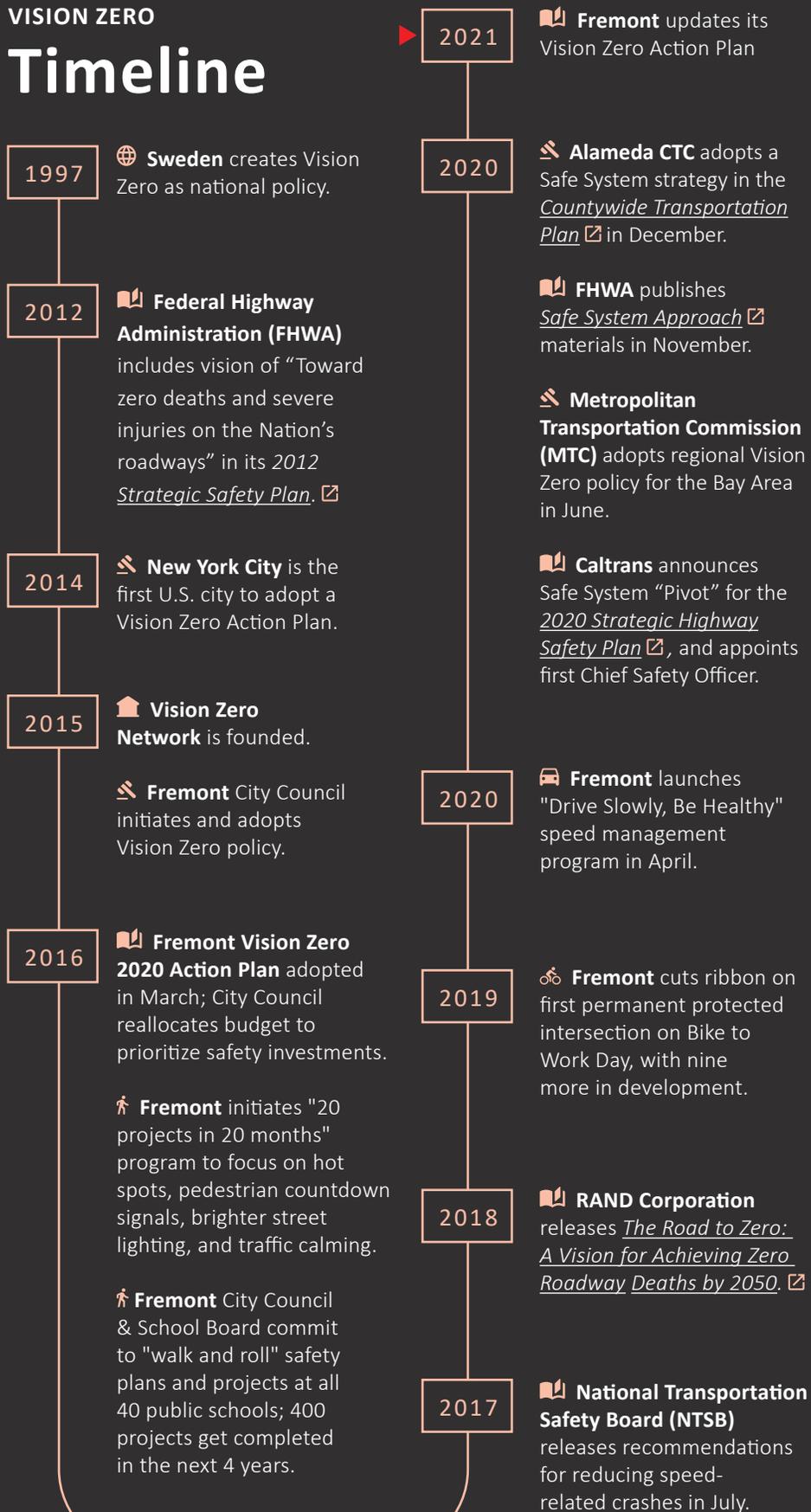
For more information, visit:  
[www.visionzeronetwork.org](http://www.visionzeronetwork.org)

**Vision Zero Early Adopters in the U.S.**

	City	VZ Action Plan Approved	Population
1	New York City	Feb 2014	8,300,000
2	San Francisco	Feb 2015	880,000
3	Seattle	Feb 2015	750,000
4	San Jose	May 2015	1,000,000
5	Los Angeles	Aug 2015	4,000,000
6	Boston	Dec 2015	690,000
7	Washington DC	Dec 2015	710,000
<b>8</b>	<b>Fremont</b>	<b>Mar 2016</b>	<b>240,000</b>
9	Austin	May 2016	980,000
10	San Diego	Jun 2016	1,400,000
11	San Antonio	Nov 2016	1,500,000
12	Portland	Dec 2016	650,000

## VISION ZERO

## Timeline



## FREMONT'S NATIONAL RECOGNITION

Fremont has made significant progress towards Vision Zero goals, and its achievements stand out even alongside other major U.S. cities. Local, regional, and national organizations have recognized Fremont's success and asked City officials to share approaches and efforts behind this accomplishment.

🏆 **Vision Zero Network Webinars, 2017 & 2019**

🏆 **Transportation Research Board Conference Presentation, 2018**

🏆 **Federal Highway Administration Case Studies, 2018 & 2020**

🏆 **Institute of Transportation Engineers Conference Presentations, 2019 & 2020**

🏆 **National Safe Routes to School Conference Presentation, 2019**

🏆 **Vision Zero for Youth USA Leadership Award, 2020**

## FREMONT VISION ZERO

# Origin Story

**The origin of Fremont’s Vision Zero program is a story of an entire organization and community embracing a mission to urgently improve traffic safety.** During the three years from 2013 to 2015, Fremont experienced a concerning rise in traffic fatalities and severe injuries, particularly involving pedestrians, seniors and youth. Fremont’s Vice Mayor, Sue Lee Chan, after hearing a presentation from the Vision Zero Network, initiated a referral to the City Council in July 2015 to consider adopting a Vision Zero policy. With enthusiastic support, two months later in September 2015, a written Vision Zero policy was approved. City staff then went to work on preparing a data-driven action plan. There was no time to wait for hiring consultants, funding new staff positions, or convening a major outreach process. Experts from the Police Department (Traffic Unit) and the Public Works Department (Traffic Engineering Section) worked to analyze past crash data and the best practices for improving traffic safety.

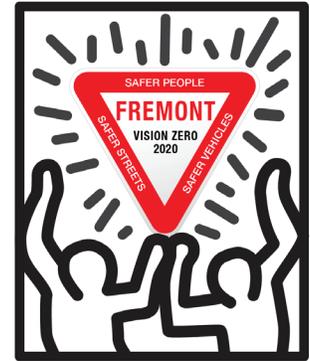
**The Fremont Vision Zero 2020 Action Plan was created as a starting point and was unanimously approved by the City Council in March 2016.** As a demonstration of an immediate commitment to the vision of zero traffic deaths, simultaneous action was taken to redirect \$2.5 million in City funding, not aligned with the “safety first” policy, which allowed work to start immediately. No time to wait for the regular budget process. Public Works committed to delivering a “20 projects in 20 months” program, with a focus on pedestrian countdown signals, brighter street lighting, and safer pedestrian crossings.

**The entire City organization embraced Vision Zero and then set to engage the community as a partner.**

- The City Manager’s Communications Team highlighted Vision Zero as the headline article in the City newsletter sent to all residents.
- “Safety” was adopted as the 2016 theme for the City’s outreach booth at community events.
- The Police Department hosted a Vision Zero “traffic edition” of their popular Coffee with Cops program.
- The City’s Youth Service Corps launched the annual “look for safety” program to paint LOOK markings at City crosswalks.
- A local Girl Scout started up a program to prevent distracted driving.
- Educational videos were created with a local community college and by student interns.
- Vice Mayor Sue Lee Chan started a speaker series to discuss Vision Zero to everyone that was interested. She hosted a lot of meetings!

## Fremont Vision Zero 2020

A focused and collaborative effort to improve street safety and reduce traffic fatalities to zero.



Status Report and Action Plan  
March 2016

## VISION ZERO ACTION PLAN



### Safer Streets



- 1 INSTALL PEDESTRIAN COUNTDOWN SIGNALS



- 2 ENHANCE PEDESTRIAN CROSSINGS



- 3 PROVIDE NEW TRAFFIC SIGNALS AT PRIORITY LOCATIONS



- 4 IMPROVE NIGHTTIME LIGHTING



- 5 TAME HIGH-SPEED ARTERIAL STREETS



- 6 BUILD BETTER BIKEWAYS

- 7 MAKE FREEWAY INTERCHANGES SAFER FOR WALKING AND BICYCLING



- 8 CALMING TRAFFIC AROUND SCHOOLS AND NEIGHBORHOODS



- 9 CONDUCT SAFETY ASSESSMENTS FOR SAFETY PRIORITY STREETS

### Safer People



- 10 EXPAND TRAFFIC SAFETY PROGRAMS

- 11 CONTINUE ENFORCEMENT OF "HIGH RISK BEHAVIORS" AND "HOT SPOTS"



- 12 STUDY POSSIBLE USE OF AUTOMATED SPEED ENFORCEMENT CAMERAS

### Safer Vehicles



- 13 DEPLOY CRASH AVOIDANCE TECHNOLOGY IN ALL VEHICLES



[www.fremont.gov/visionzero2020](http://www.fremont.gov/visionzero2020)



COMMUNITY MEETINGS WITH VICE MAYOR SUE LEE CHAN



VISION ZERO EVENT BOOTH



COFFEE WITH COPS

COFFEE WITH COPS  
**TRAFFIC EDITION**  
JOIN CHIEF LUCERO AND SPECIAL GUESTS

---

TRAFFIC ENGINEERING  
FPD TRAFFIC COPS  
COMMUNITY ENGAGEMENT UNIT  
FPD OFFICERS



3.8.2016  
5:30-7PM  
BEAN SCENE CAFE  
4000 BAY STREET  
FREMONT



VISION ZERO STICKERS



YOUTH SERVICE CORPS  
"LOOK FOR SAFETY" PROGRAM

02



FREMONT'S APPROACH  
TO VISION ZERO

## APPROACH

# Organizational Practices

**Fremont's Vision Zero success** starts with an organization that prioritizes safety and enables quick and coordinated action. Fremont is a medium-size city with a part-time City Council and limited community advocacy infrastructure (as compared to larger cities). Fremont's Vision Zero program is primarily driven by an engaged and enlightened staff team. The City is guided by a General Plan that references being a "national leader" and that establishes a goal of creating **Complete Streets**. The City has both the leadership and organizational alignment to achieve this goal.

Transportation Engineering, the City's Pavement Maintenance Program, and Street Maintenance are all organized within the Public Works Department, which reduces barriers to collaboration. Fremont has achieved a tremendous output of safety projects by leveraging the pavement maintenance program for roadway restriping and by having street maintenance crews install **quick-build projects**. Recurring coordination meetings between Public Works staff and with the Police Department ensure clear communication and information sharing.

The City's work to implement Vision Zero has been guided by an empowered staff using cutting-edge tools and best practices. The City prioritizes staff training through both external opportunities such as conference attendance and internal peer learning. Public Works staff from

What are Complete Streets?



**Complete Streets** are designed to accommodate all modes of travel and not just automobiles. They are planned and operated with multiple users in mind, including motorists, pedestrians, bicyclists, transit users, and people of all ages and physical abilities.

a variety of groups, including Transportation, Design, and Development, have learned from study tours in places such as Portland, Seattle, Austin, Minneapolis, and Chicago, as part of attending conferences. Staff are encouraged to be engaged, to understand the larger goals and context of their work, and to take ownership of projects. Engineers make use of the latest design standards including NACTO guidance, examples from peer cities, and lessons observed abroad.

The City and Public Works Department have a culture that promotes acting quickly and innovating. Staff are encouraged to act with urgency and to collaborate directly with colleagues. The City has made extensive use of quick-build projects to achieve immediate safety outcomes and to test out designs. This decisiveness stems from a risk assessment framework that concludes the greatest risk is taking no action in the face of significant known safety issues.

What is a Quick-Build Project?

A **quick-build project** changes the roadway using materials that are easy and inexpensive to install, primarily paint and plastic bollards.



GRIMMER ELEMENTARY SCHOOL

## APPROACH

# Partnerships

**Partnerships have been a hallmark of Fremont's Vision Zero implementation approach.**

***Partnerships have included both internal collaboration between departments and work with other community organizations.***

Traffic enforcement officers and transportation engineers meet monthly to share information, and Fremont's Police Department provides access to crash data and reporting of issues such as locations of frequent near misses or reckless driving. In the initial years of Vision Zero implementation, Fremont's Police Department shifted its traffic enforcement focus to known high risk behaviors (speeding and impaired driving) and increased enforcement resources through cross-training and providing non-traffic officers with equipment to do traffic enforcement on down time. Fremont's Police Department also manages the City's robust network of red-light enforcement cameras. Fremont's Public Works and Police Department have also collaborated to install infrastructure measures to prevent dangerous and illegal sideshow activity.

Fremont's Fire Department has been an important partner, working to resolve design issues to ensure that narrower, tighter street designs to manage speeds do not impede emergency response times. The Fire Department has worked with engineering staff to test the ability of their equipment

to maneuver through proposed intersection geometries. The Fire Department has also worked with Public Works to deploy and implement use of an upgraded, GPS-based Emergency Vehicle Pre-emption system to activate traffic signals in advance of their arrival.

The City has also sought out partnerships with major healthcare providers and the School District in Fremont. Kaiser Permanente and Washington Hospital, two major hospitals in Downtown Fremont and two of the City's largest employers, have worked with the City to install pedestrian crossing improvements near their campuses. Kaiser also funded the installation of a street banner campaign promoting Vision Zero. The Fremont Unified School District partnered with the City to jointly fund the completion of school safety assessments at all 40 schools citywide, which set the stage for the City's quick-build school access safety projects.



## POLICE PARTNERSHIP, VISION ZERO & ENFORCEMENT

***The City's Police and Public Works Departments*** have a close working relationship which supports Vision Zero. The Fremont Police Department largely conducts high-visibility traffic stops to provide warnings and education, rather than issue tickets and fines, in order to create a visible enforcement presence while not generating economic hardship.

Recently, the national dialogue around policing has brought attention to inequalities associated with traditional traffic enforcement, including biases in discretionary enforcement<sup>1</sup>. Fremont's Police Department has conducted extensive community outreach on the topic of race and policing through its [Engage Fremont initiative](#) . The Engage Fremont initiative developed ten recommendations in the areas of funding, transparency and accountability, and policing and community relations, which Fremont's Police Department is now working to implement.

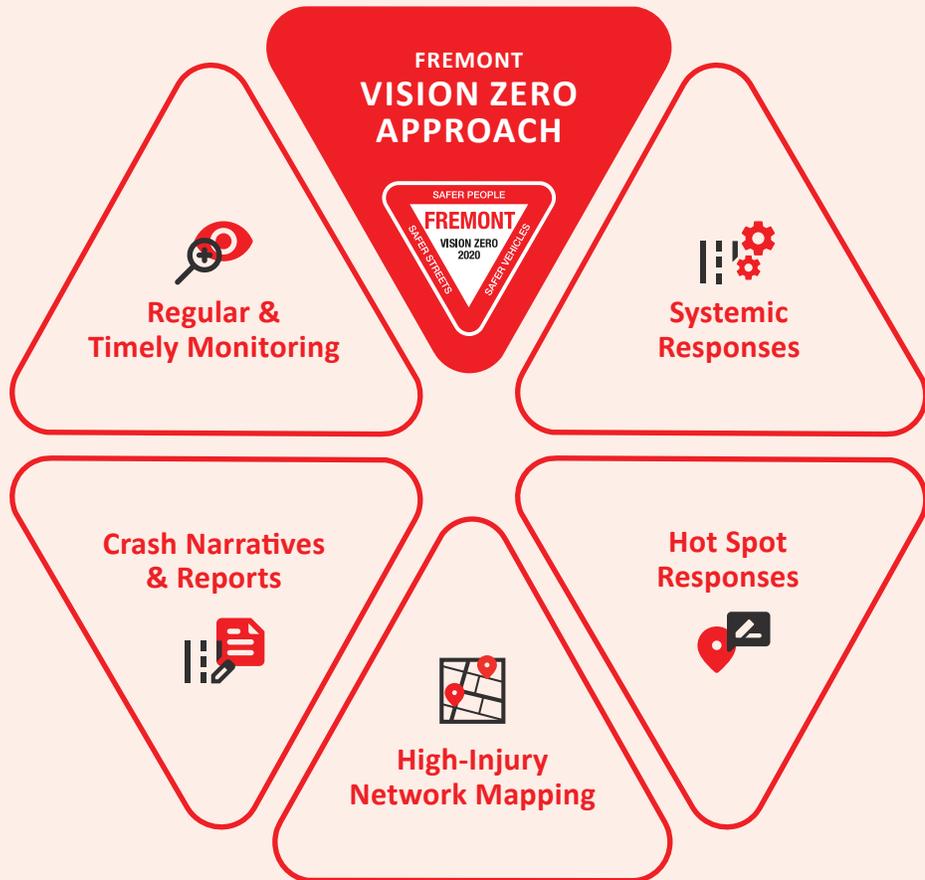
<sup>1</sup> As opposed to universal enforcement through tools such as traffic cameras.

APPROACH

# Using Data for High-Impact Work

**Without good quantitative and qualitative data,** it would be impossible to prioritize Fremont’s resources effectively. Everything from how quickly Fremont receives crash information to how City staff use that data is important for Vision Zero progress.

**These are some of the key elements for how Fremont uses data effectively.**



**Regular & Timely Monitoring**

Fremont transportation engineers often receive crash reports within 30 days of the crash. Engineers in many other cities do not receive detailed crash summaries until a year or more after crashes occur.



**Crash Narratives & Reports**

Public Works staff coordinate closely with the Police Department and have access to detailed information about each major crash in Fremont. This helps staff to target street safety improvements to factors causing crashes.<sup>1</sup>



**High-Injury Network Mapping**

Fremont created a map of high-crash roads to focus infrastructure projects. This approach ensures that projects are targeted based on need and not vocal complaints.



**Hot Spot Responses**

Previous crashes may be clustered together and indicate opportunities for improvements. Fremont evaluates historical crash data to identify such hot spots.



**Systemic Responses**

Hot spots may share characteristics, such as high speed limits and wide roadways, with other locations without crashes that would benefit from changes. Fremont looks for these types of factors to identify locations where improvements are needed because they are a risk for a future crash.

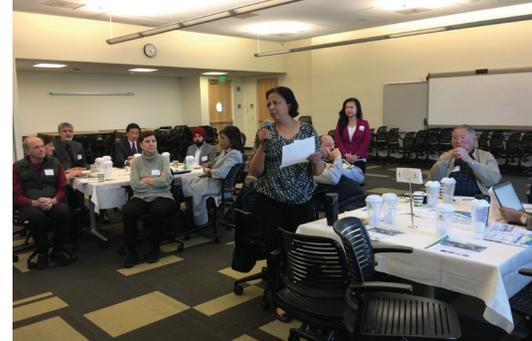
<sup>1</sup> Staff also supplement crash data and reports with collecting and analyzing video footage, which provides insights into near misses and user behaviors and interactions.

APPROACH

# Updating Plans & Community Engagement

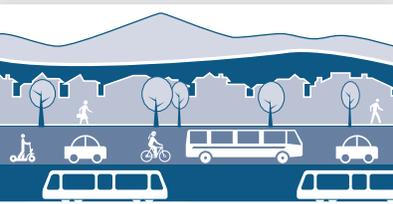
The City's **Vision Zero Plan** is generally high level, with a focus on types of projects and actions that will be impactful to eliminate major crashes. Fremont has a number of other plans, including a **Mobility Action Plan**, **Bicycle Master Plan**, **Pedestrian Master Plan**, and **Safe Routes to Schools Plans**, that provide location-specific recommendations and identify priority projects. Fremont has developed or updated all of these plans since its Vision Zero policy was adopted in 2015, and all of them are infused with an emphasis on safety and Vision Zero principles. Each of these plans was developed in consultation with the community.

