



TAKING ACTION ON

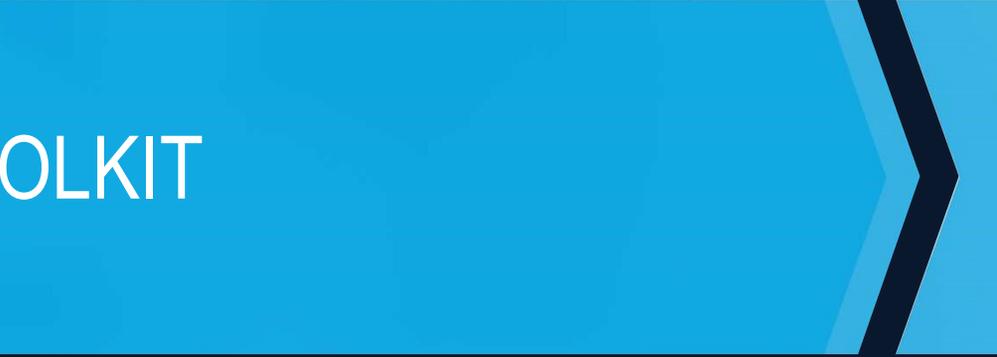
regional vision



*Presented by:*  
**Beth Doliboa**

SAFER STREETS FOR METRO DENVER

# REGIONAL VISION ZERO TOOLKIT

A large blue arrow graphic pointing to the right, spanning across the bottom half of the slide. The arrow has a white outline and a slight gradient, giving it a 3D effect. It is positioned on a dark blue background.



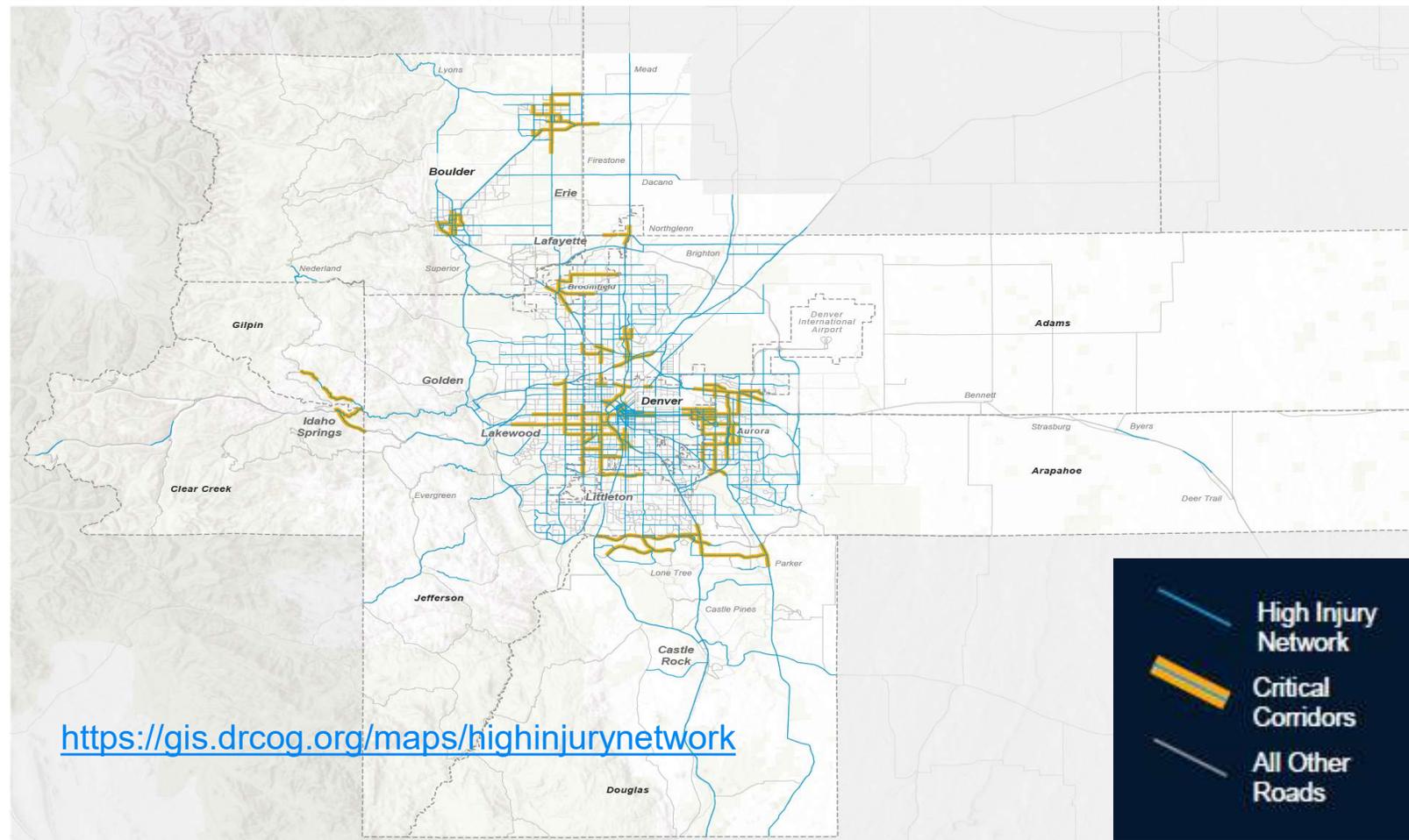
# Regional Vision Zero Toolkit – Regional High Injury Network

