

REFOCUSING VISION ZERO

2022 VISION ZERO ACTION PLAN



DENVER
THE MILE HIGH CITY



VISIONZERO

In memory of all those who lost their lives in Denver due to a crash on our streets, you will not be forgotten

The Places For Potential Spaces

A tale about the incredible trails
of how we can move
this is how we will prevail,
this is how we shall improve...

Occupy the streets!

Random Sunday....
you may see a jogger,
a runner,
and a pair of rollerblades...
Maybe an author at a bistro table
or parking spots for strollers
so parents can watch sons and daughters
spiraling on water slides
these are images of the softer sides
that streets intersect
to respect the infrastructure
where the residents reside....

A tale about the incredible trails
of how we can move

Artistic exposures
cover the surfaces of garden pots
creative expressions of pottery
planted next to stages where
cousins meet to sing
on the roads ricocheted by choirs.
choruses of bells sounding of operas
guide little girls transforming into
hop scotch hoppers
umbrellas hang just in case
it gets any hotter

A tale about the incredible trails
of how we can move

Low hanging fruit
to promote what is possible.
Streets are safer
when sidewalks are more walkable.
lower neighborhood speeds
are in order so every day
can turn into a block party
or possibly a series of night markets
where the grocers
are the neighboring back yards...

A tale about the incredible trails
of how we can move



this is the artistry of vision Zero
where the community at large
are calling the shots
because they are the ones In charge.
Here there is no death by cars
or need for hard explanations
about why roads can leave emotional marks
impose by traumatic scars.

This is to the hope...
that each crossing into a park
feels safe, is safe
This is to the safety
for every district and zone...
this is to the lanes
The boulevards, the streets,
cul de sacs and coves...
This is to every avenue
on our way home...
This is for the circles
that turn into the roads...
This is for the roundabouts
that make the spaces for the places
where the visions of zero are known.

A tale about the incredible trails
of how we can move
this is how we will prevail,
this is how we shall improve...

Occupy the street,
this is for me!
this is for you!

- Christian Steward

Dear Friends,

In 2017, we set an ambitious goal of zero traffic-related deaths and serious injuries in Denver by 2030, known as Vision Zero. Today, I am recommitting to this goal, supported by a new, bold Vision Zero Action Plan.

Since 2017, Denver has made significant investments in infrastructure to make our city streets safer for all. These investments include the installation of 125 miles of new bike lanes, 88 miles of sidewalks, signal operations improvements at 241 intersections, and 67 new or upgraded pedestrian crossings. We're now replacing thousands of signs changing Denver's default speed limit on local streets from 25 mph to 20 mph. Additionally, the Vision Zero team has established two important safety programs since 2017: a Rapid Response program, which seeks to implement remedial safety work within six months of a fatal crash, and a Road Safety Audit program, which provides the basis for remedial safety work along our streets with the highest numbers of traffic-related deaths and serious injuries.



Despite our efforts, Denver has seen an increase, not a decrease, in fatal crashes over the last five years. Though the global pandemic in 2020 impacted travel patterns which resulted in decreased Denver traffic fatalities for that year, fatalities have been increasing year-on-year overall. There has been stagnation in progress toward Vision Zero across the nation, with increases in dangerous driving behaviors and larger and heavier vehicles.

We cannot rest. A single life lost on our streets is unacceptable and preventable. We need to make Denver's streets safe for everyone — no matter where they live in the city, no matter their means, and no matter their choice to walk, bike, drive or take public transit. We know we need to do more to achieve our goal of zero traffic-related deaths and serious injuries by 2030.

Denver remains committed to making its streets safer for all with an updated action plan that prioritizes vulnerable road users, focuses investments where they're most needed, builds out our multimodal network, improves street design and explores the use of advanced technology.

We know the path to achieving Vision Zero is not a smooth one. It requires a fundamental and widespread commitment to a culture of safety that implements safer infrastructure and influences good driving behaviors in a way that speaks to every person, every time they get behind the wheel. Denver Moves Everyone 2050, our robust citywide transportation plan, sets us on a course to achieve our shared goals, including safe streets for all.

Our updated Vision Zero themes and strategies harness our strengths as a city and will help us overcome the challenges facing us today. All strategies in this plan have gone through the city's robust equity analysis to ensure we are not doing undue harm through our actions.

We will persevere. We will thrive. We will go bigger and be bolder. It will take all of us to reach zero.

Respectfully,

A handwritten signature in black ink, appearing to read "M. Hancock". The signature is stylized and includes a long horizontal line extending to the right.

Michael B. Hancock

Acknowledgments:



**City and County of Denver –
Department of Transportation and Infrastructure:**

Rolf Eisinger – Client Project Manager

Mike King – Project Support

Kayla Gilbert – Project Support

Lindsay Gips – Project Support



UrbanTrans North America:

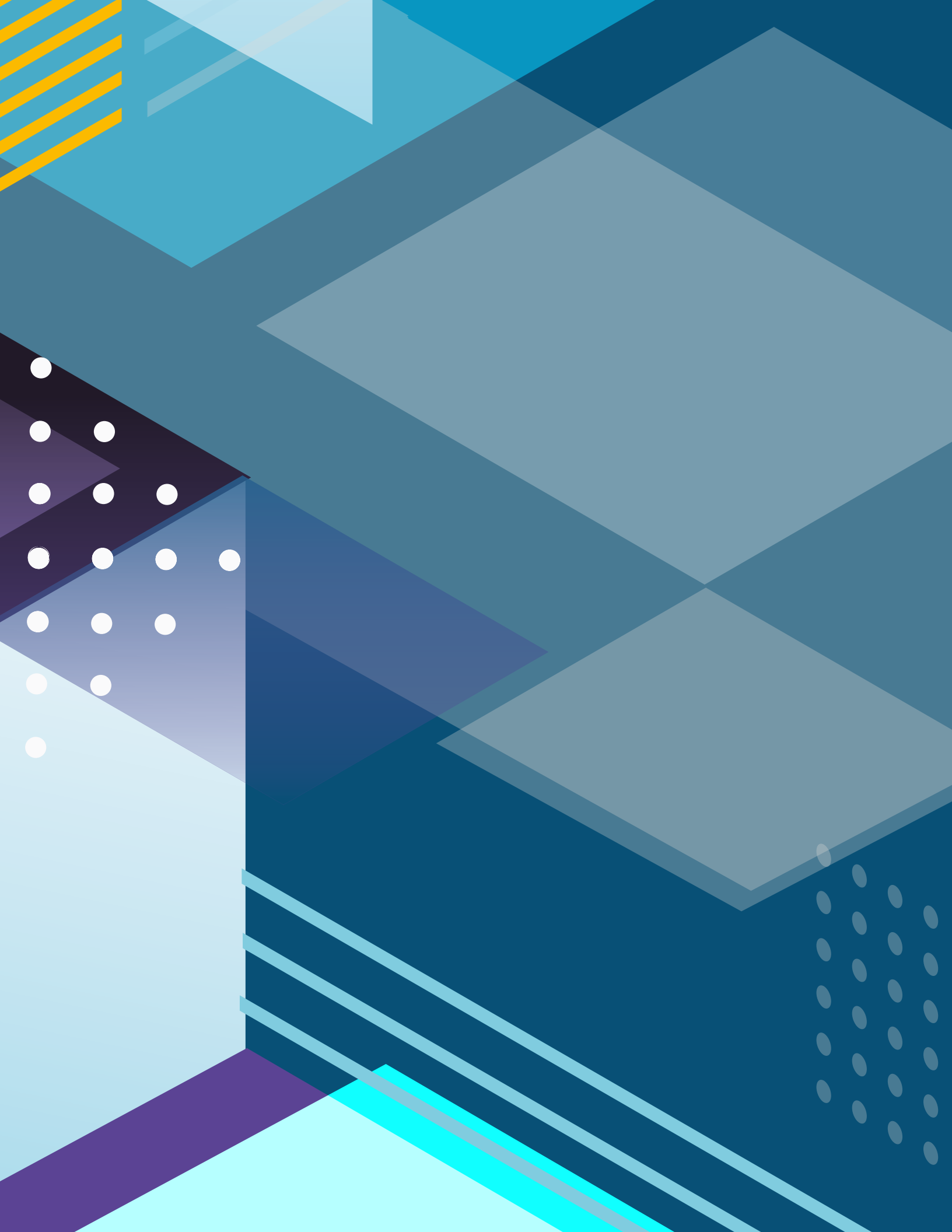
Jonny Rotheram – Consultant Project Manager

Robby Long – Data Analyst

Becky Alper – Project Support

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WHAT IS VISION ZERO

What Is Vision Zero

Vision Zero is an international movement to reduce traffic deaths to zero.¹ Vision Zero prioritizes human life and seeks to counter the prevailing sentiment that traffic crashes are inevitable “accidents” with the assertion that crashes have predictable and preventable causes. Successful Vision Zero programs recognize that there is a virtuous circle in traffic safety in which increasing numbers of people walking and biking make these activities inherently safer. Likewise, reducing the number of trips made by motorized vehicles creates a more hospitable and safer environment for everyone traveling in the city.

In recent years Vision Zero practitioners have focused on a “Safe System” approach. The Federal Highway Administration (FHWA) provides an explanation of the Safe System approach:

“The Safe System approach is founded on the principles that humans make mistakes. In a Safe System, those mistakes should never lead to death. Applying the Safe System approach involves anticipating human mistakes by designing and managing road infrastructure to keep the risk of a mistake low; and when a mistake leads to a crash, the impact on the human body doesn’t result in a fatality or serious injury.”²

A Safe System approach makes safety the highest priority of any street investment, incorporating safe street design, safe roadway users and vehicles, safe speeds, and post-crash care to eliminate traffic-related deaths.

Decades of planning our streets to cater to the efficient and rapid movement of cars, trucks and other motorized vehicles has had a negative impact on the ability to travel safely through our city. This is

confirmed by recent crash data, which shows that of the 554 reported traffic-related deaths over the past 9 years (2013-2022), 548 involved someone driving a motorized vehicle (99%).³

While there are many reasons why a crash on a Denver street may result in death, the consistent thread throughout the vast majority of these fatalities is the involvement of someone operating a motorized vehicle.

Motorized vehicle crashes are the leading cause of death for teenagers⁴ and were the leading cause of deaths in children (0-14 years old) until 2020, when they were surpassed by gun deaths.⁵

Motorized vehicle crashes are the leading cause of death for teenagers and were the leading cause of deaths in children (0-14 years old) until 2020, when they were surpassed by gun deaths.

Mobility justice is a key component of Vision Zero. Mobility justice can be defined as “a vision for a world rooted in social justice where people feel safe existing on the streets and can build lives experiencing the full joy of movement regardless of their race, gender, religion, background, or physical ability.”⁶ Mobility Justice is a recognition that privileged groups have benefited from our primarily car-based transportation

1 <https://visionzeronetwerk.org/>

2 <https://highways.dot.gov/safety/zero-deaths>

3 <https://denvergov.org/opendata/dataset/city-and-county-of-denver-traffic-accidents>

4 https://www.cdc.gov/transportationsafety/teen_drivers/teendrivfers_factsheet.html

5 <https://www.nejm.org/doi/full/10.1056/NEJMc2201761>

6 <https://americawalks.org/resources/mobility-justice/>

system at the expense of marginalized communities. It is an acknowledgment that transportation decisions have created winners and losers along race and class lines.

The city of Denver’s arterial street system is an example of historic injustices that mobility justice seeks to change. The arterial street system is designed to provide speed and convenience to people driving into or through Denver. The communities that live along Denver’s arterial streets experience the negative impacts of the car-centric arterial system, including divided communities, increased localized pollution and unsafe spaces for people using modes other than driving.⁷ Elevating the voices of community members most impacted, particularly younger residents, is an important step toward mobility justice. Examples of arterial streets in Denver include Colorado Boulevard, Federal Boulevard, Santa Fe Avenue, Broadway, Colfax Avenue and Alameda Avenue.



The city of Denver has a designated High Injury Network (HIN). The HIN is comprised of roadways with the highest levels of traffic-related deaths or serious injuries in the city. The HIN is mostly comprised of arterial streets, many of which are managed by the Colorado Department of Transportation (CDOT).

The central tenet of Vision Zero is that people should not be killed or seriously injured as a consequence of making a trip in Denver.

By adopting Vision Zero, the City of Denver rejects the status quo that traffic crashes are unfortunate “accidents.” Instead, we accept that traffic crashes can be prevented by systematically addressing their causes. By applying Vision Zero’s core principles, we can save lives and prevent severe injuries on our streets while enhancing the quality of life for all Denver residents. These core principles⁸ are:

- Human life is our highest priority.
- The involvement of people driving motorized vehicles are a consistent factor in our city’s traffic-related deaths and serious injuries.
- High motorized traffic speeds are incompatible with Vision Zero progress.
- Traffic deaths are preventable and unacceptable. Preserving human life takes priority over convenience.
- Denver’s transportation system should be safe for all users, in all neighborhoods, regardless of the mode of travel they choose.
- Human error is inevitable and unpredictable. Our transportation system should be designed to anticipate human error so the consequence is not death or severe injury.
- Safe human behaviors, education and traffic safety enforcement are essential contributors to a safe transportation system.
- People are inherently vulnerable, and speed is a fundamental predictor of crash survival. Our transportation system should be designed for speeds that protect human life.

⁷ <http://www.untokening.org/updates/2018/1/27/untokening-mobility-beyond-pavement-paint-and-place>

⁸ Principals were developed using resources from <https://visionzeronetwerk.org/>, and also from [Vision Zero case study research](#).

DENVER MOVES EVERYONE 2050

Our Vision to Move People, Goods & Services

Denver Moves Everyone 2050 (DME) is a citywide plan identifying transportation solutions that will make it easier and safer to travel in the city. The plan will prioritize equitable and safe solutions for Denver residents and seek to improve the movement of goods and services, ensuring all people can access everything they need.

To accomplish this vision, the plan will focus on improving all the ways people travel — whether rolling, walking, bicycling, taking transit or driving — and all the ways we manage traffic and freight.

The citywide plan was developed over two years (2021-2023). During this time, Denver's Department of Transportation and Infrastructure (DOTI) has engaged with thousands of community members in each of Denver's 78 neighborhoods to develop DME.

Transportation safety emerged as a key theme in this outreach. The results from the DME outreach demonstrated the importance of making zero traffic deaths part of DOTI's long-term goals. The emphasis on safety in outreach makes Vision Zero an essential part of meeting the long-term goals of DME.

- Remedial safety work should focus on system-level infrastructure changes above influencing individual behavior.

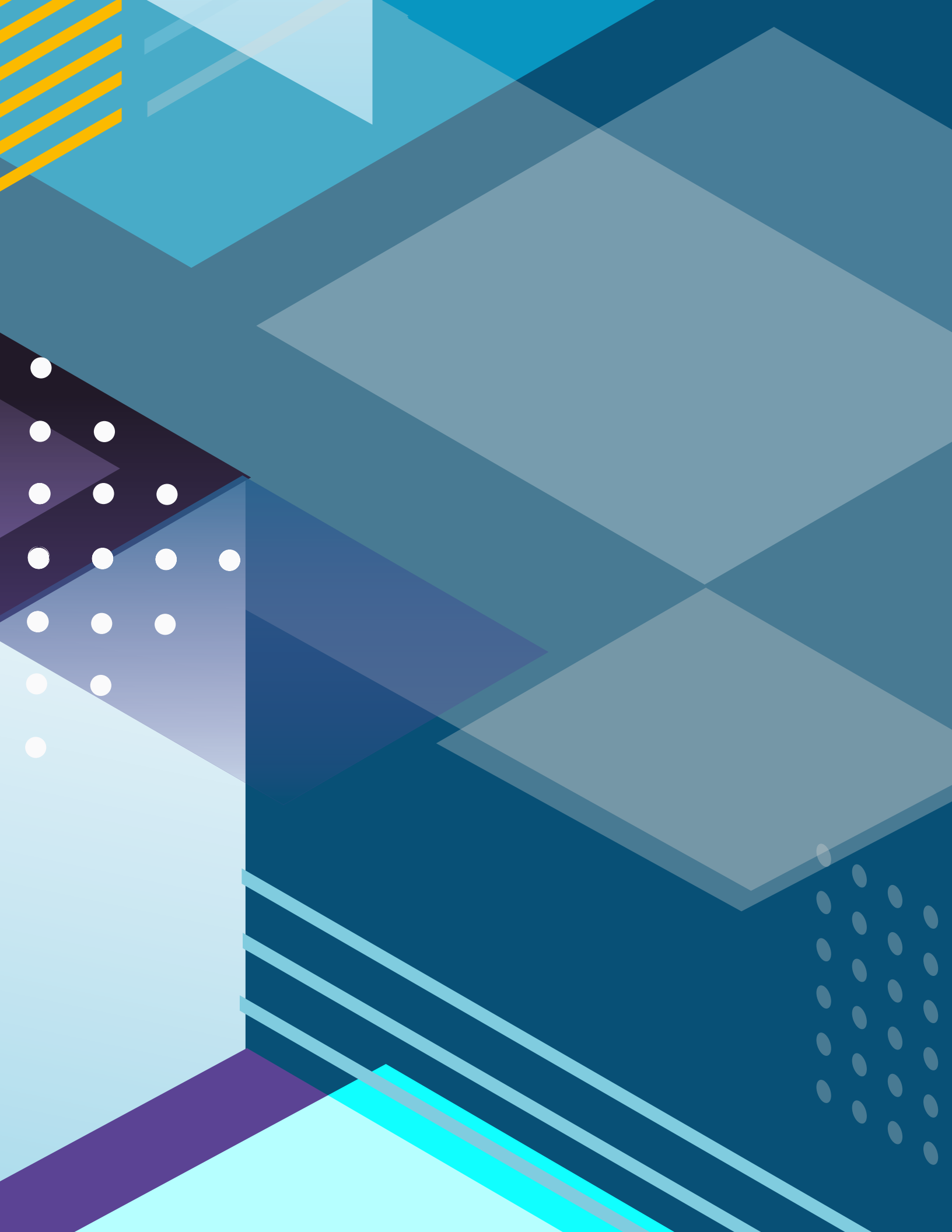
This Vision Zero Action Plan Update has been developed using these Vision Zero core principles.

The remainder of this action plan is organized as follows:

- **Section 2: The State of Traffic Safety in Denver: Our Progress Toward Vision Zero**
 - Provides an overview of traffic safety in Denver, as well as national trends.
- **Section 3: Vision Zero Accomplishments Since 2017** – Highlights the accomplishments made by the Vision Zero team.

- **Section 4: The Building Blocks of a Safer City**
 - Provides an overview of the most pertinent data from the crash analysis conducted by the project team, including the revised High Injury Network (HIN) analysis and Vision Zero Safety Focus Areas.
- **Section 5: New Vision Zero Themes**
 - Introduces the new themes of the updated Vision Zero plan.
- **Section 6: Time for Action! Vision Zero Action Plan 2.0**
 - Provides the action items identified to achieve Vision Zero.





The background features a dark blue base with various geometric shapes in lighter shades of blue and yellow. These shapes include triangles, polygons, and lines, some overlapping and some creating a sense of depth. The overall aesthetic is modern and clean.

THE STATE OF TRAFFIC SAFETY IN DENVER

Our Progress Toward Vision Zero

Many cities in the United States have made Vision Zero pledges in the last decade to eliminate traffic fatalities and injuries. Yet most cities that have made these declarations have seen traffic-related deaths rise, not lower, over that period. Denver is no exception to this national trend. Overall, traffic-related deaths and serious injuries in Denver have been trending upward over the past ten years — even when accounting for population growth.

Since 2017, the Vision Zero team has been working on important safety projects, programs, and policies to reduce traffic deaths in Denver. The years since 2017 have been difficult for transportation safety in Denver

and have made it clear that the initiative needs to be emboldened and well-resourced to make real headway on achieving zero traffic-related deaths by 2030.

Traffic-related deaths on Denver's streets are trending upwards, even when accounting for population changes.