The Mobility Action Plan featured one of the most extensive community engagement efforts that the City has ever undertaken, including collaboration with a Mobility Task Force comprised of community members that guided the process. An "Open City Hall" survey received responses from more than 2,600 people. Numerous "pop-up" events and meetings were held to target participation from seniors, youth, and community leaders. The Mobility Action Plan identifies safety as a top priority and includes a finding that the community's top safety interest was more enforcement. An outgrowth of the Mobility Action Plan was the formation of a permanent Mobility Commission, which has reviewed and helped to shape the Vision Zero 2025 Action Plan.



MOBILITY ACTION PLAN TASK FORCE

FREMONT PLANS



## Fremont Mobility Action Plan

March 2019



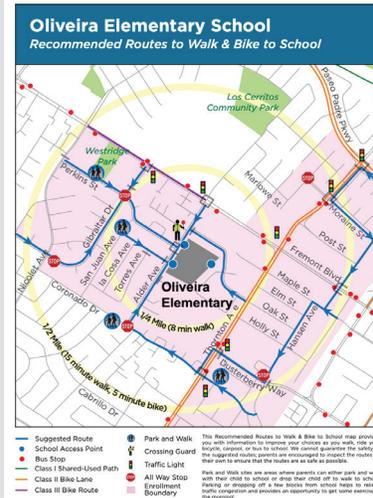
## City of Fremont Bicycle Master Plan

Adopted by City Council July 10, 2018



## City of Fremont PEDESTRIAN MASTER PLAN

Adopted by City Council December 13, 2016



APPROACH

# Safety on a Shoestring

**Fremont's Vision Zero success** has generally been achieved with no new City funding commitments and no new dedicated staff positions. The City initiated its Vision Zero program by reallocating existing funding resources away from projects that did not serve Vision Zero goals and reshuffling existing staff assignments. Early projects focused on making creative use of existing resources and programs (such as strategic use of the pavement program to target safety priority areas), low-cost improvements (such as quick-build project implementation using City crews), and other creative methods to finance projects (such as the City's LED street light conversion project, which was paid for by debt financing against future energy savings). The City has also made use of student interns for data collection and analysis, video production, and design drafting.

In more recent years, the City has received an infusion of grant funding that has made it possible to construct higher cost projects such as new traffic signal installations, raised cycletracks, and protected intersections. The City's Vision Zero commitment, data-driven approach to safety, and track record of success with respect to reducing major crashes have helped the City to successfully attract grant funds. New funding for transportation safety projects was also made possible due to voter approval of Measure BB Transportation Sales Tax Program in 2014 (managed by the Alameda County Transportation Commission) and the State approved gas tax increase in 2017.



FREMONT MAINTENANCE CREWS ARE TRAINED TO INSTALL QUICK-BUILD & LOW-COST SAFETY PROJECTS



[Link to video](#)

EDUCATIONAL VIDEOS ARE CREATED BY COMMUNITY COLLEGE PARTNERS OR STUDENT INTERNS

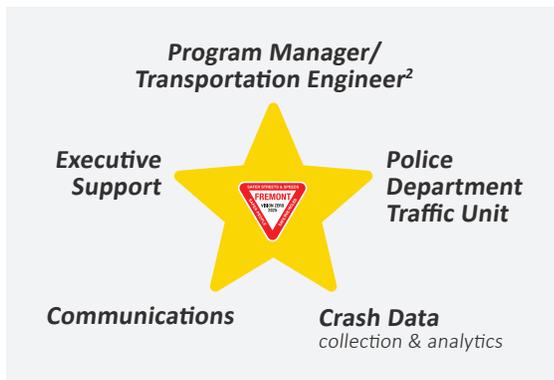


CROSSWALKS ARE QUICKLY ENHANCED USING LOW-COST MATERIALS

APPROACH

# Core Staff Team

The guiding stars of Fremont's Vision Zero program are a lean but comprehensive, five-person staff team that work in concert to plan and implement safety projects and initiatives. This team includes five leaders with the following responsibilities:



<sup>2</sup> The lead transportation engineer serves as the overall Vision Zero program manager. None of these individuals work full-time on Vision Zero.

The individuals that have served in these starring roles over the past five-years have included:

- **Program Manager/Transportation Engineer**  
"Safety Sheila" Marquises, "Mobility Matt" Bomberg, Senior Transportation Engineers
- **Police Department Traffic Unit**  
Lt Mike Tegner, Lt Mark Dang, Lt Ariel Quimson
- **Crash Data** "Data Daniel" Miller, Transportation Engineer
- **Communications**  
Alina Kwak, Management Analyst (City Manager's Office); Natalie Khwaja, Management Analyst II (Public Works)
- **Executive Support** Hans Larsen, Public Works Director

Other key support members and significant contributors on the Vision Zero team for project delivery include:

- **Public Works Street Maintenance Section** for quick-build project delivery: Jeff Edwards, Jason Bonilla
- **Public Works Engineering Division** for project delivery by construction contract or private development: Kande Bahmani, City Engineer; Noe Veloso, Assistant City Engineer (previously Principal Transportation Engineer); Ed Nakayama, Senior Civil Engineer (Pavement Maintenance Program Manager).

APPROACH

# The Joy of Safe

Fremont has been named the "Happiest City in America" three years in a row<sup>3</sup>, and the City strives to bring fun and happiness to even the serious work of eliminating severe traffic crashes. Examples of this approach are numerous. At community outreach events, City staff have given away Vision Zero stickers and kites and dressed up in safety themed costumes; in 2016, Fremont partnered with the California Office of Traffic Safety (OTS) to participate in their "pedestrians don't have armor" safety campaign. Staff have created educational videos explaining how to use newer infrastructure treatments, featuring characters as Safety Sheila and Mobility Matt.

Traffic safety education banners were created with an original, fun and contemporary "text and emoji" messaging style, which was conceived and developed by City staff. In Spring 2020, as part of a speed management campaign at the start of the Covid-19 pandemic, City staff collaborated with Mobility Commissioners to create a "Drive Slowly, Be Healthy" video set to the tune of Bobby McFerrin's classic song "Don't Worry, Be Happy."

<sup>3</sup> WalletHub.



Speeding isn't worth it!

Link to video

TOP, LEFT TO RIGHT: OTS PARTNERSHIP, "DRIVE SLOWLY" VIDEO  
BOTTOM: KAISER PERMANENTE STREET BANNER PARTNERSHIP

**03**



ACCOMPLISHMENTS  
FROM THE FIRST FIVE YEARS

ACCOMPLISHMENTS

# Safe & Complete Streets

Since adopting Vision Zero in 2015, Fremont has worked to systematically re-engineer its streets to be “safe and complete streets” that promote safer speeds and increase safety for motorists and also provide safe and comfortable facilities for people walking, biking, and taking transit. Fremont uses a variety of design tools to create safer streets.

Historically many Fremont streets were built with wide 12-14 foot travel lanes, which is a design standard that promotes high speeds and is more appropriate for traveling at freeway speeds. Since 2015, Fremont has adopted a 10 foot travel lane standard, which encourages slower speeds by creating a feeling of greater enclosure and friction for drivers. Narrower lanes also free up roadway width for enhanced bike facilities, including buffered and protected lanes. **Fremont has**

**restriped 40 miles (47% of its arterial roadways) as safe and complete streets since 2015.**

At intersections, street designs have focused on tighter radii which shorten crossing distances for bicyclists and pedestrians and force drivers to take turns at slower speeds. Fremont has implemented protected intersections, which eliminate weaving maneuvers between bicyclists and vehicles, improve sight lines, and further reduce crossing distances for pedestrians. Intersection improvements have been implemented as both quick-build projects and as full reconstruction with modified and upgraded traffic signal systems as part of major capital and grant-funded projects. **Five intersections have been rebuilt as protected intersections, with five more in construction, and more than 30 quick-build bulbouts have been installed.**

What are Buffered Bike Lanes?



**Buffered bike lanes** are separated from vehicle traffic by striping or parked cars. These facilities can increase safety by decreasing opportunities for crashes with over-taking vehicles, and reducing the risk of dooring.

## ANATOMY OF A DANGEROUS STREET

Safe street design is context dependent. This sketch identifies select attributes and is for illustrative purposes only.

Source: City of Portland Vision Zero Action Plan, December 2016.



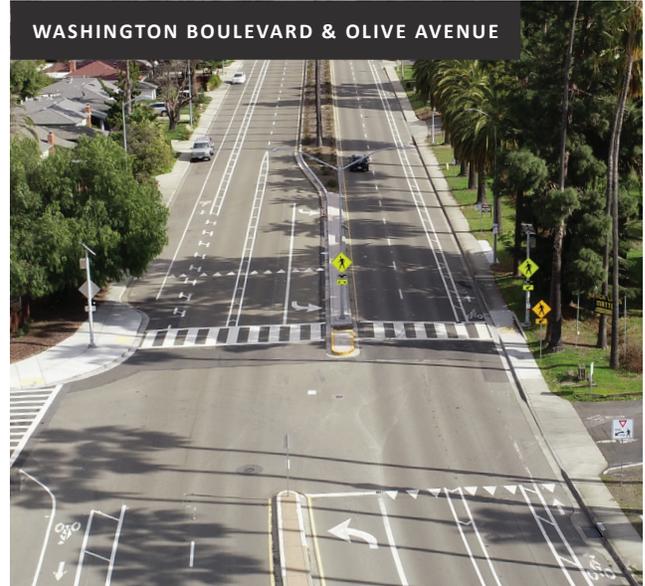
PROJECT SPOTLIGHTS



CIVIC CENTER DRIVE & WALNUT AVENUE



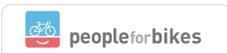
WASHINGTON BOULEVARD & OLIVE AVENUE



### Walnut Avenue Bikeway

▶ COMPLETE STREETS PROJECT

In 2020, the City of Fremont completed construction on the Walnut Avenue Bikeway, a 1.2-mile safe and complete street capital project. Walnut Avenue features **raised separated bikeways, four protected intersections, bus boarding areas, and upgraded traffic signal infrastructure.** The Walnut Avenue Bikeway serves the Fremont BART Station, Kaiser and Washington Hospitals, civic destinations, local businesses, and housing. Designed with feedback from students and faculty at the California School for the Blind, the Walnut Avenue Bikeway is a national model for street design that serves people of all ages and abilities walking, biking, and using transit.



**🏆 People for Bikes**  
[America's Best New Bikeways, Rank #6, 2020](#)



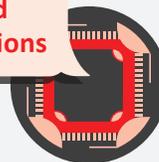
**📰 Streetsblog SF**  
[Eyes on the Street: Fremont Finishes Best Bikeway in the Bay Area, June 2020](#)

### Washington Boulevard

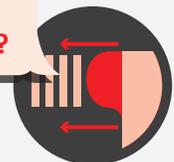
▶ SAFETY IMPROVEMENT PROJECT

In response to several major crashes, including one pedestrian fatality, the City of Fremont implemented the Washington Boulevard Safety Improvement Project. The project includes an **improved pedestrian crossing** at Washington Boulevard and Olive Avenue featuring a **bulbout, pedestrian refuge median island, and rectangular rapid flashing beacons.** The project also narrowed general travel lanes to reduce vehicle speeding and provide a **buffered bike lane**, and installed **multiple radar speed feedback signs.**

What are Protected Intersections



What are Bulbouts?



**Protected Intersections** improve safety for everyone by reducing crossing distances for pedestrians and bicyclists, and slowing turning automobile speeds. They provide dedicated space for each road user to travel through the intersection.

**Bulbouts** provide protected space for pedestrians in roads before they enter a crosswalk, increasing pedestrian visibility and slowing drivers.

## ACCOMPLISHMENTS

# Safe Crossings

**Fremont's early Vision Zero data analysis** showed that crashes involving pedestrians accounted for more than 30 percent of major crashes, with most crashes happening while the pedestrian was crossing a street. Fremont's efforts to improve safety of crossings have included installing pedestrian countdown signals at all signalized intersections citywide (see opposite page) and installing a suite of short-term and long-term treatments at uncontrolled crossings of major streets.

**Fremont had approximately 40 crosswalks on multi-lane, higher speed roadways that are uncontrolled**, meaning that there is no signal and that motorists must yield to crossing

pedestrians. Fremont has sought to enhance these uncontrolled crosswalks with both short- and long-term measures to improve yielding compliance. **Short-term measures** have included high visibility crosswalk striping, advance yield signage and markings, and striping and channelizer posts between travel lanes. **Long-term measures** to enhance crossings have included installing **rectangular rapid flashing beacons**, pedestrian signals, median refuge islands, and bulbouts. These measures are all proven by national research to reduce crash frequency.

**14 crossings in Fremont have now been upgraded with flashing beacons or pedestrian signals.**

## PROJECT SPOTLIGHTS



## Mowry Avenue at Waterside Circle

### ► SAFETY IMPROVEMENT PROJECT

To improve pedestrian crossing safety at the uncontrolled crosswalk at Mowry Avenue and Waterside Circle, Fremont implemented **narrowed travel lanes, yield markers, buffered bike lanes, and channelizers** between lanes approaching the crosswalk. Since this intervention, the City has returned to install a pedestrian **HAWK signal**, providing traffic control for the crossing. Even with this more permanent solution, the channelizers and narrower lanes are still in place to provide traffic calming effects.



## Quick-Build Crosswalk Improvements

### ► SYSTEMIC RESPONSE

### ► QUICK-BUILD

Fremont has installed **signage and vertical posts at 20 locations citywide** to improve driver yielding at uncontrolled crosswalks. This quick-build improvement combination reminds drivers to yield while emphasizing existing lane markings. It also eliminates **multiple threat crash** risks by physically prohibiting lane changing maneuvers by motorists in advance of a crosswalk.

## PROJECT SPOTLIGHT



## Pedestrian Countdown Signals

### ► SYSTEMIC RESPONSE

Pedestrians are over-represented in crashes in Fremont. In its initial Vision Zero data analysis, Fremont identified a **prevalence of crashes in which pedestrians were crossing against traffic at signalized intersections**; reviewing crash reports revealed that many of these involved pedestrians getting stuck in wide intersections after misjudging how long they had to cross. **Pedestrian countdown signals** improve safety by clearly communicating how much time remains to cross a street, which greatly reduces the chance that someone will be stranded in a high-speed roadway. Prior to its Vision Zero adoption, Fremont had only 40 intersections with pedestrian countdown signals. **Fremont installed pedestrian countdown signals at all 220 signalized intersections, including on all Caltrans-owned facilities, and pedestrian crashes are down 32% compared to before Vision Zero.**



### What are Multiple Threat Crashes?

**Multiple threat crashes** involve one vehicle attempting to pass another vehicle that has yielded to a pedestrian, and then hitting the pedestrian because the first vehicle has obstructed the sight line.



### What are RRFBs?



**Rectangular Rapid Flashing Beacons (RRFBs)** are pedestrian-activated flashing lights with additional signage to alert motorists of a pedestrian crossing. RRFBs improve safety by increasing the visibility of marked crosswalks and provide motorists a cue to slow down and yield to pedestrians.

### What are HAWK Signals?



**High-Intensity Activated Crosswalk (HAWK) Signals**, also known as a pedestrian hybrid beacons or pedestrian signals, are flashing lights that are activated by a pedestrian pushing a button or some other form of detection. HAWK signals are used at unsignalized intersections or mid-block crosswalks to notify oncoming motorists to stop with a series of red and yellow lights.

ACCOMPLISHMENTS

# Speed Management

**There are clear relationships** between excessive speed, reduced perception-reaction time, and increased crash severity. **In Fremont, 70 percent of major crashes happened on streets with a speed limit of 40 mph or higher before Vision Zero.** Because of this, speed management has been an overarching theme of Fremont’s Vision Zero work. After engineering streets for safer speeds, the City re-surveys streets to see if the implemented projects resulted in lower operating speeds.

**Since 2015, Fremont has lowered the posted speed limit on more than 50 street segments.** Fremont has also worked with its Police Department on targeted speeding enforcement and has installed 45 speed feedback signs.

**Crashes involving unsafe speed dropped by 44 percent compared to the years before Vision Zero adoption.**



## Reducing Speed Limits

2015–2020

- 40 MPH
- 35 MPH
- 30 MPH
- 25 MPH



## ACCOMPLISHMENTS

# Brighter Street Lighting

**The 2020 Action Plan** identified that approximately 50 percent of the City's fatal and severe injury crashes occurred in the early or late evening period between 6:00 p.m. and 10:00 p.m. In response to this data, the City accelerated an environmental sustainability initiative to upgrade street lighting to achieve immediate safety benefits.

The new streetlight fixtures use half as much energy and are twice as bright. In residential areas, the City used a warmer tone of white light, consistent with the American Medical Association's recommendation to minimize blue light. The public responded positively to the conversions and expressed a greater sense of safety from the increased illumination.



**The City converted approximately 16,000 streetlights from the standard “yellow” sodium vapor lights to brighter “white” LED lights.**

Following the approval of a Vision Zero Action Plan, the City decided to rapidly convert the rest of the streetlights over several months in 2016 rather than multiple phases over several years by issuing bonds.

**The City determined that fatal and severe injury crashes in dark conditions declined by approximately 23 percent** between the three years prior to implementation (2013-2015) and three years directly following the completion of the upgrades (2016-2018).

