

# Colorado Department of Transportation 2024 Problem Identification Executive Summary

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Prepared by Ian Danielson, Colorado Department of Public Health and Environment

<https://cdphe.colorado.gov/accessibility>

## Introduction

Motor vehicle crashes remain a leading cause of death in Colorado. The total number of motor vehicle fatalities increased from 691 deaths in 2021 to 764 deaths in 2022, an 11% increase. Emergent themes and statistics from this report are summarized in the bullet points below.

- Unrestrained vehicle occupants typically make up around 50% of all occupant motor vehicle fatalities. This number increased from 231 in 2021 to 241 in 2022, a 4% increase.
- Speeding is a major contributor to traffic deaths and is typically involved in 30-40% of crashes. In 2022, 291 (38% of all) fatalities involved speeding, up from 202 (29% of all) fatalities in 2021. From 2021 to 2022, speeding-related fatalities increased 31%. The five counties with the most speeding-related fatalities were Adams (36), El Paso (25), Denver (24), Arapahoe (22), and Pueblo (22).
- Alcohol-impaired driving has been steadily increasing since 2019, usually accounting for around one-third of traffic fatalities. An alcohol-impaired driver was involved in 260 fatalities in 2022, up from 214 in 2021, an 18% increase. The proportion of fatalities involving an alcohol-impaired driver increased from 31% in 2021 to 34% in 2022. The top five counties with the most impaired driving fatalities were Adams (29), Denver (29), El Paso (21), Arapahoe (19), and Jefferson (17).<sup>1</sup>
- Distracted driving is a key factor as well, despite being difficult to measure and likely underreported.
- The number of crashes in rural areas increased from 295 (43%) in 2021 to 299 (39%) in 2022, a 1% increase. However, the percentage of crashes in rural areas decreased from 43% to 39%.
- Males, particularly those aged 21-44, typically make up a disproportionately large proportion of traffic fatalities. This is also true for serious injuries.
- For counties with major population centers, Pueblo and Weld have the highest rates of motor vehicle crashes per 100,000 population. Further county-level data can be found in the following sections.

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<sup>1</sup> These impairment data from the National Highway Traffic Safety Administration's Fatal Accident Reporting System use an imputation algorithm for missing Blood Alcohol Level data. Data derived using this method may not be reliable at the county level.

The remainder of this report provides key statistics for Colorado motor vehicle safety in 2022, as well as trends in crash patterns over time. These data were retrieved from the National Highway Traffic Safety Administration's Fatal Accident Reporting System and Colorado's Behavioral and Engineering Safety Data for Transportation (BESDT) data system.

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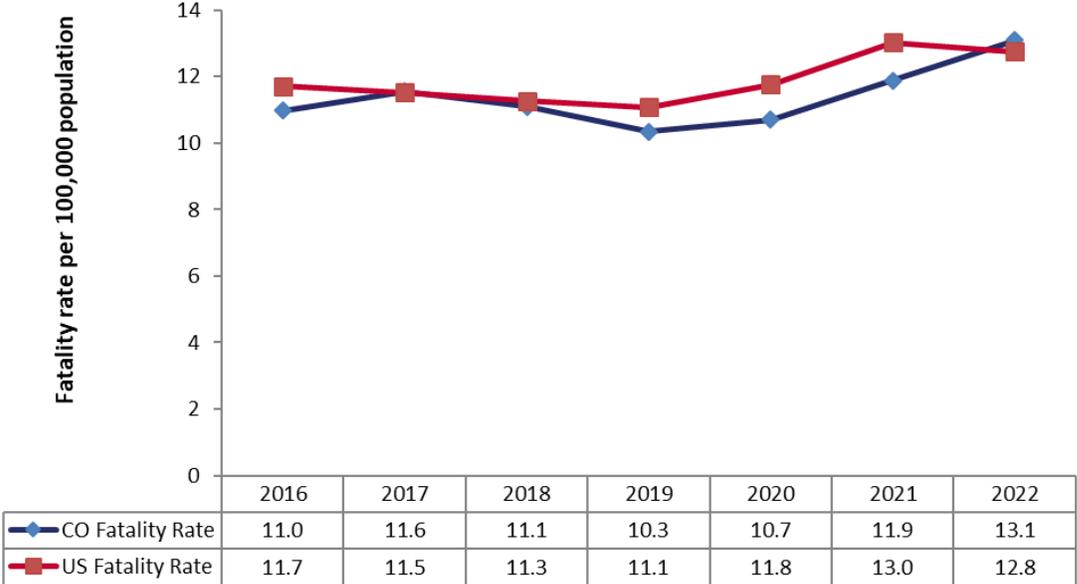
## Motor Vehicle Fatalities

Motor vehicle crashes remain a leading cause of death in Colorado, the total number of motor vehicle fatalities increased by 10% from the previous year, from 691 deaths in 2021 to 764 deaths in 2022.