Total Traffic Related Deaths and Deaths per 100,000 population since 2013

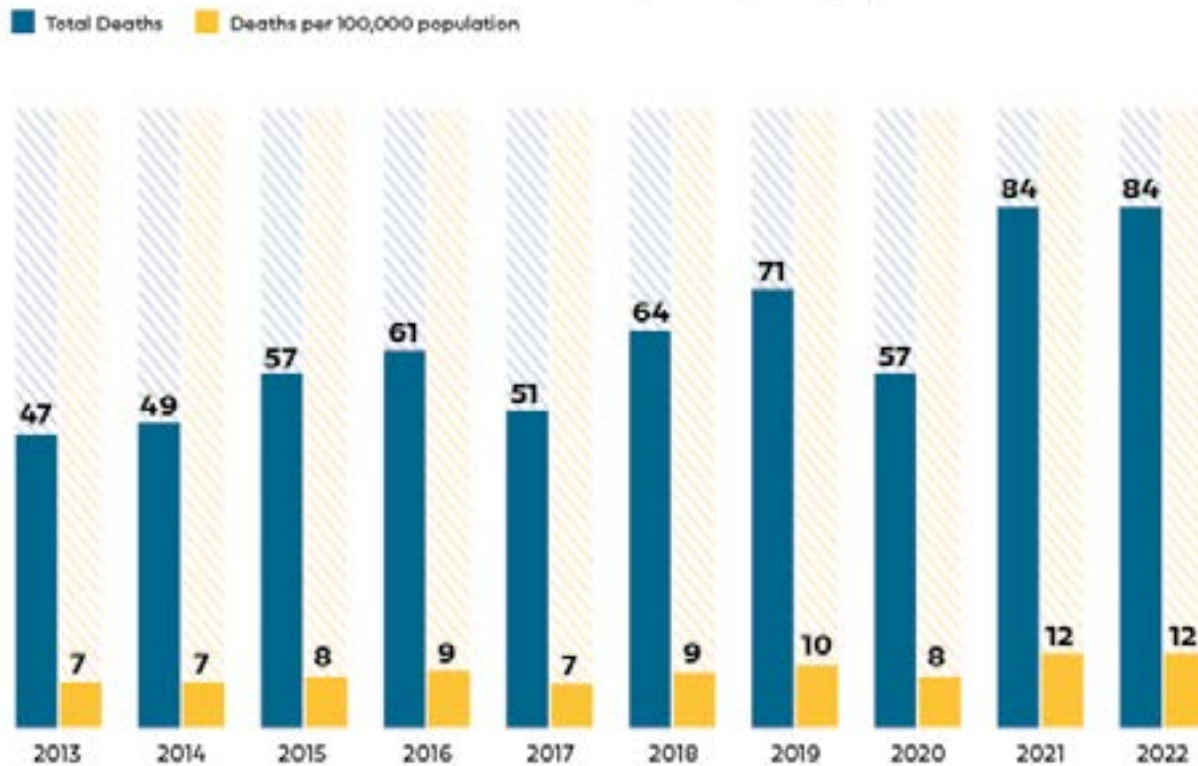


Figure 1: Traffic deaths per 100,000 people

Traffic Related Serious Injuries per 100,000 population since 2013

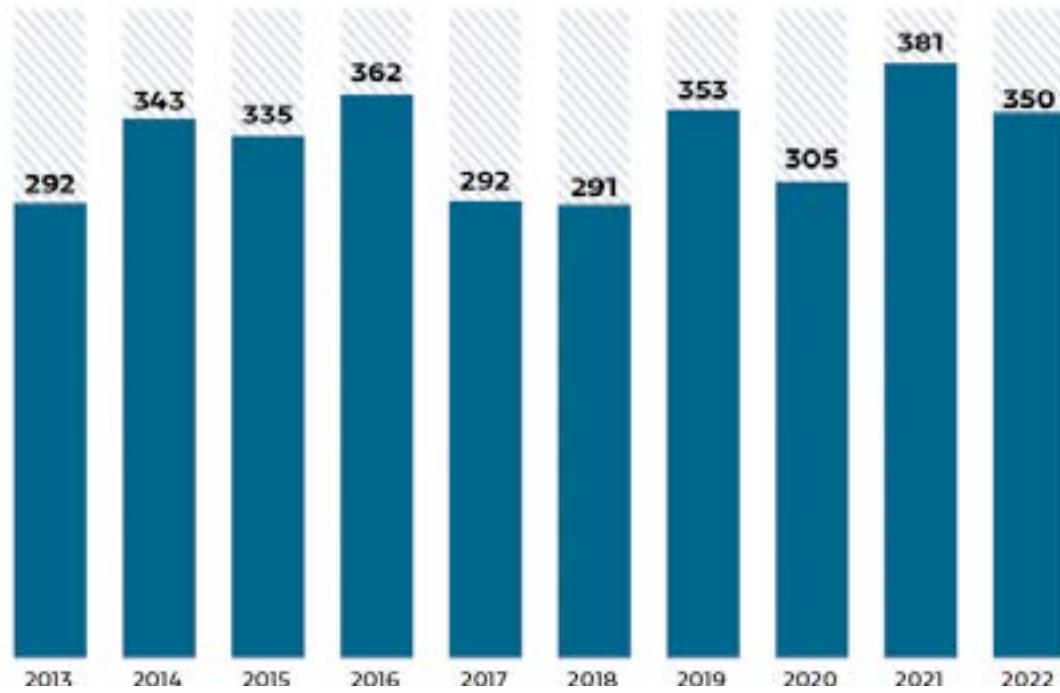


Figure 2: Traffic serious injuries since 2013

Number of Traffic Related Deaths per 100,000 Population

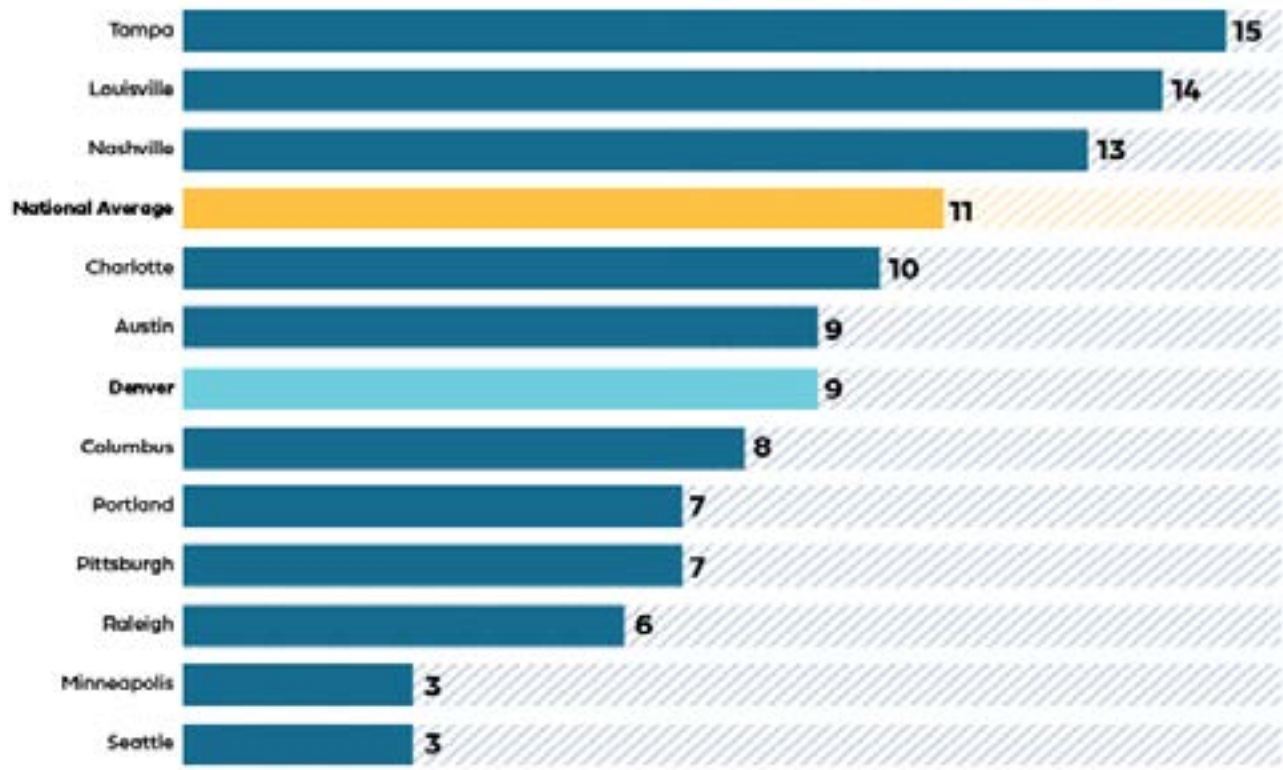


Figure 3: Average traffic-related deaths 2018-2020 per 100,000 of population (2020 census)

How does Denver compare?

More than 40 cities in the U.S. have committed to Vision Zero and are working to eliminate traffic deaths and serious injuries. Denver sits in the middle of the pack when compared to similarly-sized cities in terms of the number of traffic-related deaths. It has eight traffic deaths per 100,000 people, which is below the national average of 11.

Street types and crashes

Serious traffic crashes are most likely to occur on high-speed, multi-lane arterial roadways. These streets account for 83% of all traffic-related serious injuries in the city. Arterial streets carry more traffic and tend to have higher speed limits, resulting in a higher probability of a serious crash. Far fewer serious crashes occur along collector or local streets, despite these streets representing 81% of Denver's street network. Combined, just 17% of traffic-related serious injuries occur along collector and local streets.

Denver's most vulnerable roadway users are most at-risk traveling along arterials. In Denver, 32% of traffic-related serious injuries involve a bicyclist or pedestrian. Of these crashes, 78% occur along arterial roadways.

Traffic Related Deaths and Serious Injuries by Roadway Type

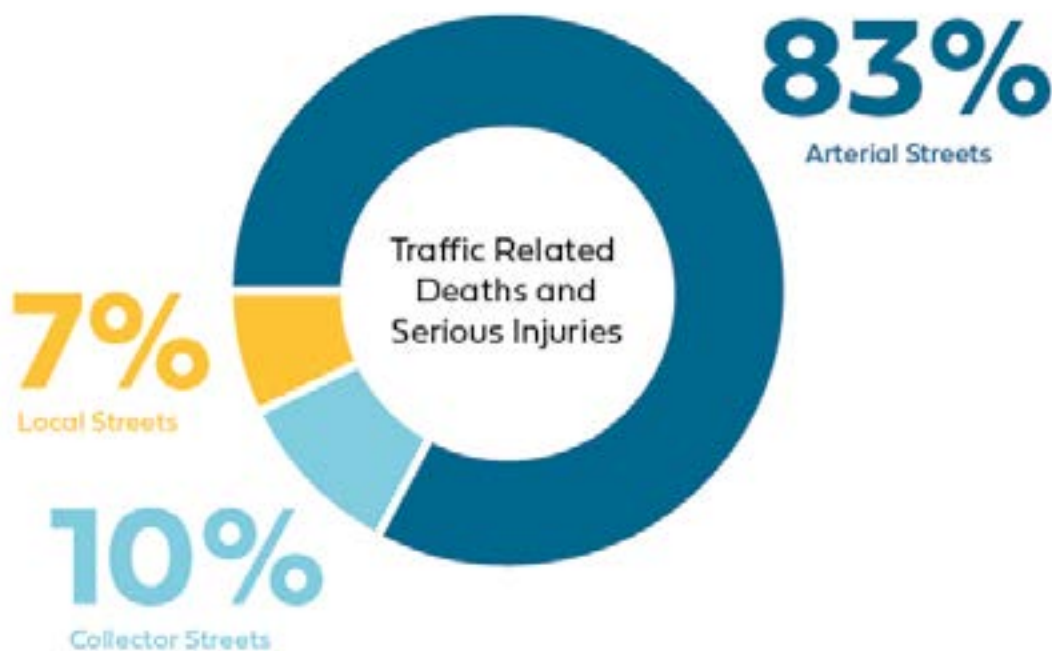
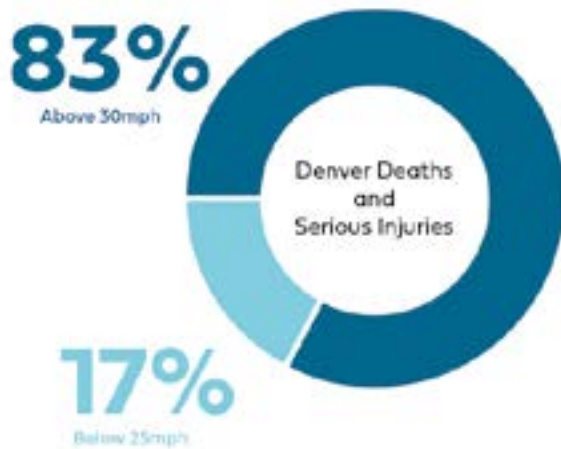


Figure 4: Arterial streets disproportionately contribute to traffic-related deaths and serious injuries (taken from DME State of the System)

Traffic Related Deaths and Serious Injuries by Speed



Hit by a Vehicle Traveling at:



Figure 5: Average traffic-related deaths 2018-2020 per 100,000 of population (2020 census)

Speed and crashes

Speeding is a significant factor in the likelihood of severe injury or death in the event of a crash. In Denver, 83% all traffic deaths and serious injuries occur on roadways posted at or above 30 mph (DOTI, 2021). This data does not consider the speed at which the collision occurred, which could be in excess of the posted speed limit. High speed is particularly impactful for vulnerable roadway users involved in crashes with vehicles. National data indicates that half of pedestrians hit by a vehicle traveling at 40 mph will be killed.⁹ Recognizing the link between high speeds and serious crashes, DOTI is evaluating opportunities to combine reduced posted speed limits with street design changes to effectively reduce travel speeds.

Comprehensive costs of traffic-related deaths

Beyond the irreparable loss of a person to family and friends, the comprehensive cost of traffic-related deaths to the economy should not be overlooked. The Centers for Disease Control and Prevention (CDC) found that the comprehensive cost per traffic-related death in Colorado in 2020 was \$10.5 million.¹⁰ This means the 82 traffic-related deaths in Denver equate to \$861 million in comprehensive costs, and the 409 deaths since 2017 equate to \$4.3 billion. For more information on how the CDC calculates the cost of injury, see <https://www.cdc.gov/injury/wisqars/cost>.

⁹ <https://aaaafoundation.org/impact-speed-pedestrians-risk-severe-injury-death/>

¹⁰ <https://wisqars.cdc.gov/cost/?y=2020&o=MORT&i=0&m=20930&g=08&s=0&u=TOTAL&u=AVG&t=COMBO&t=MED&t=VPSL&a=5Yr&g=0&g2=199&a1=0&a2=199&r1=MECH&r2=INTENT&r3=NONE&r4=NONE&c1=NONE&c2=NONE>

Speeding exacerbated by the pandemic

Since Denver's inaugural Vision Zero Action Plan in 2017, the world experienced an international pandemic that greatly influenced travel patterns. While far fewer people traveled in 2020, more people died on US streets.¹¹ Empty streets resulting from stay-at-home orders led to more people speeding, a key factor in whether someone in a crash lives or dies.¹²

Denver experienced temporarily lower traffic-related deaths in 2020, bucking the national trend. Traffic-related deaths decreased from 61 in 2019 to 51 in 2020. This may be partially attributable to the Vision Zero work completed by Denver from 2017 to 2020.

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Motorized vehicles becoming bigger, heavier and faster

Across the United States, vehicle sizes and weights have increased dramatically over the past decade. Vehicle sales reports show that Americans are overwhelmingly opting to purchase larger vehicles, with 80% of consumers buying SUVs or pickup trucks instead of a traditional, smaller passenger car.¹⁴ These larger vehicles create more dangerous crash conditions: taller grill heights mean that in a collision, the vehicle is more likely to hit someone's torso or head instead of their legs; bigger vehicles are heavier, which means more deadly force; and SUVs and pickup trucks have larger side and front blind spots, limiting drivers' visibility.

Electric vehicles have increased to 5% of all new vehicles sales in 2022 and are projected to grow at double-digit rates. The electric version of the most



¹¹ <https://www.nhtsa.gov/press-releases/2020-fatality-data-show-increased-traffic-fatalities-during-pandemic>

¹² <https://www.iihs.org/news/detail/pandemic-lockdowns-made-rush-hour-speeding-risky-driving-the-new-normal>

¹³ <https://www.denvergov.org/Government/Citywide-Programs-and-Initiatives/Vision-Zero>

¹⁴ <https://jalopnik.com/trucks-and-suvs-are-now-over-80-percent-of-new-car-sale-1848427797>

Denver Share of Trips Made Compared to Traffic Deaths

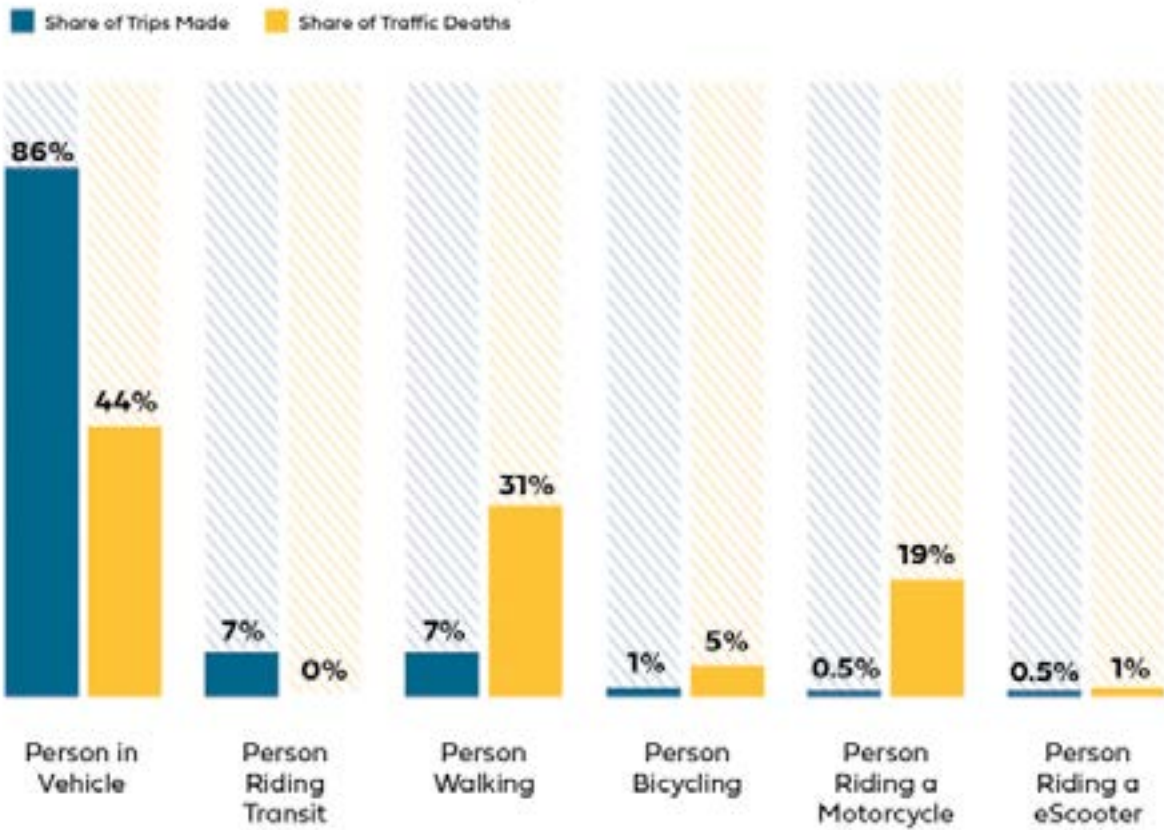


Figure 6: Denver Share of Trips Made Compared to Traffic Deaths (taken from DME State of the System)

popular pickup truck in America, the F-150, weighs 35% more than its equivalent gas-powered version.¹⁵ It's not all about weight, either; electric cars have higher torque and accelerate faster on average compared to gas powered cars.¹⁶ These characteristics create vehicles that are more dangerous to vulnerable road users. As Colorado and Denver strive to meet climate goals through electric vehicle targets and incentives for electric vehicle purchases, it's important to acknowledge the risks associated with their increased weight and torque.

Motorcyclists, pedestrians, and bicyclists are over-represented in fatal crashes

Vulnerable road users — motorcyclists, pedestrians and bicyclists — represent 9% of people on our city's transportation system, yet are involved in 31% of crashes resulting in death. While most crashes involve people driving motorized vehicles, vulnerable road users disproportionately bear the brunt of traffic injuries and death. In the U.S. there was a 40-year high in traffic-related pedestrian deaths in 2021. This high rate of traffic-related pedestrian deaths increased an additional 5% in the first half of 2022.¹⁷

¹⁵ <https://slate.com/business/2021/05/ford-f150-lightning-electric-weight.html>

¹⁶ <https://www.caranddriver.com/features/g36420161/evs-compared-gas-powered-vehicles-performance/>

¹⁷ <https://www.ghsa.org/resources/news-releases/GHSA-Pedestrian-Spotlight23>

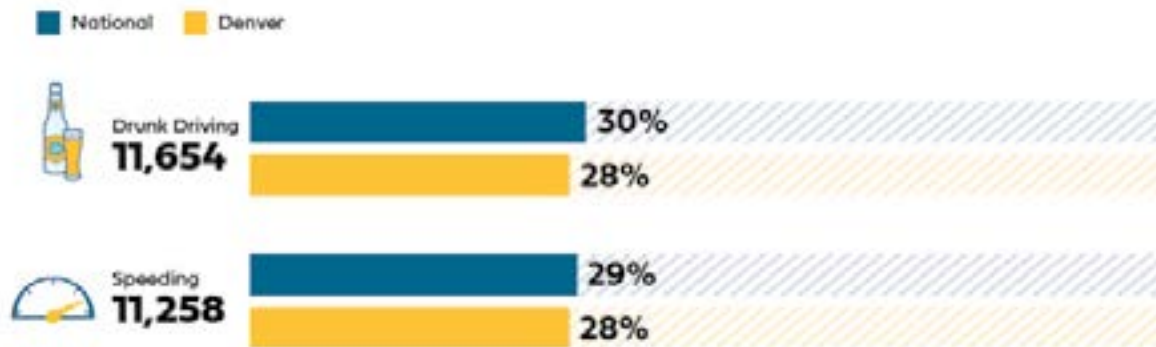
The impact of increased micromobility users

Micromobility users (i.e., people that ride electric bikes, electric scooters, or other low-powered mobility devices) have increased significantly since 2017. While we define these users as “vulnerable road users,” we currently do not have enough data to separate them from other vulnerable road user modes. However, ensuring the safety of this user group will become more important as usage increases in Denver. Estimates from Denver’s shared micromobility software, Ride Report, show that 4.8 million shared micromobility trips were made in 2022. This does not include trips by privately owned micromobility devices.

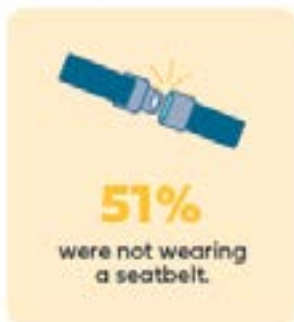
Transit is the safest way to get around Denver

There were no recorded deaths of people riding transit in the past five years. We define people riding transit as people traveling on a bus or train; this statistic does not include people accessing transit using other modes (e.g., walking, biking or driving). This is consistent with national research that found people riding transit are less frequently involved in fatal crashes and that cities with higher transit ridership tend to have lower overall rates of traffic fatalities.¹⁸

Causes of Traffic Related Deaths in 2020



In Colorado:



Nationally:



¹⁸ Safer than you think! Revising the transit safety narrative. Victoria Transport Policy Institute May 2022. <https://www.vtpi.org/safer.pdf>

Risky driving

The National Highway Traffic Safety Administration (NHTSA) provides statistics associated with various risky driving behaviors.¹⁹ Many of these behaviors are increasingly contributing to traffic-related serious injuries and deaths. In 2020, 38,824 traffic-related deaths occurred in the US.²⁰ In addition to traffic fatality data, NHTSA also released findings from behavioral research conducted from March 2020 through June 2021, indicating that incidents of speeding and traveling without a seatbelt were higher than during pre-pandemic times.²¹ Below are the statistics from the NHTSA for various risky driving behaviors in the US in 2020. Where available, statistics from Denver or Colorado are included.

- Drunk driving: 11,654 traffic-related deaths, 30% of all traffic fatalities in the U.S.²² In Denver, substance use was suspected in 28% of traffic-related deaths in 2020.
- Speeding: 11,258 traffic-related deaths nationally, 29% of all traffic fatalities in the U.S.²³ In Denver, speeding was suspected in 25% of traffic-related deaths in 2020.
- Seat belts: Nationally, 2,549 people could have been saved if they had worn seatbelts.²⁴ In Colorado, 52% of people in motor vehicle crashes resulting in death in 2015 were not wearing a seatbelt.²⁵
- Drug-Impaired driving: 56% of drivers involved in a traffic-related death or serious injury in the U.S. tested positive for at least one drug.²⁶

- Distracted driving: 3,142 traffic-related deaths nationally, 8% of all traffic fatalities in the U.S.²⁷
- Drowsy driving: 633 traffic-related deaths nationally, 1.5% of all traffic fatalities in the U.S.²⁸

The many safety improvements Denver has made since 2017 may have helped slow the rate of traffic-related deaths in a difficult transportation safety environment. *Section 3: Vision Zero Accomplishments Since 2017* highlights the numerous projects the team has accomplished. The goal of this updated action plan is to reverse the current rate of rising traffic-related deaths to a downward trend. That will take bold leadership and focused action.

