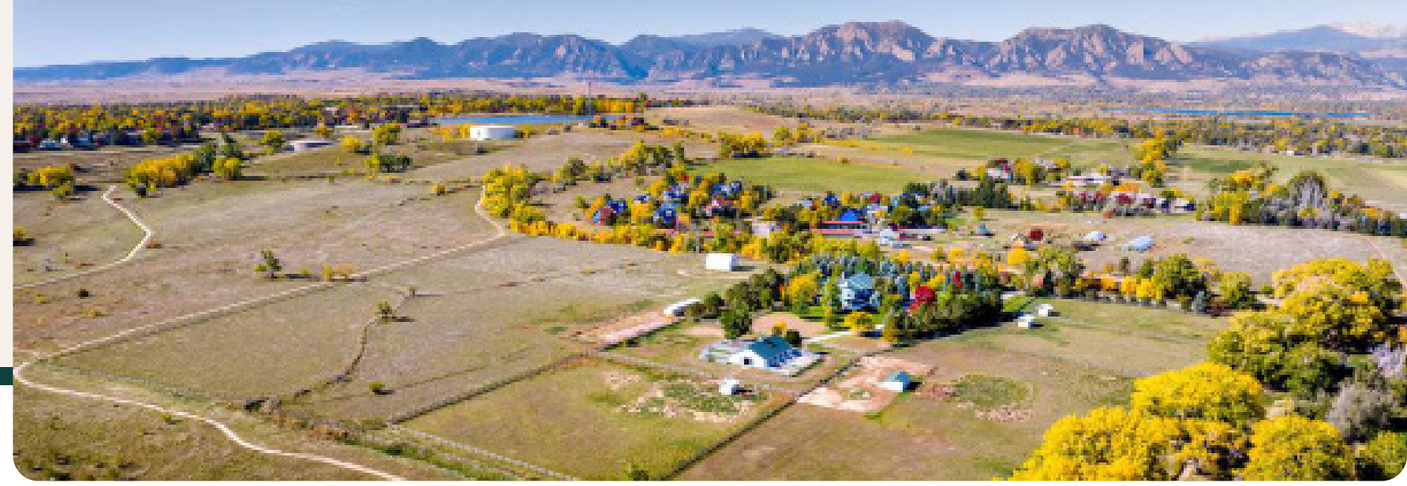
Executive Summary



Overview

Roadway safety continues to be a concern affecting those who travel within the study area. In 2023, Unincorporated Adams County and several partner agencies submitted a grant funding application to the Denver Regional Council of Governments (DRCOG) to complete a Comprehensive Safety Action Plan (CSAP). Successfully awarded, the county took the lead on the CSAP with participation from several partner agencies that are fully or partially within the county's boundary.

Each plan addresses the seven Safe Streets and Roads for All (SS4A) required components of a CSAP, ensuring eligibility for future federal implementation funding and establishing a comprehensive, action-oriented framework to reduce fatal and serious injury crashes.

Participating Agencies

Adams County, Colorado
Aurora
City of Arvada
Brighton
Commerce City
Federal Heights
City of Northglenn
Westminster, Colorado

15% **of the State of Colorado's total population will have safety addressed by these plans.**

Key Findings/Trends

Crash Data

Improving roadway safety within the entire project area was the cornerstone of this project, and the data clearly demonstrates the need for and importance of these action plans.

In addition to the five years of crash data (2018–2022) used for this analysis, a high-level review was conducted when 2023 and 2024 crash data became available. This review evaluated whether recent crash trends differed from the prior five-year period and whether any differences were significant enough to affect the project's recommendations. The results indicated that recent crash trends did not differ significantly from the prior five years.

KSI Crash Summary

Killed and Seriously Injured (KSI) crashes were prioritized because they represent the most severe crash type with the greatest safety benefit. Between 2018 and 2022 KSI crashes increased in most agencies within the study area, while total crashes generally decreased.