Figure 1 shows motor vehicle fatalities in Colorado and the United States from 2016-2022. This graph suggests that:

- Motor vehicle fatality rates in the US and Colorado increased from 2019 to 2021.
- The US fatality rate remained relatively stable from 2021 to 2022, while Colorado's rate continued to increase steadily, peaking at 13.1 fatalities per 100,000 persons in 2022 (764 fatalities total).

Figure 1. Motor Vehicle Fatality Rates in Colorado and the United States, 2016-2022



Source: FARS

Figure 2 displays the age and gender of the people who died due to a motor vehicle crash in 2022.

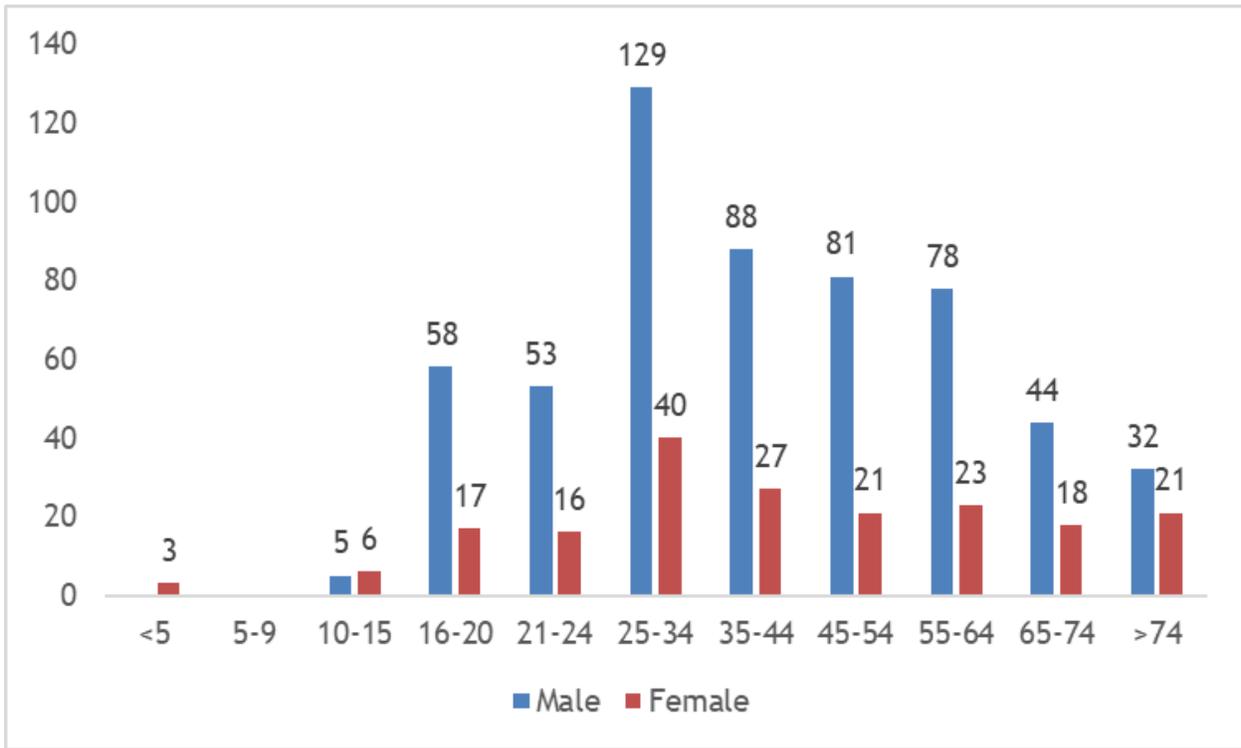
- The 25-34 year old age group had the highest number of fatalities in 2022, with 169 fatalities in 2022.
- More than 3 times more men than women were killed in motor vehicle crashes within the 25-34 year old age group.
- Among all age groups combined, males made up approximately 75% of fatalities.
- Indeed, 270 males died in motor vehicle crashes in 2022 in the 21-44 age group alone, compared to a total of 194 fatalities among females across all age groups<sup>2</sup>.
- Men are more likely to engage in risky driving behaviors, including not using seat belts, driving while impaired, and speeding. Injuries in crashes involving male vehicle operators are also more severe than those involving female vehicle operators<sup>3</sup>.

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<sup>2</sup> While men do typically drive more miles than women, the difference between fatalities between men and women is greater than the difference between the two groups in terms of vehicle miles traveled.

<sup>3</sup> US Department of Transportation Fatality Analysis Reporting System. Fatality Facts 2020. May 2020.