¹⁹ <https://www.nhtsa.gov/risky-driving>

²⁰ <https://www.nhtsa.gov/press-releases/2020-traffic-crash-data-fatalities>

²¹ https://www.nhtsa.gov/sites/nhtsa.gov/files/2021-10/Traffic-Safety-During-COVID-19_Jan-June2021-102621-v3-tag.pdf

²² <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813294>

²³ <https://www.nhtsa.gov/risky-driving/speeding>

²⁴ <https://www.nhtsa.gov/risky-driving/seat-belts>

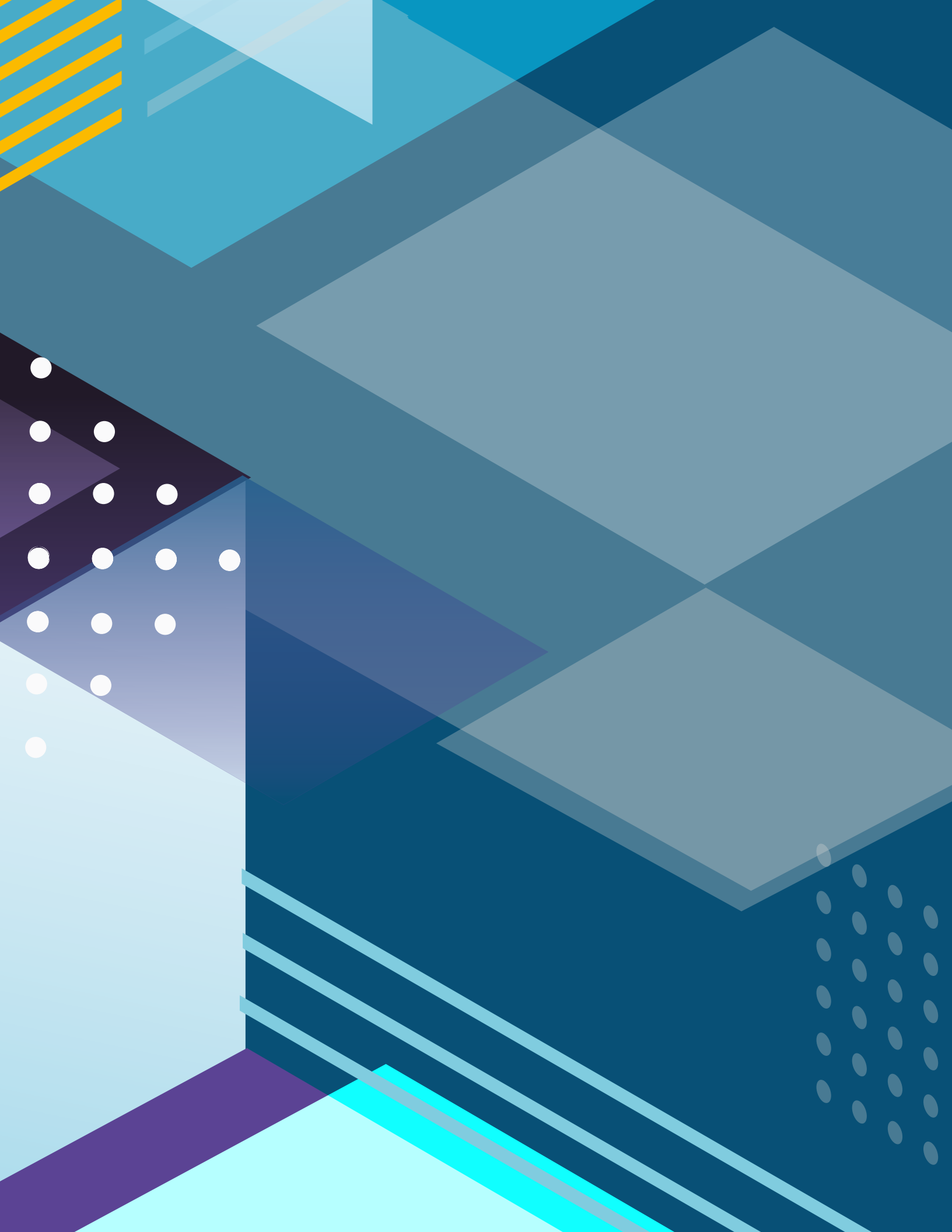
²⁵ <https://www.codot.gov/safety/seatbelts>

²⁶ <https://www.nhtsa.gov/risky-driving/drug-impaired-driving>

²⁷ <https://www.nhtsa.gov/risky-driving/distracted-driving>

²⁸ <https://www.nhtsa.gov/risky-driving/drowsy-driving>





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**VISION ZERO
ACCOMPLISHMENTS
SINCE 2017**

Vision Zero Accomplishments Since 2017

Since its inaugural Vision Zero Plan in 2017, Denver has set a foundation for institutionalizing traffic safety across DOTI, with some notable successes in safety interventions.

Rapid Response Program

DOTI staff, including those working on the Vision Zero program, meet every other week as part of a Rapid Response Program that reviews recent serious crashes on Denver's streets. This group identifies the circumstances and patterns of crashes and develops recommendations to reduce the likelihood of a crash occurring at the same location again. For example, after frequent crashes at East Colfax Avenue and Pearl Street, DOTI implemented design improvements there to reduce vehicle speeds and improve pedestrian safety. The 2017 Vision Zero Action Plan was instrumental in setting up this Rapid Response Program.

Convening a Rapid Response Team is a common Vision Zero strategy across the country. It involves analyzing and responding to every fatal traffic crash in the city. A multidisciplinary team studies the crash and recommends appropriate street design changes, judicial or legislative follow-up, community outreach, and other necessary actions. In addition, a Rapid Response Team monitors feedback from the community to quickly identify and respond to traffic safety issues that are emerging at particular locations or involve common behaviors or vehicle types that need addressing.

Targeted safety improvements

Denver continually makes changes to street design and street elements to proactively improve safety. For example, DOTI recently upgraded 10 traffic signals along South Federal Boulevard with pedestrian indicators and late-night signal timing. Evaluation of these changes showed a 17% reduction in crashes in that area and zero traffic-related deaths reported in 2018-2019, down from eight deaths in 2016-2017. Other notable safety improvements include:

- **Broadway multimodal improvements**

A two-way protected bikeway is being installed on Broadway from Seventh Avenue to Center Avenue. This will create an important new north-south connection in the city's bike network and connect to the Cherry Creek Trail. Intersections along the stretch will receive curb ramp improvements, infrastructure to shorten crossing distances for pedestrians, and upgraded traffic signals with lights positioned over each vehicle travel lane, making stops more visible and noticeable to drivers.

"Broadway is one of the oldest shopping and dining districts in Denver, and for most of the last century, it's been heavily trafficked with cars. Today, we will welcome a new era that will save the next 100 years of this corridor."

— Luke Johnson, president of the Broadway Merchants Association

- **Santa Fe speed reduction**

The department has reconfigured Santa Fe Drive from three travel lanes to two to calm traffic and reduce vehicle speeds. The reconfiguration centered the vehicle travel lanes and added a five-foot buffer between on-street parking spaces and the existing sidewalk to provide people with more space and comfort to walk. The project also realigned bus stops for better placement and spacing to make bus travel more efficient. More seating, planters, bike parking, and lighting enhancements were installed along the corridor to improve pedestrian visibility, safety, and comfort. Finally, speed limits were lowered between 6th Avenue and Colfax Avenue from 30 mph to 25 mph following the installation of traffic-calming measures.

- **Five Points safety improvements**

Crews have installed 37 operational and safety improvements, such as bulb-outs, at intersections in the Five Points neighborhood to shorten crossing distances and enhance safety for people walking.

- **East 13th/East 14th Avenue safety improvements**

Installation has started on safety enhancements at 21 intersections along East 13th and East 14th avenues between Broadway and Yosemite Street. DOTI is adding paint-and-posts to these intersections to shorten pedestrian crossing distances, which is anticipated to have a secondary effect of calming traffic, including slowing vehicle turning speeds from 13th and 14th avenues onto neighborhood streets.

- **Safe Routes to School (2022 achievements)**

- DOTI closely partners with 10 schools in Denver to host Bike and Roll events (May) and Walk and Roll Events (October), engaging 1200+ families, students and

caregivers to communicate the benefits of actively traveling to/from school.

- DOTI launched two travel plan studies: Evie Dennis Campus (6 Schools) and Mar Lee Harvey Park Schools (6 Schools).
- DOTI and DPS extended the Crossing Guard Program Agreement via an intergovernmental agreement (IGA) that maintains and expands funding for crossing guards in Denver from Jan 1, 2023, to Dec 31, 2027 (5 Years).
- SRTS received funding from the RISE Bond program for three project locations: DCIS at Ford Elementary School, Bruce Randolph Middle/High School and Kepner Beacon Middle School.
- An SRTS and CDOT non-infrastructure “Teacher Champion Program” was also begun at partner schools Castro Elementary, Maxwell Elementary and Lincoln Elementary Schools.
- The Denver School of Science and Technology’s Cole Travel Plan Study was completed.
- Pedestrian improvements were completed at Hampden Heights, Maxwell Elementary School and DCIS at Ford Elementary.
- Pedestrian crossing improvements were completed at Ruby Hill.

- **Bike lanes**

In 2022, DOTI installed 30 miles of new bikeways and upgraded seven miles of existing bikeways across 24 different projects. Plans are in place to install an additional 44 miles of new bikeways on 27 corridors in Central, South Central and Northwest Denver, as planned with communities in those areas through the Community Transportation Networks program.

- **Street signs change to designate 20 MPH**

Denver's default speed limit changed from 25 mph to 20 mph in late December 2021. Where speed limit signs are not posted, the default speed limit is 20 mph per city ordinance. This change applies to the city's local streets. To implement this proposal, DOTI will be updating 2,700-3,500 25 mph speed limit signs currently placed on local streets.

- **Safe Streets and Roads for All**

Denver has been awarded \$576,000 in the first round of funding from the U.S. Department of Transportation's Safe Streets and Roads for All grant program. The money will fund Road Safety Audits on nine stretches of roadway, which are primarily on Denver's High Injury Network.

- **Interstate 25 and 20th Street**

After installation of new signage and pavement markings in 2019, this busy downtown on-ramp went from being a hot spot for crashes in previous years to having zero serious crash reports in 2020. There was one fatality at this location in December 2021, a single-vehicle crash where speed/impairment were contributing factors. DOTI worked with partners at the Colorado Department of Transportation to refresh safety markings and replace damaged signs.

- **East Colfax Avenue**

Paint-and-post intersections were installed in January 2020. Post-treatment analysis showed a reduction in the overall number of conflicts per hour and improvement in the number of drivers yielding to pedestrians at the crosswalks. No vehicle-to-vehicle conflicts were identified in the post-treatment analysis, compared to several in the pre-treatment analysis.

- **Traffic safety cameras**

Denver has had safety cameras installed at

four intersections since 2008. At 36th Avenue and Quebec Street, there has been a 100% reduction in injury-causing crashes, compared to the three years prior to installation. At West 8th Avenue and southbound Speer Boulevard, there has been a 27% reduction in total crashes. At Kalamath Street and West 6th Avenue, there has been an 18% reduction in total crashes. At West 6th Avenue and Lincoln Street, there has been a 52% reduction in total crashes.

- **West Colfax signal timing**

The Rapid Response Team identified a crash trend on West Colfax Avenue between Sheridan Boulevard and Irving Street. This crash picture was a result of drivers driving at excessive speeds and of driver and pedestrian mixing. Between November 2016 and October 2020, this stretch of West Colfax Avenue had seven total fatalities, five of which were pedestrian fatalities. In October 2020, the Vision Zero team retimed the signals and programmed leading pedestrian intervals to reduce speeding opportunities and reduce conflicts between pedestrians and turning drivers.

Advanced data and analysis

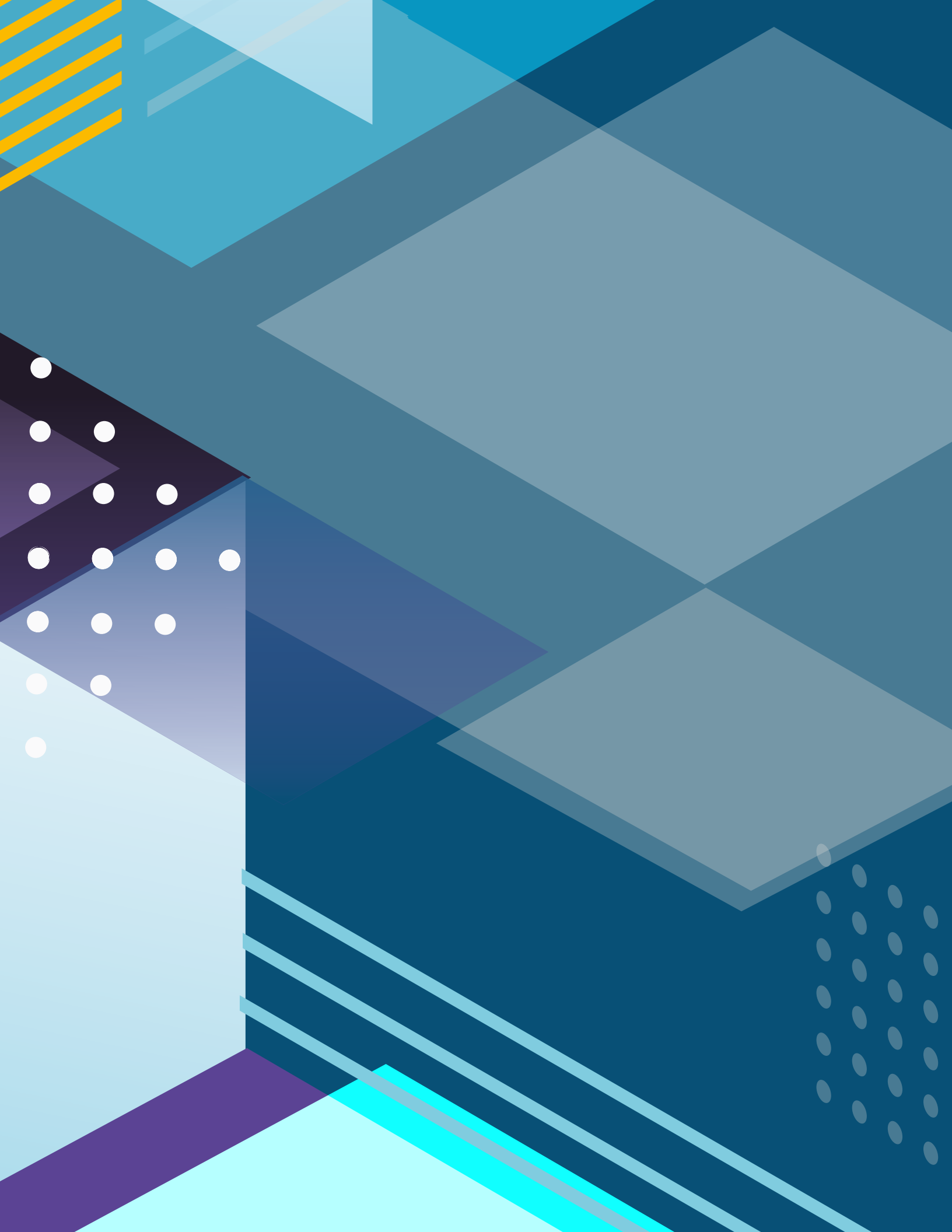
The Vision Zero Crash Data Dashboard provides crash information throughout the city and is updated daily. This tool helps city staff and other agencies within the city identify high crash locations and determine the supporting infrastructure or programmatic improvements that would best address safety issues. Furthermore, the tool provides transparency to the public on the number of lives lost or serious injuries as a result of a traffic crash, aiding progress toward Vision Zero.

We have hope for the future based on successful traffic safety interventions we are currently seeing around the country. A growing body of research shows that strategic automated enforcement positively

impacts traffic safety. We also have evidence that quick-build, targeted and often low-cost improvements, such as intersection treatments, can rapidly improve safety.

Denver's safety efforts must be viewed within the context of greater U.S. trends in traffic fatalities and severe injuries, where the U.S. lags behind the rest of the developed world in terms of transportation safety. The history of Vision Zero in the U.S. suggests that there needs to be much bolder strategies to create serious reductions — or any reductions at all — in traffic deaths.





The background features a dark blue base with various geometric shapes in lighter shades of blue and yellow. These shapes include triangles, polygons, and lines, some overlapping to create a sense of depth and movement. The overall aesthetic is modern and architectural.

**THE BUILDING
BLOCKS OF A
SAFER CITY:
OUR ANALYSIS**

The Building Blocks of a Safer City: Our Analysis

Data analysis ensures remedial safety work is focused where it is most needed. Denver, like many cities that signed a Vision Zero pledge, has a defined High Injury Network (HIN) representing dangerous streets in need of safety improvements. This network highlights the streets within the city that have disproportionately high rates of traffic crashes resulting in death or serious bodily injury (SBI).

For more detail regarding the crash analysis as conducted as part of the Vision Zero Action Plan update, please see Appendix A.

As part of this Vision Zero Action Plan update, Denver's HIN was reanalyzed for methodology replicability and to support Vision Zero efforts. Figure 7 shows the revised HIN. All streets on the 2017 Vision Zero Action Plan HIN continue to be represented in the updated 2023 HIN.

Downtown Denver was removed from the updated HIN analysis as almost every street would have been included on the HIN. The Downtown Denver area accounts for 20% of all traffic-related deaths and serious injuries in Denver, yet is only 2% of the city's land area.²⁹ Due to this, focused analysis was

conducted in Downtown Denver to help guide safety improvements and elevate the traffic safety concerns in that area. Any previous HIN designation from the 2017 analysis within Downtown Denver was included.

The HIN analysis found that not all segments of the HIN contributed to deaths and SBIs in an equal way, leading to the creation of a tiered HIN:

- Tier 1 HIN (Highest Risk HIN) contributes a much greater proportion of deaths and SBIs than other locations on the HIN.
- Tier 2 of the HIN (High Risk HIN) still contributes disproportionately to overall city crashes, but markedly less than "Tier 1." Using this updated methodology, the 2023 HIN, comprised of both Tier 1 and Tier 2, includes 21 more miles of city streets and accounts for 56% of all crashes in the city (see Figure 8 for a map of the HIN additions alongside traffic crashes resulting in death or serious injury).

The number of SBI and fatal crashes, total street length, and crash rates between the two tiers can be compared below. Data used to calculate the tiered HIN included crash data from Denver's data catalog from September 2016 to September 2021. Figure 7 shows how the two tiers of HIN compare to other street types.

Tier 1 HIN

- Total number of crashes resulting in serious injury: 573
- Total number of crashes resulting in death: 103
- Total street length: 50.5 miles

Tier 1 serious injury and death rate per mile: **13.4**

²⁹ Data point taken from Denver Moves Everyone – State of the System, Safety Chapter.

Tier 2 HIN

- Total number of crashes resulting in serious injury : 192
- Total number of crashes resulting in death: 27
- Total street length: 77.5 miles

Tier 2 serious injury and death rate per mile: **2.8**

Traffic Related Deaths and Serious Injuries by Mile

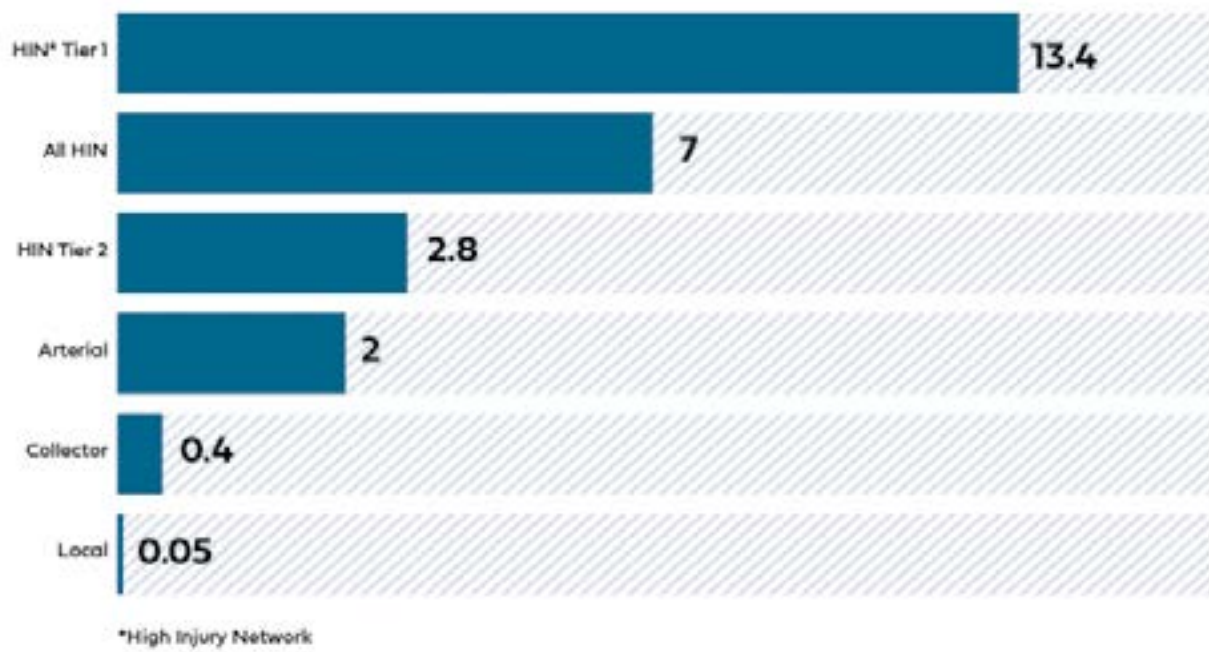


Figure 7: Traffic-related deaths and serious injuries by street type per mile

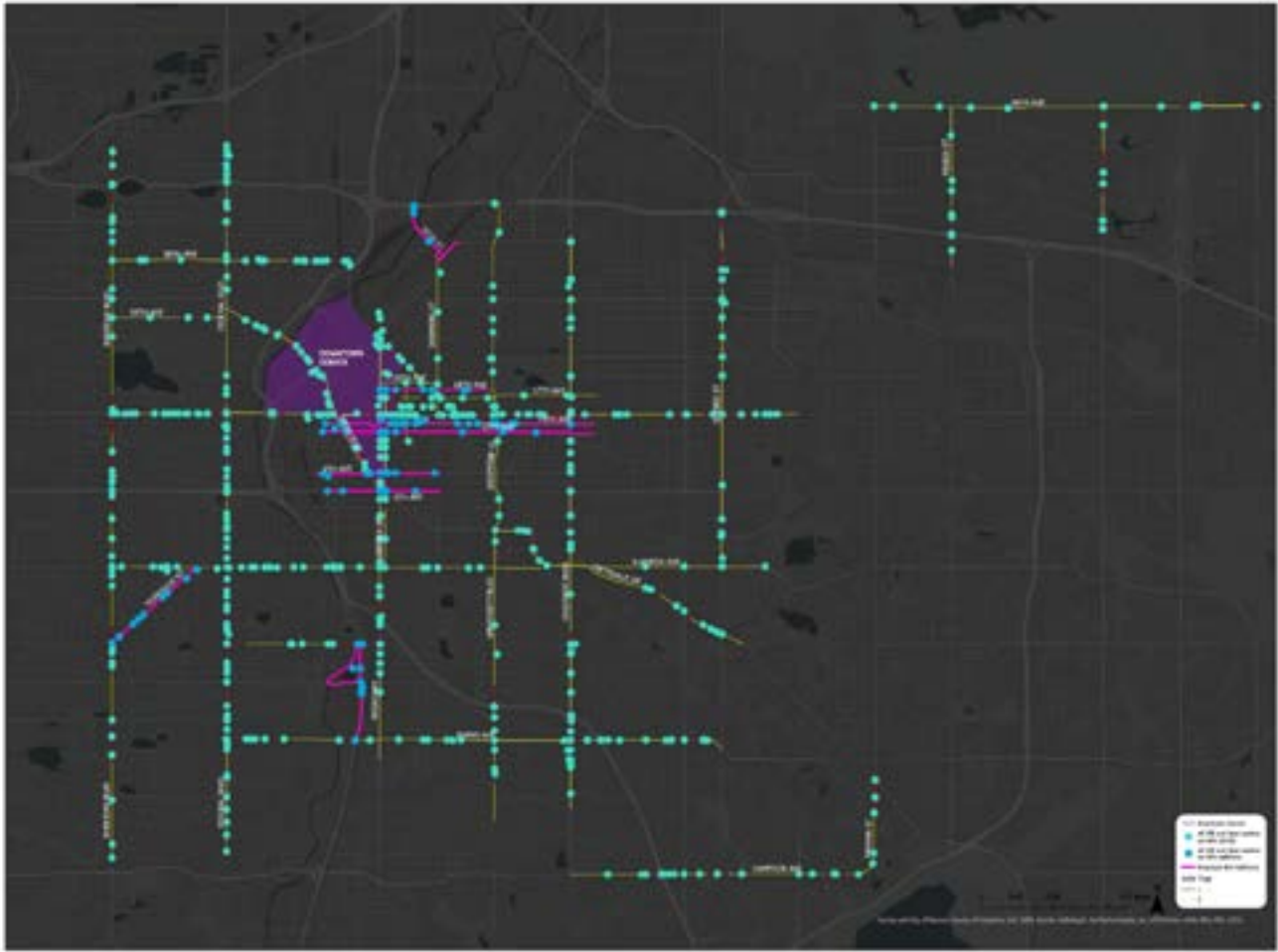


Figure 8: Map showing the HIN additions and traffic-related crashes resulting in death or serious injury