Regional HIN developed by...

- Identifying the road segments with the highest KSI crash density.
- Connecting the network by adding links based on proximity to high KSI crash density segments and road segment continuity.

Critical Corridors

- Additional analysis done for each county to identify the most dangerous corridors in terms of KSI crashes





# Bicyclist-involved crash profile and countermeasures

## KEY CRASH PROFILE STATISTICS

12%

of all KSI crashes in urban areas

6%

of all fatal crashes in urban areas

74%

occur at intersections

## BICYCLIST-INVOLVED CRASHES

### WHAT TYPES OF CRASHES DOES THIS CRASH PROFILE INCLUDE?

This crash profile includes all crashes where a harmful event is classified as "bicycle." While crashes involving people biking only account for 2 percent of total crashes in urban areas, they represent 12 percent of all KSI crashes. When a person biking is involved, the likelihood of the crash resulting in a severe injury or death is much higher than a motor vehicle-only crash.

### WHERE DO THESE CRASHES OCCUR?

Nearly three quarters of bicyclist-involved KSI crashes occur at or near an intersection.

### WHAT DO LOCAL COMMUNITIES SAY?

Twenty percent of survey respondents in the Denver region ranked "inadequate or missing bikeways" and 15 percent ranked "drivers and people biking not sharing the road" as one of their top three traffic safety concerns.

## HOW TO IDENTIFY THESE CRASHES IN CRASH REPORTS OR CRASH DATA

A harmful event is "bicycle."

MECHANISM/PATTERN	POTENTIAL COUNTERMEASURES
Intersection	<ul style="list-style-type: none"> <li>• Automatic recall signal timing</li> <li>• Appropriate sight distance</li> <li>• Bike box</li> <li>• Bike conflict zone markings</li> <li>• Extend bike lane to and potentially through intersection</li> <li>• Extend signal clearance time</li> <li>• Green wave</li> <li>• Partial closure</li> <li>• Prohibit left turn</li> <li>• Prohibit right turn on red</li> <li>• Protected intersection</li> <li>• Protected turn phase</li> <li>• Shorten signal cycle length</li> <li>• Traffic signal</li> <li>• Traffic signal bike detection</li> </ul>
Nonintersection	<ul style="list-style-type: none"> <li>• All-way stop</li> <li>• Consolidate driveways</li> <li>• Improve sight distance</li> <li>• Partial closure</li> <li>• Prohibit left turn</li> <li>• Raised median</li> <li>• Traffic calming</li> <li>• Traffic signal</li> <li>• Two-stage gap acceptance</li> </ul>