Figure 2. Motor vehicle fatalities by age group and sex, 2022 <sup>4</sup>



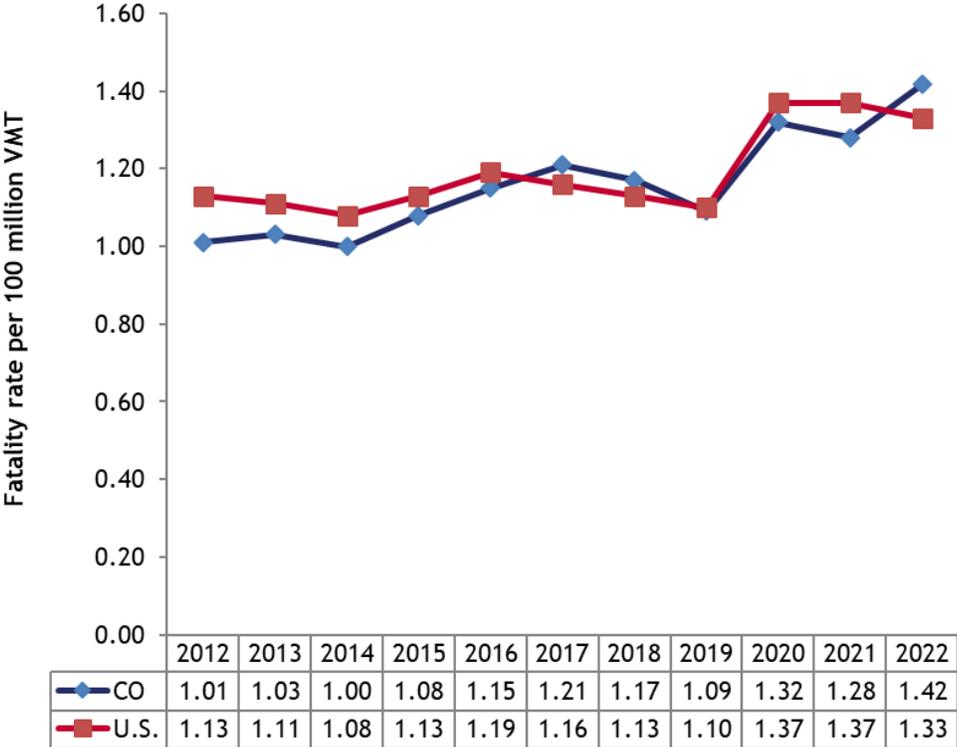
Fatalities per 100 Million Vehicle Miles Traveled

Figure 3 shows the rate of fatalities per 100 million VMT for Colorado and the United States.

- In 2022, Colorado had 1.42 fatalities per 100 million VMT, while the US had 1.33 fatalities per 100,000 VMT.
- With the exception of 2017 and 2018, Colorado’s fatality rate per 100 million VMT has typically been the same or lower than the US, but in 2022 this trend reversed, with an 11% increase in Colorado and a 3% decrease nationally.

<sup>4</sup> Counts below 3 are suppressed in this graph

Figure 3. Fatalities per 100 million vehicle miles traveled (VMT) in Colorado and in the United States, 2012-2022



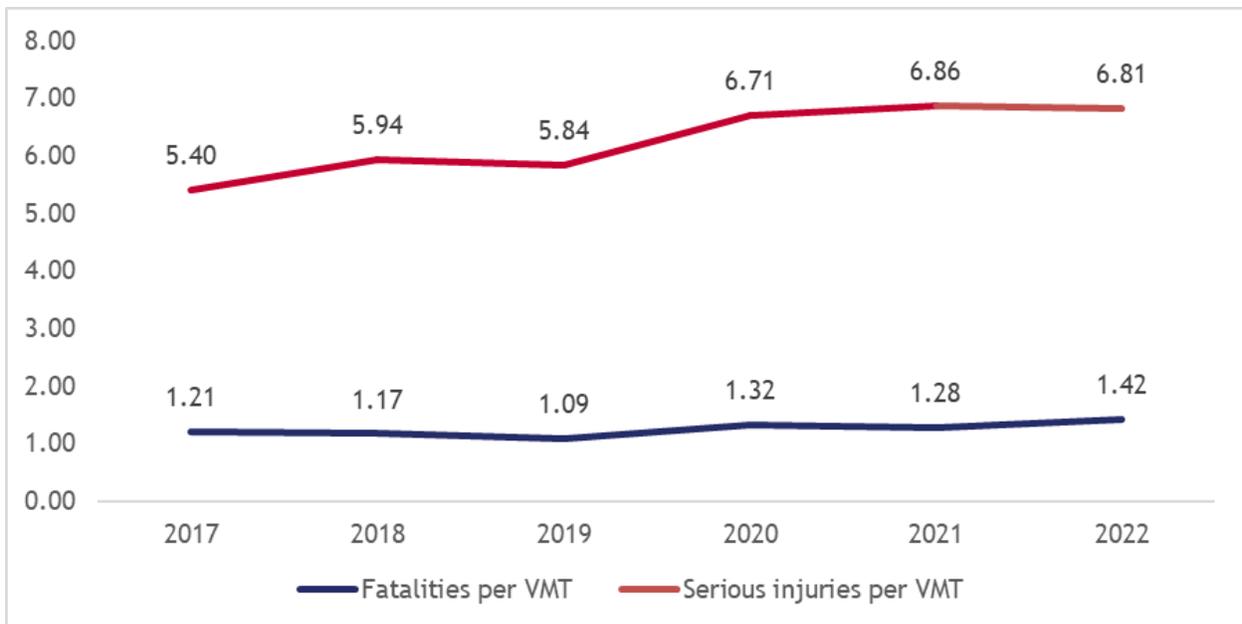
Source: FARS and USDOT FHWA

## Serious Injuries and Traffic Crashes

Figure 4 reflects the fatality rate per 100 million VMT vehicle miles traveled compared to the rate of serious injuries per 100 million VMT in Colorado over time.