BEFORE



AFTER



## ACCOMPLISHMENTS

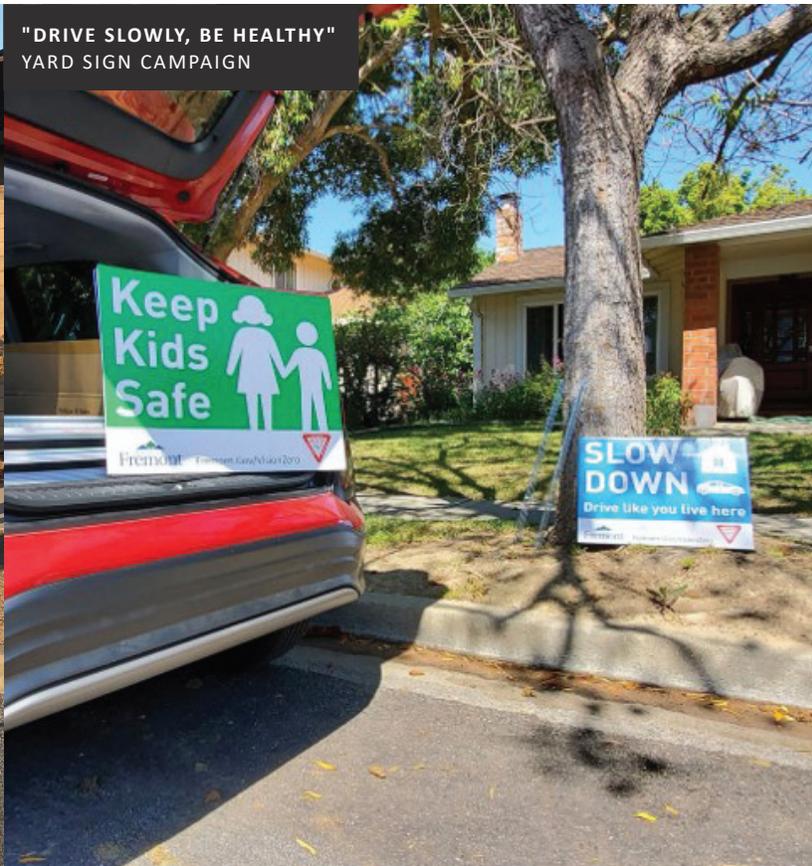
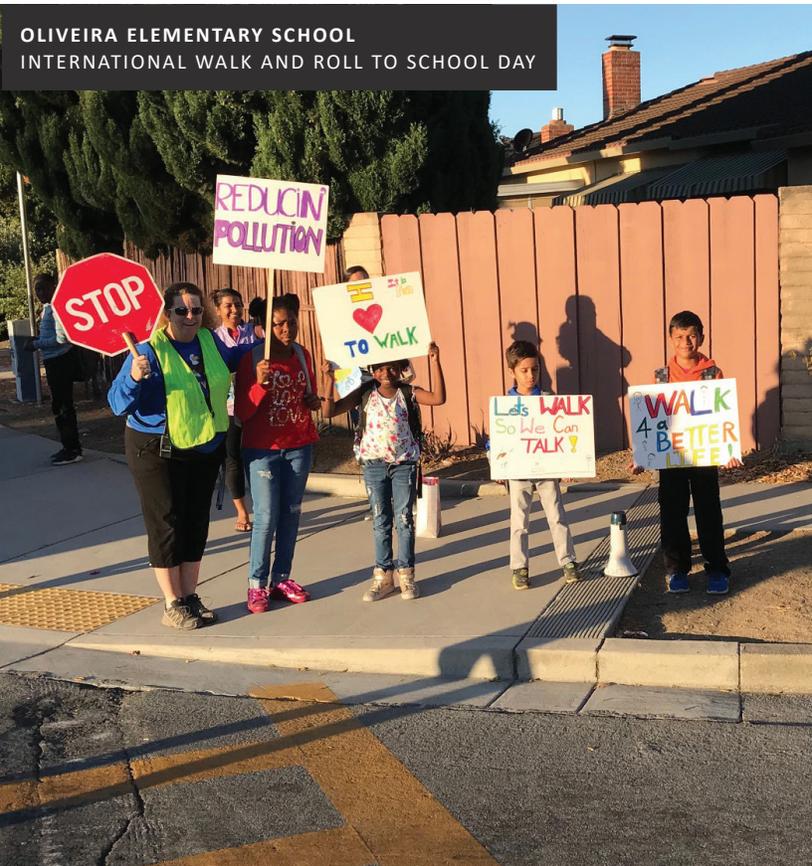
# Safe Routes to Schools & Safe Neighborhoods

**Fremont has been a national leader** in school area safety improvements. The City and Fremont Unified School District jointly funded and participated in school site assessments at all 40 public schools citywide, in which City engineers, school principals and parents, and traffic enforcement officers met to observe school circulation patterns and infrastructure conditions. These assessments were conducted over a two-year period and resulted in school area safety improvement plans for every school.

Based on the assessments, the City undertook a three-year effort to implement the short-term improvements at every school through work orders installed by the Public Work's Street Maintenance Division. These improvements totaled approximately 400 items and included new all-way stops, upgraded (high visibility) crosswalks, parking restrictions, enhanced warning signage, and "paint and plastic" bulbouts, among other improvements.

From 2013-2015, Fremont, tragically, saw nine major crashes involving youth 15 years of age or younger. This number dropped to just one in the period from 2018-2020, which is still one more than there should be in Fremont. These successes earned Fremont national recognition as the third ever recipient of the Vision Zero for Youth Award, presented by the National Center for Safe Routes to Schools.

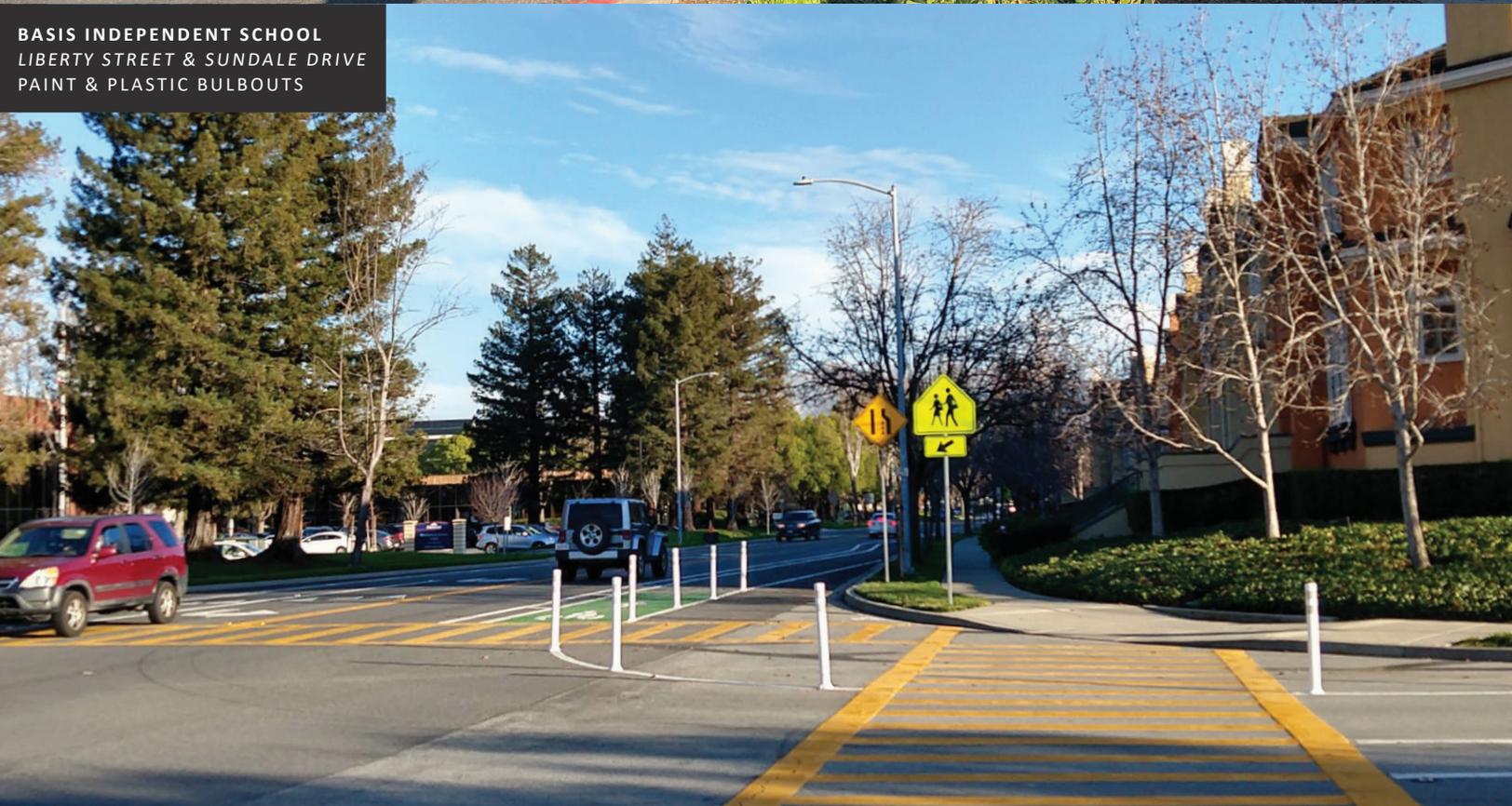
While much of the City's efforts around Vision Zero have been focused on higher speed roadways, the City has also undertaken measures to ensure safe speeds in neighborhoods, as part of a balanced program. **These efforts have included increasing the number of speed lumps from 200 to 250 citywide (with a focus on school areas) and a citywide "Drive Slowly, Be Healthy" yard sign campaign to promote a 20 mph advisory speed on all residential streets.**



**WEIBEL ELEMENTARY SCHOOL**  
PASEO PADRE PARKWAY & ONONDAGA DRIVE  
SCHOOL YIELD MARKERS



**BASIS INDEPENDENT SCHOOL**  
LIBERTY STREET & SUNDALE DRIVE  
PAINT & PLASTIC BULBOUTS





## PROJECT SPOTLIGHT

### Civic Center Drive

Completed in Fall 2015, Civic Center Drive improvements consisted of a **road diet** which reduced the roadway from four travel lanes to two, narrowed intersection crossings, and added rapid flashing beacons at uncontrolled crosswalks. By reducing the number of lanes that pedestrians must cross and eliminating “multiple threat” crashes, the lane reduction or “road diet” has significantly improved pedestrian safety. In 2019 and 2020, **protected intersections** were installed at Civic Center Drive & BART Way and Civic Center Drive & Walnut Avenue, respectively. From 2013-2015, there were three major crashes along Civic Center Drive. **Since the road diet, there have been no major crashes on Civic Center Drive and speed surveys have resulted in a reduction of the posted speed limit from 30 to 25 mph.**



## ACCOMPLISHMENTS

# Hot Spot Response

*In addition to implementing systemic improvements* to prevent future crashes, staff looked for potential improvements in response to crash hot spots. These include short-term quick-build projects, and longer-term road redesigns.

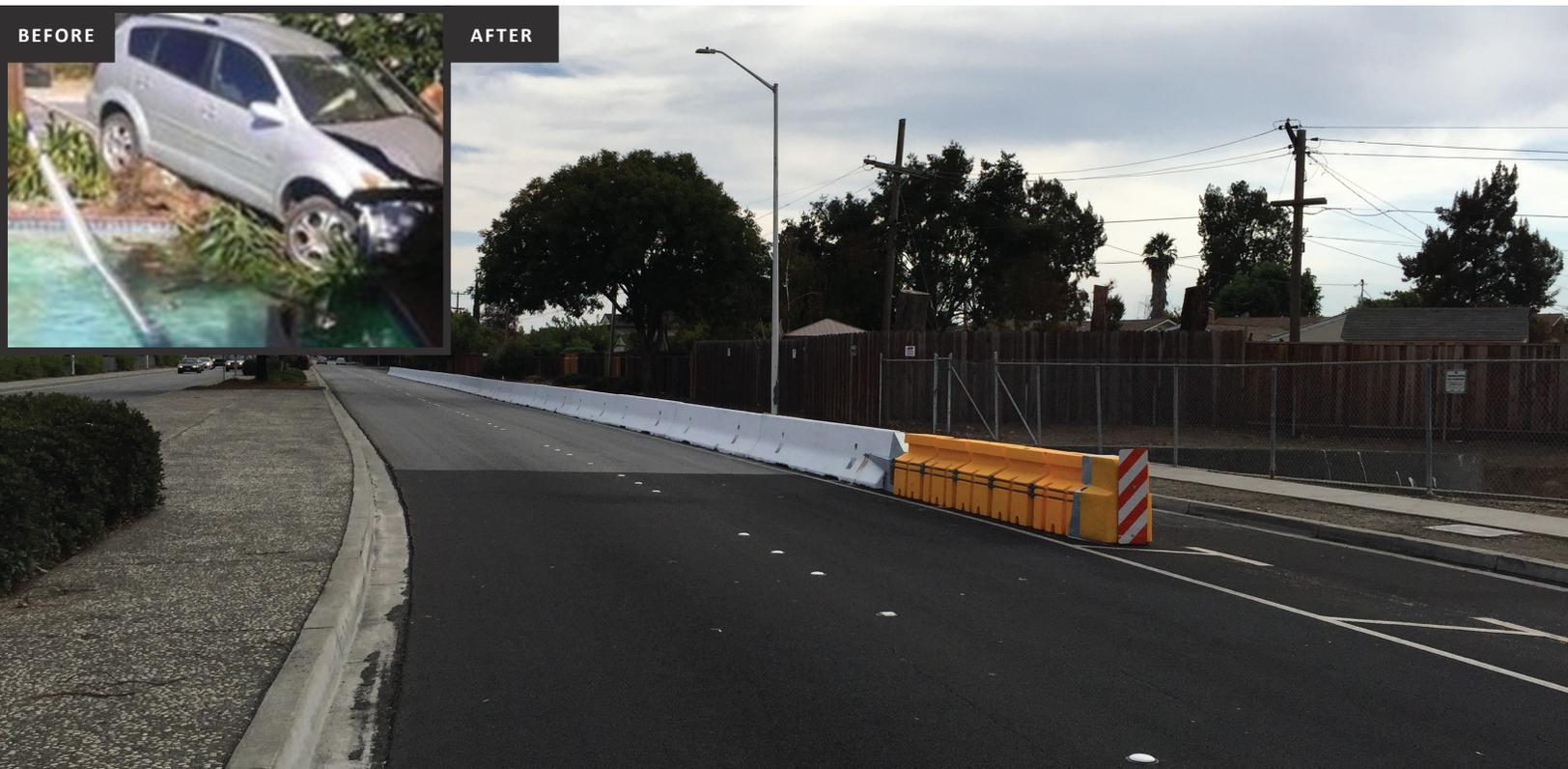
## PROJECT SPOTLIGHT



## Grimmer Curve

Grimmer Boulevard has a large high speed curve that was a **hot spot for major crashes prior to 2016**, including three in the period from 2013-2015 and some in which vehicles ran off the roadway. The location was regularly featured in local media as a collision hot spot. The City had tried "traditional" traffic engineering solutions such as curve warning flashing beacons and high friction surface treatment pavement, but they did not correct the issue. Following a particularly scary crash in which a vehicle ended up in a backyard swimming pool, neighboring residents demanded a protective barrier and suggested rebuilding fences as concrete walls. The City, after evaluating options, elected to restripe the roadway with narrower, **10' travel lanes and a buffered bike lane, and installed a k-rail in**

**the bike buffer.** The improvements ran contrary to a traditional traffic engineering approach, which would generally recommend wide lanes and shoulder to provide a generous clear recovery zone for errant vehicles. The narrowed lanes and k-rail provided the community with the desired crash barrier and forced drivers to negotiate the curve at slower, safer speeds due to the more confined space and friction with adjacent vehicles. As a co-benefit, the improvements also create Fremont's first protected bike lane. **There have been no major crashes since these improvements were installed in 2016. The success of the Grimmer Curve provided staff with an object lesson in the power of a Vision Zero street design approach that has been applied to improve safety at other locations.**



## PROJECT SPOTLIGHT



### **Sideshow Response**

The City has experienced recurring issues with sideshows in isolated industrial cul-de-sac locations. Sideshows are illegal gatherings in which people congregate and perform automobile stunts such as donuts or jumping out of moving vehicles. Responding to sideshow activity became a significant public safety issue and staffing resource issue for the City's Police Department. Gatherings reached sizes of 100 to 200 cars and 300 spectators and became violent in some instances. The City's Police and Public Works Departments collaborated to develop infrastructure measures to physically prohibit large gatherings and reckless driving maneuvers in these locations. Transportation Engineering and Street Maintenance collaborated to design and install **large traffic circles in the interior of the cul-de-sacs using plastic curbing and vertical posts.**

SIDESHOW PREVENTION MEASURE



EXAMPLE BAY AREA SIDESHOW  
Source: YouTube



## ACCOMPLISHMENTS

# State Highways

**The state highway system** poses a major challenge for safety, with multiple surface streets designed for automobile speed and throughput and interstate freeways cutting across Fremont. While the City of Fremont does not control the facilities on the state highway system, Caltrans has a Complete Streets policy and supports Vision Zero goals. The City can work with Caltrans to promote rapid safety fixes to crash hot spots along Mission Boulevard, design bicycle and pedestrian overcrossings over major barriers, and advance projects to modernize freeway interchanges. Additionally, Fremont has secured relinquishment of a section of State Route 84 (which includes portions of Thornton Avenue, Fremont Boulevard, Peralta Avenue, and Mowry Avenue) following a multi-year process that included securing state legislative approvals. Portions of former State Route 84 will undergo redesign as part of the Centerville Complete Streets project beginning in 2022.



## PROJECT SPOTLIGHT

## Centerville Complete Streets Project

The City received a federal grant to transform portions of former State Route 84 (SR 84) in the Centerville area from a high speed street that promotes regional vehicle throughput to a complete street that serves local access and supports local businesses. The City is engaged in a community outreach and visioning process to determine the ultimate design of the Fremont Boulevard portion of former SR 84. As part of this process, the City has implemented a **pilot roadway design**, which features the **removal of a vehicle travel lane in order to add on-street parking and outdoor dining parklet spaces to support local businesses as well as bikeway facilities**. The pilot project was accelerated to be implemented in 2020 as a COVID-19 response measure. **The pilot is being evaluated and will inform the ultimate design of comprehensive streetscape improvements.**



CENTERVILLE PARKLET

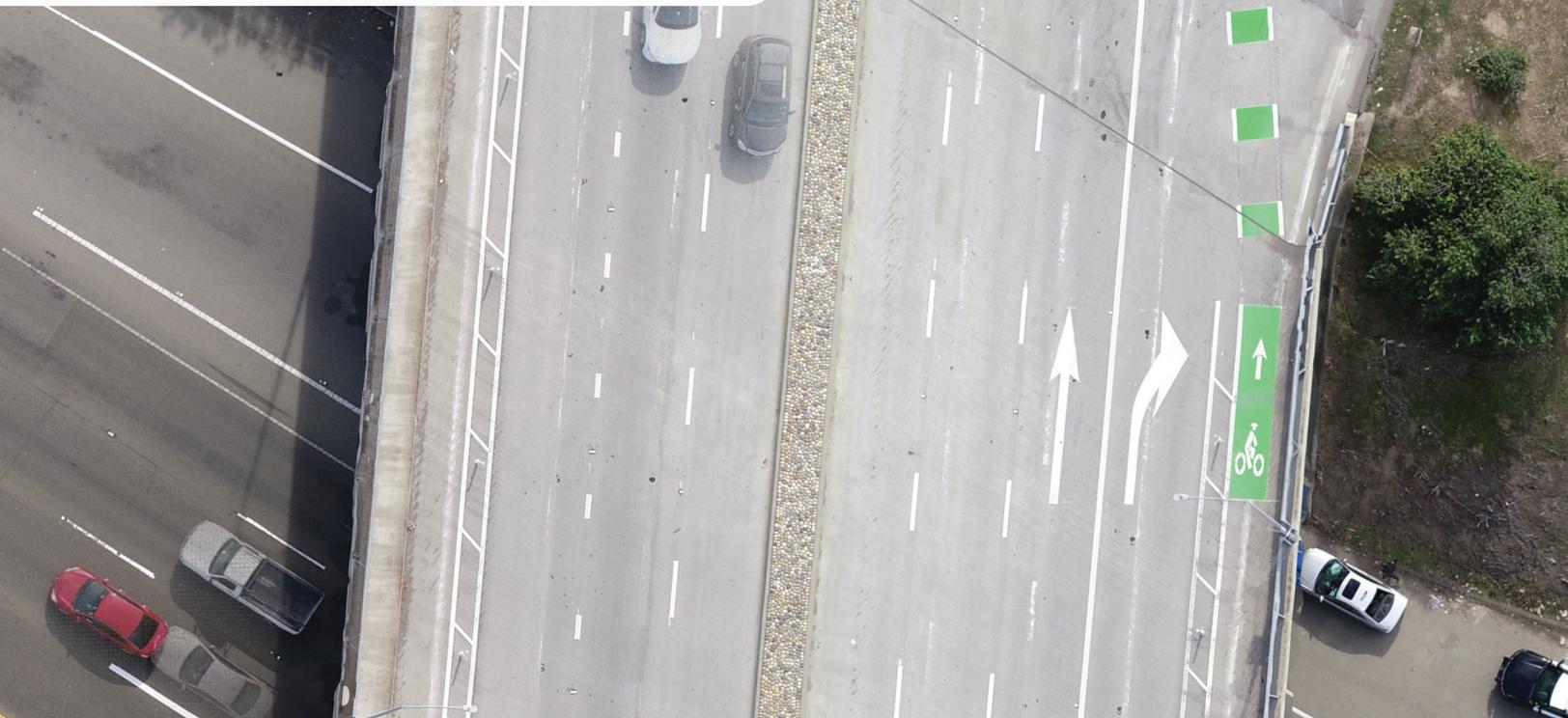
## I-880 GREEN BIKE LANES

## PROJECT SPOTLIGHT



### ***I-880 Green Bike Lanes Project***

After a sequence of severe crashes and one fatality at the interchanges of I-880 and Auto Mall Parkway and Fremont Boulevard, the City of Fremont designed and implemented a **striping project that reconfigured bicycle/vehicle merging, added bike lane buffers with vertical protection, and added green paint in conflict zones near on- and off-ramps**. Because of the innovative design, the City of Fremont pursued a long design decision and maintenance agreement process with Caltrans in order to deliver the project.