Legend

- Increasing
- Decreasing
- Flat

Agency	Annual KSI per 10,000	Bike/Ped KSI	2018-2022 Trend	KSI Trend
Arvada	3	20%	↓	↑
Aurora	7	15%	↓	↓
Brighton	6	10%	↓	↑
Commerce City	6	10%	↓	=
Federal Heights	6	20%	=	↑
Northglenn	5	10%	↓	=
Westminster	5	15%	↓	=
Unincorporated Adams County	12	15%	↓	↑

Summary of KSI Crash Types by Agency

A breakdown of KSI crash types by land use context illustrates how severe crash types vary based on the surrounding land use context, with bicycle and pedestrian-related crashes being the most common in urban designated areas and fixed object crashes being predominant on limited access highways.

Urban	Suburban	Rural	Limited Access Highway
Bike/Ped	Approach Turn	Fixed Object	Fixed Object
Broadside	Bike/Ped	Broadside	Rear End
Approach Turn	Fixed Object	Head On	Overturning
	Broadside	Overturning	

Total Crashes

92,772

KSI Crashes

2,888

Pedestrian or Bicycle Crashes

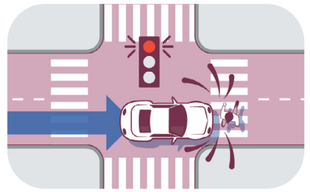
2,099

Crash Profiles

Crash profiles were developed for the project area by analyzing crash details. They reveal the major crash types that lead to KSI crashes. A total of 13 crash profiles were identified that collectively represent close to 90% of KSI crashes in the study area. Not all crash profiles are represented in each agencies' crash data.

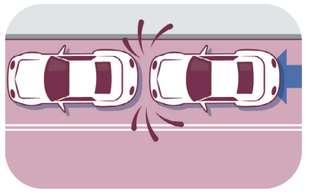
Urban/Suburban Lane Departure

Broadside or Left-Turn at Unsignalized Intersection

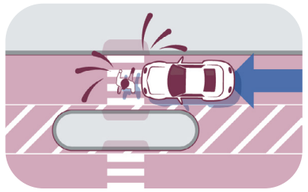


Red-Light Running

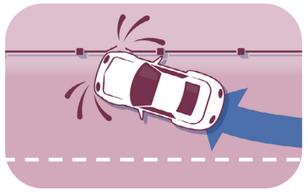
Left-Turn at Signalized Intersection



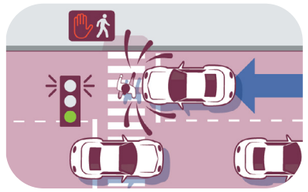
Rear End



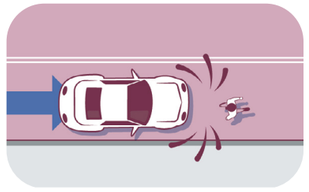
Pedestrian or Bicyclist Crossing Street at Unsignalized Location



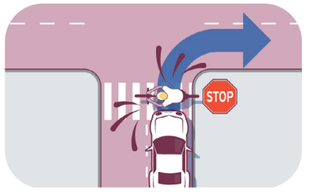
Rural Lane Departure



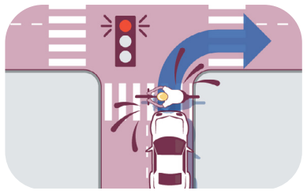
Pedestrian or Bicyclist Crossing Street against Signal



Pedestrian in Road

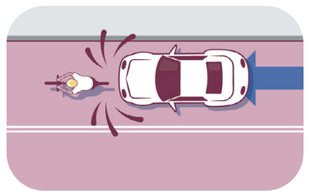


Right-Turn from Stop Sign into Pedestrian or Bicyclist



Right-Turn on Red

Right-Turn on Green into Pedestrian or Bicyclist on Parallel Crosswalk



Rear End into Bicyclist

Crash Profile	Total
Urban/Suburban Lane Departure	21%
Broadside or Left-Turn at Unsignalized Intersection	16%
Red-Light Running	14%
Left-Turn at Signalized Intersection	12%
Rear End	9%
Pedestrian or Bicyclist Crossing Street at Unsignalized Location	7%
Rural Lane Departure	6%
Pedestrian or Bicyclist Crossing Street against Signal	2%
Pedestrian in Road	1%
Right-Turn from Stop Sign into Pedestrian or Bicyclist	1%
Right-Turn on Red	<1%
Right-Turn on Green into Pedestrian or Bicyclist on Parallel Crosswalk	<1%
Rear End into Bicyclist	<1%
Unknown/Missing	2%
Total (excluding unknown/missing)	88%

Crash Profiles as a Percent of Total KSI Crashes by Area Type

Across agencies within the study area, roadway context and agency size vary widely, resulting in differences in the distribution of KSI crashes by crash profile. In Aurora, all 13 crash profiles are present and relatively evenly distributed across the top categories. In contrast, Federal Heights, a much smaller agency, has only 8 crash profiles, with left turn at signalized intersection representing 21% of KSI crashes in the city.