- There were 3,674 serious injuries<sup>5</sup> resulting from traffic crashes in Colorado in 2022.
- The rate of serious injuries per 100 million VMT has increased by 26% over the last six years.
- Colorado has seen a steady increase in serious injuries per 100 million VMT from 2017-2021, compared to smaller changes in fatalities per 100 million VMT. However, in 2022 this trend began to reverse, with a decrease in the serious injury rate and an increase in the fatality rate.

Figure 4. Fatalities and serious injuries per 100 million vehicle miles traveled, 2017-2021



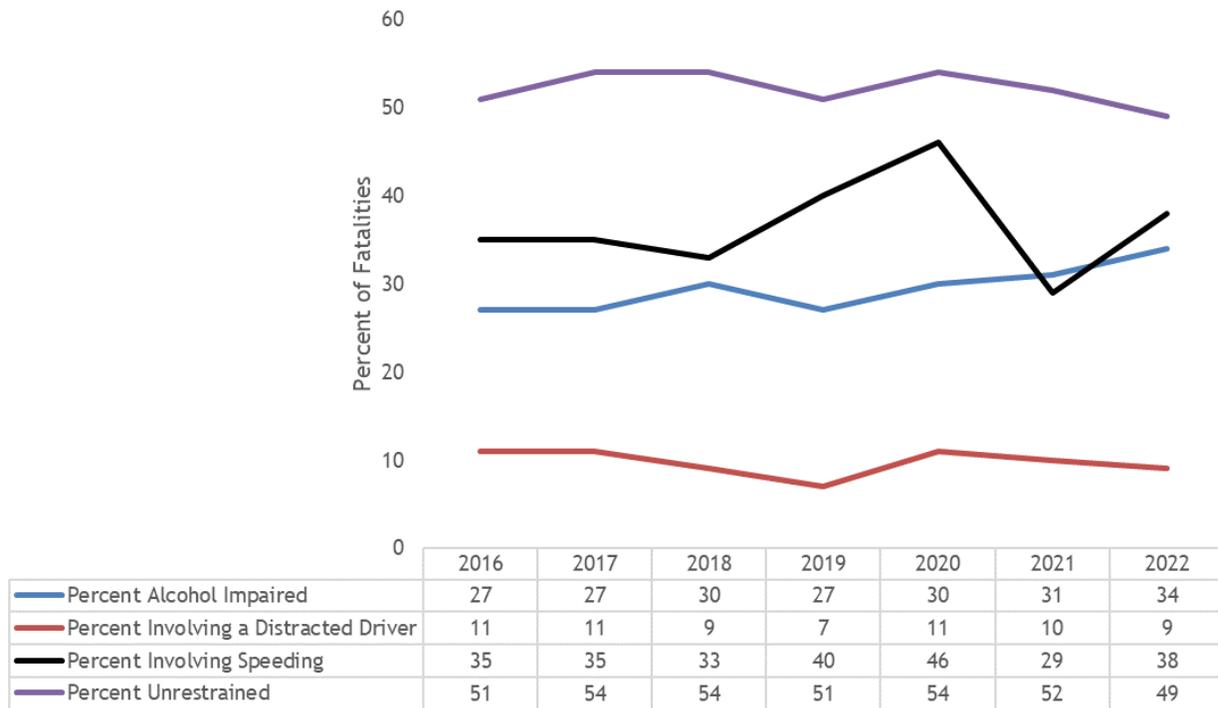
<sup>5</sup> In this report, serious injury is defined as “evident incapacitating” on the crash report by the responding law enforcement officer. An incapacitating injury is a type of injury that prevents the person from walking, driving, or continuing the normal activities they were previously capable of performing prior to being injured.

## Major Contributing Factors

Figure 5 displays the percent of crashes involving each of 4 major contributing factors to motor vehicle crashes: lack of restraint use (not wearing a seatbelt), speeding, alcohol impairment, and distracted driving.

- Lack of appropriate restraint use is typically a contributing factor in around 50% of motor vehicle fatalities in Colorado. From 2021 to 2022, the proportion of unrestrained fatalities decreased from 52% to 49%.
- Speeding is typically a contributing factor in around 35-46% of fatalities. The proportion of speeding-related fatalities increased to 38% after a drastic decline in 2021.
- Alcohol impairment of a vehicle operator is involved in 27-34% of fatalities. The proportion of alcohol-involved fatalities has increased steadily, from 27% in 2019 to 34% in 2022.
- A distracted driver is involved in around 7-11% of fatalities. Distracted driving fatalities have remained relatively stable, but due to difficulties in measurement, it is difficult to draw strong conclusions from distracted driving data at this time.
- These contributing factors often overlap, creating a complex tapestry of causation for motor vehicle crashes.