# Counter Measure Glossary

COUNTERMEASURE	DESCRIPTION
Advance stop bar	A stop bar placed ahead of the crosswalk at stop signs and signals reduces instances of vehicles encroaching on the crosswalk.
Advance warning sign	A sign placed to warn a person driving of an upcoming curve, stop sign, traffic signal, roundabout, pedestrian crossing, or other potential point of conflict where a person driving may need to slow down or use caution. Signs can include flashing beacons to enhance awareness.
Advanced dilemma-zone detection	Advanced dilemma-zone detection enhances safety at signalized intersections by adjusting traffic signal timing on the fly to reduce the number of people driving that may have difficulty deciding whether to stop or proceed during a yellow phase. This may reduce rear-end crashes associated with unsafe stopping and angle crashes due to red-light running.
All-way stop	Converting two-way stops to all-way stops prevents people driving, walking and biking from having to cross free-flowing travel lanes at a side-street stop-controlled intersection and reduces the risk of a crash.
Appropriate yellow/all-red signal timing	Retime the yellow and all-red signal phases to the appropriate time to allow vehicles to fully clear the intersection in consideration of the speed of the street and size of the intersection.
Automatic recall signal timing	Signals can be put in "recall" all the time or for key time periods of the day. The "walk" and/or corresponding green signal would be displayed every signal cycle without prompting by a person walking or from vehicle detection. This can ensure bicyclists get a green signal every cycle and discourages red-light running by people biking.
Auxiliary lanes	Auxiliary lanes provide an acceleration or deceleration lane for left-turning, right-turning or merging vehicles onto or off of a higher-speed highway. Auxiliary lanes are most appropriate on limited-access highways and highways in rural settings and can help prevent rear-end crashes.
Barrier	Barriers placed on the right side or median of a highway reduce the likelihood of more severe head-on crashes and fixed-object crashes (such as with a pole, tree or structure). They can be a concrete barrier, cable barrier or guardrail.
Bike box	A designated painted area at the head of a traffic lane at a signalized intersection that provides people biking with a safe and visible way to get ahead of queuing traffic during the red signal phase.
Bike conflict zone markings	Green painted pavement within a bicycle lane that increases the visibility of people biking and reinforces bicycle priority. Green pavement can be used in spot treatment and conflict areas such as driveways. It can also be used across intersections to define the bikeway.
Bulbout	Raised devices, usually constructed from concrete, landscaping, or paint and plastic materials, that narrow the roadway to reduce speeds of turning vehicles, improve sight lines and shorten crossing distances for people walking.
Clear zone (clear distance)	An unobstructed, traversable roadside area that allows a driver who has left the highway to stop safely. Clear zones are most appropriate on higher-speed highways in rural areas and can mitigate crashes with a fixed object. Clear zones are generally not recommended on lower-speed urban and suburban streets as they can encourage higher travel speeds in those settings and be dangerous for people walking.

COUNTERMEASURE	DESCRIPTION
Co-locate bus stops and pedestrian crossings	Place bus stops and pedestrian crossings in close proximity to allow people riding transit to cross the street safely.
Consolidate driveways	Reducing the number of driveway entrances and exits through consolidation limits the exposure of people biking, people walking and people driving to vehicles entering or exiting driveways, reducing conflicts.
Countdown pedestrian signal heads	Displays "countdown" of seconds remaining on the pedestrian signal. Countdown indications improve safety for all road users, and are required for newly installed traffic signals where pedestrian signals are installed.
Dual curb ramps	Dual curb ramps improve Americans with Disabilities Act accessibility at all intersection approaches so people walking with mobility challenges, or those pushing carts or strollers, can safely enter and exit all crosswalks at the appropriate angle.
Extend bike lane to and potentially through intersection	In locations where a bike lane is dropped due to the addition of a turn pocket, a parking lane or turn lane along the intersection approach may be repurposed to provide a dedicated bike lane through the intersection. At intersections use skipped striping or green paint to highlight conflict zones between bicyclists and motor vehicles.
Extend pedestrian crossing time	Increases time for pedestrian walk phases, can better accommodate vulnerable age groups (younger than 18 or older than 65).
Extend signal clearance time	Extending yellow and all-red time allows people driving and people biking to safely cross through a signalized intersection before conflicting traffic movements are permitted to enter the intersection.
Far-side bus stops	Far-side bus stops are located after an intersection, allowing the vehicle to pass through the intersection before stopping for the passenger loading and unloading a bus.
Flashing stop sign	A flashing beacon or flashing LED lights can be embedded in stop signs to enhance awareness of people driving and increase compliance rates.
Green wave	A series of coordinated traffic signals that allow for slower vehicle travel speeds through several intersections along a corridor. Coordinating signals for slower travel speeds gives people biking more time to cross safely and encourages people driving to travel at slower speeds.
High-visibility crosswalks	High-visibility crosswalks are more visible to people driving. They are striped with continental, ladder or other markings using high-visibility material such as thermoplastic tape instead of paint.
Improve sight distance	Remove objects that may prevent people driving and people walking from having a clear sightline. Methods for improving sight distance may include trimming or removing landscaping or removing or relocating large signs.
Incident management protocols	Use protocols to quickly move queue causing vehicles including those that are disabled or were involved in a minor crash.
Intersection tightening	Visually and physically narrowing the street at intersections, can create a shorter crossing for people walking and slows vehicles approaching the intersection and turning. Intersection tightening can be permanent or temporary, using materials like paint, plastic bollards and reflective markers.