**04**



DEVELOPING  
A NEW ACTION PLAN

*How should Fremont focus its Vision Zero efforts going forward?*

## A Needs-Based Approach

The City of Fremont looked at major crashes over the past three years to develop an action plan that will move the City towards its goals of zero fatal and severe crashes.



### Major Crashes (2018–2020)

There were **58** major crashes, with **61** people who were severely injured or killed in those crashes.

By People		Major Crashes	Percentage	Fatalities	Percentage
<b>Age</b>	Under 16	1	2%	0	0%
	16 to 29	14	23%	4	27%
	30 to 49	13	21%	1	7%
	50 to 64	14	23%	4	27%
	65 and over	19	31%	6	40%
<b>Gender</b>	Male	41	67%	13	87%
	Female	20	33%	2	13%
<b>Involves Unhoused Party</b>		6	10%	3	20%

By Crash Type		Major Crashes	Percentage	Fatalities	Percentage
<b>Light</b>	Day	28	48%	5	33%
	Dark	30	52%	10	67%
<b>Mode</b>	Pedestrian	23	40%	9	60%
	Bicycle	10	17%	2	13%
	Motorcycle	8	14%	2	13%
	Vehicle	17	29%	2	13%
<b>Speed Limit</b>	25 mph	6	10%	1	7%
	30–35 mph	20	34%	5	33%
	40 mph or more	32	55%	9	60%
<b>Lanes</b>	Two	8	14%	1	7%
	Three to four	34	59%	8	53%
	Five or more	16	28%	6	40%
<b>Involves DUI Party</b>		8	14%	5	33%
<b>State Highway Facility</b>		8	14%	4	27%

Source: City of Fremont Collision Database; Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley.

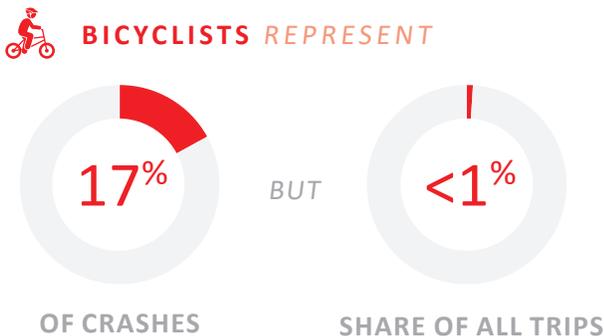
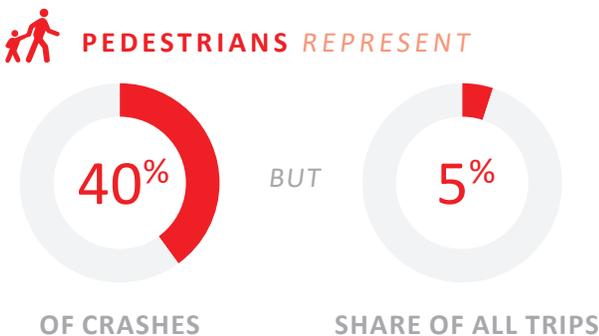
KEY TAKEAWAY

# People Walking & Biking Are Most Vulnerable

As **major crashes have declined**, they continue to impact people on foot and on bicycle disproportionately compared to how people travel in Fremont. **Major crashes involving pedestrians and bicyclists represent 40 percent and 17 percent of all major crashes**, which is substantially more than the share of all trips made using these modes (5 percent and less than one percent, respectively<sup>1</sup>).

**The City will continue to look for ways to protect its most vulnerable residents and visitors.**

Major Crashes (2018–2020)



<sup>1</sup> California Household Travel Survey (2012)

KEY TAKEAWAY

# Major Crashes Remain Highest on Wide, Fast Streets

**Major crashes are primarily on wider, faster arterial streets.** Continued progress towards zero deaths and severe injuries will require continued work on these streets to reduce both the number and severity of crashes.

The primary factors of major crashes in recent years are varied, and no single factor dominates. Drivers violating a pedestrian’s right-of-way, drivers violating another driver’s right-of-way, drivers violating traffic signals and signs, drivers under the influence, and pedestrians violating a rule of the road are all common factors in major crashes.

**Strategies that focus on safe speeds will reduce major crashes regardless of the collision factor by giving people more time to react before a crash occurs and reducing kinetic energy transfer in the event of a crash.**



CHANGING ROADS

**Change**, especially on the roads where people walk, bike, and drive every day, can be difficult. New road designs can make people nervous, and new expectations for driving speeds may involve changing habits.

**Fremont thinks that these changes are worthwhile to reach zero deaths and severe injuries on our roads.** Certainly one major lesson from the COVID-19 pandemic is that big shifts in behavior and design can be critical to reducing harm to people.

## KEY TAKEAWAY

# Older People & Unhoused People Are Killed & Injured Disproportionately

**Major crashes do not affect everyone in Fremont equally.** Pedestrians and people who are older are overrepresented in fatalities and severe injuries in Fremont. More people who are homeless have also been involved in major crashes. Infrastructure, education, and other outreach efforts could be targeted towards one or more of these groups, some of which are highlighted in this section.

## **Fatal and Severe Injury Rates for People 65 and Older Have Not Decreased as Quickly**

People who are older are more likely to be severely injured or killed if they are involved in a crash. In Fremont, the number of seniors in major crashes each year is lower since the City's Vision Zero program was initiated, but has not decreased as quickly as other age groups. Seniors were killed or severely injured in over 30% of major crashes since 2018 while representing 12% of Fremont's population. Fremont will be focusing work in areas and on projects that support safety for older people traveling in the City.

## **Major Crashes Involving People Who Are Homeless Have Increased**

Eliminating deaths and severe injuries on the road also requires thinking about people experiencing homelessness. Since 2018, there have been four pedestrian crashes, one bicyclist crash, and one vehicle crash involving people who were homeless, compared to no crashes between 2013-2015.<sup>2</sup> At the same time, the number of homeless people increased to 608 in 2019, which is up 27% since 2017.<sup>3</sup> Fremont provides a winter shelter, mobile shower and laundry unit. In August 2020, Fremont opened the first Housing Navigation Center in southern Alameda County, and a multi-departmental team is currently working on a safe parking strategy for individuals living in RVs. Improving safety for people who are homeless involves more than traffic safety, and needs everyone working together.

<sup>2</sup> Noted as "transient" in crash reports.

<sup>3</sup> Applied Survey Research, 2019, Alameda EveryOne Home Homeless Count & Survey, Watsonville, CA. [Fremont-focused Summary of the Survey, 2019.](#)



## CHANGING & CONTINUED HOT SPOTS

Mapping major crashes in Fremont before (2013–2015) and after (2018–2020) Vision Zero highlights the City's many successes, together with continuing opportunities and emerging hot spots.

The maps on pages 38 and 39 show:



Previous hot spots including Civic Center Drive, Grimmer Curve, and the Ardenwood Area has been reduced or eliminated.



SR 262 is an emerging hot spot.



Most crashes are on or near major arterials.

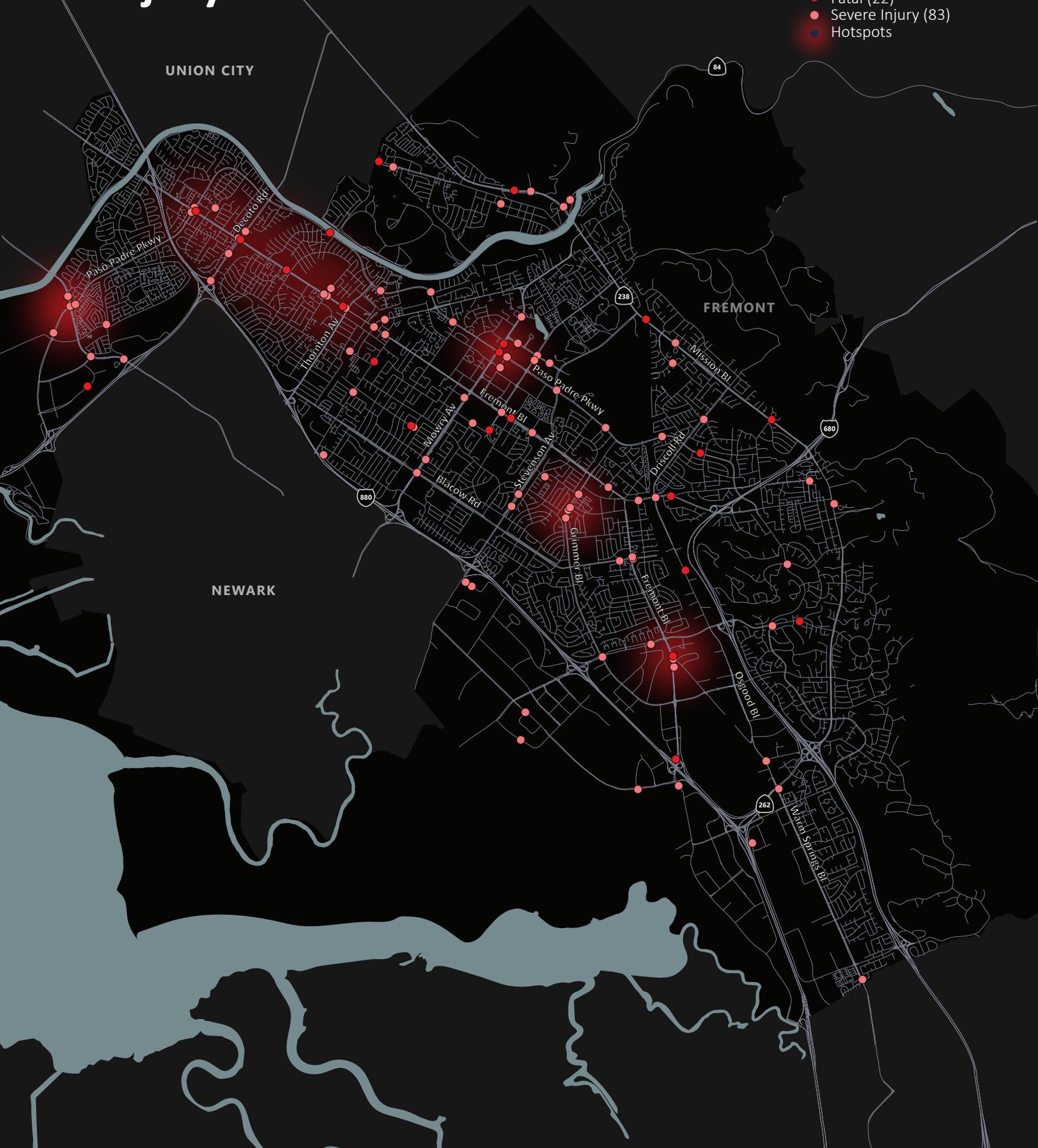


# Fatal & Severe Injury Collisions

Before

2013–2015

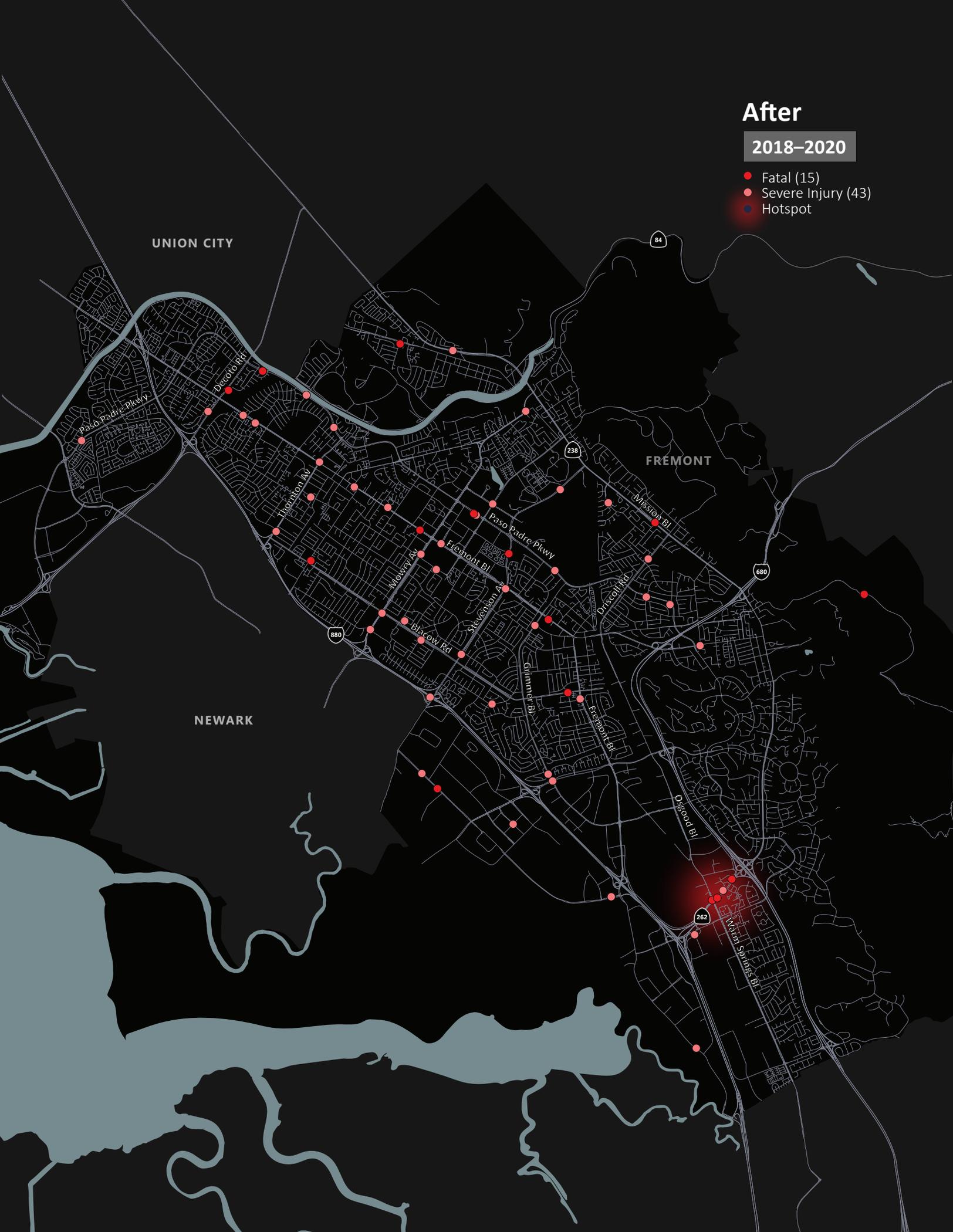
- Fatal (22)
- Severe Injury (83)
- Hotspots



# After

2018–2020

- Fatal (15)
- Severe Injury (43)
- Hotspot



**05**



VISION ZERO 2025:  
NEXT LEVEL ACTION PLAN

WALNUT AVENUE PROTECTED BIKE LANE



WALK AND ROLL TO SCHOOL DAY EVENT



VISION ZERO FOR YOUTH AWARD PRESENTATION



MOWRY AVENUE & STIVERS STREET



## NEXT LEVEL ACTION PLAN

# Ten Actions



## Get State Legislation for Safer Speeds

1. Enable Speed Safety Cameras
2. Allow Lower Speed Limits



## Continue Local Actions for Safer Streets

3. Manage Speeds with Signal Timing & Speed Feedback
4. Enhance Pedestrian Crosswalks
5. Improve Intersection Safety for Everyone
6. Restripe Major Streets to be “Safe & Complete Streets”
7. Build Better Bikeways



## Encourage Support from Regional Partners

8. Make State Highways & Interchanges Safer
9. Promote Safer Vehicles & Drivers
10. Foster a Bay Area Culture of Safety & Equity



## NEXT LEVEL ACTION PLAN

# Get State Legislation for Safer Speeds

## 1. Enable Speed Safety Cameras

**WHAT** Speed safety cameras, also known as automated speed enforcement (ASE) is a technique for ensuring compliance with posted speed limits that is legal in 150 communities across 16 states and the District of Columbia as of 2019.<sup>1</sup> Currently, ASE is prohibited by state law in California. Fremont can advocate for state legislative change to allow local communities to decide for themselves if they wish to use this important speed management tool.

**WHY** Studies show that speed safety cameras reduce both vehicle speeds and crashes. Because speed is a major factor in crash severity, ASE may be a critical tool for California cities, as noted by the California Zero Fatalities Task Force.<sup>2</sup> Speed safety cameras can ensure enforcement is more consistently and equitably applied with less potential for human bias, and their use has low rates of repeat offenders.<sup>3</sup> Speed safety cameras also provide the ability to continuously enforce speed limits even if law enforcement is not present, and can reduce distraction and congestion from traffic stops.

**HOW** Several bills have been proposed in the legislature in recent years to legalize speed safety cameras in California. Fremont will work with its local state legislators to support efforts to enable speed safety cameras.

## CASE STUDY

### Montgomery County, Maryland

#### ► SPEED SAFETY CAMERA

Montgomery County introduced speed safety cameras in 2007, and early research found that over 60 percent of residents supported the program after it started. **The speed safety cameras reduced the chances of fatal and severe injuries in crashes by 19 percent.**

The county also designated corridors where cameras would be moved so that people did not slow for only one location, and found that fatal and severe injuries in crashes reduced by an additional 30 percent on these corridors.



Sources: [Evaluation of Automated Speed Enforcement in Montgomery County, Maryland, 2008](#); [Speed cameras reduce injury crashes in Maryland county, IIHS study shows, 2015](#).

<sup>1</sup> <https://www.iihs.org/topics/speed>

<sup>2</sup> CalSTA. [CalSTA Report of Findings: AB 2363 Zero Traffic Fatalities Task Force](#). January 2020.

<sup>3</sup> City and County of San Francisco. [Automated Speed Enforcement Implementation: Survey Findings and Lessons Learned From Around the Country](#). 2015.



## 2. Allow Lower Speed Limits

**WHAT** In California, state law requires that speed limits be set based on the 85th percentile speed that drivers are measured to travel at, with limited exceptions. The law states that posted speed limits that do not correspond to a current survey of vehicle operating speeds are not enforceable. The use of the 85th percentile rule means that the fastest 15 percent of drivers form the basis for the posted speed limit, regardless of safety implications. Today, Fremont does not have authority to change how speed limits are set beyond these parameters without action from the state legislature. Fremont can advocate for state legislative change that allows local control in how speed limits are set, including use of national and international best practice approaches.

**WHY** A growing body of research has documented that there is no engineering or scientific basis for the use of the 85th percentile rule.<sup>4</sup> The use of the 85th percentile rule does not consider context-appropriate speeds for local roads, does not account for the presence of people walking and biking, and can lead to increasing speed limits over time.<sup>5</sup> A variety of best practices internationally and around the U.S. point to setting speed limits based on roadway type (e.g. arterial versus local) and maximum speed limits in urbanized areas. Alternative speed limit setting methods are supported by the National Transportation Safety Board and California's Zero Traffic Fatalities Task Force.<sup>6</sup>

**HOW** With this action item, Fremont will support legislative efforts to remove the 85th percentile rule requirement from state law. This would provide Fremont with the ability to set context-sensitive speed limits, such as limiting all speed limits on urban arterials to 35 mph and all neighborhood streets to 20 mph.