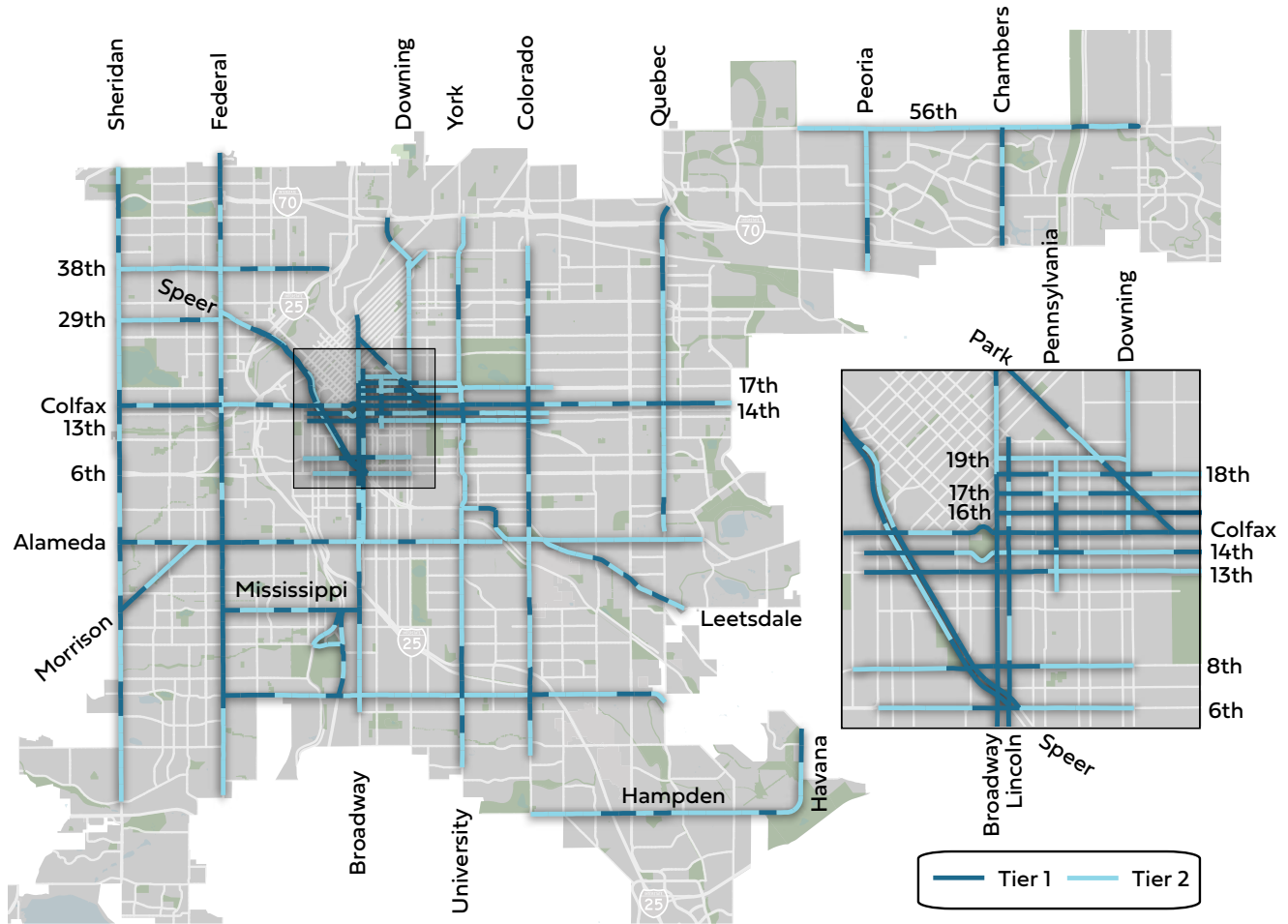


Figure 9: Map showing the new HIN and HIN tiers

The HIN should be reassessed after two and a half years to understand whether streets should be added, removed, or moved to a different tier.

Vulnerable road user analysis

Vulnerable road users (people that walk, use a bike, eBike or micromobility device, and ride motorcycles) are disproportionately impacted by traffic-related crashes. Focusing analysis where vulnerable road users are involved in crashes within the city allows us to develop mode-specific remedial safety work at these locations.

Figure 8 shows the results of clustering analysis for people that walk, bike, or use micromobility devices. The map identifies where there are clusters of vulnerable road user crashes occurring within the city. For more information on the clustering analysis, please see Appendix A: Crash Data Analysis.

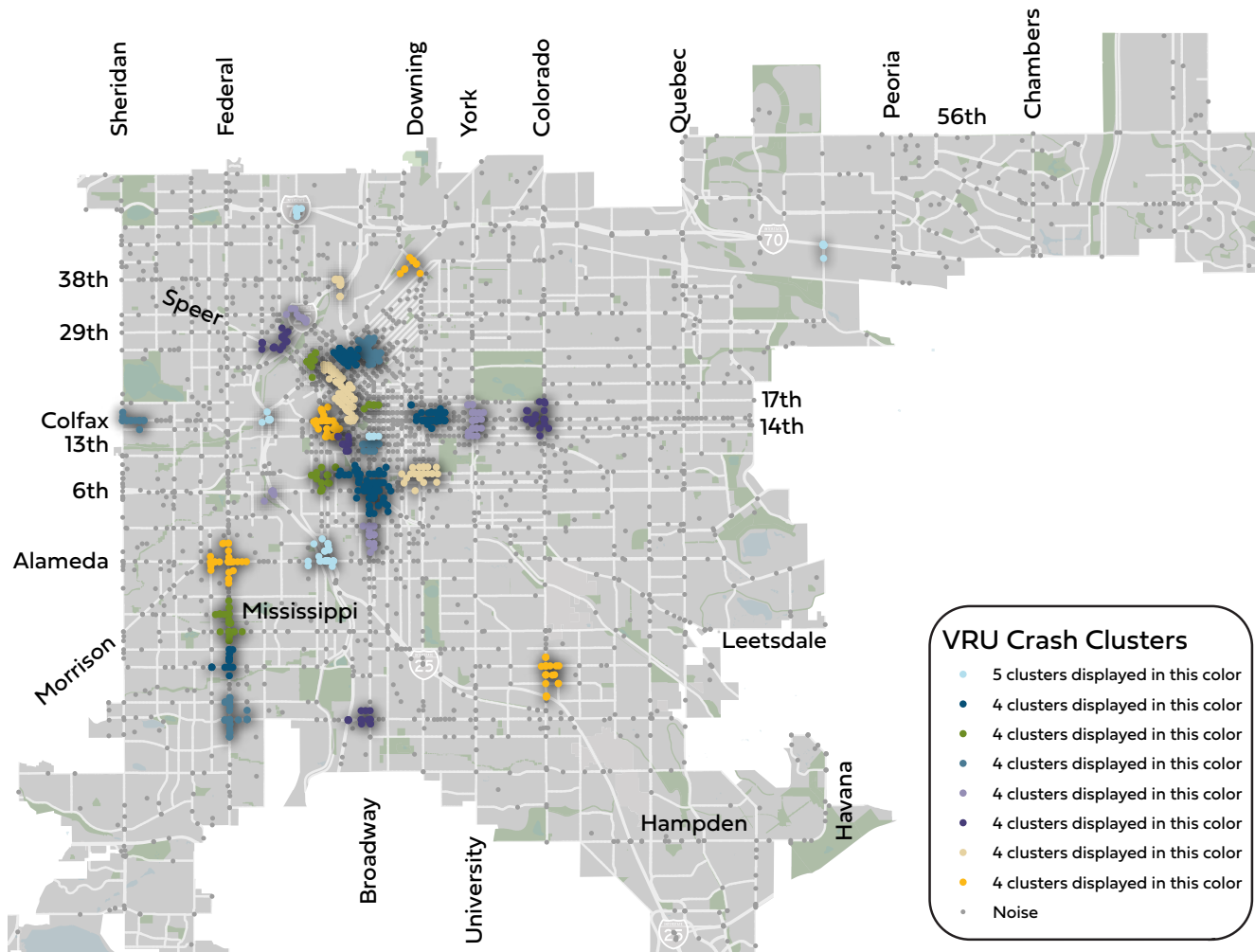


Figure 10: Clustering analysis of crashes involving people that walk, bike or use micromobility.

Motorcyclists behave very differently from people that walk, bike, or use micromobility, and so an independent clustering analysis was performed. Figure 10 shows clustering analysis for motorcyclist crashes.

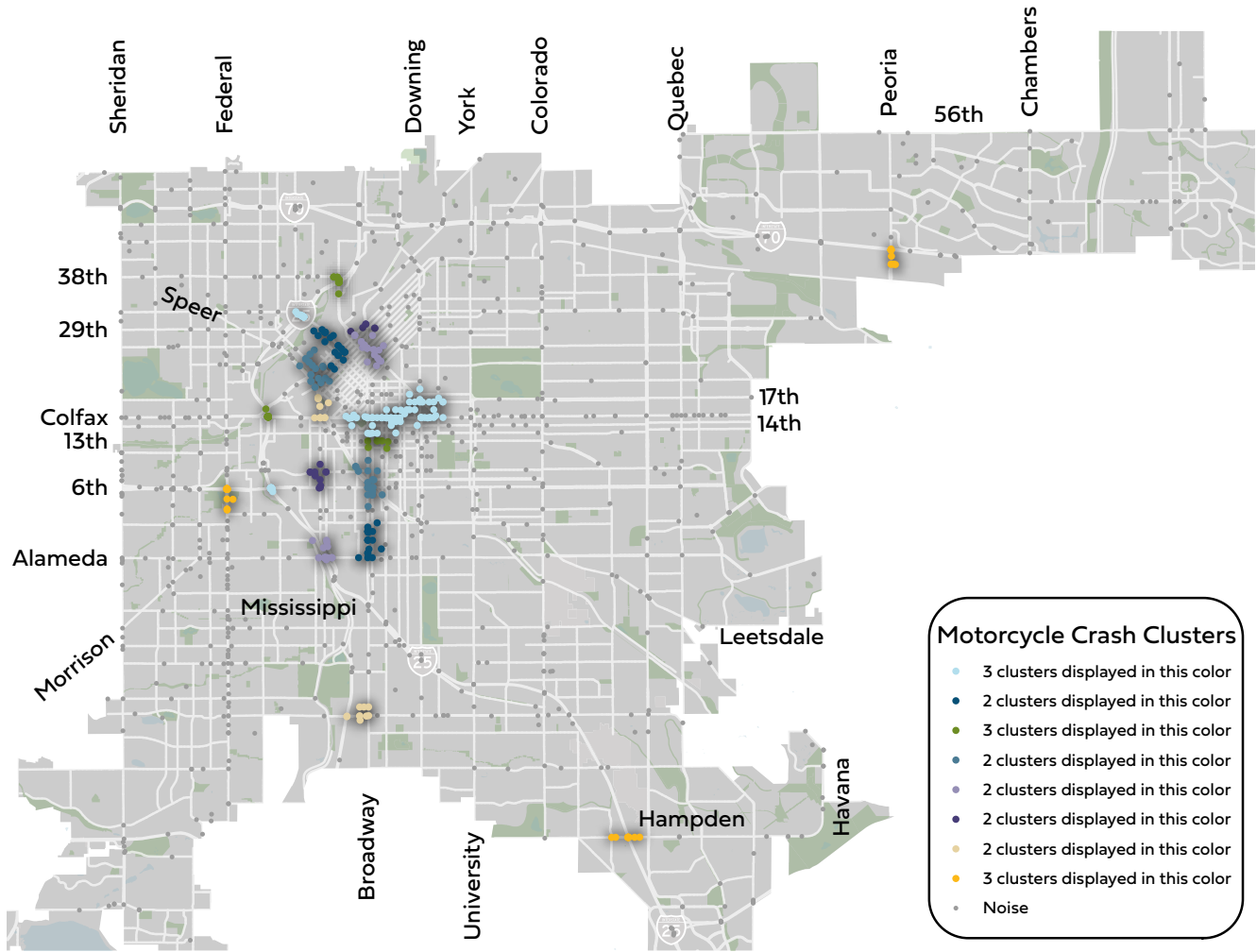


Figure 11: Clustering analysis of crashes involving people that use a motorcycle.

Due to the high number of crashes occurring in Downtown Denver, we undertook a clustering analysis (Figure 11) using all traffic-related deaths and serious injuries to better focus remedial safety work where it is needed most.

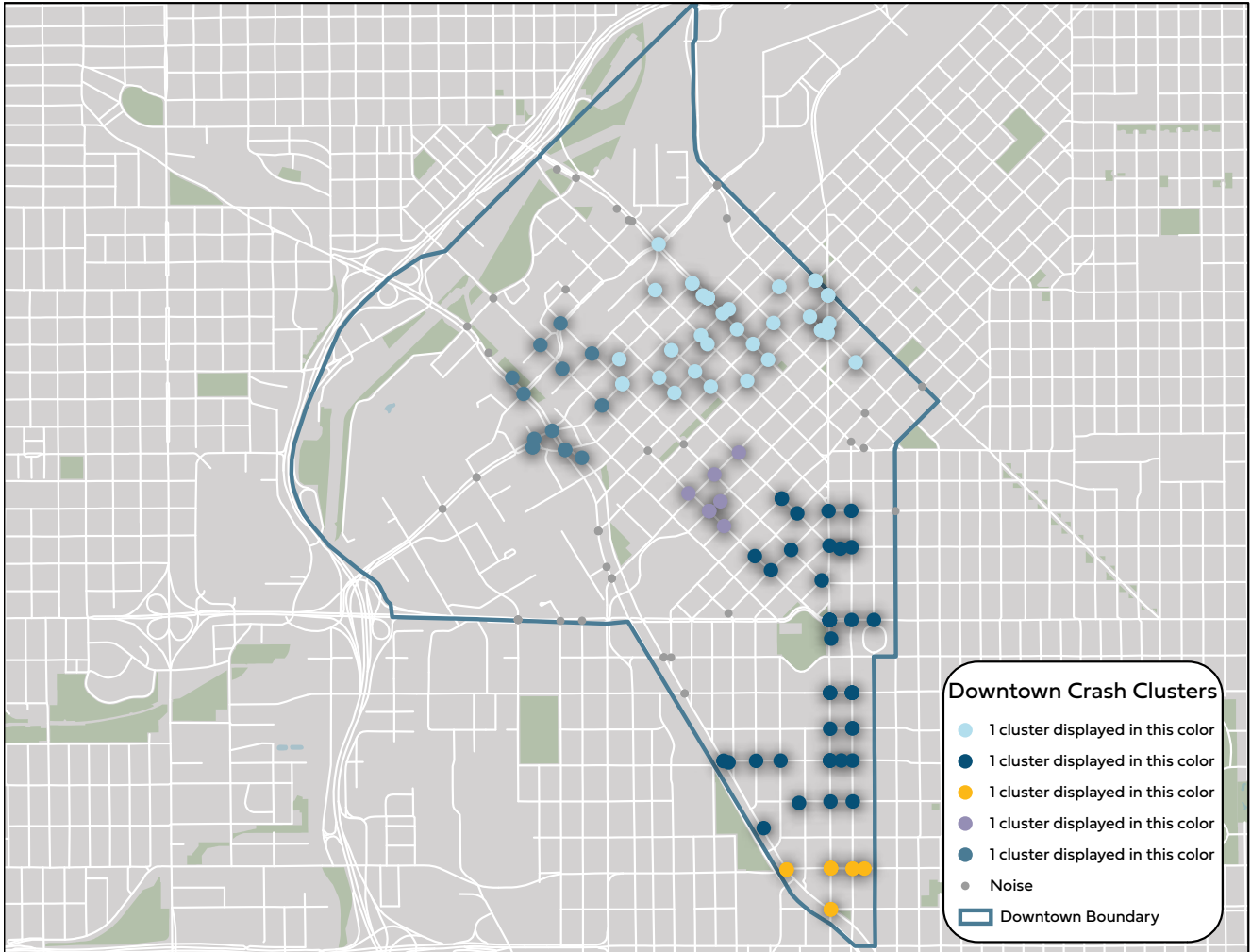
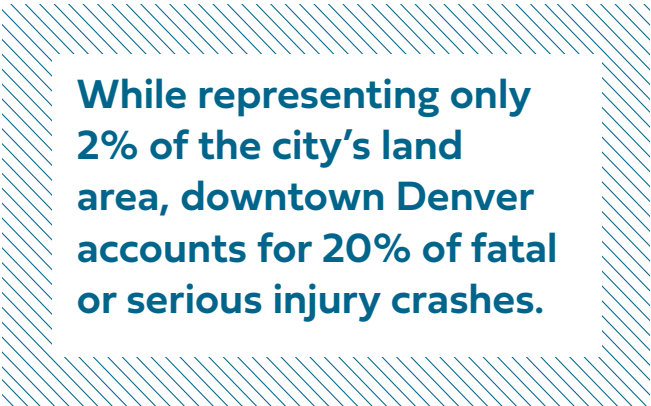


Figure 12: Clustering analysis of crashes resulting in death or serious injury in Downtown Denver

Vision Zero Safety Focus Areas

Vision Zero Safety Focus Areas are locations within the city that require immediate remedial safety work. These are areas that disproportionately contribute to deaths and serious injuries in the city. They are identified using the clustering analyses and the Tier 1 High Injury Network to find locations with both very high crash rates resulting in death or serious injury and very high rates of vulnerable road user crash clusters. Vision Zero Safety Focus Areas should be considered areas of the city that are in a traffic safety emergency.



While representing only 2% of the city's land area, downtown Denver accounts for 20% of fatal or serious injury crashes.

Safety Focus Areas tend to include stretches of multilane roadways alongside high mixed-use density, which creates an environment with high numbers of people walking, biking and using micromobility alongside high vehicle flows and speeds.

The Vision Zero Safety Focus Areas include:

- **Downtown Denver:** While only accounting for 2% of the city's land area, downtown accounts for 20% of fatal or serious injury crashes. The area's high vulnerable road user traffic, mixed with the downtown core's one-way street system that includes roadways with high speeds and multiple travel lanes, produces a difficult safety situation. Downtown experienced 22 traffic-related deaths during the analysis period (February 2016 through September 2021).

- **South Federal Boulevard Corridor (Alameda Avenue to Yale Avenue):** This stretch of South Federal Boulevard includes numerous vulnerable road user high crash locations, and its entirety is on the Tier 1 HIN. This stretch of South Federal Boulevard experienced eight traffic-related deaths during the analysis period.
- **East Colfax Avenue Corridor (Park Avenue to Colorado Boulevard):** This stretch of East Colfax Avenue, along with parallel streets (East 16th Avenue, East 14th Avenue and East 13th Avenue), includes a high number of vulnerable clusters and HIN segments. It experienced six traffic-related deaths during the analysis period.
- **South Broadway/Lincoln Street (Colfax Avenue to Alameda Avenue) Corridor:** The Broadway/Lincoln Corridor has numerous locations of vulnerable road user crash clusters and stretches of Tier 1 HIN. This stretch of South Broadway/Lincoln Street experienced five traffic-related deaths during our analysis period.