# Taking Action on Regional Vision Zero – Objectives



Improve collaboration between allied agencies



Increase awareness and adoption of Vision Zero



Design and retrofit roadways to prioritize safety



Improve data collection and reporting



Increase funding and resources



Increase legislative support



# Taking Action on Region Vision Zero – 25 Action Initiatives

## OBJECTIVE 1

### IMPROVE COLLABORATION BETWEEN ALLIED AGENCIES

#### TRACKING PROGRESS:

1. number of local governments and allied agencies participating in the Regional Vision Zero working group
2. number of police department working sessions
3. number of support events for victims of traffic violence

ACTION INITIATIVES	SUB-ACTIONS	RESPONSIBILITY	ACTION YEAR
1. Convene Vision Zero working groups that will share updates on crash data, resources, current activities, policy evolution, funding opportunities, equity data, traffic safety performance, enforcement, emerging issues, vehicle fleet safety and other relevant safety information. Invite allied organizations to participate in the Vision Zero working groups, including organizations from: public health, social services, economic development, homelessness, religious and spiritual communities, and other community-based organizations.	1.1 Organize a regional Vision Zero working group to convene regular meetings of safety stakeholders. Use the working group as a place to share and expand on Vision Zero updates in regard to data, resources, policy evolution and emerging issues. This group will also further develop details of future action initiatives.	DRCOG CDOT Colorado State Patrol Local Governments Advocacy Organizations	2020
	1.2 Facilitate working sessions among police departments to focus on the regional High-Injury Network, crash profiles, contributing violations and behaviors, and equity and empathy. Use these sessions to help promote prioritizing enforcement on the regional High-Injury Network.	DRCOG CDOT Colorado State Patrol Local Governments Local Police	2021
	1.3 Distribute Vision Zero marketing and outreach materials through the working groups.	DRCOG	2020
	1.4 Share and discuss funding opportunities within the working groups.	DRCOG CDOT	2020
	1.5 Collaborate with the Advanced Mobility Partnership to support transportation technology efforts that support Regional Vision Zero through data collection, planning, programming and decision-making.	DRCOG Advanced Mobility Partnership partners	2020
2. Working with allied organizations, create support systems for victims of traffic violence such as counseling, memorializing and storytelling.		DRCOG Local Governments	2021

# IMPLEMENTATION SINCE ADOPTION



## Partnering with CDOT and FHWA



- 77 million dollars allocated to safety projects in the Denver metropolitan area
- Denver region-wide effort to improve safety and mobility particularly for pedestrians, cyclists, the elderly and people with disabilities who depend on a reliable urban street network
- Working with FHWA to host and promote training opportunities





## Regional Vision Zero Working Group

- 2<sup>nd</sup> Tuesday of every month at 10 AM
- Opportunity for local jurisdictions and regional partners to discuss safety issues
- Presentations by local jurisdictions
- Updates on Action Initiatives