<sup>4</sup> National Traffic Safety Board. [Reducing Speeding-Related Crashes Involving Passenger Vehicles](#). July 2017.

<sup>5</sup> Ibid.

<sup>6</sup> CalSTA. [CalSTA Report of Findings: AB 2363 Zero Traffic Fatalities Task Force](#). January 2020.

Photo Source: Andy Shupe



## NEXT LEVEL ACTION PLAN

# Continue Local Actions for Safer Streets

### 3. Manage Speeds with Signal Timing & Speed Feedback

**WHAT** Managing speeds also means designing and operating safe streets. Since Vision Zero was adopted in 2015, Fremont has redesigned many streets for slower, safer speeds, which allowed Fremont to lower posted speed limits on many of those streets. This action would include additional strategies such as changing signal timing and additional speed feedback signs.

**WHY** All elements of the road, including signals, should reinforce expectations for safer speeds. Limited enforcement resources mean that the City must use a variety of strategies to ensure adherence to posted speed limits.

**HOW** Fremont will time the traffic signals along corridors with existing coordinated traffic signals so that the signal progression speed favors drivers who are traveling at a safe speed. Drivers adhering to the speed limit would get a “green wave” while drivers who speed would hit more red lights. Speed feedback signs will be used to emphasize the expected speed, particularly in areas with sensitive land uses (e.g. schools), crash hot spots, and long distances between traffic signals, and to collect data to target signal coordination.

### 4. Enhance Pedestrian Crosswalks

**WHAT** Fremont can use a variety of tools to enhance safety for people crossing the street. Some of the common tools include reducing crossing distances with median refuges and bulbouts, introducing traffic signals, pedestrian signals, or flashing beacons, and installing lighting to improve pedestrian visibility. Fremont already uses each of those tools and will continue to invest in those crosswalk upgrades at all uncontrolled pedestrian crosswalks citywide. In the near-term, commercial districts, uncontrolled crossings of major arterials, and locations with frequent crashes after dark are priorities.

**WHY** While major crashes involving pedestrians have declined, recent crash data suggest that additional focus is needed on pedestrian safety: 9 of the 15 traffic fatalities between 2018 and 2020 involved a pedestrian, with eight of those nine occurring after dark. More than a quarter of all pedestrian major crashes since Vision Zero adoption were at uncontrolled, marked crosswalks on high speed arterials. Pedestrian crashes at midblock and other non-crosswalk locations in commercial districts emerged as a common crash profile in recent years. Crashes after dark have declined overall, however no reduction was noted for bicyclists and pedestrians.

**HOW** The City will use a full toolbox of crosswalk enhancements at unsignalized, mid-block, and signalized locations. The City will continue to upgrade uncontrolled crosswalks with flashing beacons or pedestrian signals. The City will seek to add enhanced, midblock crossings in densifying areas and commercial districts, where increased pedestrian activity may warrant more crossing opportunities. The City will also work to ensure that all uncontrolled pedestrian crossing locations meet basic safety lighting standards.

#### What are Uncontrolled Crossings?



These crossings do not have traffic signals that require vehicles to stop, so motorists must yield to pedestrians.

EXAMPLE UNCONTROLLED CROSSING





## 5. Improve Intersection Safety for Everyone

**WHAT** Continue improving intersection safety through signal investments and safer intersection designs, including reducing crossing distances, slower turning speeds, protected intersection designs, and roundabouts.

**WHY** Complex interactions occur at intersections between drivers, pedestrians, bicyclists, and transit vehicles as they make decisions about whether to turn or proceed straight and how to interact with each other. Not surprisingly, more than half of major crashes since Fremont adopted Vision Zero occurred at intersections. Many of Fremont's signalized intersections are designed to allow higher speeds, such as with right-turn slip lanes or large curb radii; require drivers to mix with bicyclists and pedestrians as they make turns; and do not meet current standards for the number, size, and placement of traffic signal heads.

**HOW** Fremont will work to modify older traffic signals to upgrade these to current safety standards and, as appropriate, can install new protected intersections. Protected intersections improve safety for everyone: reduce crossing distances for pedestrians, reduce the speeds of turning automobiles, and provide better sightlines between drivers and bicyclists. Adjusting traffic signal phasing and timing can also improve safety at many existing signalized intersections and can include new protected turn phases and leading pedestrian intervals. As funds permit, Fremont will install new traffic signals at uncontrolled intersections that meet signal warrants<sup>7</sup>, which will provide the highest level of control of conflicting movements and make the intersection safer for everyone. Fremont will also consider installing roundabouts, which provide many similar benefits to protected intersections, where appropriate.

<sup>7</sup> These warrants are defined in the the California Manual of Uniform Traffic Design (MUTCD)



**Roundabouts** are large circular islands, placed in the middle of an intersection, which direct flow in a continuous circular direction around the intersection. Roundabouts can reduce the number of conflict points, compared to an uncontrolled intersection, and decrease vehicle speeds due to intersection geometry.



**Leading Pedestrian Intervals (LPIs)** improve pedestrian visibility and safety by providing time for people on foot to start crossing the street before automobiles have a green light.



**Protected Turn Phases** improve safety by giving vehicles dedicated time to turn and reducing the number of conflicts. People making turns in automobiles without protected turns often have to look for oncoming vehicles and people on foot, which is more likely to result in a crash.



## 6. Restripe Major Streets to be “Safe & Complete Streets”

**WHAT** Continue restriping major streets to narrow lanes, provide bicycle facilities, upgrade crosswalks, and implement road diets, as appropriate.

**WHY** More than 80 percent of severe injury and fatal crashes in Fremont happen on arterial roadways. Fremont has restriped more than 40 miles of roadways as “safe and complete streets” since 2015. This represents 47 percent of arterial roadway mileage. During this period of time, major crashes with unsafe speed as a primary crash factor dropped by 44 percent.

**HOW** Fremont will continue to leverage its pavement maintenance program to expand this treatment on a systemic basis to all arterial roadways.

## 7. Build Better Bikeways

**WHAT** Continue installing additional protected intersections and separated bikeway facilities as recommended in Fremont’s Bicycle Master Plan.

**WHY** Since Vision Zero adoption, 8 of the 11 major crashes involving bicyclists occurred at signalized intersections or on higher speed streets that had striped bike lanes but no separated bikeway. Separated bikeways protect people on bicycles from moving traffic through vertical posts or curbs, improving safety for vulnerable road users and reducing the stress of riding a bicycle.

**HOW** Fremont has installed more than 15 miles of separated bikeways and five protected intersections since 2015, and will continue to expand these treatments to additional locations. In addition, Fremont will continue to advance projects to construct new regional trails and bridges to provide bikeway connections across major barriers, such as highways.

### What are Separated Bikeways?



**Separated Bikeways** provide physical barriers and buffer space between people on bicycles and people in cars. The separation is provided by materials such as flexible posts, or concrete curb.

EXAMPLE SEPARATED BIKEWAY





NEXT LEVEL ACTION PLAN

# Encourage Support from Regional Partners

## 8. Make State Highways & Interchanges Safer

**WHAT** Work with Caltrans to advance safety improvement projects on and across the state highway system. Mission Boulevard (SR 262 and SR 238) is part of the state highway systems, and the many interchanges along I-880 and I-680 create safety challenges on City streets.

**WHY** Four of the 15 fatalities in Fremont between 2018 and 2020 happened on Mission Boulevard (SR 262 and SR 238). The state highway system provides important connections in Fremont, but can be a barrier to safe and comfortable walking and biking. Additionally, the I-680 off-ramp at Mission Boulevard has had multiple truck overturning incidents, presenting an injury and potential hazardous material risk. Caltrans has had a Complete Streets policy since 2008, emphasized the design flexibility for multimodal design in its standards, and endorsed the Safe System Approach through its 2020 Strategic Highway Safety Plan.

**HOW** Fremont will work with Caltrans to design and install safety fixes at crash hot spots along Mission Boulevard. In addition, Fremont will work to advance projects to modernize freeway interchange locations, such as I-880/Decoto, I-680/Mission, and I-680/Washington with designs that promote safe, comfortable access across the freeway for bikes and pedestrians. Fremont will work with the Alameda County Transportation Commission (Alameda CTC) to advance the SR 262 Cross Connector project, which will provide a comprehensive, longer term solution to safety issues along this section of Mission Boulevard by separating local and regional traffic.

### REGIONAL PROJECTS

#### State Route 262 Cross Connector

(Alameda CTC lead)

**Status:** *Preliminary Engineering*

Grade-separated connector between 880 and 680 with managed lanes removes regional traffic from local streets

#### I-880/Decoto

##### Interchange Modernization

**Status:** *Preliminary Engineering*

Transit priority treatments and separated bike/ped facilities through interchange in Decoto Transbay corridor

#### I-680/Mission (SR 238)

##### Interchange Modernization

**Status:** *Preliminary Engineering*

Modified interchange design to address truck overturning issues, provide separated and continuous bike/ped facilities, and manage ramp meter traffic

#### I-680/Washington

##### Interchange Modernization

**Status:** *Preliminary Engineering*

Modified interchange design, provide separated and continuous bike/ped facilities and manage ramp meter traffic

#### I-880/Innovation District Bridge

**Status:** *Final Design*

New bicycle and pedestrian bridge over a major freeway barrier between Tesla, Warm Springs BART and Innovation District, and Bay Trail

#### I-880/Pacific Commons Bridge

**Status:** *Preliminary Engineering*

New bicycle and pedestrian bridge over a major freeway barrier connecting to Pacific Commons Shopping and Job Center

#### I-680/Sabercat Bridge

**Status:** *Preliminary Engineering*

New bicycle and pedestrian bridge over a major freeway barrier connecting future Irvington BART Station to Sabercat Trail, Mission San Jose District, and Ohlone College





## 9. Promote Safer Vehicles & Drivers

**WHAT** Promote the use of crash and injury prevention vehicle technology among individuals and fleet owners in the Fremont community, including pedestrian and bicycle detection, crash avoidance, truck side guards, and vehicles that are designed for better crash outcomes with pedestrians and bicyclists. Work to ensure that drivers are educated and mindful of the laws and rules of the road, the rights of all road users including bicyclists and pedestrians, how to travel safely under dangerous conditions (dark, rain, etc.), and how to use new types of infrastructure treatments.

**WHY** Fremont's review of crash data and narratives suggest that some major crashes are result of human error, so there is a lack of clear engineering countermeasures. Many newer vehicles have sophisticated safety technology built-in, such as pedestrian detection with crash warning and automatic braking that can assist drivers in complex decision making, helping to prevent crashes that result from human error. In addition, vehicle designs that are intended for better outcomes for vulnerable road users can reduce crash severity when crashes do happen. Fremont is also home to leading autonomous vehicle companies such as Tesla and Pony.ai, and is excited that this innovative technology is developed locally.

In addition, Fremont recognizes a particular need to provide motorists with education and training regarding safe driving behavior, as motor vehicles, due to their size and speed, are the most likely to cause severe or fatal traffic crashes (all major crashes in Fremont from 2018-2020 involved a motor vehicle, and 43 percent involved two motor vehicles and no bicyclists or pedestrians).



**HOW** Major auto manufacturers in the U.S. have voluntarily agreed to implement advanced safety features in new vehicles starting with Model Year 2022. Fremont can accelerate their uptake within the community by educating individuals and fleet owners as to the benefits of these technologies. Fremont can also work with regional partners to ensure that drivers education at the state level is responsive to the needs of Vision Zero cities, to safety data, and incorporates best practices. In addition, Fremont can supplement state level driver training and education with additional information distributed through City communications and at highly visited community centers and destinations.

### RESOURCES

#### [National Highway Traffic Safety Administration \(NHTSA\) Ratings](#)

The NHTSA provides searchable vehicle safety ratings to help consumers make smart decisions about safety when purchasing a vehicle.

#### [MyCarDoesWhat.org](#)

The MyCarDoesWhat.org website helps to educate drivers on new vehicle safety technologies designed to prevent crashes, with information provided by the University of Iowa and the National Safety Council.



## 10. Foster a Bay Area Culture of Safety & Equity

**WHAT** Work locally and regionally to advance a culture of safety and equity in transportation.

**WHY** The transportation system is funded and managed by many agencies, so promoting safety requires all of them to work together. In addition, many impactful safety education campaigns can be implemented at a regional scale, such as working with media outlets. Many equity issues that result in disproportionate safety impacts are regional problems that require regional solutions (such as housing shortages and homelessness). There is a commitment to Vision Zero throughout the region, including MTC's adoption of a Vision Zero policy, and work to address inequality is also underway at all levels throughout the Bay Area. Fremont is well-positioned to participate in regional efforts in this area. Fremont is a self-declared compassionate city, is home to the Family Resource Center which provides services to a variety of communities of concern, and has engaged in a genuine community dialogue around issues of race and policing

**HOW** Fremont can work with partners around the region, including Metropolitan Transportation Commission (MTC), Alameda County Transportation Commission (CTC), other Vision Zero cities, community groups, public health groups, and others to promote a culture of safety. Fremont can share its expertise and data to assist in the development and implementation of safety campaigns and encourage additional funding for safety improvements. Areas of emphasis could include



educating the public on high-risk behaviors and humanizing the issue of safety by working with the families of victims to highlight their stories. In addition, Fremont can work to ensure that actions to improve safety benefit all, including groups that are disproportionately impacted by safety outcomes or have been historically marginalized. Elderly people, people who are homeless, lower income people, and people speaking other languages should be authentically included and engaged as part of all Vision Zero efforts.

**A**



APPENDICES

# Details on Safety Projects Delivered & Funding Sources

*This section presents all safety projects delivered in Fremont from 2015 through Spring 2021, plus projects that are planned for delivery through 2022.*

<b>Project Name</b>	<b>Project Description</b>	<b>Project Cost</b>	<b>Funding Sources</b>
<b>Citywide LED Street Light Upgrade</b>	This project replaced over 14,000 high-pressure sodium (HPS) streetlights with LED streetlights. The purpose of the project was to improve roadway visibility, reduce energy consumption, and reduce ongoing maintenance costs. The project was completed in <b>2015</b> .	Initial upfront cost of \$6,316,000, with an immediate PG&E rebate of \$635,000 for a total upfront cost of \$5,681,000.	Debt-financed via bond issuance, repaid with savings in energy costs over the life of the project. Anticipated annual savings of \$904,000 mean that the project may break even a little more than 6 years after installation.
<b>Civic Center Drive Crosswalk Improvements</b>	The project consisted of installation of new midblock crossing improvements including bulbouts and RRFBs. The improvements were implemented in <b>2015</b> (Washington Hospital) and <b>2017</b> (Kaiser Permanente).	N/A	Privately funded and implemented in partnership with Washington Hospital and Kaiser Permanente.
<b>Grimmer Curve High Friction Pavement &amp; K-Rail Projects</b>	This project overlaid a curved roadway portion of Grimmer Boulevard with a High Friction Surface Treatment (HFST) as well as installed K-Rail and collapsible delineators within the bike buffer in order to address a number of vehicle crashes onto adjacent residential properties as a result of roll-over or run-off-the-road collisions. The HFST was completed in <b>2015</b> and the K-Rail was installed in <b>2016</b> .	\$145,000	State Gas Tax funds

<b>Project Name</b>	<b>Project Description</b>	<b>Project Cost</b>	<b>Funding Sources</b>
<b>2016 Cape &amp; Slurry</b>	This project included modifications to roadway striping as part of routine pavement preventative maintenance in accordance with Safe and Complete Street design practices. Specific treatments implemented included narrower vehicular lanes, buffered bike lanes, enhanced crosswalks, and bulb out treatments at intersections. The project covered 20 centerline miles in total that included segments of major arterials including Washington Boulevard, Paseo Padre Parkway, South Grimmer Boulevard, and Civic Center Drive. The project was completed in <b>2016</b> .	\$1,712,000	Measure B and State Gas Tax funds
<b>Citywide Pedestrian Countdown Signals</b>	This project upgraded existing pedestrian signal heads to new countdown pedestrian signal heads at all 220 City and Caltrans signalized intersections within the City of Fremont. The purpose of the project was to increase awareness for pedestrians by displaying the amount of time remaining to clear the crosswalk at a signalized intersection. The project was completed in <b>2017</b> .	\$166,000	State Gas Tax funds

<b>Project Name</b>	<b>Project Description</b>	<b>Project Cost</b>	<b>Funding Sources</b>
<b>2016 Pavement Rehabilitation – Speed Lump Installations</b>	This project included the installation of 21 speed lumps at various residential roadways that met the City’s adopted warrants for excessive speeding and criteria for speed lump installation. Locations included an emphasis on school zones. All installations were accomplished as part of the City’s annual pavement rehabilitation project and were completed by <b>January 2018</b> .	\$85,000 for speed lumps	Measure BB funds
<b>2017 Pavement Rehabilitation – Speed Lump Installations</b>	This project included the installation of 69 speed lumps at various residential roadways that met the City’s adopted warrants for excessive speeding and criteria for speed lump installation. Locations included an emphasis on school zones. All installations were accomplished as part of the City’s annual pavement rehabilitation project and were completed by <b>July 2018</b> .	\$383,000 for speed lumps	City General Funds
<b>2017 Cape &amp; Slurry</b>	This project included modifications to roadway striping as part of routine pavement preventative maintenance in accordance with Safe and Complete Street design practices. Specific treatments implemented included narrower vehicular lanes, buffered bike lanes, enhanced crosswalks, and bulb out treatments at intersections. The project covered 40 centerline miles in total that included segments of major arterials including Fremont Boulevard, Mowry Avenue, Washington Boulevard, Paseo Padre Parkway, Mission Boulevard, East Warren Avenue, and Peralta Boulevard. The project was completed in <b>2018</b> .	\$3,822,000	Measure B, Vehicle Registration Fee, and City General Funds

<b>Project Name</b>	<b>Project Description</b>	<b>Project Cost</b>	<b>Funding Sources</b>
<b>2018 Cape &amp; Slurry</b>	This project included modifications to roadway striping as part of routine pavement preventative maintenance in accordance with Safe and Complete Street design practices. Specific treatments implemented included narrower vehicular lanes, buffered bike lanes, enhanced crosswalks, and bulb out treatments at intersections. The project covered 28 centerline miles in total that included segments of major arterials including Washington Boulevard, Paseo Padre Parkway, Central Avenue, Stevenson Boulevard, East Warren Avenue, South Grimmer Boulevard, Grimmer Boulevard, and Auto Mall Parkway. The project was completed in <b>2019</b> .	\$3,707,000	Measure B, Measure BB, SB1, State Gas Tax, Vehicle Registration Fee, and City General Funds
<b>Year 1 Bikeway Improvements</b>	This project installed enhanced bikeway striping on 9 miles of Vision Zero Safety Priority streets including the Driscoll Road, Grimmer Boulevard, Paseo Padre Parkway, Stevenson Boulevard, and Walnut Avenue corridors. The project was completed in <b>2019</b> .	\$1,018,000	TDA, Measure B and Measure BB funds
<b>Pedestrian Crossing Enhancements, Phase I</b>	This project installed a Rectangular Rapid Flashing Beacon (RRFB) at E Warren Avenue & Bradley Street and a Pedestrian Hybrid Beacon (PHB) on Mowry Avenue & Waterside Circle. The purpose of the project was to increase driver awareness of crossing pedestrians. The project was completed in <b>Spring 2019</b> .	\$342,000	Transportation Development Act (TDA) and SB1 funds
<b>Pedestrian Crossing Enhancements, Phase II</b>	This project installed a Pedestrian Hybrid Beacon (PHB) on Fremont Boulevard at Norris Road and Rectangular Rapid Flashing Beacons (RRFB) on Paseo Padre Parkway at Surry Place, Fremont Boulevard at Margery Drive, Driscoll Road at Joyce Avenue, Driscoll Road between Chiltern Drive and Amapola Drive, and Paseo Padre Parkway at Baylis Street. The project was completed in <b>Fall 2019</b> .	\$850,000	TDA, Measure B, and SB1 funds