Urban/suburban lane departure is the top KSI crash profile for nearly all participating agencies. The primary exception is Federal Heights, where left-turn crashes at signalized intersections are most prevalent. In Aurora, urban/suburban lane departure crashes are tied with broadside and left-turn crashes at unsignalized intersections.

LOSS

Level of Service of Safety (LOSS) is a metric that compares roadway safety performance at similar intersections and on similar rural roadway segments. LOSS compares historic crash frequency and severity to expected crashes using a predictive analysis. When the crash history exceeds the expected crashes, the LOSS analysis indicates that the location has a greater opportunity for improving safety. As a starting point for identifying top intersections and rural segments, locations with a LOSS of III or IV were selected. The first number represents the number of locations with the identified LOSS for all crash severities and the second is based only on severe (fatal and serious injury) crashes.

Jurisdiction	LOSS IV Total / Severe	LOSS III or IV Total / Severe
Arvada	64 / 39	127 / 108
Aurora	339 / 361	614 / 660
Brighton	79 / 28	115 / 66
Commerce City	63 / 42	122 / 100
Federal Heights	14 / 10	21 / 25
Northglenn	22 / 11	61 / 39
Westminster	52 / 47	121 / 118
Unincorporated Adams County	118 / 92	215 / 205

Number of intersections with LOSS III and IV by Jurisdiction

High Risk Network (HRN)

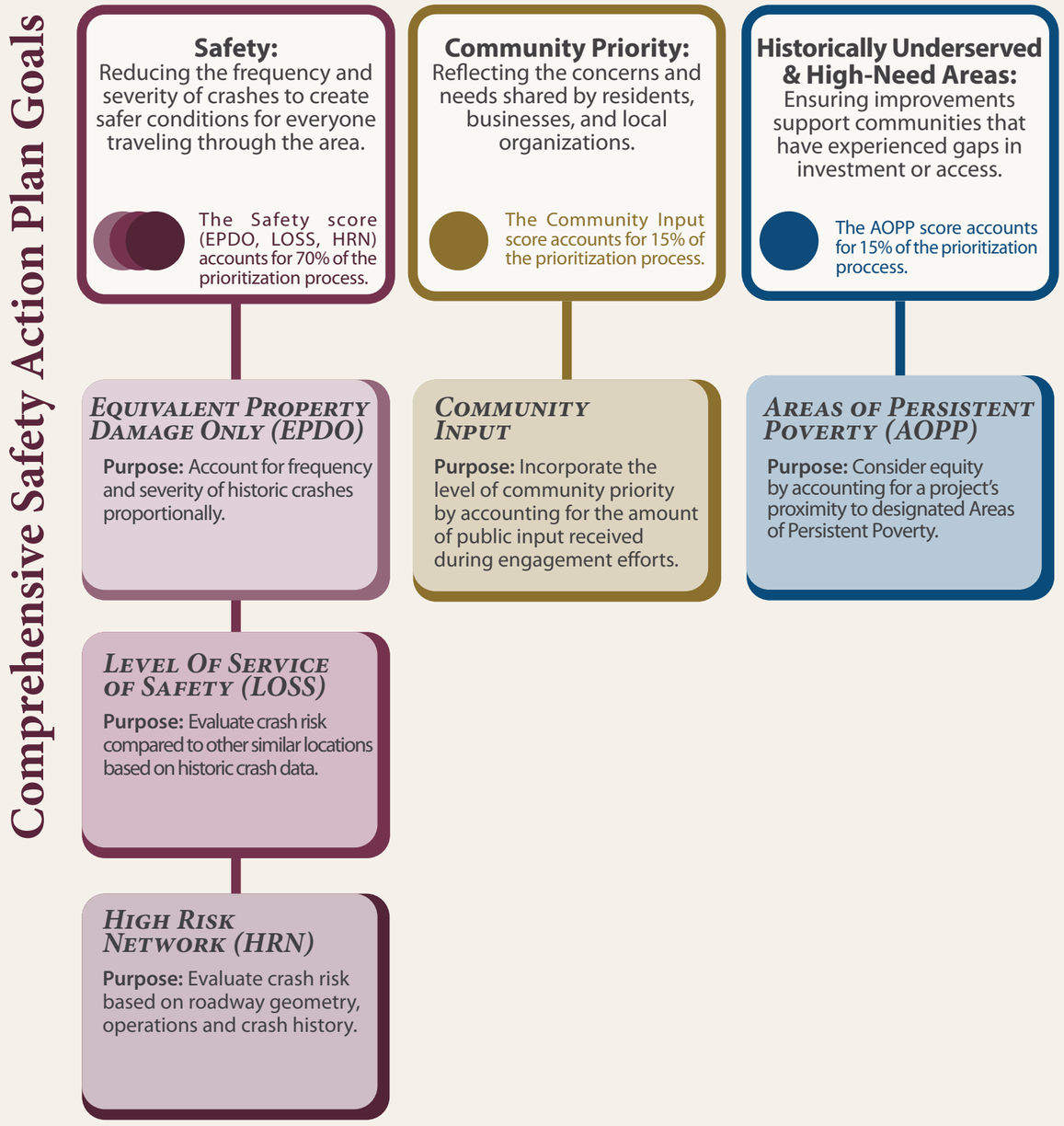
A high risk network was identified for each agency by first conducting a systemic analysis. Systemic analysis is a proactive approach that identifies roadway features associated with elevated crash risk by comparing crashes across the entire roadway network to crashes on road segments with specific characteristics. In systemic analysis some roadways could be identified as having high risk despite having no history of crashes. The HRN for each agency is based on the roadway segments with the highest systemic scores, and generally captures more than half of severe crashes, allowing agencies to focus investments where they will have the greatest impact.