## Regional Vision Zero Education Campaign

- Kicking off early Spring
- Aims to change culture of the Denver region to make roadways safer for all users
- Focuses on messaging the regional goal of ZERO



# Vision Zero Pledge

## I PLEDGE TO:

- Be more aware of and consider the safety of people not traveling by car.
- Obey posted speeds and slow down, specifically at intersections and driveways.
- Yield to people walking, biking and rolling and give them extra space.
- Be alert and never drive distracted or under the influence.
- Keep my eyes on the road and never text and drive.
- Make eye contact with people driving, people walking, people biking and people rolling to ensure everyone is aware of each other.
- Look right and double check for people before turning right.
- Stop before crossing the street, use a crosswalk if available and look in all directions before crossing.
- Wear a helmet while riding a bicycle or motorcycle.
- Share this Vision Zero Pledge with my family and friends.



[#VisionZeroPledge](#)





## Regional Complete Streets Toolkit

- Provide guidance for local governments to plan design and implement Complete Streets
- Builds on crash profiles and countermeasures
- Support connectivity and development of safe and comfortable facilities
- Promote the latest design criteria and guidelines for multimodal facilities

THANK YOU!

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# Boulder County Vision Zero Plan

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# Why Vision Zero?



## Boulder County Transportation Master Plan

**SUMMARY VERSION**  
ADOPTED FEBRUARY 18, 2020



### TMP Goals

- 1 – Effective and Efficient Management
- 2 – Minimize Environmental Impacts
- **3 – Ensure Safety for All Modes**
  - **Boulder County's Vision Zero goal: eliminate serious injuries and fatal traffic crashes in unincorporated Boulder County by 2035**
- 4 – A Healthy and Sustainable Economy
- 5 – Ensure Equitable Access
- 6 – Enhance County Identity & Character

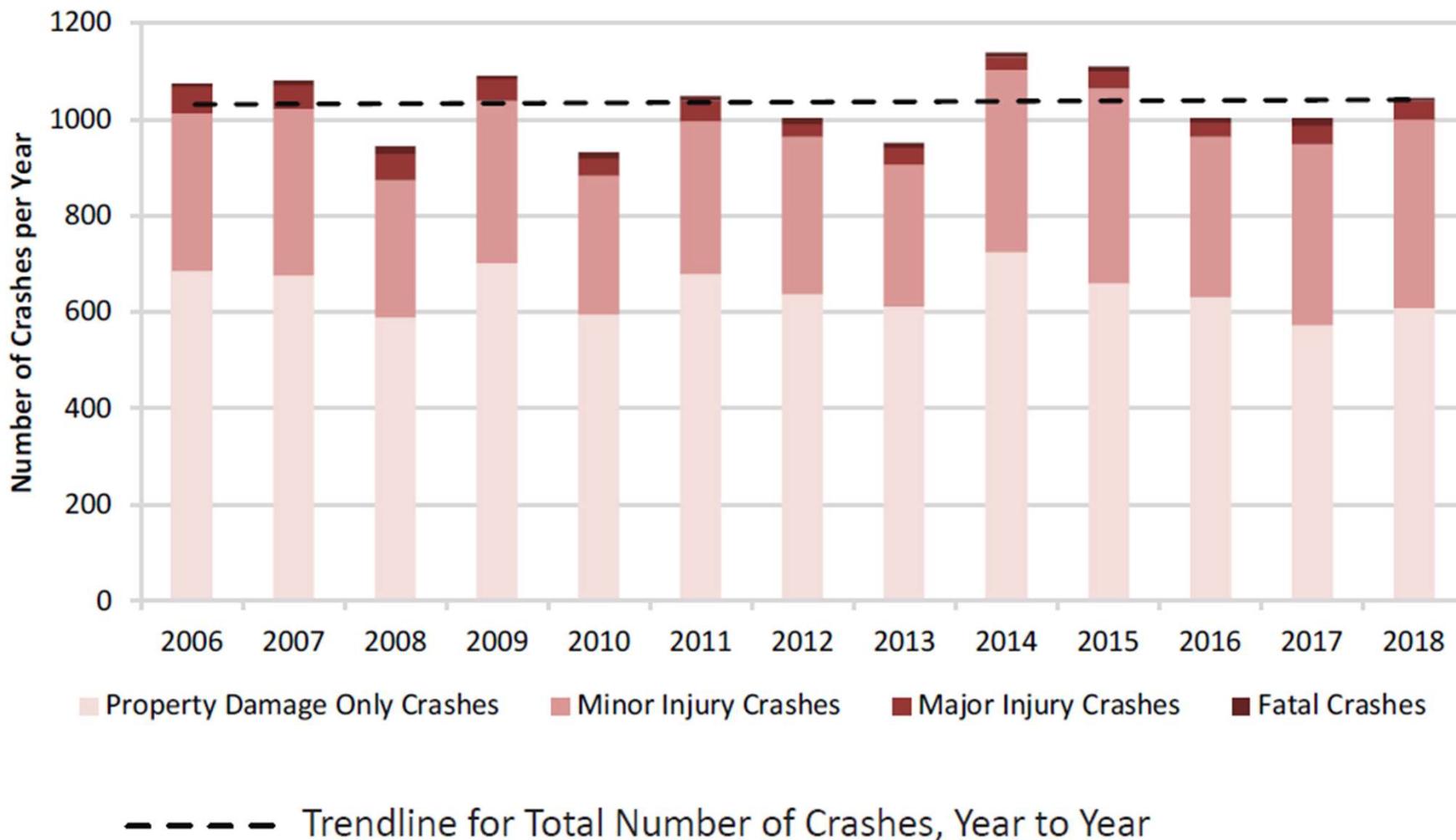
# Structure of Boulder County Vision Zero Plan