<b>Project Name</b>	<b>Project Description</b>	<b>Project Cost</b>	<b>Funding Sources</b>
<b>Radar Feedback Sign Installations Prior to 2020</b>	In <b>2018</b> , the City procured 4 Radar Speed Feedback (RSF) signs in its efforts to manage speeds at known speeding locations. <b>Over the next year</b> , an additional 15 RFS signs were procured and installed.	\$88,000	California OTS Grant, Federal HSIP grant, Stratford School development, and the City's General Fund
<b>School Area Safety Improvements</b>	This project installed quick build improvements including new and enhanced crosswalk striping, advance yield signage and markings, parking restrictions to improve sight distance, "paint and plastic" bulbouts, and new stop signs, as identified in school safety assessments. Over 400 discrete improvements were installed at all schools citywide over a three-year period from <b>2018-2020</b> . Project installation was completed by Street Maintenance Division.	\$100,000 in materials	State Gas Tax funds
<b>Washington Boulevard HSIP Project</b>	This project installed new roadway striping, buffered bike lanes, and radar feedback signs along Washington Boulevard from Fremont Roberts Avenue to Meredith Drive. The project also included a Rectangular Rapid Flashing Beacon (RRFB) on Washington Boulevard and Olive Avenue with a median refuge median island and curb bulb-out. The project was completed in <b>early 2020</b> .	\$499,000	Federal Highway Safety Improvement Program (HSIP) and Measure B funds
<b>2019 Engineering &amp; Traffic Survey &amp; Speed Limit Signage Changes</b>	Following roadway striping redesign to implement "safe and complete street design standards", this project performed a mid-cycle Engineering and Traffic Survey (E&TS) along 86 segments of safety priority street corridors to determine whether changes in speed limits were justified due to the new roadway configurations/characteristics. The project was completed in <b>March 2020</b> . Subsequently, posted speed limits were lowered on 40 street segments citywide.	\$74,000	State Gas Tax funds

<b>Project Name</b>	<b>Project Description</b>	<b>Project Cost</b>	<b>Funding Sources</b>
<b>2019 Cape &amp; Slurry</b>	This project included modifications to roadway striping as part of routine pavement preventative maintenance in accordance with Safe and Complete Street design practices. Specific treatments implemented included narrower vehicular lanes, buffered bike lanes, enhanced crosswalks, and bulb out treatments at intersections. The project covered 27 centerline miles in total that included segments of major arterials including Mowry Avenue, Paseo Padre Parkway, and Auto Mall Parkway. The project was completed in <b>2020</b> .	\$3,800,100	City General Funds and State Gas Tax funds
<b>BART Way Multimodal Improvements</b>	The project consisted of streetscape improvements along BART Way, which serves as a gateway street between the Fremont BART Station and Downtown, as well as intersection improvements at BART Way/Civic Center Drive. Improvements included widened sidewalks, pedestrian scale lighting, street trees, a landscaped median, a raised cycletrack, a protected intersection with a new traffic signal system, and pedestrian wayfinding signage and access improvements through an adjacent shopping center. The project was completed in <b>2019</b> .	\$4,512,000	Federal Grant, City General Funds, State Gas Tax funds, Measure B, Measure BB and TIF funds
<b>Walnut Avenue Protected Bikeway</b>	The project consisted of a 1.2 mile raised cycletrack and 4 new protected intersections in the Walnut Avenue Corridor, which provides access from the Fremont BART Station to Downtown destinations including high density housing, shopping centers, hospitals, and civic destinations. The project featured upgraded traffic signal systems, raised bus loading islands, new paving, a midblock crossing enhanced with an RRFB, and emergency vehicle pre-emption. The project was completed in <b>2020</b> and has won national recognition from People for Bikes and CalBike as one of the nation's best bikeway facilities.	\$6,000,000	Measure BB grant

<b>Project Name</b>	<b>Project Description</b>	<b>Project Cost</b>	<b>Funding Sources</b>
<b>2020 Cape &amp; Slurry</b>	This project included modifications to roadway striping as part of routine pavement preventative maintenance in accordance with Safe and Complete Street design practices. Specific treatments implemented included narrower vehicular lanes, buffered bike lanes, enhanced crosswalks, and bulb out treatments at intersections. The project covered 28 centerline miles in total that included segments of major arterials including Mowry Avenue, Mission Boulevard, Warm Springs Boulevard, East Warren Avenue, and Grimmer Boulevard. The project was completed in <b>2020</b> .	\$4,285,000	Measure B, Measure BB, Vehicle Registration Fee, City General Funds, State Gas Tax, and TIF
<b>Blacow Road/ Gatewood Street &amp; Grimmer Boulevard/ Seneca Park Avenue Traffic Signals</b>	This project installed traffic signals at Blacow Road & Gatewood Street and Grimmer Boulevard & Seneca Park Avenue. The project was completed in <b>Summer 2020</b> .	\$1,553,000	Fremont's Traffic Impact Fees (TIF), Measure BB, Measure B, Vehicle Registration Fees, and SB1 funds
<b>Year 2 Bikeway Improvements</b>	Project consists of conversion of 10 miles of buffered bike lanes to separated bike lanes via the installation of flexible bollards. The project improvements were in various corridors including Paseo Padre Parkway, Walnut Avenue, Stevenson Boulevard, Driscoll Road, Grimmer Boulevard, and Scott Creek Road. The project was completed in <b>2021</b> .	\$700,000	TDA, Transportation Fund for Clean Air, Measure BB, and TIF funds
<b>Year 3 Bikeway Improvements</b>	The project consists of upgraded bikeway striping at various locations citywide including Paseo Padre Parkway, Kato Road, and numerous streets in the City Center and Warm Springs/South Fremont areas. The project is currently in design and is estimated to be completed in <b>2021</b> .	Approximately \$550,000	Measure BB and TIF funds

<b>Project Name</b>	<b>Project Description</b>	<b>Project Cost</b>	<b>Funding Sources</b>
<b>Pedestrian Crossing Yield Marker Improvements</b>	This project installed yield markers at uncontrolled crosswalks along high speed, multilane crossings of major arterial roadways. Select locations also included installation of gore striping and channelizer posts between travel lanes to prevent vehicles from making unsafe passing/ lane changing maneuvers at crosswalks. Improvements were installed at 21 locations and installation was completed by Street Maintenance Division.	<\$10,000	City General Funds
<b>Ardenwood Office Park Area Improvements</b>	The City is working with private developers in the Ardenwood Office Park Area to install new traffic signals (designed as protected intersections) at Paseo Padre Parkway/Kaiser Drive and Paseo Padre Parkway/Dumbarton Circle as well as restriping Campus Court, Kaiser Drive, and Dumbarton Circle with buffered and separated bike lanes. The project will serve commuters to an existing major job center that is planned to further densify and provide workplaces thousands of additional employees. Improvements are being implemented as a series of discrete projects, some of which are already installed and others of which are in design.	N/A	Private Development Funds
<b>Warm Springs District South Grimmer Boulevard Protected Bikeway &amp; Intersections</b>	The City is working with private developers in the Warm Springs/South Fremont Area to construct a two-way protected bikeway along South Grimmer and protected intersections at South Grimmer Boulevard/Wisdom Way, South Grimmer Boulevard/Lopes Court, and South Grimmer Boulevard/Warm Springs Boulevard. This densifying areas is adjacent to the Warm Springs/South Fremont BART Station and a new community with 4,000 housing units. The project is currently in construction in <b><u>2021</u></b> .	N/A	Private Development Funds

<b>Project Name</b>	<b>Project Description</b>	<b>Project Cost</b>	<b>Funding Sources</b>
<b>Pedestrian Crossing Enhancements, Phase III</b>	This project installed Rectangular Rapid Flashing Beacons (RRFB) at Washington Boulevard & Jerome Avenue and Central Avenue & Joseph Street. The project includes pedestrian refuge islands. The project is in construction and will be completed in <b>Spring 2021</b> .	Approximately \$407,000	TDA, Measure BB, and SB1 funds
<b>2020 Citywide Radar Feedback Sign Installation Project</b>	After successful deployments of the initial 17 Radar Speed Feedback (RSF) signs, the City procured an additional 30 signs which will make a total of 47 signs that will be installed and operational by the <b>Summer of 2021</b> .	\$150,000	Measure BB and the City General Funds
<b>Niles Boulevard &amp; Rancho Arroyo Parkway Safe &amp; Complete Street</b>	This project consists of the installation of a new traffic signal at Niles/Rock, flashing pedestrian crossing beacons at Niles/El Portal and Niles/Rancho Arroyo intersections, closing a sidewalk gap along Rancho Arroyo Parkway, and repaving and restriping Niles Boulevard with buffered bike lanes from the Niles Bridge to Hillview Drive. The project is currently under construction and will be completed in <b>Fall 2021</b> .	Approximately \$2,300,000	Measure B, Measure BB, TIF, Vehicle Registration Fee, and State Gas Tax funds
<b>Fremont Boulevard/ Stevenson Boulevard &amp; Fremont Boulevard/ Mowry Avenue Intersection Improvements</b>	This project consists of modernization of the traffic signals and intersection design for overall safety along Fremont Boulevard at Mowry Avenue and Stevenson Boulevard, in the Central Fremont area. Project includes removing the existing high-speed, right-turn lanes at the intersections and replacing them with new protected refuge islands for pedestrians and bicyclists. The traffic signal system will be replaced with modern equipment to enhance efficiency for all travel modes and with prioritization capabilities for emergency vehicles and transit. The project is in construction and will be completed in <b>Fall 2021</b> .	Approximately \$3,500,000	Federal HSIP grant, TIF, and State Gas Tax funds

<b>Project Name</b>	<b>Project Description</b>	<b>Project Cost</b>	<b>Funding Sources</b>
<b>Fremont Boulevard/ Country Way Intersection Improvements</b>	The Fremont/Country Intersection Improvements project will construct a protected intersection to improve safety for all roadway users by slowing turning vehicles, eliminating weaving maneuvers between bikes and turning vehicles, and shortening crossing distances. The project is located adjacent to Washington High School and to a heavy pedestrian activity area in Downtown Fremont. The project is anticipated to be designed and constructed in <b>2021-2022</b> .	\$1,348,000	Alameda CTC Safe Routes to School "Mini Grant" funds, TDA, Measure BB, and TIF funds
<b>Centerville Complete Streets</b>	The Centerville Complete Streets project will improve Fremont Boulevard (Alder Avenue to Eggers Drive), Thornton Avenue and Peralta Boulevard by repaving steets and installing complete streets treatments to enhance safety for all users. The project site is located in the heart of the Centerville commercial district and within close proximity to numerous schools, businesses, AC Transit bus lines, and the Centerville Altamont Corridor Express (ACE)/Amtrak train station. Many of the area roadways are in poor condition and were developed to old state highway standards (former State Route 84) focused on vehicle traffic with wide lanes and intersections. The City implemented a <b>pilot design in 2021</b> including a road diet, adding on-street parking, adding parklet spaces to support local businesses, and adding buffered and protected bike lanes. Full streetscape construction is anticipated in <b>2022</b> .	\$8,693,000	City General Funds, CMAQ, and STP Federal grants
<b>Pedestrian Crossing Enhancements, Phase IV</b>	This project includes Rectangular Rapid Flashing Beacons (RRFB) at Paseo Padre Parkway & Dorne Place, Paseo Padre Parkway & Mento Drive, Mission Boulevard & Ohlone College, Walnut Avenue & Godfrey Drive, and Washington Boulevard & Bryant Street. The project is in design and is estimated to be completed in <b>2022</b> .	Approximately \$450,000	To be determined

<b>Project Name</b>	<b>Project Description</b>	<b>Project Cost</b>	<b>Funding Sources</b>
<b>Safe &amp; Smart Corridor Project</b>	This project includes the installation of traffic signal cabinets, traffic signal controllers, vehicle detection cameras, video analytics cameras, connected vehicle communication, adaptive signal control, and smart lighting systems along a 10-mile stretch of Fremont Boulevard. The project will also upgrade approximately 7.5 miles of existing traffic signal communication network with fiber optic cable and networking switches on segments of Fremont Boulevard, Paseo Padre Parkway, and Thornton Avenue. The project will be completed in <b>2022</b> .	Approximately \$8,000,000	Measure BB funds
<b>Washington Boulevard/Osgood Road Intersection Improvements</b>	The Washington/Osgood Intersection Improvements project will construct a protected intersection to improve safety for all roadway users by slowing turning vehicles, eliminating weaving maneuvers between bikes and turning vehicles, and shortening crossing distances. The project is located on the edge of the Irvington commercial district, adjacent to the future Irvington BART station, and will form a part of the future East Bay Greenway. The project is in design with construction anticipated in <b>2022</b> .	\$1,350,000	Redevelopment and State Gas Tax funds
<b>Walnut Avenue/Liberty Street Intersection Improvements</b>	The Walnut/Liberty Intersection Improvements project will construct a protected intersection to improve safety for all roadway users by slowing turning vehicles, eliminating weaving maneuvers between bikes and turning vehicles, and shortening crossing distances. The project includes an upgraded traffic signal system and a raised bus loading island. One corner is being completed by an adjacent private development. The project is located in Downtown Fremont and will extend the Walnut Avenue Protected Bikeway. The project is in design with construction anticipated for <b>2022</b> .	\$1,831,000	Safe Routes to BART Grant Funds, TIF, Measure BB, and developer improvements

**Fremont initiated its Vision Zero implementation with a program of projects that it referred to as "20 projects in 20 months". The following is a list of the projects that comprised this program.**

**# Project Description**

- |            |   |
|------------|---|
| <b>1</b>   | <b>Pledging to "Don't Drive Distracted"</b> Girl Scouts Volunteer, Preetha Vellayapan, created a website promoting safe driving behavior, obtained hundreds of pledges, and earned a Girl Scout "Gold" Award  |
| <b>2</b>   | <b>"Look for Safety" Education Campaign</b> Fremont Youth Service Corps installed "Look" messages at over 40 crosswalks   |
| <b>3</b>   | <b>Reducing "High" Speed Limits</b><br>Albrae Street – Stewart Avenue to Christy Street<br>Ardenwood Boulevard – Union City Limit to Newark City Limit<br>Auto Mall Parkway – Boyce Road to I-880<br>Cushing Parkway – South end of causeway to Fremont Boulevard<br>Dumbarton Circle – Paseo Padre Parkway to Kaiser Way<br>Gateway Boulevard – Fremont Boulevard to Lakeview Boulevard<br>Milmont Drive – Page Avenue to City Limits<br>Old Warm Springs Boulevard – Fremont Boulevard to Grimmer Boulevard<br>Paseo Padre Parkway – Thornton Avenue to Peralta Boulevard<br>Warm Springs Boulevard – Grimmer Boulevard to Warren Avenue<br>Warm Springs Boulevard – Warren Avenue to City Limits |
| <b>4</b>   | <b>Countdown Pedestrian Signals</b> Increased installation from 50 locations to all 220 traffic signal locations Citywide   |
| <b>5</b>   | <b>More Buffered Bike Lanes</b> 20 miles of streets with buffered bike lanes on Washington Boulevard, Paseo Padre Parkway, Grimmer Boulevard, and Warm Springs Boulevard  |
| <b>6</b>   | <b>Green Bike Lanes</b> "Conflict zones" installed at Walnut Avenue/Civic Center Drive, Stevenson Boulevard/Civic Center Drive, Warm Springs Boulevard/BART, and Washington Boulevard/Paseo Padre Parkway   |
| <b>7</b>   | <b>Neighborhood Traffic Calming</b> Speed lumps installed on Second Street, Parkside Drive, Butano Park Drive, Farwell Drive, Palm Avenue, and Alder Avenue   |
| <b>8</b>   | <b>Brighter Lighting on Fremont Boulevard</b> Increased lighting levels on 250 street lights from Irvington to Centerville  |
| <b>9</b>   | <b>LED Streetlight Conversion</b> Converted 14,279 lights from "yellow" sodium lights to "white" LED lights   |
| <b>10</b>  | <b>Grimmer Boulevard Curve</b> Installed concrete safety barrier to protect sidewalk, bikeway and backyards   |
| <b>11</b>  | <b>Turn Restrictions</b> Washington Boulevard/Starr Street/Mission Boulevard  |
| <b>12</b>  | <b>Turn Restrictions</b> Palm Avenue/Via San Dimas/Mission Boulevard (near I-680)   |
| <b>13</b>  | <b>Turn Restrictions</b> Canyon Heights/Old Canyon Road/Niles Canyon Road   |
| <b>14</b>  | <b>Morrison Canyon Road</b> Partial one-way street conversion   |
| <b>15</b>  | <b>New Traffic Signal</b> Fremont Boulevard/Old Warm Springs Boulevard  |
| <b>16</b>  | <b>Enhanced Crosswalks</b> Fremont Boulevard/Bonde Way  |
| <b>17</b>  | <b>Enhanced Crosswalks</b> Mowry Avenue/Waterside Circle  |
| <b>18</b>  | <b>Enhanced Crosswalks</b> Washington Boulevard/Olive Avenue  |
| <b>19</b>  | <b>Enhanced Crosswalks</b> Warren Avenue/Bradley Street   |
| <b>20+</b> | <b>Neighborhood Speed Lumps</b> 14 planned locations<br><b>More Speed Limit Reductions</b> Paseo Padre Parkway<br><b>More Enhanced Bikeways</b><br><b>More Enhanced Crosswalks</b><br><b>Make Freeway Interchanges Safer for Pedestrian &amp; Bicyclists</b> I-680/Washington Boulevard, I-880/Fremont Boulevard<br><b>Planning for the Next 20 Projects!</b>   |

## FATAL CRASH NARRATIVES

# Understanding Safety Issues Is More Than Dots on a Map

*This section describes each fatal crash that occurred on Fremont city streets between 2018 and 2020.*

### 2018

On **2/5** at 6:56 pm (dark), a **18-year old male pedestrian**  crossing **Blacow Road** (4-lane, 40 mph, major street) at **Gatewood Street** was killed when hit by a vehicle traveling eastbound and driven by a 48-year old female. Pedestrian was walking across the roadway looking down at his cellphone and wearing headphones. Pedestrian did not see or hear a witness honking to warn him of the oncoming vehicle.

On **7/8** at 10:38 am, a **89-year old male pedestrian**  crossing **Decoto Road** (5-lane, 40 mph, major street) near **Mount Palomar Court** was killed when hit by a vehicle traveling westbound and driven by a 25-year old male. The pedestrian was crossing the roadway after disembarking from the AC transit bus. This collision occurred due to a multiple threat scenario when the vehicle closest to the pedestrian blocks the view of the driver in the adjacent lane.

On **12/11** at 3:51 am (dark), a **56-year old transient male pedestrian**  crossing **Paseo Padre Parkway** (4-lane, 45 mph, major street) near **Waugh Place** was killed when hit by a vehicle traveling northbound and driven by a 67-year old male

On **12/18** at 10:05 pm (dark), a **33-year old male pedestrian**  crossing **Fremont Boulevard** (4-lane, 35 mph, major street) at **Clough Avenue** was killed when hit by a vehicle traveling northbound and driven by a 53-year old female.

### 2019

On **3/7** at 7:32 pm (dark), a **67-year old male pedestrian**  crossing **Mission Boulevard** (6-lane, 45 mph, state route) at **Warm Springs Boulevard** was killed when hit by a vehicle making a right turn from southbound Warm Springs Blvd and driven by a 60-year old male. Video was captured of the incident and showed an un-involved vehicle making a right turn nearly missing the pedestrian before the trailing vehicle struck the pedestrian.