Figure 5. Major contributing factors to motor vehicle fatalities in Colorado 2016-2022



## Motorcycle Safety

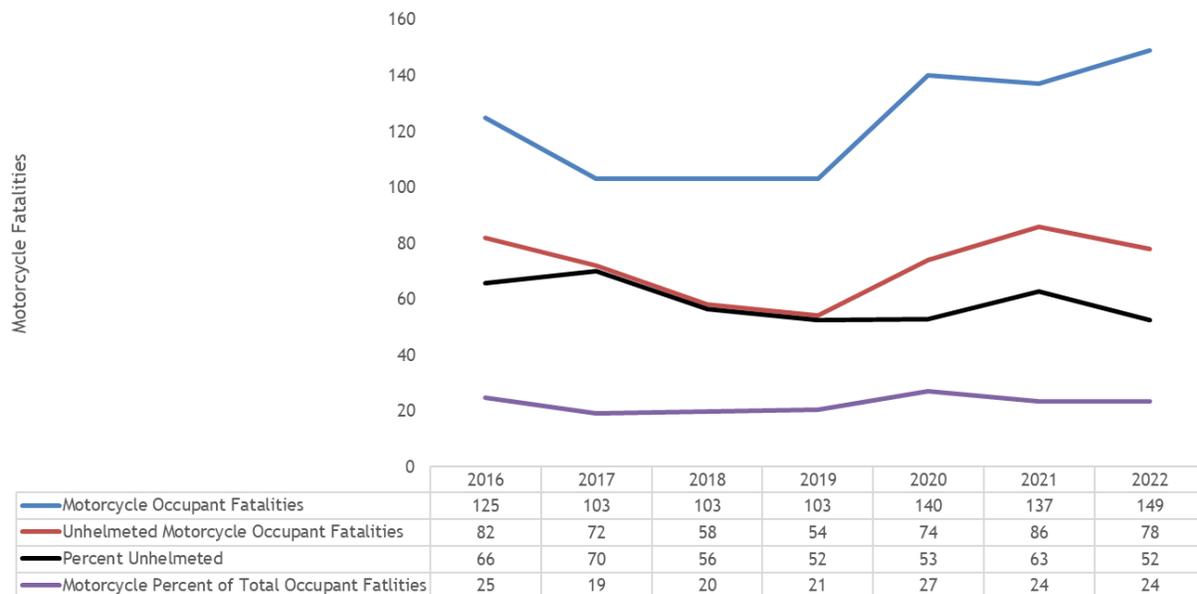
Figure 6 shows motorcycle fatalities from 2016-2022. Motorcycles represent a small percentage of vehicles on the road (2-3% nationally<sup>6</sup>), but motorcycle occupants make up around 25% of motor vehicle fatalities annually in Colorado.

- Motorcycle fatalities increased from 137 in 2021 to 149 in 2022, while the percentage of fatally injured motorcycle occupants who were unhelmeted decreased to 52 percent. In other words, more motorcycle occupants were killed in crashes in 2022 than in 2021, despite more of them wearing helmets when they crashed.

<sup>6</sup> National Center for Statistics and Analysis. (2022, May). Motorcycles: 2020 data (Traffic Safety Facts. Report No. DOT HS 813 306). National Highway Traffic Safety Administration.

- In 2022, 24% of fatally injured occupants were riding motorcycles when they crashed, the same as in 2021. However, this rate is still above pre-pandemic levels.

Figure 6. Motorcycle fatalities and helmet use, Colorado, 2016-2021



## Pedestrian Safety

Figure 7 shows the rate of pedestrian fatalities per 100,000 persons for 2016-2022.

- In 2022, 108 pedestrians died from a motor vehicle collision, compared to 87 in 2021, a 24% increase.
- These pedestrian fatalities accounted for 14% of all 764 motor vehicle fatalities in 2022, compared to 13% in 2021.
- The pedestrian fatality rate in Colorado has steadily increased since 2019.