**Part 1: Traffic Crash Analysis**

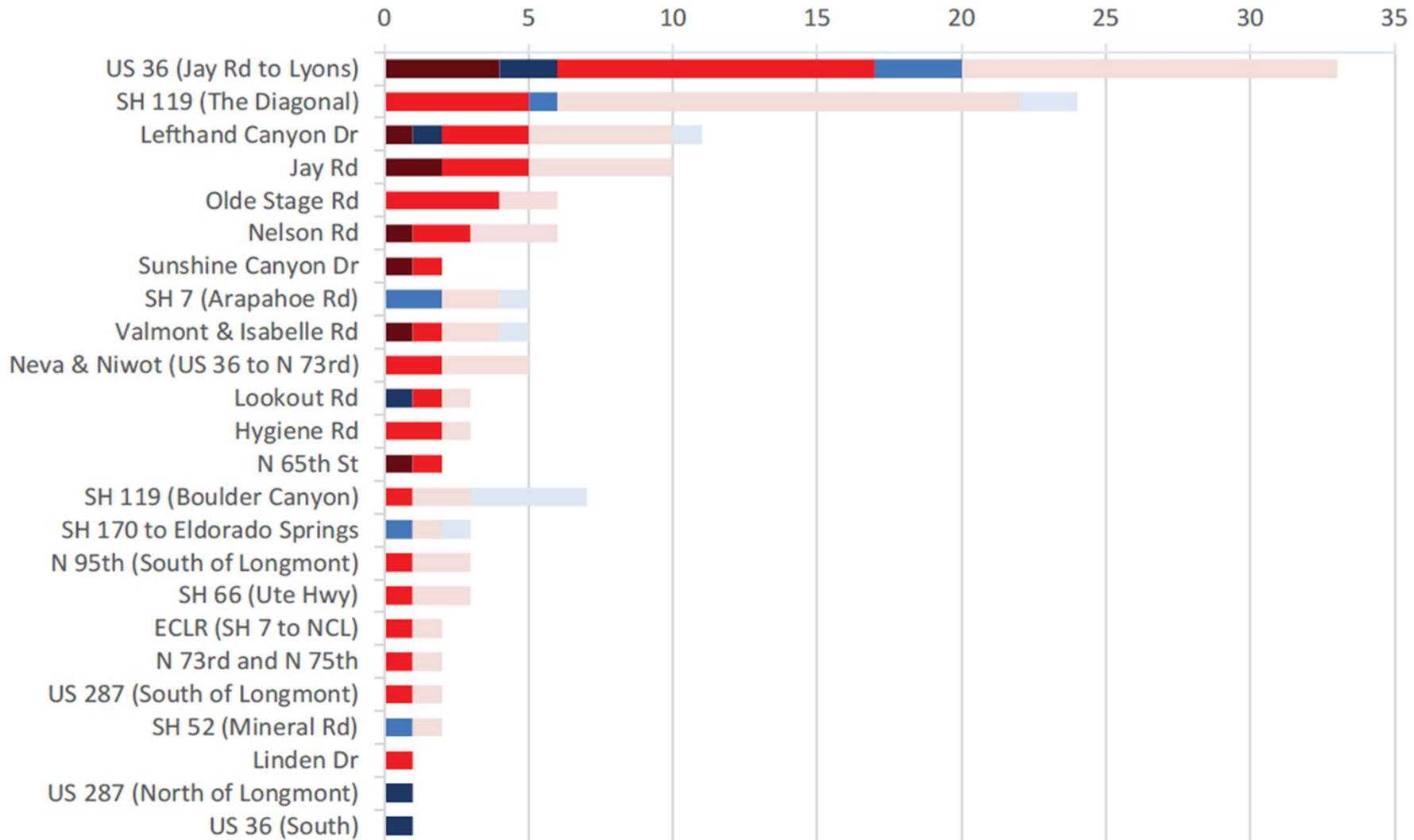
**Part 2: Vision Zero Action Plan**