On **3/17** at 6:17 pm, a **69-year old female passenger of a motor vehicle**  on westbound **Central Avenue** (4-lane, 35 mph, major street) at **Central Cove Court** was killed when the 69-year old male driver was hit by a vehicle traveling eastbound and driven by a 47-year old intoxicated male. The driver lost control of the vehicle and crossed over the raised median into oncoming traffic. The party at fault ran from the scene but was located shortly in a nearby backyard.

On **6/19** at 5:25 am (dusk), a **28-year old male motorcyclist**  riding on westbound **Mission Boulevard** (6-lane, 45 mph, state route) at **Brown Road** was killed when hit by a vehicle making a left turn from eastbound Mission Boulevard and driven by a 27-year old intoxicated male.

On **8/18** at 11:50 pm (dark), a **53-year old male transient pedestrian**  crossing **Paseo Padre Pkwy** (6-lane, 35 mph, major street) near **Capitol Avenue** was killed when hit by a vehicle traveling northbound on Paseo Padre Parkway and driven by an 18-year old female. Pedestrian was walking during the “Don’t Walk” phase.

On **8/28** at 5:11 am, a **28-year old male bicyclist**  on northbound **Boyce Road** (4-lane, 45 mph, major street) near **Stewart Avenue** was killed when hit by a vehicle traveling northbound on Boyce Road and driven by a 25-year old male. The vehicle veered from the travel lane into the bike lane.

On **11/6** at 6:47 pm (dark), a **29-year old male motorcyclist**  riding on eastbound **Stevenson Boulevard** (6-lane, 40 mph, major street) at **Liberty Street** was killed when hit by a vehicle making a left turn from westbound Stevenson and driven by a 42-year old male. Witness statements and video evidence showed that the motorcyclist ran the red light.

On **11/29** at 8:29 pm (dark), a **72-year old female pedestrian**  crossing **Niles Boulevard** (4-lane, 35 mph, major street) at **Rock Avenue** was killed when hit by a vehicle traveling northbound and driven by an unknown motorist.

## **2020**

On **3/19** at 5:49 am (dark), a **73-year old male pedestrian**  crossing **Mission Boulevard** (6-lane, 45 mph, state route) at **Warm Springs Blvd** was killed when hit by a vehicle traveling eastbound and driven by a 29-year old male. Video footage captured that pedestrian was nearly hit by a vehicle in the westbound direction immediately before this collision. The pedestrian was crossing during the “Don’t Walk” phase.

On **7/9** at 9:26 am, a **89-year old male bicyclist**  riding on northbound **Fremont Boulevard** (4-lane, 35 mph, major street) near **Monroe Avenue** was killed when riding into a construction trench. The officer documented that the traffic control was in accordance with the encroachment permit issued by the City of Fremont. The bicyclist passed away on 7/21 due to injuries sustained during the incident.

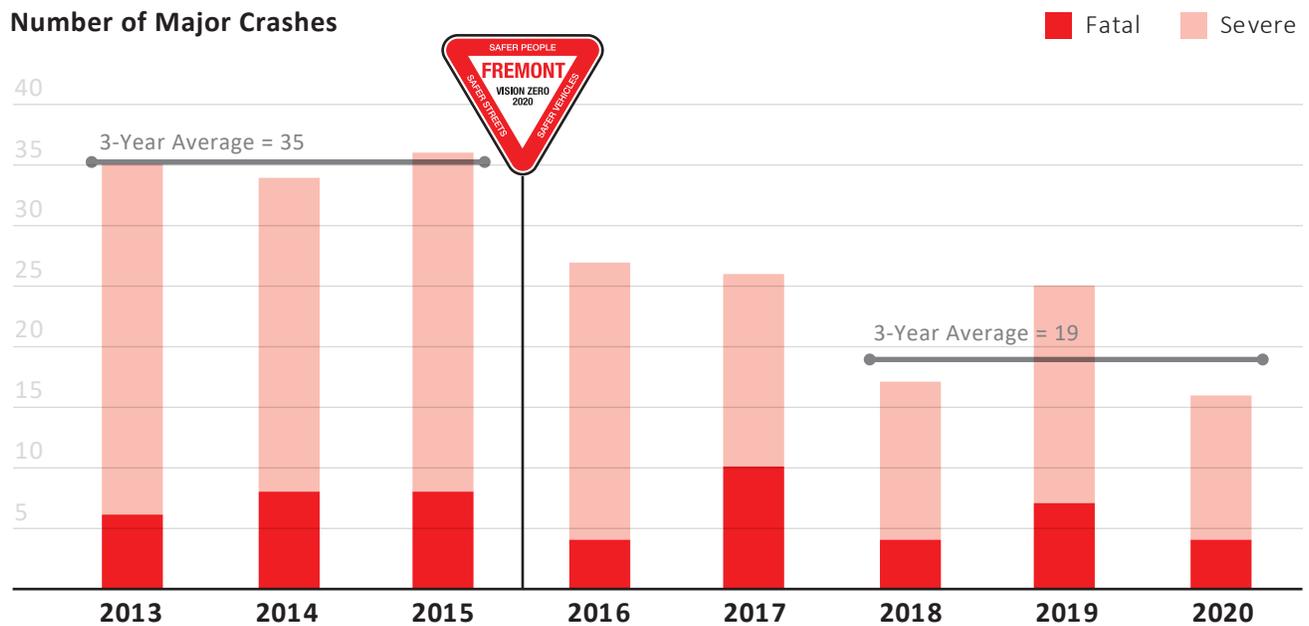
On **8/23** at 6:25 pm (dark), a **59-year old intoxicated male motorist**  driving on eastbound **Mill Creek Road** (1-lane, 25 mph, minor street) near **Mission Boulevard** was killed when he ran off the road. Driver was found after rolling down the hillside approximately 28 hours after the collision and tested positive for drugs and alcohol.

On **10/17** at 10:28 pm (dark), a **54-year old transient male pedestrian**  crossing **Mission Boulevard** (4-lane, 40 mph, state route) at **Ondina Drive** was killed when hit by a vehicle driven by a 36-year old male. Based on two independent witnesses, the pedestrian was crossing during the “Don’t Walk” phase.

# A Deeper Data Dive

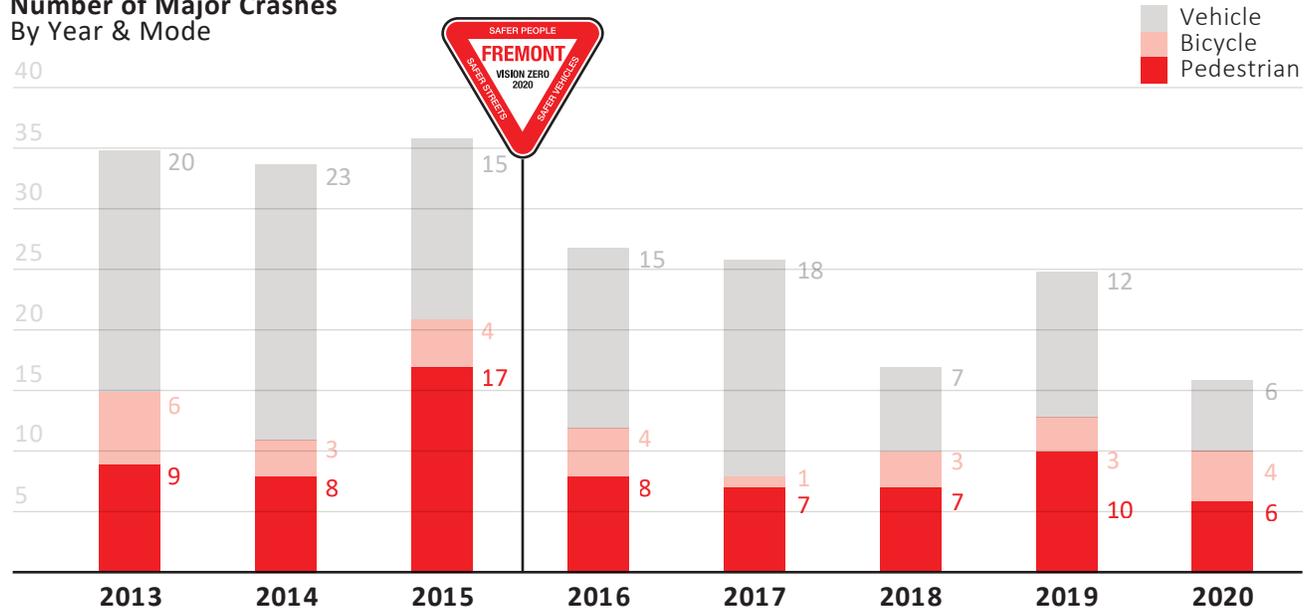
This section summarizes major crashes and associated roadway characteristics based on data from the City of Fremont's collision database, supplemented with information on crash locations from the Transportation Injury mapping System (TIMS) maintained by UC Berkeley's Safe Transportation Research and Education Center (SafeTREC).

## Average Annual Major Crashes have Reduced By 45%



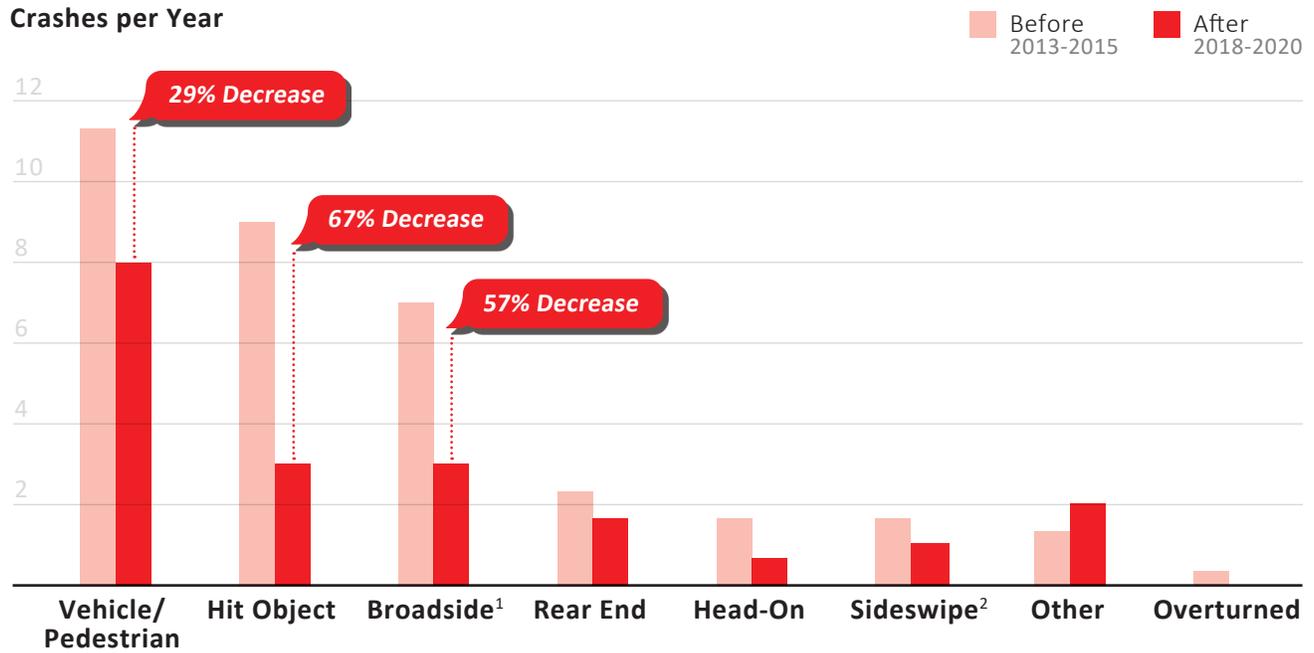
## Major Crashes have Dropped For All Travel Modes, with the Greatest Reduction For Vehicle Crashes.

Number of Major Crashes By Year & Mode



Year	2013	2014	2015	2016	2017	2018	2019	2020
Vehicle	20	23	15	15	18	7	12	6
Bicycle	6	3	4	4	1	3	3	4
Pedestrian	9	8	17	8	7	7	10	6

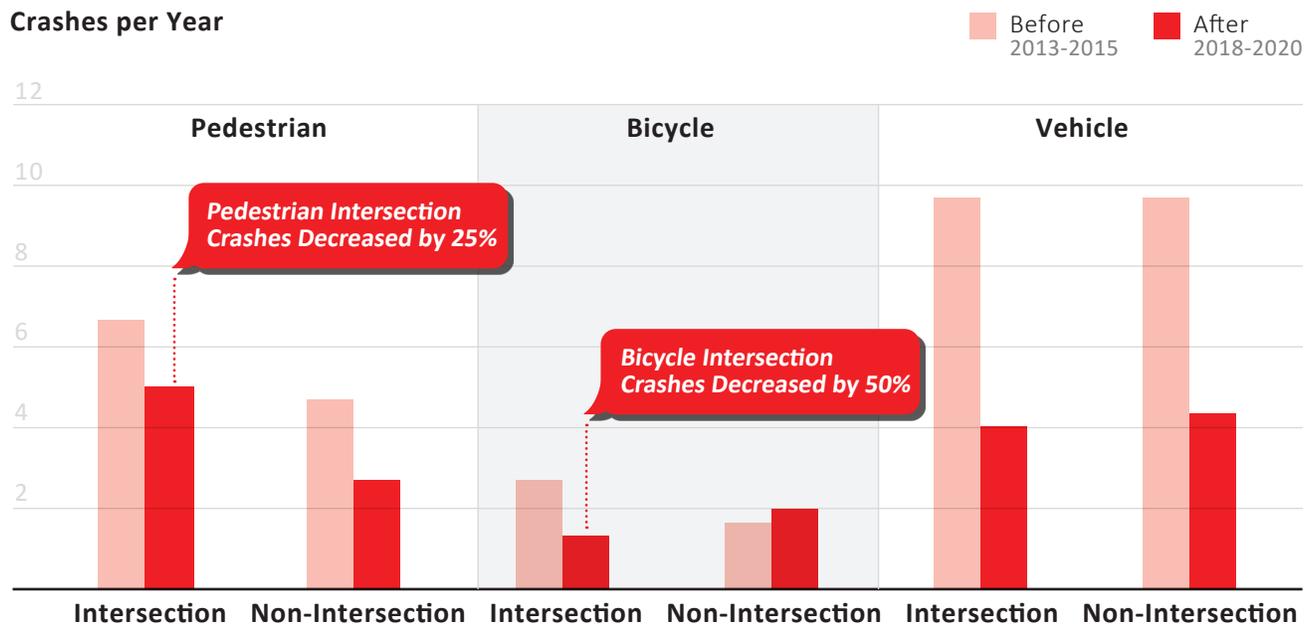
## Some Crash Types have Decreased by 50% or More



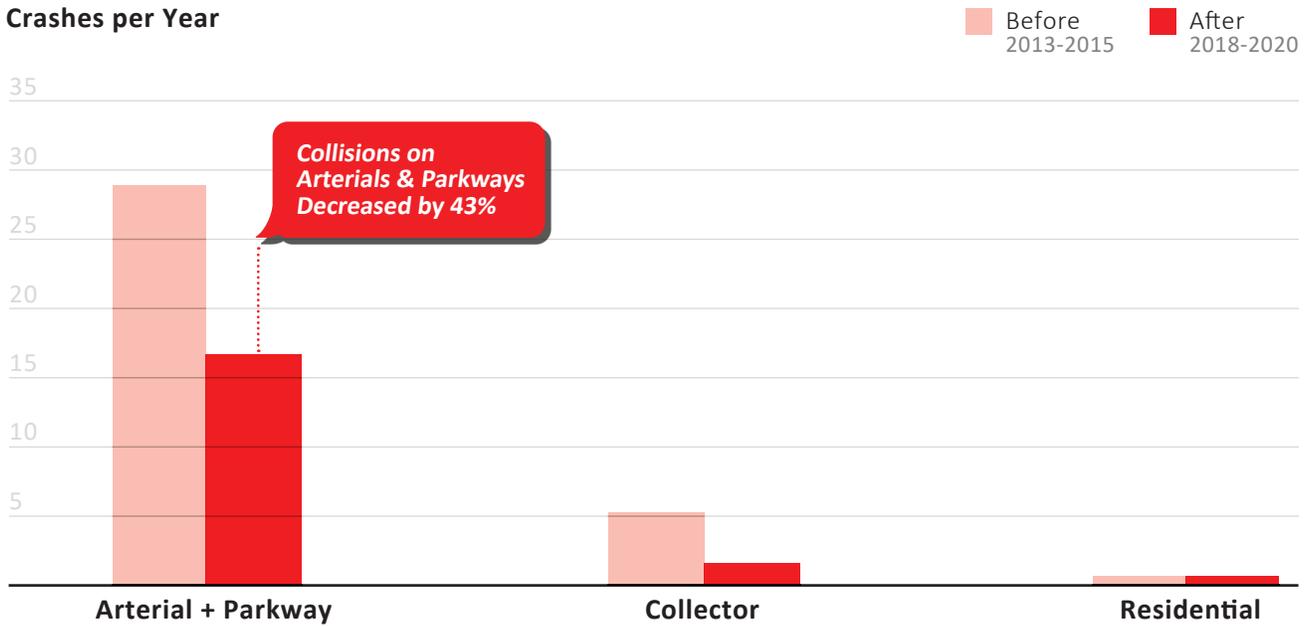
<sup>1</sup> Broadside - One driver crashes into the side of the other driver's vehicle at an angle.

<sup>2</sup> Sideswipe - One driver crashes into the side of the other driver's vehicle traveling in the same or opposite directions.