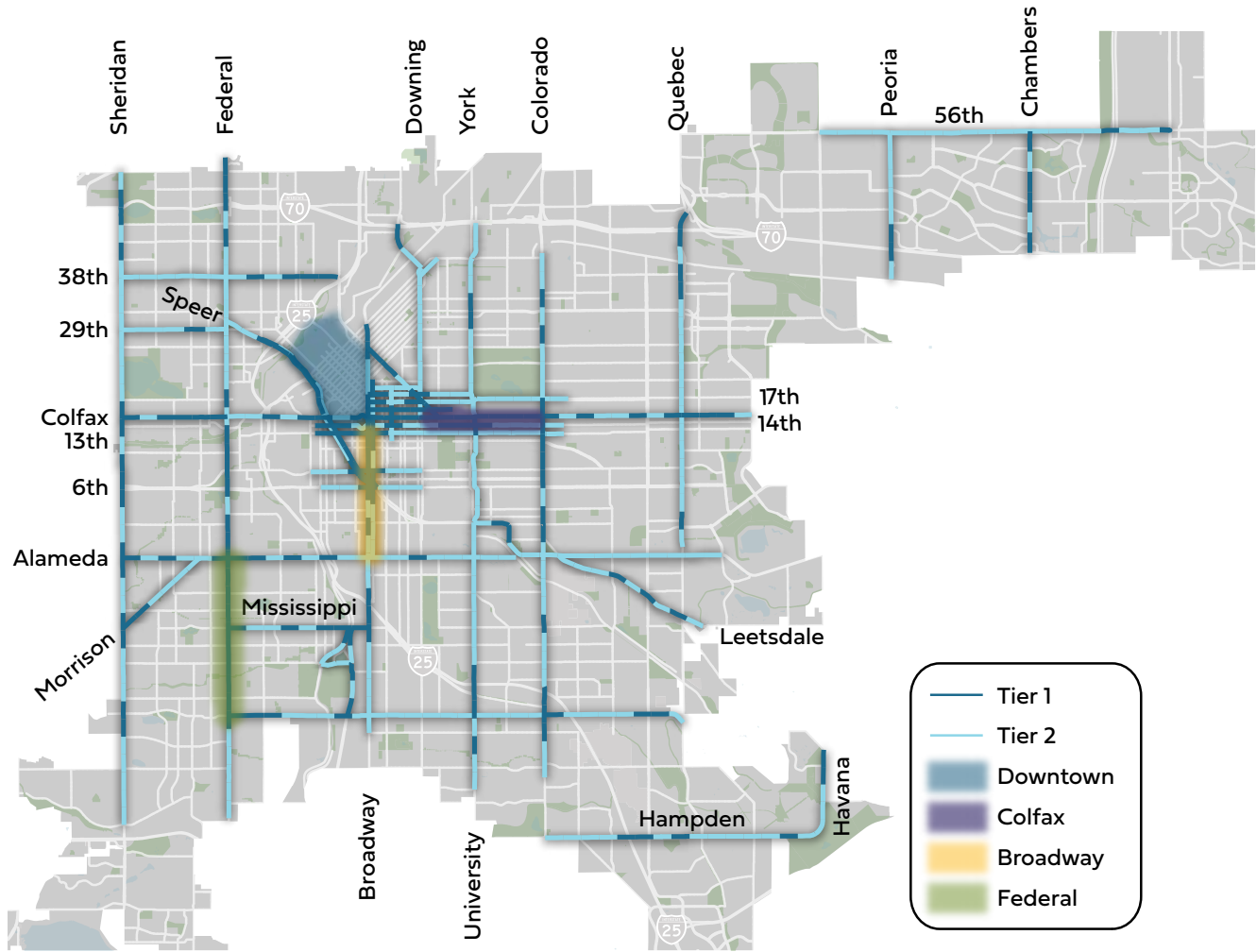
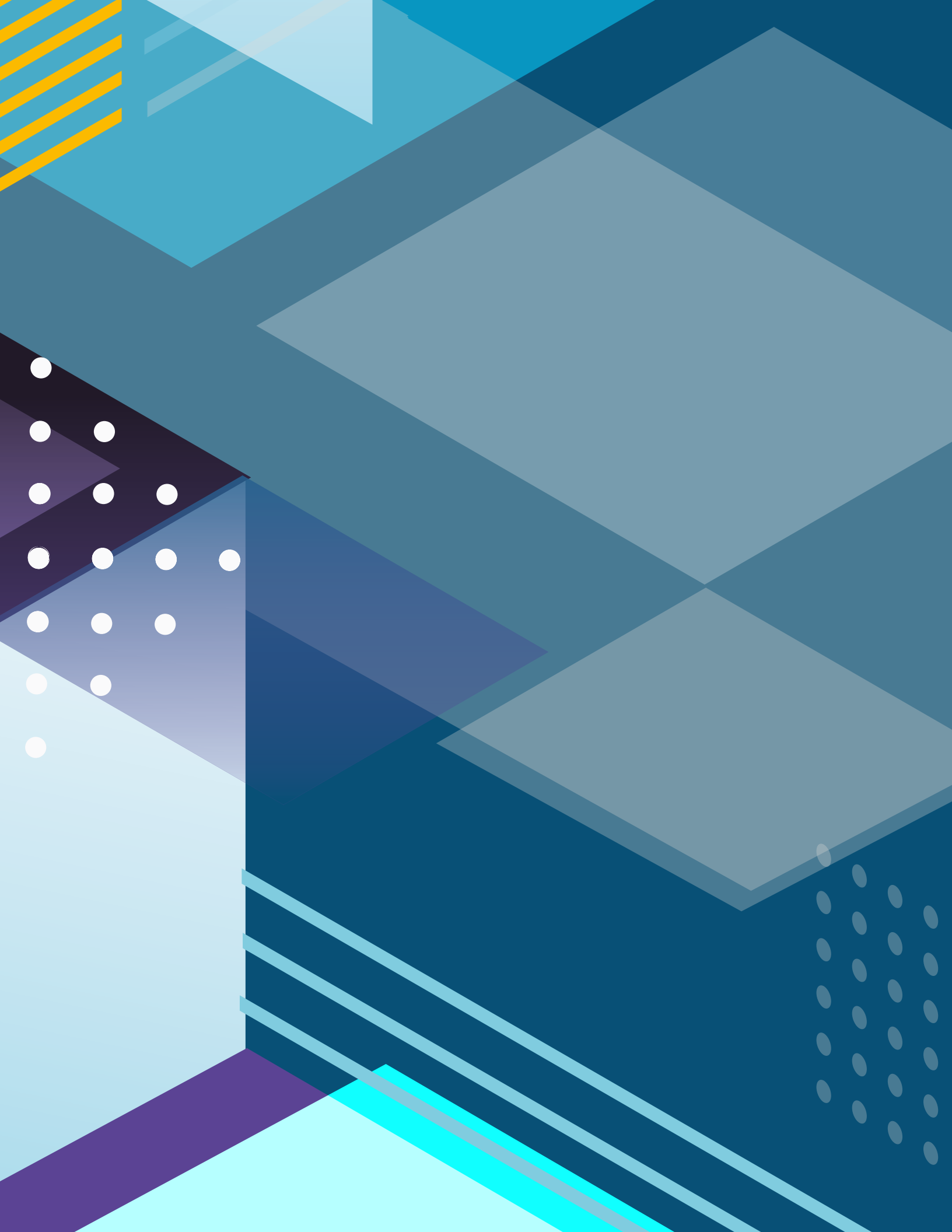


Figure 13: A map of the Vision Zero Safety Focus Areas.

Safety Focus Areas should be reassessed every two and a half years to determine whether areas should be added or removed.

The Vision Zero Action Plan (Section 6) provides more information regarding how the Vision Zero team will use the Safety Focus Areas to improve safety.







NEW VISION ZERO THEMES

New Vision Zero Themes

The themes in this plan set a new tone for upcoming years of action by the Denver Vision Zero team. The new themes build upon the foundation established in the 2017 Action Plan and represent Denver's priorities for the next six years. The academic literature, traffic, and vehicle trends have shown us that to make progress, we must be bolder in our actions. These themes accordingly encompass bolder strategies and actions for the updated Action Plan.

1. Protect vulnerable road users, with a focus on pedestrians, bicyclists/micromobility users, and motorcyclists.

There is growing evidence that prioritizing the safety of vulnerable road users is important for making progress toward reducing traffic-related deaths and serious injuries. Pedestrians, bicyclists, people using micromobility devices, and motorcyclists are disproportionately at risk of dying or being seriously injured on our city's transportation network.

2. Target arterials, crash cluster intersections, and Safety Focus Areas for capital improvements.

Crashes in Denver are predominantly located along arterials, at specific intersections, and within certain overrepresented areas this report has termed "Safety Focus Areas" (e.g., Downtown Denver). The new strategies within this plan call out these high priority locations for focused safety investment. Progress toward reducing crashes in these areas will be closely tracked, and results will be shared with the public to communicate progress.

3. Improve street design to force safe speeds and use technology to encourage safe behaviors.

Safe vehicular speeds are critical to Vision Zero. Roadways that are high speed, multilane, and operate in an urban environment are incompatible with achieving Vision Zero. We accept that it is human nature to drive based on the design of the street, and this can result in exceeding the posted speed limit. To temper human nature, physical,

technological, societal, and enforcement changes are needed to ensure more people drive at or below the posted speed. Expediting speed limit reductions on streets with high crash rates is a priority. Cities that recognize the ability to supplement traditional traffic enforcement with automated speed safety cameras are more effective at reducing crashes. Likewise, prioritizing improved street design speaks to building intuitive infrastructure that will slow traffic and improve safety by forcing changes to driver behavior.

4. Engage in dialogue with local communities to bring about a new culture of safety that reduces hazardous driving behaviors.

While difficult, long-term culture change is perhaps the most effective way to achieve a safe society. Analysis conducted by Denver Moves Everyone on crash risks has shown the importance in reducing hazardous driving behaviors, such as distraction, substance use, speeding, driving without a seatbelt, etc., to improve safety. By engaging local communities in a two-way dialogue, this action plan seeks to invite people in to be part of this change.

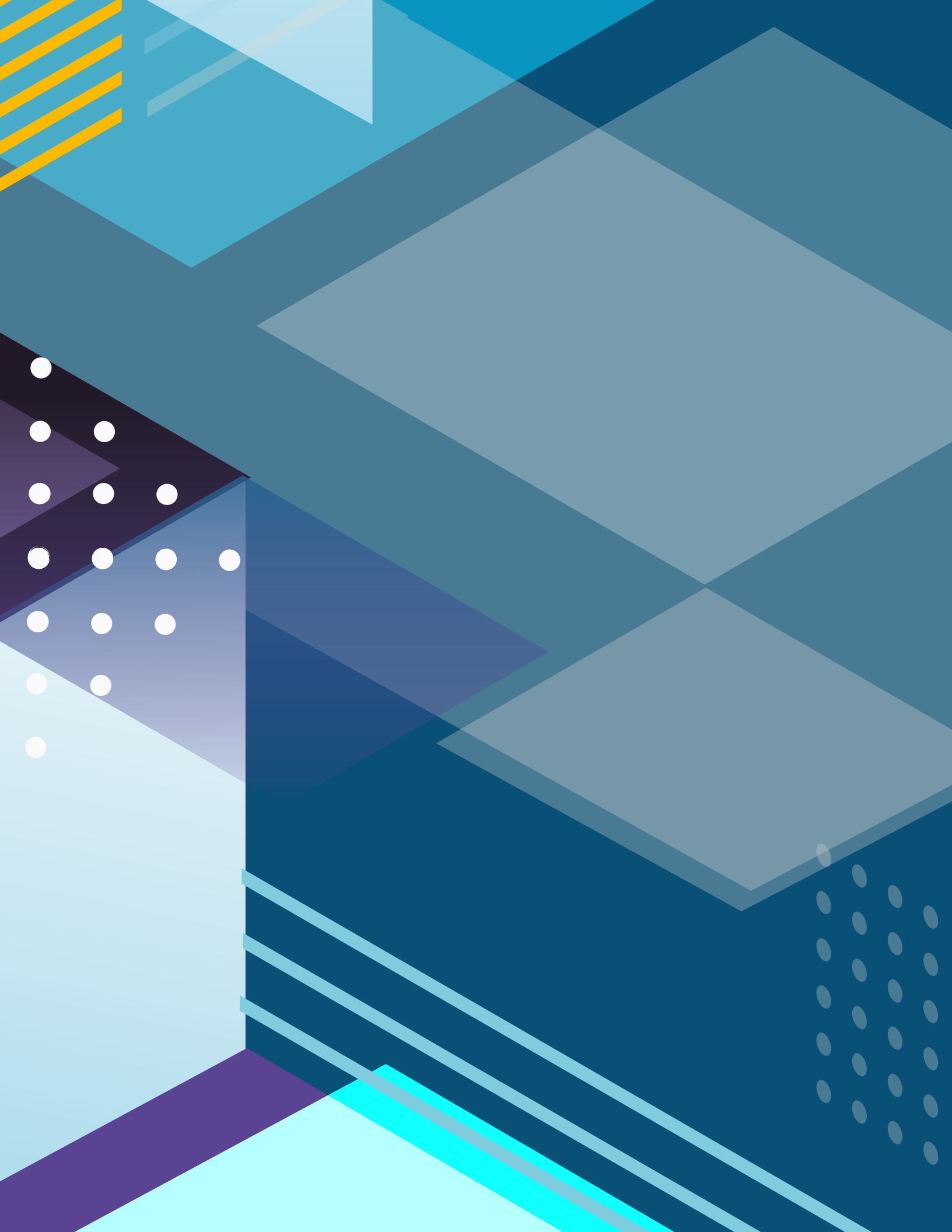
5. Collaborate across agencies.

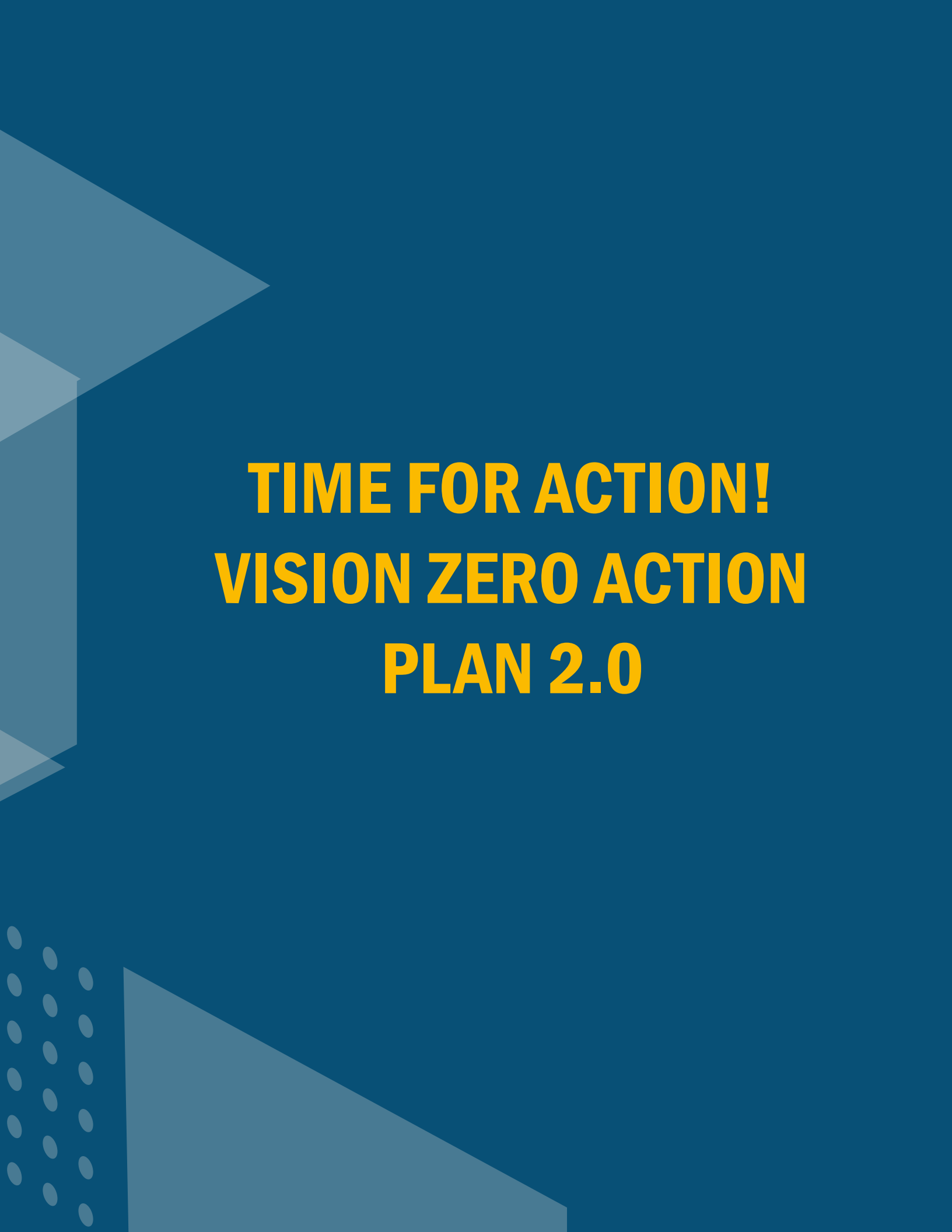
Achieving safety outcomes involves collaboration to make systemic changes. Ensuring Vision Zero data and research is widely shared will help to further advance safety on our streets and provide transparency.

6. Focus on shifting modes away from driving by building out the transit network.

Locations with higher rates of transit ridership have better safety outcomes. Shifting modes to reduce rates of motorized vehicle use is an important piece of this new action plan. Notably, in Denver, people on transit have the best safety outcomes of all road users. Bus rapid transit is planned for many of the arterials on the High Injury Network (HIN). Coupling this major transit investment with other safety improvements can strategically transform the HIN in the long-term.





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**TIME FOR ACTION!
VISION ZERO ACTION
PLAN 2.0**

Time for Action! Vision Zero Action Plan 2.0

At the heart of Vision Zero is the principle that traffic deaths and serious injuries are unacceptable and, most importantly, preventable. While the 2017 Vision Zero Action Plan set a critical foundation for Vision Zero in Denver, our revised action plan consolidates, focuses, and refines actions directly related to reducing traffic deaths and serious injuries, with the goal of zero traffic-related deaths by 2030.

The time frame for this action plan is six years, 2023 through 2028.

To facilitate bold, decisive action toward reducing traffic-related deaths and serious injuries, every Vision Zero Action Item within our action plan is directly linked to reducing deaths on our streets.

Our updated action plan is comprised of a Keystone Action, Vision Zero Actions, Supportive Actions and Internal Actions.

Keystone action: Vision Zero and equity

Equity and mobility justice are integrated into every action defined within this plan. Each Vision Zero Action includes an “equity check” to provide additional resources to help guide the action.

In addition to these equity checks and the various Vision Zero actions, this plan includes the formation of an Equity in Transportation Safety Advisory Committee, which would complement the current Vision Zero Technical Advisory Committee. This committee will build upon the Diverse and Inclusive Voices, or DIVO, Committee that was stood up through the development of the Denver Moves Everyone plan.

The Equity in Transportation Safety Advisory Committee should be comprised of people from communities that have been historically marginalized and disinvested in. They should include people and

organizations that regularly use streets on the High Injury Network and in Safety Focus Areas, particularly via modes other than driving a motorized vehicle.

The committee will be comprised of people of color, people that speak a language other than English as their first language, people who live in priority areas for equity as defined by the DOTI, those that are low-income and those that are local leaders in the fields of social inequity, environmental justice and mobility justice. Building of the success of DIVO voices through DME, participants should be paid for their time.

The Equity in Transportation Safety Advisory Committee will not only help guide the Vision Zero team, but also the wider DOTI team as they seek to implement programs and projects. Listening to committee members’ lived experiences of Denver’s transportation system will help these teams avoid unintended consequences when implementing Vision Zero and other transportation projects.³⁰ The committee will also provide invaluable input to DOTI and strengthen communication between impacted communities and DOTI staff.

Every project, program, and policy recommendation that emerges as a result of this Vision Zero Action Plan will utilize DOTI’s Racial Equity Toolkit as part of the planning phase. The Racial Equity Toolkit is both a tool and a process map, and includes questions for staff to answer to ensure that actions, decisions and metrics achieve racially equitable goals and outcomes informed by Denver’s Black, Indigenous and People of Color (BIPOC) communities.

³⁰ <https://www.peopleformobilityjustice.org/news/2018/11/8/vision-incomplete>

Vision Zero Actions

Vision Zero Actions are the linchpin of the Vision Zero Action Plan. They form 14 actions that the DOTI Vision Zero team will take responsibility in enacting over the course of the next six years. Implementation of these action items will directly lead to a reduction in traffic-related deaths and serious injuries. Each Vision Zero Action has one or more sub-actions.

Vision Zero Supportive Actions

Vision Zero Supportive Actions are actions that the Vision Zero team are not directly responsible for but will support over the next six years. These supportive actions are no less important than the Vision Zero Actions and would directly reduce traffic-related deaths and serious injuries if enacted.

Vision Zero Internal Actions

Vision Zero Internal Actions are actions that are internal to DOTI and work to institutionalize a safe system approach for all transportation investments. They include collaboration and funding to ensure Vision Zero progress is maintained and expanded over the next six years.

The actions contained here were developed using the Vision Zero themes as guiding principles. Where possible, case studies and references are provided. The actions were vetted through the Vision Zero Technical Advisory Committee and numerous City departments. Each action includes two metrics, one constrained (achievable outcomes if staffing and resources remain as allocated in 2022) and one unconstrained (achievable outcomes if staffing and resources are increased as documented in this action plan).

Additional resources required to meet this action plan:

- **Staffing:** 11 additional full time employees. These additional employees will ensure

delivery of this action plan by integrating with all staff from the Department of Transportation and Infrastructure, and other related departments and agencies. Denver Moves Everyone identified additional staff needs to ensure safety projects are designed and constructed.

- **Staffing costs:** \$650,000 to \$1,200,000.
- **Annual resource costs:** \$6,000,000 - \$10,000,000.³¹ Denver Moves Everyone identified additional resources needed to ensure safety projects are designed and constructed.

Metrics:

- Unconstrained (if staffing and resources are increased): The entirety of the action plan is implemented by 2030.
- Constrained (if staffing and resources remain as allocated in 2022): 25% of this action plan is implemented by 2030.

Vision Zero Actions

Vision Zero actions form the core of the Vision Zero Action Plan. They are major programs, policies and education actions that aim to reduce the incidence of deaths and serious injuries on our streets.

All actions contained here will require bold leadership to move forward toward a positive change in transportation safety.

There are **14** Vision Zero Actions:

- 1. Develop and implement DOTI safety policies**
- 2. Create and implement Safety Focus Area plans**
- 3. Develop a citywide speed reduction team**
- 4. Develop a citywide crash management team**

³¹ Annual resource costs include requirement for Vision Safety planning and programming. The resources costs do not include design, engineering or implementation costs. These costs are included within Denver Moves Everyone.

5. Develop a citywide transportation safety evaluation program
6. Work with DOTI's Transit Program to couple transit investments with safety improvements to strategically transform the HIN
7. Increase use of traffic safety cameras (speed and red light cameras)
8. Create and implement a "car-free zone" or "slow zone" implementation guide
9. Develop a quick-build safety remediation program
10. Support build-out of the pedestrian, bicyclist, micromobility, and transit user network
11. Create a multimodal safety curriculum for K-12th grade
12. Conduct targeted community outreach and education to improve traffic safety
13. Support community-led placemaking and traffic calming initiatives
14. Make the City and County of Denver a model Vision Zero adopter

For more information about the analysis that was used to inform the development of these action items, please see Appendix A.