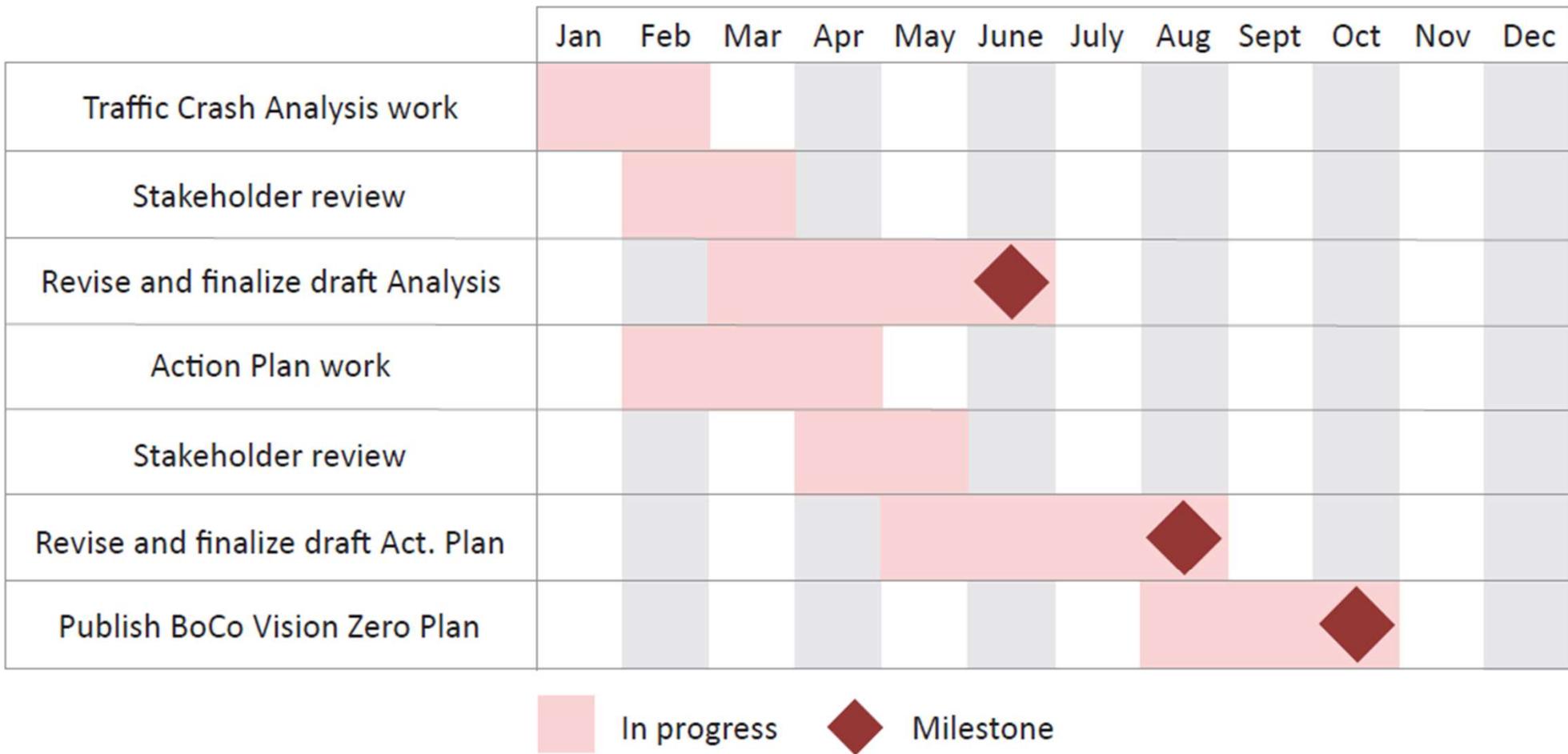
### All Crashes in Unincorporated Boulder County & Mtn. Towns, 2006-2018