Top Locations

As a result of the crash and systemic analysis, each agency was presented with a list of top intersections, corridors, and rural segments. While some agencies found that the rural segments were not applicable or relevant to their communities, Adams County and Brighton elected to move forward with identification of countermeasures and prioritization of rural segments in addition to the top intersections and corridors.

Project Prioritization

The top intersections, corridors, and rural segments (as applicable) were prioritized based on the goals of this CSAP.



Countermeasures

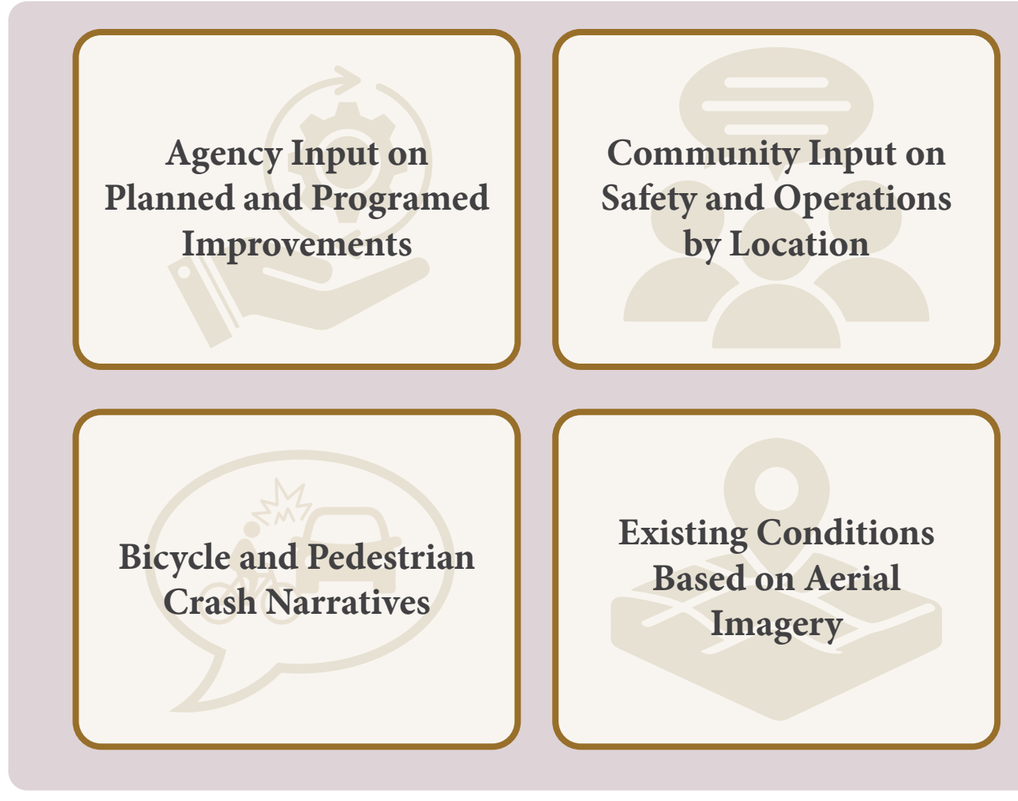
A list of safety countermeasures was shared with each of the participating agencies and refined based on each agencies' existing policies and processes. The countermeasures included systemic strategies that could be applied agencywide, and others that could be applied at specific locations where a need was identified.