Vision Zero Action 1: Develop and implement DOTI safety policies

Bold safety policies are an important and powerful tool to support system-wide reductions in traffic-related deaths and serious injuries.

This action includes the consolidation of existing DOTI safety policies into one document to improve access and transparency across DOTI staff.

The core of this action is to review DOTI safety policies and explore and implement new policies to improve safety.

Equity check: This action centers on changing policies to improve safety in our transportation system. However, any safety policy needs to be reviewed using DOTI's "Racial Equity Toolkit." This ensures that any unintended consequences of policy changes on certain groups of people are mitigated.

Metrics:

- Unconstrained: Implement all policy recommendations within this action by 2027.
- Constrained: Implement one set of policy sub-actions per year by 2027.

Sub-action 1.1: Consolidate safety policies

- A. Review all current safety-related policies within DOTI.
- B. Create a consolidated "DOTI Safety Policy" document which catalogs all traffic safety-related policies.

Sub-action 1.2: Review safety policies

- A. Cross reference current DOTI safety policies with proven policy-based safety measures. Use resources from NACTO,³² FHWA³³ and the Vision Zero Network³⁴ to list proven

³² https://nacto.org/wp-content/uploads/2022/04/2023_policy_platform_dec16-2022.pdf

³³ <https://highways.dot.gov/safety/proven-safety-countermeasures>

³⁴ <https://visionzeronetwerk.org/build-in-safety-with-the-safe-system-approach-examples-from-u-s-communities/>

safety policies not currently included among DOTI's policies and their potential safety benefits.

- B. Use the Vision Zero Technical Advisory Committee and other stakeholder groups to review identified proven safety policies to pursue in Denver.

Sub-action 1.3: Explore intersection policies

Using intersection crash analysis, identify intersections within the Vision Zero Safety Focus Areas for the following treatments. Use the Vision Zero Safety Focus Areas as pilots for policy changes city-wide.

- A. **Vehicular movements:** Protect all left turn movements, and shift left and right turns to intersections with better visibility along the High Injury Network and Safety Focus Areas. Analysis shows that these movements contribute disproportionately to crashes in Denver.
- B. **Pedestrian movements:** Increase the number of intersections using the "Leading Pedestrian Interval" feature to give pedestrians a head start when crossing the street. Prohibit right turns on red in every Safety Focus Area to mitigate conflicts between pedestrians and motorized vehicles. In October 2022, Washington D.C. passed the Safer Streets Amendment Act,³⁵ which bans right turns at red traffic lights in almost all situations, as part of their Vision Zero effort.³⁶
- C. **Crossings:** Develop safety policies for uncontrolled crossings using DOTI's updated *Uncontrolled Pedestrian Crossing Guidelines*,

Denver Moves: Trails and Pedestrians and Complete Streets Guidelines. Evaluate the efficacy of controlled crossing criteria to ensure that existing signal warrant policies and crossing criteria enable a density of controlled crossings to positively impact safety. Review high pedestrian, transit and bike traffic locations as appropriate using the Denver Moves Everyone vulnerable road user index and DOTI intersection prioritization tool. Review locations where removal of signals and installation of four-way stops or roundabouts may improve safety.³⁷

Sub-action 1.4: Speed limit policies

- A. Improve the way speed data is collected to expedite speed limit reduction decisions. Examine new data sources or technologies that can be used to collect speed data more efficiently.
- B. Develop a policy that uses the 50th percentile speed to proactively set speed limits with a focus on the High Injury Network and Safety Focus Areas.
- C. Develop a policy that uses design, land use, and roadway context to ensure the operating speed is no greater than the minimum operating speed outlined in Denver's Complete Streets Guidelines, with a focus on the High Injury Network and Safety Focus Areas. Denver's Complete Streets Guidelines³⁸ calls for the following speed limits: 10 mph for shared streets and alleys, 20 mph or less for minor streets, 35 mph or less for major streets.

³⁵ <https://lms.dccouncil.gov/Legislation/B24-0673>

³⁶ <https://waba.org/blog/2022/10/lets-make-sure-the-safer-streets-amendment-act-gets-funded/#:~:text=The%20Safer%2Streets%20Amendment%20Act%20combines%20parts%20of%20several%20bills,safe%20intersections%20using%20best%20practices.>

³⁷ <https://usa.streetsblog.org/2018/10/30/for-a-more-walkable-city-replace-signals-with-all-way-stops/>

³⁸ https://www.denvergov.org/files/assets/public/doti/documents/standards/doties-0170_complete_streets_guidelines.pdf

- D. Develop a policy that works to set desired speed limits on arterial streets to the minimum operating speed outlined in Denver's Complete Streets Guidelines, with a focus on the HIN and Safety Focus Areas.
- E. Use desired operating speeds to influence designs and speed limits. Capture speed data as part of project evaluation to ensure operating speeds meet design speeds. If operating speeds do not meet design speeds, then continue to determine other design elements to reach desired operating speeds. Examples where Denver has used desired speed to alter design include Washington Street,³⁹ where the roadway is being designed with a 25 mph speed limit. Another example is Santa Fe Drive,⁴⁰ which included a reduced speed limit as part of safety improvements made to the roadway.
- F. Work with CDOT to allow the implementation of expedited speed limit reductions on CDOT-managed streets.
- G. Continue to refine expedited speed limit reductions by researching how other U.S. municipalities have undertaken reducing speed limits on major streets, such as Cambridge, MA,⁴¹ Hoboken, NJ,⁴² Seattle, WA,⁴³ St. Paul, MN,⁴⁴ and Minneapolis, MN.⁴⁵ All these cities have embarked on blanket speed reductions as a key component of their Vision Zero plans. A study from Seattle showed that reducing

speed limits and increasing sign density resulted in lower speeds and fewer crashes. Case studies showed an average crash rate reduction of 22% and an average crash resulting in injury reduction of 18% .

Sub-action 1.5: Safety and new construction/development policies

- A. Develop a safety policy applicable to all DOTI projects (e.g., new bridges, street design changes) on the High Injury Network and in Safety Focus Areas to require showing how they will be decrease crashes.
- B. Conduct an internal audit of all projects moving into construction on the High Injury Network and in Safety Focus Areas to ensure safety needs are being met.
- C. Develop a safety policy for all new private developments over a certain size (e.g., new retail, apartments, etc.) on the High Injury Network and in Safety Focus Areas to require showing how they will reduce crashes. Explore amending Denver's Developer TDM Program⁴⁶ to include safety improvements within 22 feet of the right-of-way.
- D. Use the Denver Moves Everyone project prioritization tool to integrate Vision Zero principles throughout DOTI's project selection process.

Sub-action 1.6: Safety and vehicle policies

³⁹ <https://denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Department-of-Transportation-and-Infrastructure/Programs-Services/Projects/Washington-Street-Study>

⁴⁰ <https://denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Department-of-Transportation-and-Infrastructure/Programs-Services/Projects/Santa-Fe-Streetscape>.

⁴¹ https://www.massbike.org/aatrf_signedintolaw

⁴² <https://www.hobokennj.gov/news/hoboken-to-reduce-speed-limit-to-20-mph->

⁴³ <https://www.seattle.gov/transportation/projects-and-programs/safety-first/vision-zero/speedlimits#:~:text=The%20default%20speed%20limit%20for,25%20MPH%20%2C%20unless%20otherwise%20posted.>

⁴⁴ <https://www.stpaul.gov/news/new-lower-speed-limits-announced-cities-saint-paul-and-minneapolis>

⁴⁵ <https://www.minneapolismn.gov/government/programs-initiatives/visionzero/speed-limits/>

⁴⁶ https://denvergov.org/files/assets/public/doti/documents/programsservices/denver-transportation-options_requirements-for-new-developments.pdf

- A. Explore policies requiring all contractors who work for the City and County of Denver to ensure fleets and operators adhere to DOTI safety standards as a stipulation of working with the city. DOTI safety standards include use of telematics, having a direct vision chassis and side guards, and operator training.
- B. Explore opportunities to change the size and/or design of city and emergency vehicles to better navigate slow street/complete street designs.
- C. Explore increased taxes or registration fees for larger or heavier vehicles. Washington, D.C., has recently passed similar fees.⁴⁷ Ring-fence income generated from higher registration fees can fund additional safety improvements in Denver.

Sub-action 1.7: Street administration

- A. Street administration:
 - A1. Work with CDOT Region 1 to ensure DOTI safety policies influence CDOT Region 1 safety policies.
 - A2. Work with CDOT to develop a strategic plan to devolve roadways on the HIN.

Sub-action 1.8: Support making design guidelines city code

- A. Support Denver’s use of the Complete Streets Design Guidelines by supporting changes to city code that reflect the principles contained within the guidelines. This would result in new city streets and street redesigns being built with safety as the top priority in design.

Sub-action 1.9: Support school zone

establishment and expanded policies

- A. Explore how the current school zones can be strengthened through policy changes. DOTI maintains policy T.29, which establishes the definitions and procedures for signing and striping School Safety Zones in Denver. The Vision Zero team will support strengthening this policy through revisions to be completed by the end of 2023.

Vision Zero Action 2: Create and implement Safety Focus Area plans

The Vision Zero Safety Focus Areas as defined in Section 4: The Building Blocks of a Safer City are locations within Denver that repeatedly have disproportionately high levels of crashes resulting in death or serious injury. These are locations that require immediate and emergency remedial safety work to stop the pattern of deaths and serious injuries. Focusing expedited resources at these locations is critical to reduce the incidence of severe crashes. Four Safety Focus Areas have been identified:

- Downtown Denver
- South Federal Boulevard Corridor (West Alameda Avenue to West Yale Avenue)
- East Colfax Avenue Corridor (Park Avenue to Colorado Boulevard)
- Broadway and Lincoln Street Corridor (between Colfax Avenue and Alameda Avenue)

For more information regarding the analysis that went into the development of the Safety Focus Areas, please see Appendix A: Crash Data Analysis.

This action will create specific safety plans by following the Road Safety Audit (RSA) process and by aligning with the Neighborhood Transportation Management Program (NTMP) for each identified

⁴⁷ <https://www.washingtonpost.com/transportation/2022/06/25/dc-higher-vehicle-registration-fees/>

Safety Focus Area. This action item builds upon prior analysis to target where safety remediation work is needed most in Denver.

Equity check: The 2023 Safety Focus Areas include some locations with high populations of people experiencing homelessness. Crash data indicates that over the past five years, between 20-25% of pedestrians killed as a result of a traffic crash were experiencing homelessness. Lack of transportation safety significantly impacts this population, as they live directly alongside Denver's transportation network, increasing their exposure to people driving motorized vehicles at all times of day and night, which leads to an increased risk of being hit and killed.⁴⁸ The Vision Zero team will work with other city agencies and programs to ensure improved crash data collection and sharing occurs to support people experiencing homelessness.

Metrics:

- Unconstrained: Implement four Safety Focus Area Action Plans by 2025.
- Constrained: Implement four Safety Focus Area Action Plans by 2028.

Sub-action 2.1: Prioritize locations

- A. Prioritize the Vision Zero Safety Focus Areas based on which locations have the highest safety concerns.
- B. Use prioritization to schedule developing safety action plans for each of the four areas, following the RSA and Neighborhood Transportation Management Program (NTMP) methodology and leveraging any changes in safety policy.

Sub-action 2.2: Create safety action plans

- A. Identify quick-build safety remediation work for each Safety Focus Area. This includes

reducing speed limits to a maximum of 20 mph on minor roadways and a maximum of 25 mph on major roadways, banning right turns on red, and protecting left turn movements.

- B. Create individual safety action plans, including short- and long-term remedial work. Use past RSAs and SRTS travel plans to help guide development. Infrastructure that reduces motorized vehicle speeds and protects left turn movements should be a priority short-term goal.
- C. Develop and implement signage for distribution within the Vision Zero Safety Focus Areas. This signage should advise roadway users that they are in a Safety Focus Area. Inform local news channels when signs are being installed to increase awareness. Seeing the signage can act as a behavior change moment for travelers. For example, Cheshire, UK, uses signs to label high crash routes as "red routes,"⁴⁹ and CDOT uses variable message signs in the state to show how many people have died on Colorado streets.⁵⁰

Sub-action 2.3: Implement and evaluate Safety Focus Area action plans

- A. Work across DOTI to implement remedial safety work within each Safety Focus Area based on need.
- B. Continually monitor crashes within each Safety Focus Area to evaluate the impacts of any remedial safety work.
- C. Reanalyze Safety Focus Areas after two and a half years. Removal of Safety Focus Area designation will only occur once zero traffic-related deaths have been observed in a full

48 <https://usa.streetsblog.org/2022/06/13/how-to-save-the-lives-of-unhoused-pedestrians/>

49 <https://www.cheshirefire.gov.uk/Assets/1/RedRoutes-WestCheshire.pdf>

50 <https://www.codot.gov/news/2014-news-releases/10-2014/improving-traveler-information-cdot-upgrading-variable-message-signs>

calendar year.

Vision Zero Action 3: Develop a citywide speed reduction team

The speed of a traveling motorized vehicle is one of the biggest causes of traffic-related crashes that results in death or serious injury. Forcing reduced speeds on our city streets through design changes and enforcement is one of the most impactful Vision Zero actions that can be taken.

Research from the Insurance Institute for Highway Safety (IIHS) showed that reducing speed limits in Boston from 30 mph to 25 mph reduced speeds exceeding 35 mph by 30%, exceeding 30 mph by 8.5% and exceeding 25 mph by 2.9%.⁵¹

To better focus speed reduction efforts, this task includes standing up a new citywide speed management team dedicated to reducing motorized vehicle speeds across Denver.

Equity check: This action should explore ways to reduce speeding while minimizing any unintended consequences arising from increased law enforcement presence. In these areas, alternative enforcement methods should be explored, including community-based educational campaigns. Expediting speed limit reductions in Denver’s priority areas for equity should be a priority.

Metrics:

- Unconstrained: Reduce speed limits on all major streets in Denver to align with the minimum identified speeds in Denver’s Complete Street Design Guidelines by 2028.
- Constrained: Reduce speed limits on all major streets within 2023 Safety Focus Areas and on the Tier 1 High Injury Network to align with the identified speeds in Denver’s Complete Street Design Guidelines by 2028.

51 <https://www.iihs.org/news/detail/city-drivers-slow-down-for-lower-speed-limit-in-boston>

52 https://www.denvergov.org/files/assets/public/dot/documents/standards/doties-017.0_complete_streets_guidelines.pdf

53 https://nacto.org/wp-content/uploads/2020/07/NACTO_CityLimits_Spreads.pdf

54 <https://smartgrowthamerica.org/dangerous-by-design/>

Sub-action 3.1: Stand up citywide Speed Reduction Team

- A. Identify the additional staffing needs and resources necessary to establish the Citywide Speed Reduction Team.
- B. Establish the goals, objectives and performance indicators of the Citywide Speed Management Team.

Sub-action 3.2: Evaluate speed limits citywide

- A. Review and build upon DOTI's 2019 citywide speed limit study.
- B. Perform a citywide evaluation of speed limits, considering context, and explore ways to make changes. Consider methods for streamlining speed limit reductions and enacting speed-restricting infrastructure and enforcement.
- C. Consider immediate speed reductions within Vision Zero Safety Focus Areas and the Tier 1 High Injury Network.
- D. Review Denver's "Complete Street Designs" (2020)⁵² and "Speed Limit Reduction Feasibility Study" for internal guidance.
- E. Review NACTO's "City Limits"⁵³ and Smart Growth America's "Dangerous by Design"⁵⁴ for external guidance.

Sub-action 3.3: Develop methodology for speed data collection

- A. Create a toolbox of methods to expediently collect actual user speeds. Prioritize data collection in the Vision Zero Safety Focus Areas and Tier 1 High Injury Network.

Sub-action 3.4: Compile effective measures to reduce speeding

- A. Establish a list of approved speed mitigation treatments, including infrastructure and

enforcement.

- B. Using speed data, identify locations where speed mitigation would be most effective at reducing crashes.
- C. Publish citywide speeding conditions, including differences between the signed and actual user speeds, on Denver's Open Data Catalog or on the Vision Zero dashboard.

Sub-action 3.5: Develop citywide speed management implementation plan

- A. Using the results from Sub-actions 3.1 through 3.4, develop a Speed Management Implementation Plan. This plan will provide a strategic road map for speed limit reductions, as well as recommendations for speed limiting infrastructure and enforcement.

Vision Zero Action 4: Develop a citywide Crash Management Team

Understanding crash patterns across Denver is essential to ensure remedial safety work is undertaken proactively.

This action will stand up a Citywide Crash Management Team that will collaborate across agencies to leverage traffic-related crash data from multiple sources to inform traffic safety policies, projects and programs. The team will be focused on improving the quality, collection and publication of crash data within the City and County of Denver to support Vision Zero initiatives. The formation of this team will lead to greater crash data quality, providing a more robust, easier to access and intuitive database to help inform:

- **Policies:** using crash trends to inform system-wide policies.
- **Projects:** using crash data to identify near, mid- and long-term safety projects.
- **Programs:** using crash data to inform traffic

safety programs, such as driver education and traffic safety marketing initiatives.

Equity check: Understanding the who, where and how regarding crashes occurring in Denver is important to understanding how the most vulnerable communities are being impacted. This information will help the Vision Zero team form impactful policies, projects and programs.

Metrics:

- Unconstrained: Complete all sub-actions by 2030.
- Constrained: Complete sub-actions 4.1 to 4.3 by 2030.

Sub-action 4.1: Stand up citywide Crash Management Program

- A. Identify the additional staff hours and resources needed to establish the Citywide Crash Management Team.
- B. Establish the goals, objectives and performance indicators of the Citywide Crash Management Team.

Sub-action 4.2: Crash data collaboration

- A. Identify and garner buy-in and support from relevant stakeholders and data-holders, such as the Denver Police Department (DPD), Denver Department of Public Health & Environment (DDPHE), Office of the Medical Examiner, CDOT, Denver Public Health, and other hospitals/paramedic systems operating in Denver.
- B. Work with public health agencies to incorporate transportation-related hospitalization data into Vision Zero data. Use findings to inform messaging and enforcement that prioritizes eliminating the

most dangerous driving behaviors.

- C. Continue to collaborate with various governmental agencies, such as the Denver Regional Council of Government's (DRCOG's) Crash Consortium, to supplement Vision Zero data to better understand the causes and patterns of crashes within Denver.
- D. Continue to collaborate with DPD to share crash reports in a timely manner.

Sub-action 4.3: Improve crash and network data management and data sharing

- A. Create a robust crash database that also includes network data (e.g., traffic flows, signed speeds). Identify any additional analysis or data that could be uploaded to the data catalog.
- B. Use the database to improve crash analysis. Share analysis and summary files with other DOTI programs.
- C. Provide up-to-date and accessible data about traffic fatalities and serious collisions on Denver's website and the Vision Zero Dashboard, highlighting equity metrics when appropriate.
- D. Work with DPD to improve the accuracy of geocoded crash locations to better reflect crash points of impact.
- E. Ensure all projects in Denver are informed by standardized crash analysis resulting from this team's efforts.

Sub-action 4.4: Conduct crash review and intervention after all traffic crash fatalities and serious bodily injuries

- A. Continue running Rapid Response program

55 <https://www.youtube.com/watch?v=EeaVmr6dVaQ>

56 <https://www.mdpi.com/2220-9964/8/6/265>

and reviewing all traffic-related deaths. Expand reviews to include vulnerable roadway user serious injuries and, ultimately, all serious injuries.

- B. Provide an annual report showing how the Vision Zero team responded to each crash.

Sub-action 4.5: Conduct specific analysis for crashes that involve children

- A. Develop an efficient process in collaboration with DPD to document and share whether a crash involved a child (under 18 years old).
- B. Document crashes that involve children (under 18 years old) in school zones and partner with the SRTS program to develop recommendations.

empathic⁵⁵ or stress⁵⁶ measurements, will also be explored.

Vision Zero Action 5: Develop a citywide safety evaluation program

A robust safety evaluation program will allow the Vision Zero team to better understand the effectiveness of measures taken to tackle crashes. Evaluation is essential for ensuring the replicability of safety solutions across Denver’s transportation network and for adjusting remedial safety work that is not effectively reducing crash rates or improving safe driving practices.

This action will stand up a new Citywide Safety Evaluation Program, which will develop a robust evaluation process of safety projects, educational programs, traffic laws and citations, outreach efforts, and traffic safety policies. This will be done by tracking geocoded metrics such as crashes, operating speed, and yielding behavior before and after projects are completed. Other innovative quantitative methods for evaluation, such as evaluating the network using

57 <https://www.sfmta.com/safe-streets-evaluation-program#:~:text=The%20SFMTA%20is%20working%20towards,progress%20and%20measure%20project%20performance.>

58 <https://highways.dot.gov/safety>

59 <https://nacto.org/publication/city-limits/the-right-speed-limits/corridor-speed-limits/conduct-an-evaluation/>

The Safety Evaluation Program will include sharing findings with the public, highlighting any improvements in safety metrics.

The San Francisco Municipal Transportation Agency (SFMTA) has a robust safety evaluation that helps it identify opportunities to refine project designs and supports the use of the designs in other locations as “proof-of-concept.”⁵⁷

Equity check: This action includes the evaluation of current traffic laws. Current laws impact some people more than others. Conducting a thorough review of current traffic laws through an equity and behavior change lens will result in a more equitable system of enforcement. The evaluation will provide a better understanding of whether current laws and penalties result in the intended behavior change, and also ensure penalties are not over-burdensome to specific populations.

Metrics:

- Unconstrained: Complete all sub-actions by 2030.
- Constrained: Complete sub-actions 5.1 to 5.3 by 2030.

Sub-action 5.1: Stand up citywide Safety Evaluation Program

- A. Identify the additional staff hours and resources needed to establish the Safety Evaluation Program.
- B. Establish the goals, objectives, and performance indicators of the Safety Evaluation Program.

Sub-action 5.2: Develop safety evaluation framework

- A. Develop a safety evaluation framework to identify metrics, timelines, and methods that should be used in evaluation. Review evaluation techniques from agencies such as FHWA⁵⁸ and NACTO⁵⁹ for inclusion in the framework.
- B. Explore the use of technology, such as smart cameras, that can automatically detect and report hazardous maneuvers, to understand how infrastructure impacts behavior.
- C. Use existing programs, such as 311, the Community Active Living Coalition or the Neighborhood Transportation Management Program, to explore opportunities for community-collected qualitative or quantitative data.
- D. Use the evaluation techniques identified to build a database of infrastructure changes, their context, and their impact on safety. Use the database to replicate remedial safety work elsewhere in Denver. Make the database publicly available.