## Bicycle & Pedestrian Crashes by Corridor in Unincorporated Boulder County and Mountain Towns, 2009-2018



# Boulder County Vision Zero Work Timeline for 2021



# Vision Zero Resources

The screenshot shows the Boulder County website's Vision Zero page. At the top is the Boulder County logo and a navigation menu with links for Property Search, Jobs, Volunteer, Elections, County Government, Departments, and Contact. Below the menu is a COVID-19 status banner indicating Level Yellow. The main heading is "Vision Zero". A central text box states: "Boulder County's Vision Zero goal: eliminate serious injuries and fatal traffic crashes in unincorporated Boulder County by 2035." Below this are two statistics as of February 26: 3 people died in traffic crashes in unincorporated Boulder County in 2021, and 1 person has died in traffic crashes in cities and towns in Boulder County in 2021. To the right is an image of a road with green bicycle lane markings. At the bottom, a paragraph explains the impact of traffic deaths and the need to reach the Vision Zero goal.

**Boulder County**

Property Search Jobs Volunteer Elections County Government Departments Contact Select Language

FAMILIES & ADULTS OPEN SPACE & RECREATION PROPERTY & LAND ROADS & TRANSPORTATION ENVIRONMENT & SUSTAINABILITY SAFETY & LAW LICENSES, PERMITS & RECORDS

**Vision Zero**

Boulder County's Vision Zero goal: eliminate serious injuries and fatal traffic crashes in unincorporated Boulder County by 2035.

As of February 26  
**3**  
people have died in traffic crashes in unincorporated Boulder County in 2021.

As of February 26  
**1**  
person has died in traffic crashes in cities and towns in Boulder County in 2021.

Traffic deaths have a permanent impact on those affected by the loss. We need to work together to reach our Vision Zero goal and prioritize safety for everyone traveling on our roads, whether they choose to walk, bike, ride transit, or drive.

[boco.org/visionzero](https://boco.org/visionzero)

The screenshot shows the Boulder County Crash Data map. The title is "Boulder County Crash Data". The map displays a geographic area of Boulder County with various roads and locations marked. A legend in the top right corner indicates that different colored dots represent different types of crashes: red for fatal, orange for serious injury, and green for non-serious injury. The map interface includes a search bar, navigation controls, and a scale bar. The map shows a high density of crash data points in the central and eastern parts of the county, particularly around the Boulder and Broomfield areas.

**Boulder County Crash Data**

Boulder County Public Works Home Page Questions or Comments

Find address or place

Legend

Map showing crash data points across Boulder County, including locations like Vrain Creek, Hall Ranch, and Broomfield.

[boco.org/crash-data-map](https://boco.org/crash-data-map)