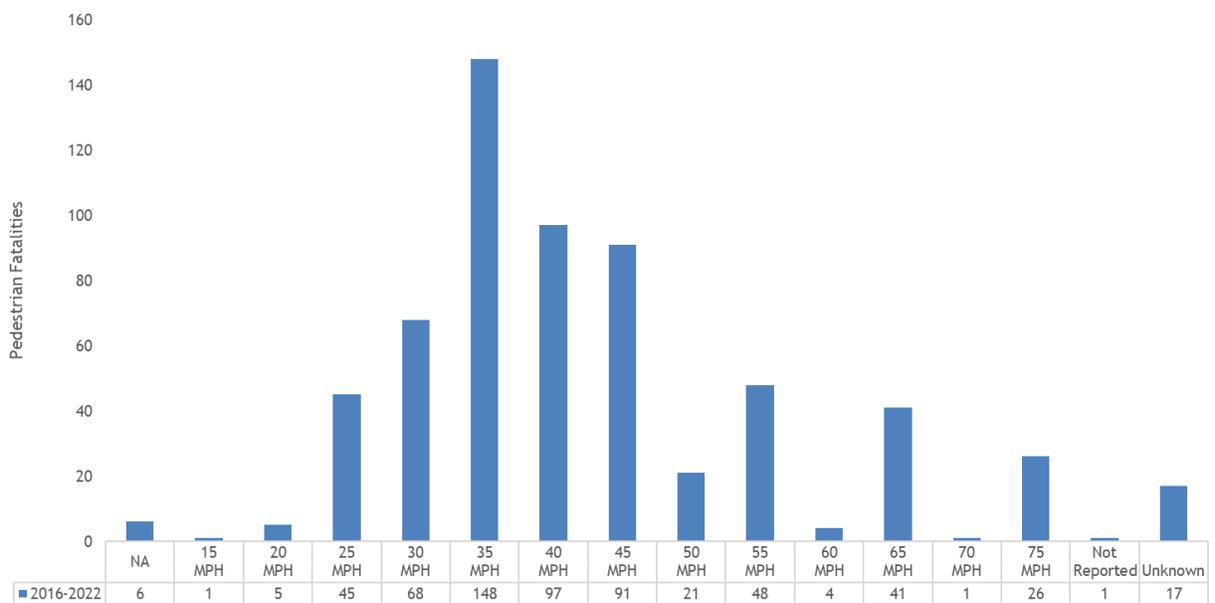
Figure 7. Pedestrian fatalities per 100,000 population



Figure 8 shows the posted speed limits on roads where pedestrians were killed from 2016-2022.

- Pedestrians were fatally injured most commonly on roads with a speed limit of 35 miles per hour between 2016 and 2022.
- Over half of pedestrian fatalities occurred on roadways with speed limits between 35 and 45 miles per hour between 2016 and 2022.

Figure 8. Pedestrian fatalities by posted speed limit

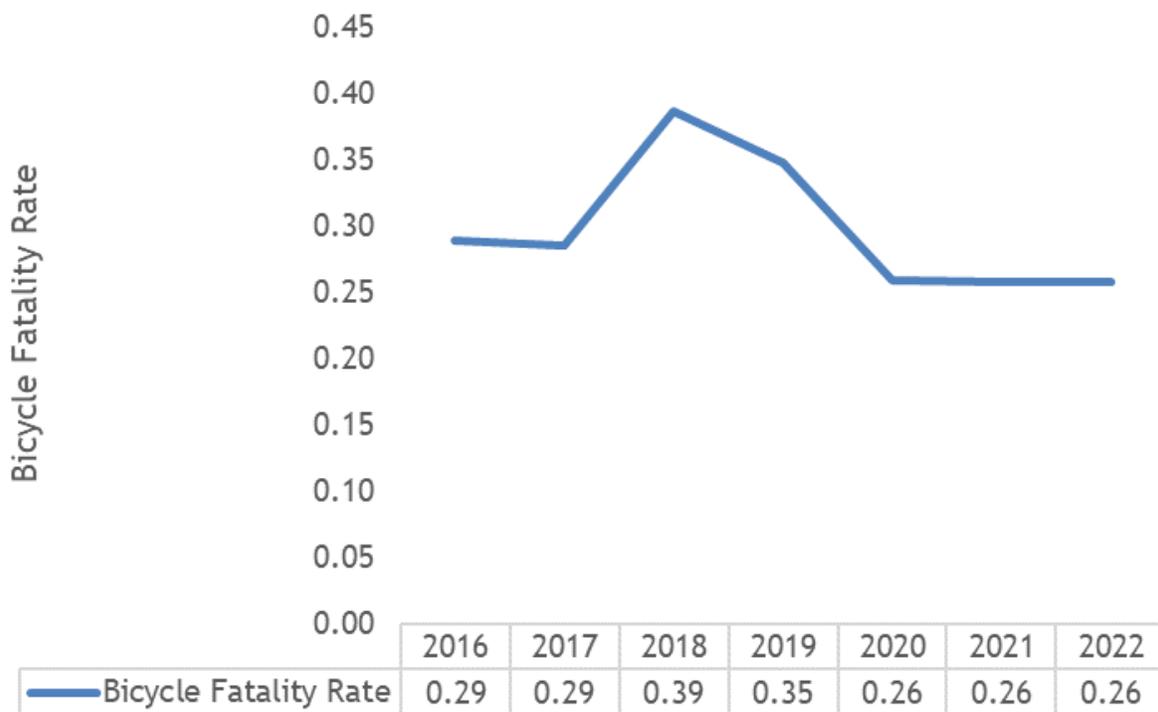


## Bicycle Safety

Figure 9 shows the bicycle fatality rate per 100,000 persons in Colorado for 2016-2022.