Sub-action 5.3: Evaluate traffic-related laws and citations

- A. Evaluate all traffic violations and laws and analyze whether they result in desired safer behaviors (e.g., hit and run penalties). Pass each through DOTI’s Racial Equity Framework to understand whether there are unintended consequences for some communities.
- B. Explore non-citation outcomes for non-hazardous violations and restorative justice for minor traffic offenses, along with programs to reinstate drivers’ licenses.
- C. Document and publish the findings in a Traffic Violations, Penalties, and Laws review.

60 <https://www.mprnews.org/story/2014/06/11/green-line-overcomes-community-objections>

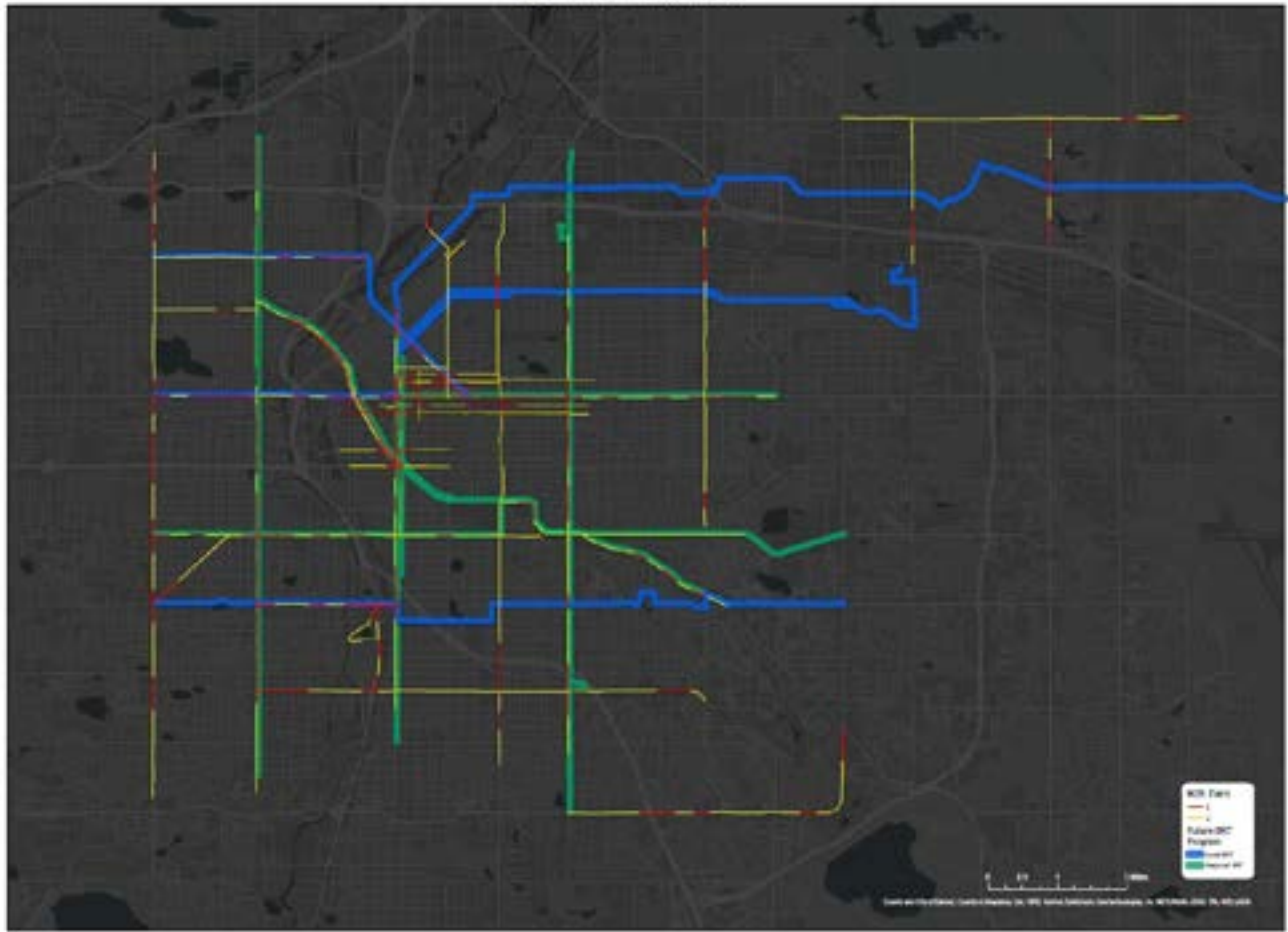


Figure 14: Denver’s planned transit network overlaid with the Vision Zero High Injury Network

Sub-action 5.4: Intersection-specific evaluation

- A. Using the sign inventory completed by DOTI in 2022, evaluate the effectiveness of prohibiting right turns on red for crash reduction.
- B. Map intersections that prohibit right turns on red, and perform analysis comparing them to similar intersections that do allow right turns on red to understand the intervention’s impacts on reducing crashes.

C. This sub-action will help inform right turn on red policy decisions from Action #1.

Sub-action 5.5: Evaluate current and future automated enforcement

- A. Continually evaluate existing and future automated enforcement regarding how cameras change driving behaviors and if they have any unintended consequences.

⁶¹ <https://www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Department-of-Transportation-and-Infrastructure/Programs-Services/Transit/Denver-Moves-Transit#section-2>

⁶² <https://www.nhtsa.gov/book/countermeasures/countermeasures/21-automated-enforcement#:~:text=Wilson%20et%20al.,to%20serious%20injuries%20and%20fatalities.>

Vision Zero Action 6: Work with DOTI's Transit Program to couple transit investments with safety improvements to strategically transform the HIN

Denver's planned transit system follows much of the Vision Zero High Injury Network (see Figure 14). This action will ensure that Vision Zero principles and policies are followed as Denver's transit network, including Bus Rapid Transit (BRT), expands and impacts street redesign efforts. On streets where BRT is considered a long-term goal (beyond 3-5 years), effective Vision Zero safety measures should be implemented in the near-term, without waiting for transit-driven street redesigns. Bus priority improvements are specifically oriented towards implementing near-term, lower-cost treatments to improve transit travel time and reliability on future BRT corridors ahead of major capital investment projects. Vision Zero treatments should be synergized with near-term bus priority improvements.

Equity check: Transit is a critical service for community members who may not own a car, and often, planned transit routes travel through communities in Denver's priority areas for equity. Ensuring that transit-related redesigns of streets are as safe as possible and mitigate the harmful impacts of Denver's arterial system on surrounding communities should be a primary focus for this action. In addition, it's important to ensure transit corridors do not physically divide communities with any built infrastructure. Station placement should also reflect community desires. For example, when the Green Line light rail was built between St. Paul and Minneapolis, transit planners included three additional stations to serve a historically Black neighborhood that had been destroyed by the building of Interstate Highway 94.⁶³

Metrics:

- Unconstrained: Ensure all new transit routes incorporate Vision Zero as their top guiding design principle.
- Constrained: Ensure all new transit routes incorporate Vision Zero as one of their guiding design principles.

Sub-action 6.1: Transit build-out coordination

- A. Work with the DOTI Transit Team, RTD, and CDOT on all planned and upcoming transit corridor projects in Denver to ensure any major reconstruction on the HIN and in Safety Focus Areas adheres to Vision Zero principles and Complete Streets Guidelines (Figure 14).
- B. Identify process improvements to ensure Vision Zero principles are followed in each transit project.
- C. Ensure safety infrastructure implementation is not delayed on roadways on the HIN and in Safety Focus Areas that have aspirational transit plans (over five years out).
- D. Study safety impacts of transit infrastructure, such as bus lanes, to better understand how safety can be improved through transit facilities. Incorporate findings into the upcoming Transit Design Guidelines, which will begin development in 2023.
- E. Continue Vision Zero team support of projects identified in Denver Moves Transit Phase 2.⁶⁴

⁶³ <https://www.propublica.org/article/chicagos-race-neutral-traffic-cameras-ticket-black-and-latino-drivers-the-most>

⁶⁴ <https://www.transportation.northwestern.edu/research/featured-reports/chicago-red-light-camera-report.html>

Vision Zero Action 7: Increase use of traffic safety cameras (speed and red light cameras)

Traffic safety cameras (speed and red light cameras) are proven technologies, both worldwide and in the US, that have the potential **to reduce crashes that result in serious injury or death by 44%**.⁶²

Implementation of traffic safety cameras as a safety strategy can consider current crash trends, land use, and technologies. Current legislation could be updated to allow use of traffic safety cameras where they are most effective at reducing traffic-related deaths and serious injuries. Also described as automated enforcement, traffic enforcement camera expansion can replace traditional police enforcement in many instances.

Equity check: Much has been written of the potential for increased automated enforcement to disproportionately impact people of color. Thorough research needs to be undertaken to understand how best to expand the implementation of automated enforcement while avoiding unintended consequences. For example, rather than use past speeding citations to determine the placement of safety cameras, alternative sources of data, such as anonymized speed data, could be used. Lessons can be learned from other cities, such as Chicago, IL, where increased enforcement led to specific communities becoming more impacted than others.^{63,64}

Metrics:

- Unconstrained: Increase use of traffic safety cameras on every street on the HIN and select streets within the Safety Focus Areas.

- Constrained: Ensure traffic safety cameras are implemented at key safety intersections, including the Tier 1 HIN and in School Zones.

Sub-action 7.1: Document safety benefits of automated enforcement

- A. Develop a research paper to document safety benefits of traffic safety cameras and strategies for mitigating their impacts on Denver's priority areas for equity.
- B. Publish the report through Denver's website and agency/community partners and circulate with the city council and the mayor's office.

Sub-action 7.2: Develop automated enforcement planning tool and processes

- A. Develop a context-driven tool that shows when and where automated enforcement will work most effectively within Denver to reduce crashes while also mitigating impacts on priority areas for equity.
- B. Explore expanded use of traffic safety cameras in other safety contexts (e.g., to watch for vehicles using bus-only lanes, parking in or blocking bike lanes, and committing other curbside violations).
- C. Explore use of camera technology to document the movements of people driving, walking, or biking at an intersection to identify patterns of unsafe behaviors.
- D. Explore how land use definitions determine where traffic safety cameras can be installed. Consider redefining land use terms

65 <https://citychangers.org/superblocks/>

66 <https://www.theguardian.com/cities/2018/nov/30/its-the-only-way-forward-madrid-bans-polluting-vehicles-from-city-centre>

67 <https://electrek.co/2022/02/24/paris-great-experiment-will-ban-cars-in-much-of-the-city-instead-opting-for-bikes-scooters-legs/#:~:text=Paris's%20great%20experiment%20will%20ban,optiming%20for%20bikes%2C%20scooters%2C%20legs&text=In%20a%20bid%20to%20clean,part%20of%20the%20French%20capital.>

68 <https://www.london.gov.uk/press-releases/mayoral/mayors-bold-plan-will-overhaul-capitals-streets>

69 <https://medium.com/vision-zero-cities-journal/how-oslo-reached-vision-zero-b952aed44697>

70 https://www.planning.dot.gov/planning/topic_transportationequity.aspx#:~:text=Equity%20in%20Transportation%3F-What%20is%20Equity%20in%20Transportation%3F,needs%20of%20all%20community%20members.

to better align with Denver’s increasingly urban environment.

- E. Use the tool to prepare for the eventuality that state-level bills allowing unrestricted use of automated speed cameras are passed by having a plan in place for when and where they should be implemented.
- F. Develop an internal process that guides data collection and determines how intersection improvements will be explored prior to installing red light traffic safety cameras. Low-cost, quick-win treatments, such as trimming vegetation for better sight lines or improving signal timing to reduce crashes, should be conducted prior to installing a red light traffic safety camera. If needed improvements require more than eight months, such as rebuilding the traffic signal and purchasing right of way, then a red light traffic safety camera should be added until mid- or longer-term improvements can be made.
- G. Evaluate the locations where traffic safety cameras are installed to ensure the traffic safety camera, and any associated safety improvements, are reducing crashes and creating a safer traffic environment. If not, additional analysis should be conducted.
- H. Create a process to review other traffic safety countermeasures if crashes haven’t decreased after one year of traffic safety camera installation.

Vision Zero Action 8: Create "car-free zone" and "slow zone" implementation guide

Car-free and slow zones can significantly improve traffic safety in locations with high pedestrian traffic and high traffic volumes. Denver has successfully

implemented both treatments over the past few years. For example, a section of Larimer Street in Downtown Denver is now a car-free zone, as are the 16th Street Mall and streets surrounding several parks. Streets adjacent to schools all become temporary slow zones during pick up and drop off times. Denver also explored slow zones as part of the shared streets initiative during the COVID-19 pandemic and will have a permanent program fully developed in 2023 based on the success of the temporary initiative. Cities across the world are exploring how to reduce or ban car traffic in areas of their city. Some examples of world class cities undertaking this action include Barcelona’s “superblocks”,⁶⁵ Madrid’s⁶⁶ and Paris’⁶⁷ plans to ban cars in some locations, and London’s “Streetscapes”⁶⁸ program that seeks to create “slow neighborhoods.” Oslo, which recorded zero traffic deaths in 2019, is the first major city to ban cars in their city center as part of their Vision Zero plan.⁶⁹

This action creates a guide that shows where these various treatments would work best in Denver from a safety perspective. The guide will include a toolkit that provides infrastructure and programmatic recommendations so drivers cannot speed over 20 mph, with a goal of 15 mph or less in slow zones.

Equity check: Equity in transportation seeks fairness in mobility and accessibility to meet the needs of all community members.⁷⁰ Car-free zones or slow zones can reset the image of a road or street from being a space solely for car travel to being for community use. Car-free zones or slow zones can improve transportation equity by improving the balance between different mobility modes and can significantly improve traffic safety.

Metrics:

- Unconstrained: Develop guide and implement car-free or slow zones at all locations identified within the Shared Streets Citywide Study by 2030.

71 <https://www.sfmta.com/vision-zero-quick-build-projects>

72 <https://www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/311-City-Services>

- Constrained: Develop guide and implement five of the car-free or slow zones identified within the Shared Streets Citywide Study by 2030.

Sub-action 8.1: Develop an analytical tool to identify the locations within Denver that would work effectively as either car-free zones or slow zones

- A. Using metrics such as crash statistics, vulnerable road user exposure, and surrounding land uses, analyze locations within Denver that would be good candidates for car-free areas or slow zones.
- B. Use the analysis to create a plan for where car-free zones or slow zones could be implemented and show potential reductions in crashes if implemented.
- C. Develop a slow zone toolkit that includes infrastructure, programmatic, and policy recommendations to ensure speeds are reduced within a slow zone.
- D. Align with the City and County of Denver's Shared Streets Plan, current Denver Parks and Recreation park road closures, and the Outdoor Places Program street closures.

Sub-action 8.2: Support School Zone establishment

- A. Support the SRTS program by ensuring the most applicable speed management tools are being included in the establishment of school zones.

- B. Identify policies or procedures for both permanent or temporary "open streets" at schools to facilitate safe walking/biking to school (e.g., "park'n'walk" areas).

Vision Zero Action 9: Develop a safety quick-build remediation program

The Vision Zero team includes a Rapid Response program that identifies remediation solutions when a traffic-related death occurs. This action will build upon that program by creating templates of quick-build remediation infrastructure that can be assigned to locations with safety concerns. This will result in the recommendations being proactive, rather than reactive, to crashes. Quick-build projects should be completed within a six-month period. This action includes bolstering the Vision Zero's Rapid Response program to regularly achieve safety remediation work within six months and building upon the existing Neighborhood Transportation Management Program (NTMP) and Area Engineer program. The San Francisco Municipal Transportation Agency (SFMTA) piloted a quick-build program as part of their Vision Zero efforts in 2019.⁷³ Since inception the SFMTA program has delivered 31 quick-build projects, with a further seven coming soon.

Equity check: In some cases, fast remedial work can be informed and supported by the community, which supports equitable recommendations and creates champions for utilizing new or innovative design. Quick-build projects allow for real-time public engagement and are intended to be community-led, iterative and adaptable. Involving the community in quick design change decisions can improve buy-in for a safety project while simultaneously improving the design. This program should provide an avenue

⁷³ <https://bouldercolorado.gov/projects/vision-zero-innovation-program>

⁷⁴ <https://smartgrowthamerica.org/resources/evaluating-complete-streets-projects-a-guide-for-practitioners/>

⁷⁵ This does not include additional sidewalk miles that will be constructed as a result of the recent passing of ballot initiative 307 in 2022.

for neighborhoods that have historically lower 311⁷² requests than the average in Denver.

Metrics:

- Unconstrained: All quick-build safety remediation work completed within a six-month time frame by 2030.
- Constrained: Fifty percent of quick-build safety remediation work completed within a six-month time frame by 2030.

Sub-action 9.1: Develop quick-build safety redesign guide

- A. Using new and existing evaluation processes, such as the Area Engineer Program and Rapid Response interventions, identify high-risk roadway features correlated with specific, recurring, severe crash types for each mode.
- B. Develop quick-build templates to address scales of safety redesigns.
- C. Use the quick-build templates to provide quick solutions (within six months) to locations with pressing safety concerns within Denver. Safety concerns may be prioritized using DOTI’s intersection tool, which provides a safety score based on numerous data attributes, as a reaction to a traffic-related death or serious injury, or as part of a Safety Focus Area Plan implementation.
- D. Develop an iterative method to evaluate quick-build projects, similar to the city of Boulder’s Vision Zero Innovation Program.⁷³
- E. Evaluate existing contracting methods for

quick-build projects and revisit procurement policies, exploring possible new sources.

Vision Zero Action 10: Support build-out of the pedestrian, cyclist, micromobility, and transit user network

This action includes supporting the build-out of Denver’s plans for pedestrians, cyclists, and transit users identified by Denver Moves Everyone. This includes providing support when needed to prioritize infrastructure that supports safer streets and ensuring that the Vision Zero philosophy influences decisions at each point in a project’s implementation. Creating a quality multimodal system will reduce dependency on car travel. Implementing more “complete streets” designs has the impact of safer streets for all modes.⁷⁴

Equity check: Creating a true multimodal system is equitable because it helps everyone get around Denver safely regardless of the mode of transportation they choose. There are many people in Denver that do not, or cannot, own or use a motorized vehicle. We have prioritized one mode of transportation over others. The current transportation system discriminates against this population. Building out these asset classes, such as widening sidewalks, signals a change to a people-first priority.

Metrics:

- Planned infrastructure implementation through DME by 2050:
 - 235 miles of new high-comfort bicycle facilities.
 - 134 miles of upgraded bicycle facilities (e.g., buffered bike lane and protected bike lane).

76 Miles of bike lanes constructed include a mix of sharrows, bike lanes and protected bike lanes. Not all implemented infrastructure are high comfort facilities.

77 Sidewalks constructed over previous years were not all to Complete Streets Standards.

78 <https://www.chicago.gov/city/en/depts/cdot/provdrs/bike/news/2022/june/chicago-to-upgrade-all-protected-bike-lanes-to-concrete-by-end-o.html>

79 https://www.cdc.gov/transportationsafety/teen_drivers/teendrivfers_factsheet.html

80 <https://youth.gov/youth-topics/risk-and-protective-factors>

- 118 miles of bike lane and buffered bike lane paving.
- 120 pedestrian crossing treatments.
- 18 miles of new sidewalks built to Complete Streets Design Standards.⁷⁵
- 7,200 new sidewalk curb ramps at intersections.
- 144 signal upgrades per year.
- 60 new multimodal signal upgrades per year.
- 15 bus stop upgrades per year.
- Average implementation over the previous four years (2018 to 2021):
 - 96 miles of new or improved bike lanes.⁷⁶
 - 20 miles of new sidewalks.⁷⁷
 - 183 signal upgrades.
 - 61 intersections redesigned.
 - 83 pedestrian crossing improvements.

Sub-action 10.1: Support roll-out of Denver Moves Everyone

- A. Denver Moves Everyone is a citywide strategic transportation plan to shift travel modes and impact travel behavior to make a safer system. Support the implementation of DME and its project lists.

Sub-action 10.2: Support upgrading plastic bollards with more durable infrastructure

- A. Support upgrading plastic bollards used to delineate bikeways, to daylight intersections, and for other quick-build projects to hard-scaped or more durable infrastructure (such as concrete). Over the past few years, cities have increasingly relied on plastic bollards as

quick-build, low-cost solutions to reallocate street space for additional users. At a price of about \$100 per bollard, they are relatively inexpensive to install compared with more costly infrastructure projects. However, bollards tend to not be long-lasting, especially in places with snow plowing. After recent bicyclist fatalities, cities like Chicago have enacted policies to upgrade all plastic bollards along bike lanes to concrete bollards.⁷⁸

Vision Zero Action 11: Create a multimodal safety curriculum for K-12th grade

Children’s education is an important long-term Vision Zero strategy. Training and educating the next generation of street users to travel safely and conscientiously brings about holistic cultural changes. Reaching children with targeted safety training before they can drive is essential and helps Denver achieve established modal goals. While gun-related deaths recently surpassed traffic-related deaths as the highest killer of all child age groups, **motor vehicle crashes remain the leading cause of death for US teenagers.**⁷⁹

This action will develop, implement, and refine a multimodal transportation safety curriculum for K-12th grade, including walking, biking, micromobility use, transit, and driving safety education. The curriculum will help foster protective factors in children. Protective factors are characteristics associated with a lower likelihood of negative outcomes or that reduce a risk factor's impact.⁸⁰ This would lead to a generational culture change in Denver’s residents, increasing seatbelt wearing, safe driving speeds, and not driving under the influence.

Equity check: The transportation safety of children should be at the forefront of safety planning.

⁸¹ <https://www.bikeability.org.uk/>

⁸² <https://www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Department-of-Transportation-and-Infrastructure/Programs-Services/Safe-Routes-to-School/Montbello-Bike-Course>

⁸³ <https://pubmed.ncbi.nlm.nih.gov/20179024/>

Ensuring our children have the skills to navigate our car-dominated transportation network when they themselves cannot yet drive by walking, biking, or taking transit is important to achieving equity. Similarly, the cost of driver's education and private vehicle operation can put car ownership out of reach for many young adults in lower-income households.

Metrics:

- Unconstrained: Set up multimodal safety curriculum and make available to every Denver student by 2030.
- Constrained: Set up multimodal safety curriculum and make available to a subset of schools based on the SRTS priority matrix in the SRTS Action Plan by 2030.

Sub-action 11.1: Build a Multimodal Training in Schools consortium

- A. Stand up and lead a new consortium, or identify an existing consortium, consisting of representatives from Denver Public Schools (DPS), Denver Police Department, Office of Children's Affairs, the Safe Routes to School Program, and other organizations (e.g., Bicycle Colorado, Denver Streets Partnership) to provide multimodal training to Denver's school children.
- B. Use the consortium to formulate a plan of action for providing multimodal training as part of the Denver Public Schools curriculum.