Countermeasure Pairing

For each of the top locations, the following information was used to identify recommended countermeasures. While several countermeasures were identified for each location, the intent was for the agency to use this information to further evaluate the appropriate countermeasures based on funding, feasibility and other factors. In some cases, both an all-way stop and roundabout would be recommended. In these cases, the agency may choose to install an all-way stop in the short term while they secure funding for a future roundabout.

Following the countermeasure pairing exercise, high-level planning cost estimates were provided to agencies that selected priority design projects. The cost estimates were intended for use in identifying how much to request when applying for implementation grants.

Policy, Process, Design Guidance



For each of the participating agencies, relevant transportation planning documents and design standards were reviewed to identify revisions that could enhance multimodal safety and contribute to the reduction of serious injuries or fatalities. Additionally, strategies aligned with the Safe Systems Approach were shared. Each agency selected those they felt were applicable to their communities.

Implementation

Achieving meaningful and lasting safety improvements requires agencies to work together across jurisdictions, disciplines, and responsibilities. Traffic injuries and fatalities do not respect municipal boundaries, and agencies will need to share data, align priorities, and implement complementary strategies to create a more consistent and effective safety system for all road users. By working collaboratively, agencies can maximize limited resources, reduce duplication of efforts, and ensure that safety investments are targeted where they will have the greatest impact, supporting shared goals such as the Safe System Approach.

Adequate funding is critical to the successful implementation of this plan, with grants representing a key opportunity to advance safety projects. Agencies should regularly track available funding programs and pursue them either independently or in partnership with other agencies.

Plan Effectiveness

The following table shows proposed metrics for measuring plan effectiveness for each of these plans. Each agency will be responsible for selecting a final list of criteria that can be reviewed to provide a comparative analysis year over year.

Performance Measure	Description
Fatal Crashes	Total number of traffic fatalities.
Fatality Rate	Total number of fatal crashes per 100,000 residents.
Serious Injury Crashes	Total number of traffic related serious injuries.
Serious Injury Rate	Total number of serious injury crashes per 100,000 residents.
Pedestrian Fatalities and Serious Injuries	Total number of pedestrian fatalities and serious injuries.
Bicycle Fatalities and Serious Injuries	Total number of bicyclist fatalities and serious injuries.
Implemented Projects	Number of top projects or priority projects implemented.
Status of Strategy Recommendations	List showing status of Strategy Recommendations. (Complete, In Progress, Not Started)

Optional plan effectiveness metrics for agencies to select from.

Lessons Learned

Development of the CSAP provided several insights that can help inform future updates to the plan.

Maintaining comprehensive, high-quality crash and roadway data is critical for identifying priority intersections, corridors, and High Risk Networks (HRN).

The safety planning process should remain adaptable, refining methodologies and frameworks over time.

Future updates should consider integrating new or expanded data sources to enhance the accuracy and depth of safety assessments.

Effective data visualization helps decision-makers and the public better understand crash trends, project progress, and overall safety performance.

Enhancing the project dashboard can improve how safety data is tracked, visualized, and communicated.

The analytical methods and thresholds used (e.g., LOSS and HRN metrics) were based on current crash patterns and should be periodically reevaluated as new data becomes available.