- After spiking in 2018 and 2019, the bicycle fatality rate in Colorado has remained steady, with 15 deaths each year from 2020 to 2022.
- From 2020-2022, the bicycle fatality rate has stayed below pre-pandemic levels

Figure 9. Bicycle fatalities per 100,000 population, 2017-2021



## Fatalities by County

Colorado counties vary in size and other properties, making direct comparisons difficult. For this reason, the following analyses group counties into three categories: smaller counties with less than 20,000 people, medium-sized counties with populations of between 20,000 and 100,000 people, and larger counties with populations greater than 100,000 people.

Figure 10 shows average fatality rates for 2020-2022 for the top 12 smaller (under 20,000 people) counties. For smaller counties, fatality rates vary tremendously from year to year due to small fluctuations in the numbers of fatalities, making direct comparisons and rankings inconsistent. Additionally, relatively low numbers of fatalities lead to fatality rates orders of magnitude larger than those observed in medium and larger counties. Therefore, smaller county fatality rates should be interpreted with caution.

- Mineral and Cheyenne counties had the highest fatality rates of smaller counties.
- These fatality rates represent relatively low numbers of fatalities (less than 15 for each county over 3 years).
- These counties are all defined as rural or frontier according to the United States Census Bureau's definitions.

Figure 10. Fatality rate for smaller counties per 100,000 population, 2020-2022

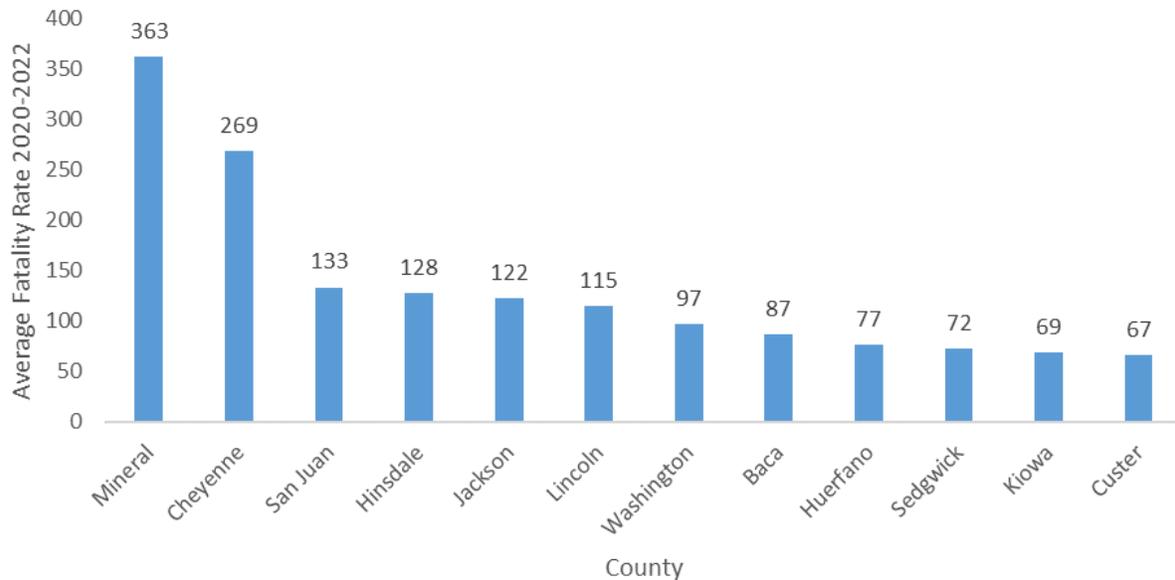


Figure 11 shows medium-sized counties ranked in order of fatality rate per 100,000 population. These estimates are more stable than those for smaller counties, and as such stronger conclusions can be drawn about how these counties compare relative to one another.

- Morgan and Montezuma counties stand out amongst medium-sized counties, with fatality rates of 35 and 30 per 100,000 population, respectively.
- These rates represent 31 fatalities across 2020-2022 for Morgan County and 24 fatalities for Montezuma County across 2020-2022.

Figure 11. Fatality rate for medium-sized counties per 100,000 population, 2020-2022