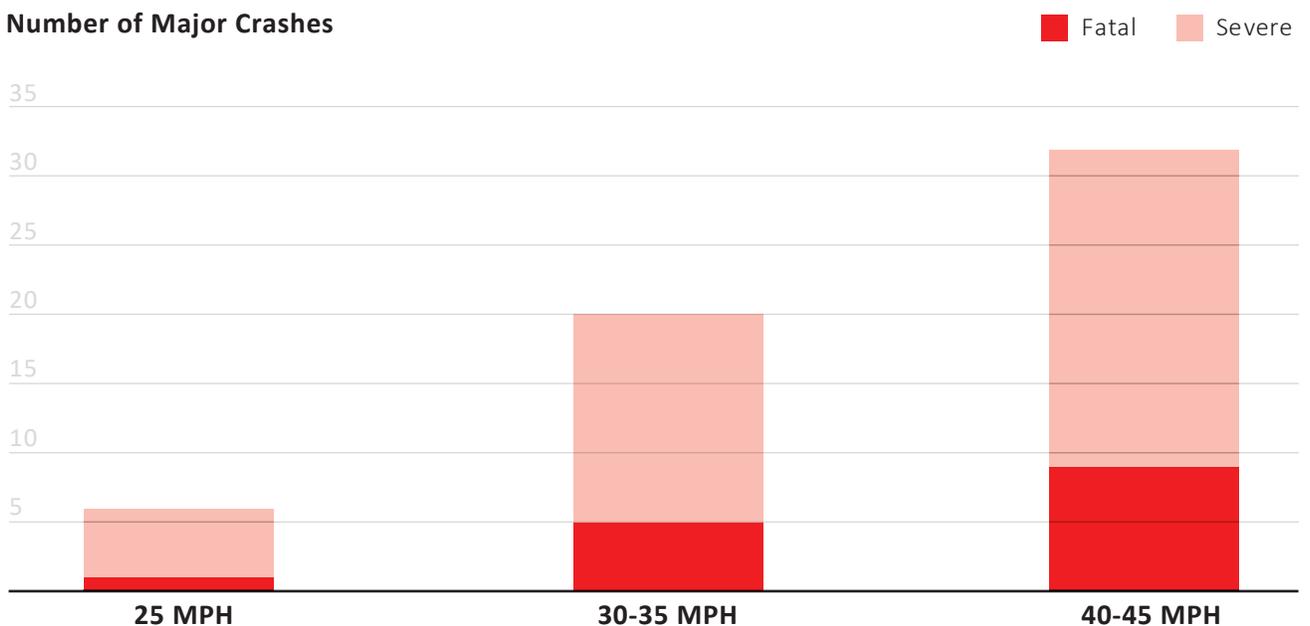
## Crashes for Vulnerable Road Users at Intersections have Decreased the Most



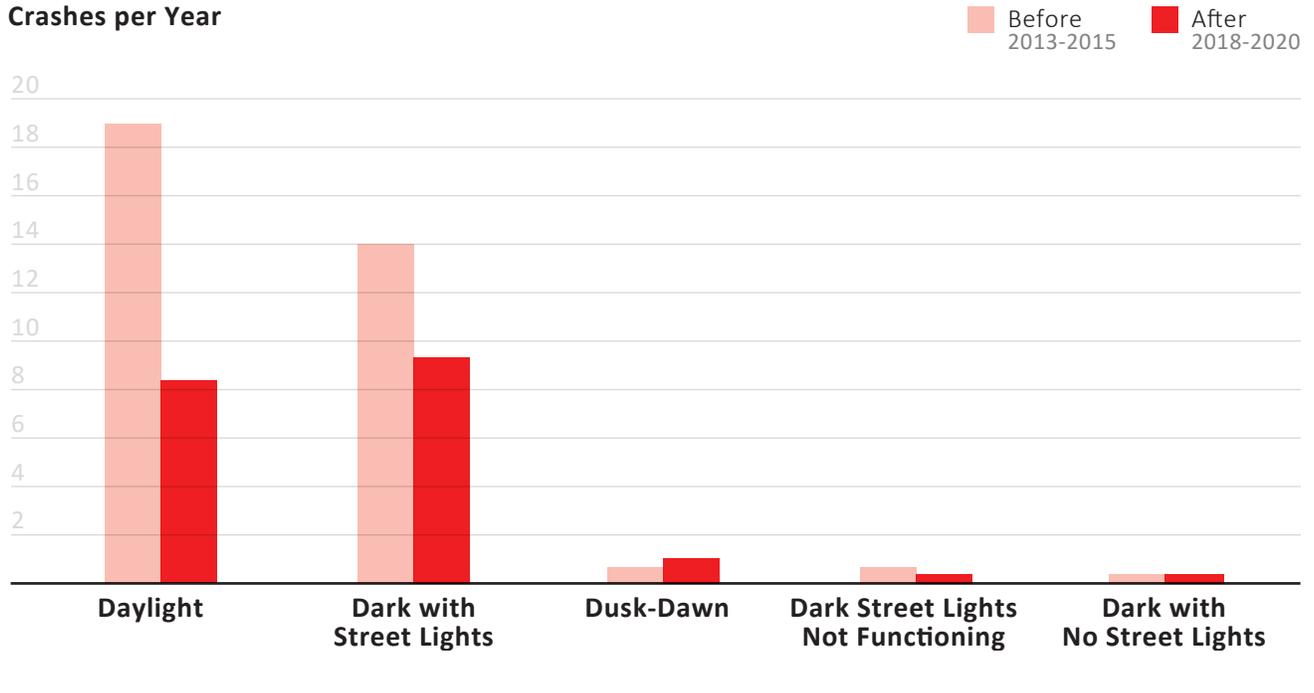
## Major Crashes have Decreased the Most on Wide, Fast Streets



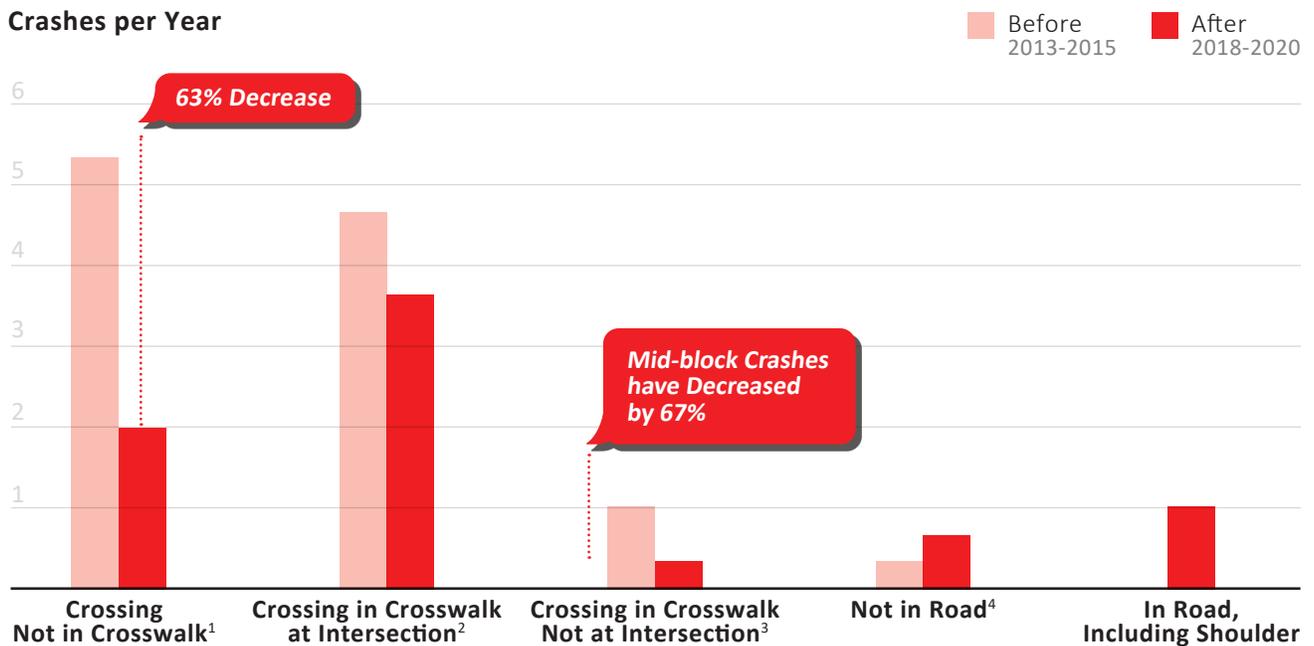
## Major Crashes Post-Vision Zero (2018–2020) are Primarily on High-Speed Roadways



## Crashes in Daylight & at Night have Both Decreased



## Major Crashes with People Crossing Outside of Crosswalks have Decreased over 60%



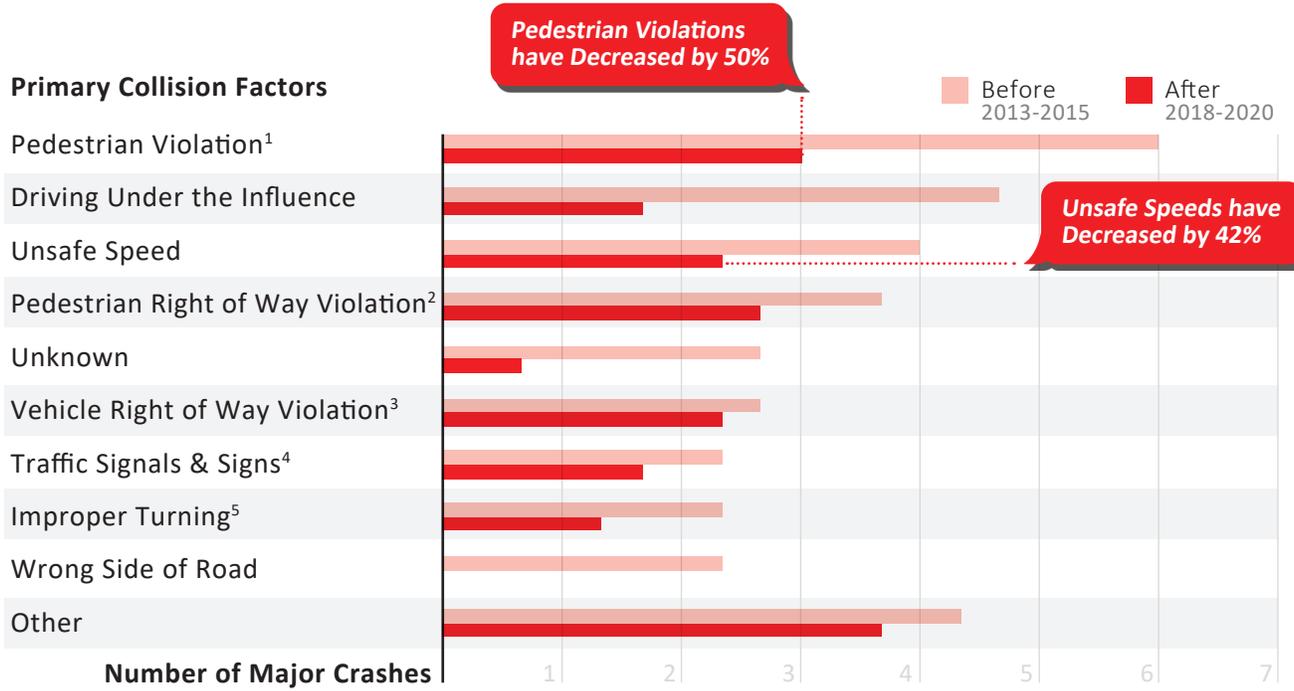
<sup>1</sup> Crossing Not in Crosswalk- This category includes people crossing on a leg of an intersection that does not have a crosswalk.

<sup>2</sup> Crossing in Crosswalk at Intersection- This category includes people crossing against a red light, as long as they are within a crosswalk.

<sup>3</sup> Crossing in Crosswalk Not at Intersection- This category covers mid-block crosswalks

<sup>4</sup> Not in Road- This category includes people on sidewalks, including at driveways.

# Major Crashes have Decreased Across Most Primary Collision Factors



### Definitions

- <sup>1</sup> Pedestrian Violation      This violation category covers pedestrians not following a rule of the road. A common citation is for a pedestrian crossing outside of a crosswalk and not yielding to vehicles. It also includes pedestrians crossing improperly during the flashing “DON’T WALK” or red phase of a signal, pedestrians suddenly leaving the curb, and pedestrians walking in the roadway on the right-hand side of the road.

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- <sup>2</sup> Pedestrian Right of Way Violation      This violation category covers drivers violating a pedestrian’s right-of-way. A common citation is for drivers not yielding at a crosswalk. It also includes drivers not yielding to a pedestrian on a sidewalk, such as at a driveway.

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- <sup>3</sup> Vehicle Right of Way Violation      This violation category generally covers a party (of any mode) not yielding to the driver’s right-of-way or the driver observing his or her right-of-way improperly, depending on which party is listed at fault. A common citation under this category is for drivers who do not yield to oncoming traffic during a left turn or U-turn. Other citations include not yielding properly at a stop sign, and not yielding when entering a road from a property. This also covers not yielding to pedestrians for right turns on red. While the title specifies automobile, a vehicle hitting a person on a bicycle can also be cited under this category.

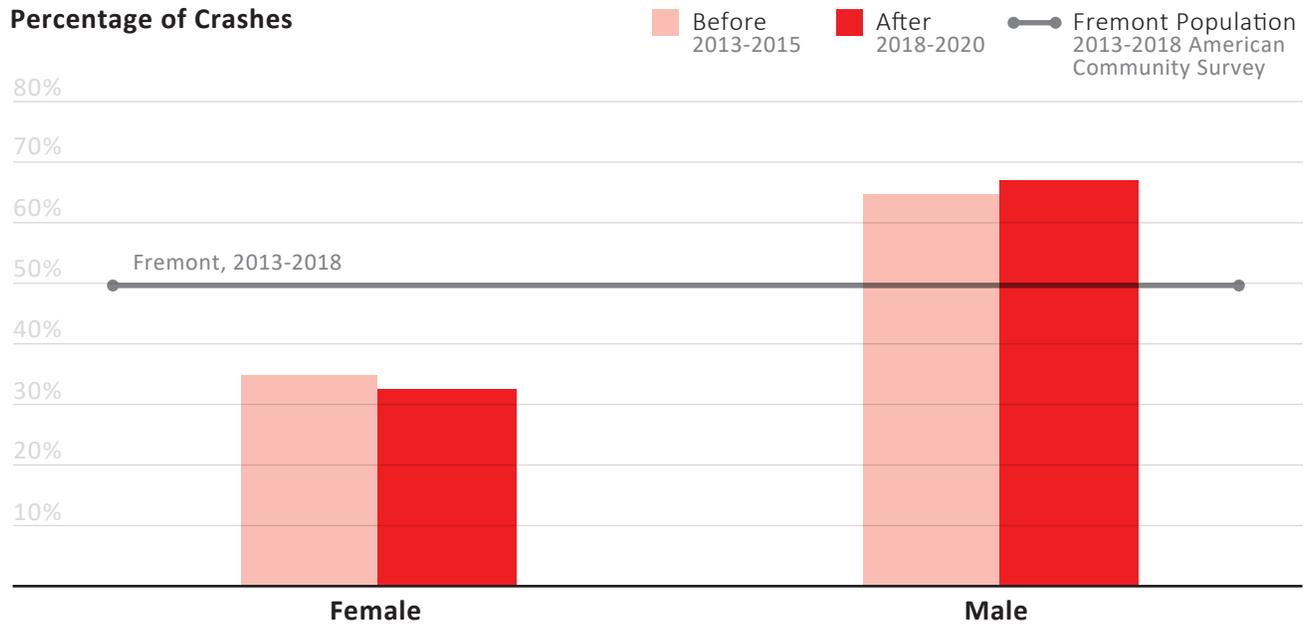
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- <sup>4</sup> Traffic Signals & Signs      This violation category covers drivers not observing the rules of a particular signal or sign. Common citations under the category involve a vehicle not stopping at the limit line or stop bar at a signal or stop sign, respectively, or the crosswalk if neither is present. This includes running red lights. If a vehicle stops but then does not yield properly to another vehicle in the intersection, it is included under the Automobile Right of Way Violation category.

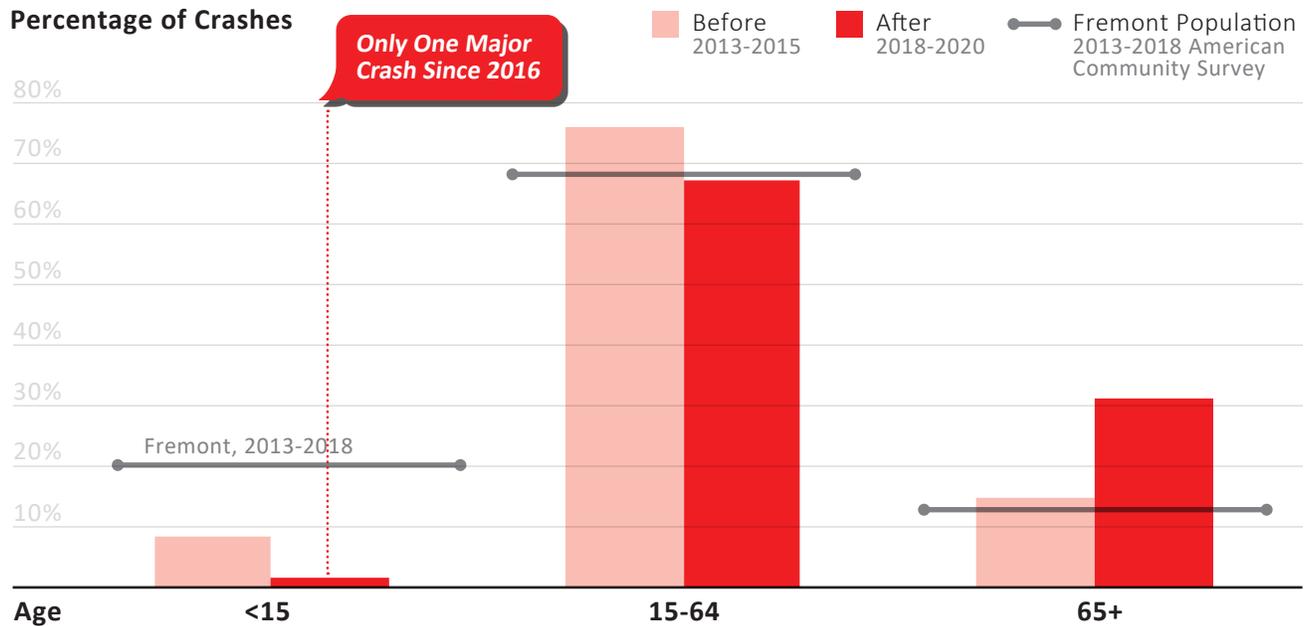
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- <sup>5</sup> Improper Turning      This violation category primarily covers turns at intersections and turning off of a road, plus proper signaling during lane changes. common citation under this category is for drivers who move left or right on a roadway when it is not safe or without signaling. It also covers drivers making an illegal U-turn, turning from a lane that does not allow turns, or making a turn that is signed as prohibited.

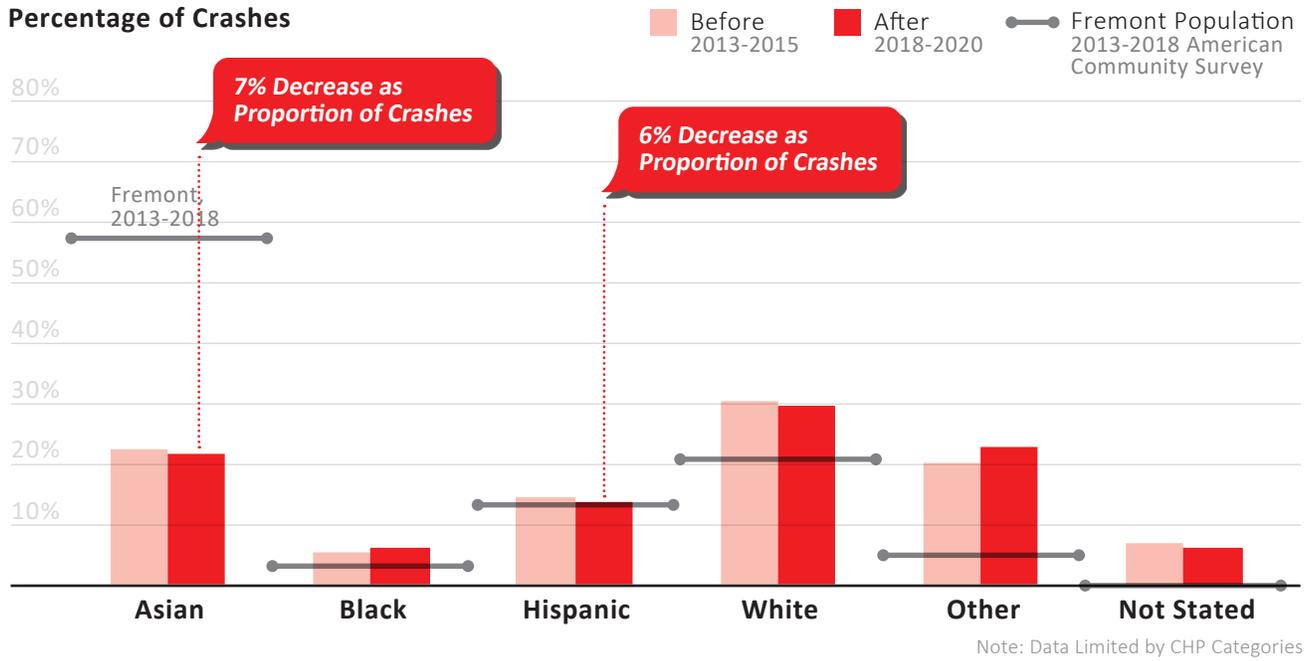
## Gender Split for Fatal & Severe Injuries is Mostly the Same



## Fatal and Severe Injury Rates for People 65 and Older have Not Decreased



# Impacts of Fatal and Severe Injuries by Race Consistent Over Time for Many Groups





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