Sub-action 11.2: Support development of Multimodal Training in Schools curriculum

- A. Explore the types of training that would lead to the best safety outcomes by researching

best practices from elsewhere in the U.S. and the world. Create a menu of options that could be implemented in a school setting.

- B. For elementary schools, training may focus on how to safely cross the street with an adult and how to ride a bike on neighborhood streets, including smooth starting and stopping and negotiating a four-way stop intersection. Other areas of focus could include taking transit and the importance of multimodalism. Current SRTS training resources can be used.
- C. For high schools, training may focus on safe drivers' education, how to share the street, the cost benefits of walking, biking, and taking transit, and how to ensure child passengers are safe. Training may also incorporate cell phone use and how it affects all roadway users.
- D. Training should be standardized across Denver and be outcome-based. A good example of standardized, outcome-based bicycle training is Bikeability in the UK.⁸¹
- E. Explore the effectiveness of Denver's bicycle training course in Montbello,⁸² and consider where in Denver additional courses could be offered in partnership with Denver Parks and Recreation.
- F. Explore the potential for virtual reality to be incorporated into children's road safety training, as explored at the University of Alabama.⁸³

Sub-action 11.3: Determine funding requirements, potential sources, and impacts

- A. Determine how much funding and staffing

84 <https://visionzeronetw.org/centering-community-in-the-public-engagement-process/>

85 <https://www.equiticity.org/>

86 <https://www.equiticity.org/programs>

87 <https://one.nhtsa.gov/people/injury/research/aggdrivingenf/pages/introduction.html>

would be required to make identified training available to all Denver children.

- B. Estimate the safety impacts that a robust multimodal curriculum could have on generational safety in transportation.

Sub-action 11.4: Create an implementation plan for Multimodal Training in Schools

- A. Develop a road map for how the training will be rolled out to schools in Denver.
- B. Use the road map to gain buy-in from decision-makers such as City Council, the Mayor's Office, the Denver School Board, the DPS Superintendent, individual principals and school communities, and the public.

Vision Zero Action 12: Targeted community engagement and dialogue

Community outreach and education can be a key tool to shaping safe travel behaviors.⁸⁴ To be effective, outreach needs to be a continual dialog and establish long-lasting ties to the community.

This task includes using the Safety Focus Areas to develop location-specific outreach and education materials to improve traffic safety. A key component of this action is to work collaboratively with community leaders, organizations, and agencies to encourage a culture of safety by supporting local programs that are aimed at reducing the incidence of crashes. Work with a broad range of agencies and organizations to promote traffic safety.

Equity Check: Community outreach and dialogue is a central tenant of expanding mobility justice and building safe behaviors in communities. One example of this is Equiticity, a non-profit community-based organization in Chicago that seeks to empower communities to make positive change.⁸⁵ A key

program that Equiticity runs is its "Neighborhood Mobility Justice Tours,"⁸⁶ which aim to explore the lived experience of how people of color and low-income residents get around their neighborhood walking, biking, or using transit. Tours often include elected officials and city staff to facilitate dialog between community members and decision makers and highlight the safety issues within neighborhoods.

It's crucial to hear from our most vulnerable road users while also facilitating conversations with populations that are more likely to be on the causing end (i.e., motor vehicle drivers). Ensuring language accessibility in both written and spoken language is important for meeting people where they are and having meaningful interactions.

Metrics:

- Unconstrained: Establish strong outreach and education connections with all Denver neighborhoods and stand up Vision Zero outreach actions in each neighborhood by 2030.
- Constrained: Establish strong outreach and educations connections with Denver neighborhoods and stand up Vision Zero outreach actions in priority areas for equity by 2030.

Sub-action 12.1: Conduct targeted outreach using joint DPD/DOTI neighborhood street teams in Safety Focus Areas

- A. Coordinate with local civic leaders, agencies, and community partners to implement traffic safety forums and planning workshops explaining the current traffic safety issues within their communities and providing a forum for dialogue.

88 <https://www.gettips.com/online/alcohol-certification-colorado>

89 <https://www.denvercalc.org/>

90 https://www.auroragov.org/business_services/development_center/codes_rules/engineering/neighborhood_traffic_calming_program

91 <https://ladot.lacity.org/sites/default/files/documents/2020-factsheet-whatyouneedtoknowaboutsppedhumps-2pg.pdf>

- B. Explore encouragement campaigns to reduce aggressive driving based on studies and data linking aggressive driving to higher crash rates. The National Highway Traffic Safety Administration (NHTSA) conducted a study that highlighted some of the reasons people drive aggressively.⁸⁷
- C. There is an “us vs. them” culture prevalent among users of our streets. People often refer to “cars” and “bikes” rather than people driving or people cycling. This can lead to animosity between people using our streets. Encouraging and educating people to look beyond the mode of travel used can foster a more harmonic culture that accepts that we are all just people trying to get around, and that people who cycle, drive, and walk all likely use each mode at some point.
- D. By the end of 2023, ensure all public facing projects, programs and services in Denver comply with Mayoral Executive Order 150 to have Language Access Plans in place.

Sub-action 12.2: Participate in events to Support Outreach

- A. Use events and partnerships to support outreach, engagement, and education about traffic safety. Examples include community safety events, World Day of Remembrance, Park(ing) Day, collaborative safety messaging/marketing campaigns, and opportunities to partner with programs that work closely with children, immigrants, people experiencing homelessness, and other vulnerable or hard-to-reach

populations.

- B. Undertake targeted outreach with partners on the HIN or in Safety Focus Areas, including developing “Neighborhood Mobility Justice Tours” where city staff, elected officials, and representatives from the Denver Police Department experience walking, biking, and using transit with members of the community that live along the HIN or within a Safety Focus Area.
- C. Conduct large-impact engagement campaigns alongside local, national, and global events, such as World Day of Remembrance, Drunk Driving Awareness Month and other opportunities.

Sub-action 12.3: Promote TIPS (Training for Intervention Procedures)

- A. Promote the state's "Colorado Alcohol Seller-Server Training" and TIPS certification. Work with the largest alcohol seller-server locations in Denver to ensure all workers are TIPS-certified.⁸⁸

Vision Zero Action 13: Support community-led placemaking and traffic calming initiatives

Supporting the empowerment of communities in the development of placemaking and traffic calming initiatives can be an excellent way to change behaviors. Resident engagement via direct temporary activities showcases how streets can be improved to the benefit of the neighborhood and can also increase support among communities for longer-term changes to their streets. The Denver Community Active Living Coalition (CALC)⁸⁹ has spearheaded community

⁹² <https://www.bikewalkmontana.org/>

⁹³ <https://static1.squarespace.com/static/5d2371db887b590001831b41/t/5e1772ab5c0f5f1d47d70169/1578595001681/POP-UP+GUIDE+-FINAL.pdf>

⁹⁴ <https://nacto.org/program/streets-for-kids/>

⁹⁵ <https://nacto.org/publication/urban-street-design-guide/streets/residential-shared-street/>

⁹⁶ <https://ladotlivablestreets.org/content-detail/about-people-st>

⁹⁷ <https://www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Community-Planning-and-Development/Denver-Zoning-Code/Text-Amendments/Outdoor-Places-Program/Temporary-Outdoor-Dining-Program>

infrastructure pilots through grants for several years. This action intends to strengthen community-led traffic calming projects.

Numerous other cities in the U.S. provide neighborhood communities with the opportunity to submit requests for traffic calming infrastructure. The City of Aurora, CO, has a program that lets neighborhoods request traffic calming through an application.⁹⁰ Similarly, the LA Department of Transportation stood up a program in which residents can request speed bumps along their neighborhood streets.⁹¹ Bike Walk Montana, a non-profit in Montana promoting active transportation,⁹² supported the development of a community infrastructure pop-up guide.⁹³

Building upon the Neighborhood Transportation Management Program (NTMP), this action includes the development of a grant funding program for residents to do temporary projects, usually for a day or weekend at city-designated intersections or street segments. Residents will have the opportunity to choose from a standard set of temporary treatments determined by DOTI and will receive city support for these traffic calming and placemaking initiatives. The grant funding program guidelines should explain elements of "slow zones" or "neighborhood zones" to assist communities with design.

The key to creating "slow zones" or "neighborhood zones" is creating friction for people driving through neighborhoods. Adding friction can come in numerous forms, but should result in more attentive and slower driving. Some examples of ways to add motorized vehicle friction include reducing turning radii at intersections, narrowing the width of streets, and installing both horizontal and vertical traffic calming solutions.

Equity Check: This program should predominantly fund projects in Denver's priority areas for transportation equity, with 75% of grant funding available to these areas only and the remaining 25%

available to the rest of the city. The Vision Zero team should prioritize and provide increased support for grant applications from Denver's priority areas for equity, especially areas adjacent to the HIN and within Safety Focus Areas.

Metrics:

- Unconstrained: Ten community-identified traffic calming and placemaking projects per year by 2030.
- Constrained: Three community-identified traffic calming and placemaking projects per year by 2030.

Sub-action 13.1: Identify locations in each Denver neighborhood that are candidates for community-led traffic calming pilots and develop a DOTI-approved toolkit of traffic calming pilot templates

- A. Work with the Community Active Living Coalition (CALC) and the Neighborhood Transportation Management Program (NTMP), using Safe Routes to Schools (SRTS) Travel Plans to develop:
 - a. A DOTI-approved picklist of potential traffic calming pilot locations in each Denver neighborhood.
 - b. A DOTI-approved toolkit of neighborhood traffic calming pilot project templates that will empower communities to identify projects to pursue in their own neighborhoods.
- B. Each pilot project template should include an appropriate cost for materials and should be proven to effectively slow vehicle speeds. Reference NACTO's "Designing Streets for Kids"⁹⁴ and "Residential Shared Streets" design,⁹⁵ LA's "People Street" program,⁹⁶ and Denver's "Temporary Outdoor Patio Design Guide"⁹⁷ to support template

⁹⁸ <https://www.denvercalc.org/microgrants>

development.

Sub-action 13.2: Identify funding and set up grant opportunities

- A. Identify funding amounts to update the existing CALC Micro-Grant program⁹⁸ and promote grant opportunities to community groups and residents.
- B. Provide the picklist of potential pilot locations, traffic calming pilot project templates, and technical support to interested community groups and invite applications.
- C. Support the community with implementation of each community traffic calming pilot.

Sub-action 13.3: Support evaluation of community-built traffic calming infrastructure

- A. Conduct ongoing evaluation of micro-grant programs from application to completion to ensure compliance with equity goals and metrics, such as a grant distribution split of 75% for Denver's priority areas for equity and 25% for all other areas. Evaluation should ensure that impacts on adjacent roadways are mitigated.
- B. When a community-led traffic calming pilot is successful, the City will install permanent infrastructure within three to six months after the completion of the community's temporary project.

Vision Zero Action 14: Make the City and County of Denver a model Vision Zero adopter

Over the past few years, the City and County of Denver has striven to adopt Vision Zero principles into

everyday operations. This includes utilizing the latest in vehicle technology and training, conducting safety site reviews to ensure safe facilities, and making improvements where needed (e.g., installing better lighting, markings, and signage) to ensure city fleets and operators are as safe as possible.

This action includes development of a guide for safety best practices for fleets operating in Denver. The guide will be distributed among companies that work within Denver, especially contractors to the City and County of Denver. Furthermore, the Vision Zero team will explore creating a rating system for contractor fleets and incorporating the rating into City and County of Denver Requests for Proposals.

Beyond operations, the City and County of Denver continues to build a culture of safety within each department, ensuring Vision Zero principals are followed throughout the agency.

Equity Check: Any guide developed as part of this action should be created in Spanish and other languages as necessary and include non-written forms of communication, such as video. Businesses owned by people of color or for whom English is a second language should receive support from the City if requested.

Metrics:

- Unconstrained: Register every company that works with the City and County of Denver with a large fleet (over 10 vehicles) to a new accreditation system by 2030.
- Constrained: Register companies that work with the City and County of Denver with a large fleet (over 10 vehicles) to a new accreditation system by 2030.

Sub-action 14.1: Report on the City and County of Denver's Safety Progress

⁹⁹ <https://www.fors-online.org.uk/cms/fors-vehicle-safety-equipment-guide-version-v/>

¹⁰⁰ <https://intellishift.com/resources/blog/fleet-safety-certification-what-it-is-and-how-to-become-certified/>

- A. Document the ways in which the City and County of Denver incorporates safety and Vision Zero principles into its fleet of vehicles and operators.
- B. Include how the City and County of Denver is advancing safe vehicle operation within its fleet in the Vision Zero Annual Report.

Sub-action 14.2: Develop a safe vehicle fleet guide and provide support

- A. Create a guide that highlights the benefits of safe vehicle fleets and how to achieve improved safety in Denver.
- B. Distribute the guide to contractors that work with the City and County of Denver and other companies with fleets.
- C. Provide support to any company operating within Denver that wishes to improve their fleet safety.

Sub-action 14.3: Explore FORS (Fleet Operator Recognition Scheme) for use in Denver

- A. Explore FORS⁹⁹ and other fleet operator accreditation programs¹⁰⁰ for the potential to designate company fleets in Denver as "Vision Zero accredited."
- B. Explore whether supported accreditation could be included as a stipulation for working with the City and County of Denver.

Vision Zero Supportive Actions

Vision Zero supportive actions are those that are not directly led by the Vision Zero team. Supportive actions include:

- 1. Research expanded laws that reduce the

incidence of crashes caused by unsafe travel behaviors. Lead implementor: State or City Legislators.

- 2. Advocate for state-level changes to drivers' education. Lead implementor: State Government.
- 3. Collaborate with CDOT to prioritize Vision Zero principles in any street redesign within the City and County of Denver. Lead implementor: Colorado Department of Transportation.
- 4. Collaborate with DPD to restart sobriety checkpoints in Safety Focus Areas. Lead implementor: Denver Police Department.
- 5. Collaborate with DPD to support their training materials and policies. Lead implementor: Denver Police Department.
- 6. Increase transportation safety in and around schools by implementing the SRTS Action Plan. Lead implementor: Safe Routes to School team.

Each Vision Zero Supportive Action is described in more detail below.

Vision Zero Supportive Action 1: Advocate for expanded laws that reduce the incidence of crashes due to unsafe travel behaviors

Unsafe travel behaviors are a major factor in traffic-related crashes. The National Highway Traffic Safety Administration (NHTSA) provides statistics on six key behaviors¹⁰¹ that impact crashes:

- Drunk driving
- Speeding
- Drug-impaired driving

¹⁰¹ <https://www.nhtsa.gov/risky-driving>

¹⁰² https://www.cdc.gov/transportationsafety/teen_drivers/teendrivers_factsheet.html

¹⁰³ <https://www.codot.gov/safety/traffic-safety/assets/stsp/strategictransportationsafetyplan.pdf>

¹⁰⁴ https://www.researchgate.net/publication/8432725_Sobriety_Checkpoints_Evidence_of_Effectiveness_Is_Strong_but_Use_Is_Limited

- Distracted driving
- Lack of seat belt wearing
- Drowsy driving

The Vision Zero team will advocate for expanded laws that can negate these unsafe behaviors.

Sub-action 1.1: Advocate for policies and legislation that encourage safe driving, walking, and riding, including laws that eliminate distracted driving, eliminate driving under the influence of drugs and or alcohol, increase motorcycle helmet use, increase occupant protection for both adults and youth, and increase compliance with posted speed limits.

Sub-action 1.2: Build a coalition among like-minded organizations to advance and advocate for law changes.

Vision Zero Supportive Action 2: Advocate for state-level changes to drivers' education

Drivers' education is important to improving safety on our streets. Motor vehicle crashes are the leading cause of death for U.S. teenagers, and these new, young drivers contribute disproportionately to traffic-related crashes.¹⁰² Ensuring that drivers' education is up-to-date in relation to new distractions, roadway designs, and ways to drive safely on streets used by other modes should be a priority for updating drivers' education.

The Vision Zero team will research and document ways in which drivers' education could be improved using best practices from other states.

Sub-action 2.1: Research ways in which drivers' education could be changed to better improve safety.

Sub-action 2.2: Document what the state is currently advancing with regards to drivers' education and

support changes that are shown to improve safety and reduce barriers to attaining drivers' education.

Sub-action 2.3: Analyze impacts of maturity on ability to safely operate a motorized vehicle.

Vision Zero Supportive Action 3: Collaborate with CDOT to prioritize Vision Zero principles in any street redesign within the City and County of Denver

CDOT owns many arterial streets within Denver. These streets disproportionately contribute to Denver's traffic-related deaths and serious injuries. The Vision Zero team will work with CDOT to ensure these streets are designed with safety as the core principle. CDOT's 2020-2023 Strategic Safety Action Plan¹⁰³ highlights actions that align with Vision Zero principles.

Sub-action 3.1: Ensure Vision Zero best practices are accounted for in CDOT's Transportation Systems Management & Operations (TSMO) Evaluation process, including consideration of Denver's HIN.

Sub-action 3.2: Modify process so safety considerations occur before design decisions have been made, including during any PEL (Planning and Environmental Linkages) and/or NEPA (National Environmental Policy Act) processes.

Vision Zero Supportive Action 4: Collaborate with DPD to restart sobriety checkpoints in Safety Focus Areas

Drunk and drug-impaired driving are a significant behavioral contributor to traffic-related crashes.

Sobriety checkpoints can deter substance use when driving, especially when coupled with marketing and outreach. Research shows that sobriety checkpoints can reduce fatal traffic crashes caused by impaired driving by 18-24%.¹⁰⁴

A key issue to restarting sobriety checkpoints is that the Denver Police Department (DPD) currently has limited staffing capabilities. This action will explore how the Vision Zero team can best support DPD to find solutions to limited staffing.

Sub-action 4.1: Engage in dialogue with DPD about restarting sobriety checkpoints using historic data to identify locations.

Sub-action 4.2: Explore ways to increase DPD staffing time or overtime through grants to support sobriety checkpoints.

Sub-action 4.3: Disseminate messaging to the public that sobriety checks are starting up to deter DUI behaviors.

Vision Zero Supportive Action 5: Collaborate with DPD and the County Attorney's Office (CAO) to support training materials and policies

This action includes deepening the partnership between DPD and the Vision Zero team to explore how best to support DPD trainings and policies to improve safety on Denver's streets.

Sub-action 5.1: Explore ways that the Vision Zero team can use crash data to support new officer training and citation policies to support safer streets. Engage in dialogue with DPD and the crash investigation unit to explain how their crash data is used by the Vision Zero team, and coordinate with DPD to improve crash data.

Sub-action 5.2: Analyze the number of DPD citations for hazardous driving behaviors (i.e., speeding and DUI) versus discretionary offenses (i.e., license and registration). Analyze the number of citations that are issued and the outcomes via the courts, e.g., do people pay the fine or do they go to court. Strive to facilitate better connections between the attorney's office/DPD and the DOTI Vision Zero team after serious injuries or fatalities occur to share their story through marketing campaign efforts.

Vision Zero Supportive Action 6: Increase transportation safety in and around schools by implementing the

Estimated additional staff requirements for the Vision Zero team to meet the metrics of this action plan:

Staff Type	Number Needed	Estimated Cost Range
Principal	1	\$100,000 to \$200,000
Senior	3.5	\$150,000 to \$300,000
Associate	4	\$100,000 to \$200,000
Staff	2.5	\$200,000 to \$500,000
Total	11	\$650,000 to \$1,200,000

SRTS Action Plan

This action aims to deepen the partnership between Safe Routes to School and Vision Zero through increased resource sharing.

Sub-action 6.1: Collaborate with schools and their communities to document challenges posed by the built environment and program new safety infrastructure.

Sub-action 6.2: Support implementation and evaluation of infrastructure improvements as outlined in Denver's Safe Routes to School Action Plan (2022).

Sub-action 6.3: Develop a standardized approach to infrastructure for school zones.

Sub-action 6.4: Identify an implementation plan to bring all schools up to that standard.

Sub-action 6.5: Explore the potential to use micromobility or microtransit to provide students direct access to schools where transit may be lacking.

Vision Zero Internal Actions

Vision Zero Internal Actions are actions that do not directly relate to a reduction in traffic-related deaths and serious injuries but support the Vision Zero Actions. There are three Vision Zero Internal Actions:

1. Establish a permanent Vision Zero funding source and allocate staffing to match the aspirations of the Action Plan.
2. Deliver annual Vision Zero report.
3. Continue to hold regular advisory meetings with key stakeholders.

Vision Zero Internal Action 1: Establish a permanent Vision Zero funding source, program, and staffing to match the aspirations of the Action Plan

This action plan expands the scope of the Vision Zero program. Establishing funding for this increased scope is essential for the Vision Zero team to effectively enact the actions as described in this plan and reduce traffic-related deaths and serious injuries. The Vision Zero team will also need a mix of additional staff, including communications experts, planners, and project managers. In order to reach the full value of this plan, the Vision Zero "Safe Systems" approach will need to be fully integrated throughout the Department of Transportation and Infrastructure. In addition to the integration of the Vision Zero "Safe Systems" approach, there will need to be additional staff dedicated to the integration of Vision Zero principles.

Sub-action 1.1: Use the updated 2023 Vision Zero Action Plan to establish a permanent, dedicated funding source for Vision Zero implementation and coordination based on the Action Plan's aspirations.

Sub-action 1.2: Continue to create a Vision Zero program with dedicated staff.

Vision Zero Internal Action 2: Deliver

annual Vision Zero report

The annual Vision Zero report provides a way for the public to track progress toward zero traffic-related deaths by 2030.

Sub-action 2.1: Develop and publish an annual report that documents the implementation status of the Vision Zero Action Plan, tracks progress toward fatality, serious injury and overall crash reduction, and summarizes the effects of safety interventions.

Vision Zero Internal Action 3: Continue to hold regular advisory meetings with key stakeholders

The Vision Zero team will continue to convene regular meetings with key stakeholders and the executive committee to advance Vision Zero actions in this plan.

Sub-action 3.1: Institute standard coordination and collaboration processes to improve accountability, including: convening regular meetings of safety stakeholders (Vision Zero Technical Advisory Committee), convening regular meetings of executive-level Denver Department of Transportation and Infrastructure representatives, and continuing to represent Denver's Vision Zero program as part of CDOT Region 1/City and County of Denver coordination meetings.

Sub-action 3.2: Stand up an Equity in Transportation Safety Advisory committee to advise DOTI and help vet projects across the agency through an equity lens. This group should build upon the Diverse and Inclusive Voices (DIVO) committee that was created for Denver Moves Everyone.

Sub-action 3.3: Explore methods to make internal meetings more valuable and action based, focusing on being more intentional with agenda topics. This may include field visits to recently completed safety projects or safety problem areas of the city to amplify the connections between decision makers, transportation infrastructure and policy decisions, or using the Vision Zero Technical Advisory Committee to help advance various actions within this plan.