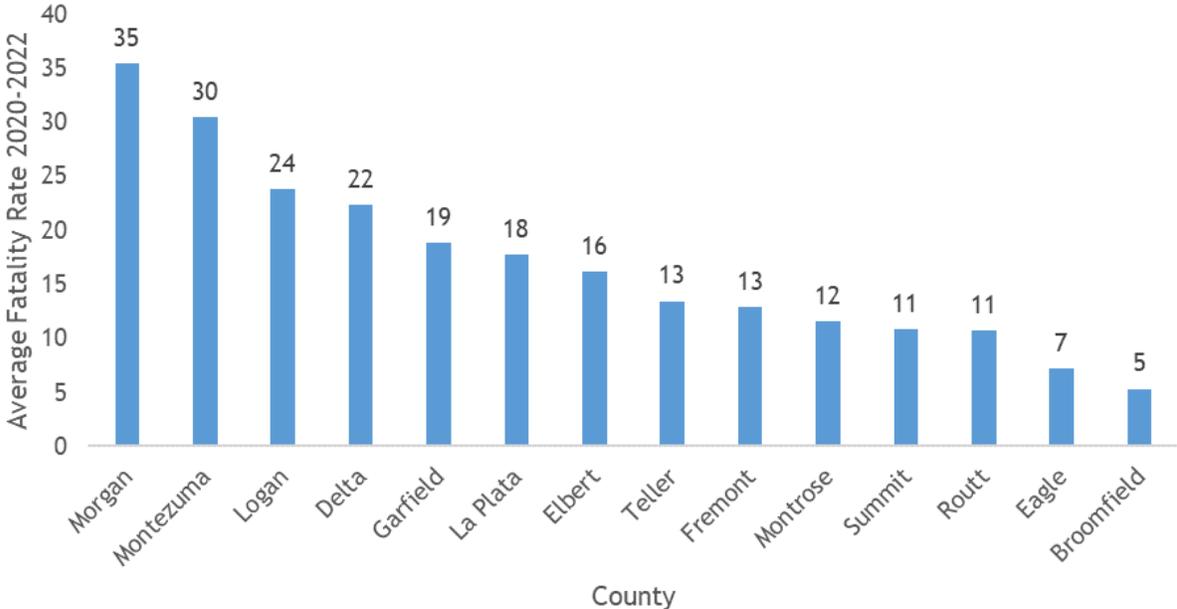
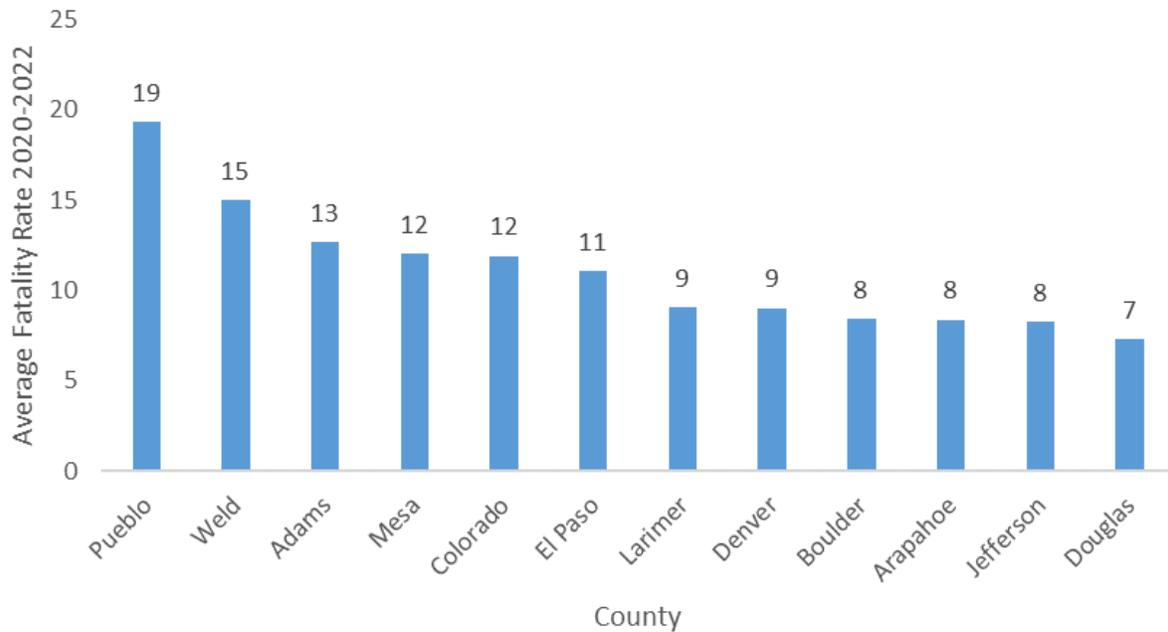


Figure 12 displays average fatality rates for larger counties for 2020-2022. Larger counties have the most stable fatality rates from year to year, allowing for strong conclusions to be made about how compared to one another in terms of traffic safety.

- Pueblo stands out from other counties with 19 fatalities per 100,000 population from 2020-2022.

Figure 12. Fatality rate per 100,000 population in larger counties, 2020-2022



## Conclusion

The goal of the Safe Systems Approach in Colorado is to eliminate motor vehicle fatalities and serious injuries. Based on the data presented here, efforts are still needed to reduce these occurrences in Colorado communities. The information provided in this report can help traffic safety and injury prevention professionals at the state and local levels to address modifiable driving behaviors to improve traffic safety. Policy-makers, community organizations, and individuals should use information from this report to identify where and how to focus prevention efforts.