

# GUNNISON COUNTY

## COMPREHENSIVE SAFETY ACTION PLAN

Prepared for:

Gunnison County

Town of Crested Butte

City of Gunnison



FEHR & PEERS

*Image of the roads and buildings on and surrounding Elk Avenue in the Town of Crested Butte in winter*

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*Image of the Gunnison County Combined Courts Building and Gunnison City in summer.*

# ACKNOWLEDGMENTS

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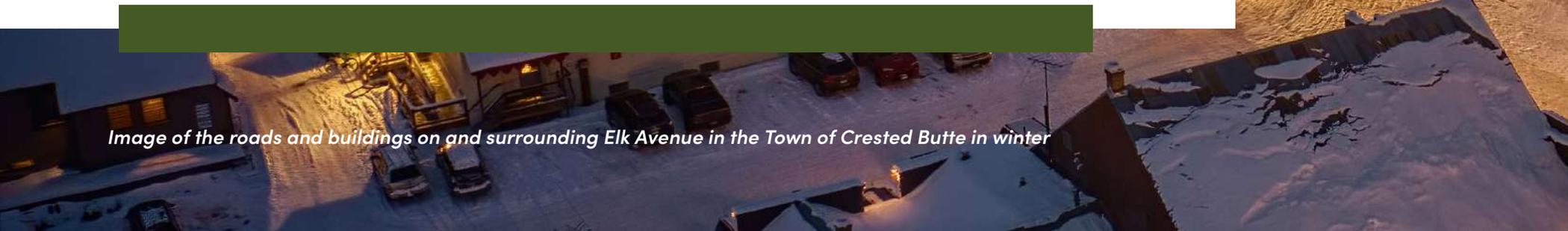
Fiona Dunn



CHAPTER 1

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# EXECUTIVE SUMMARY



*Image of the roads and buildings on and surrounding Elk Avenue in the Town of Crested Butte in winter*



The **EXECUTIVE SUMMARY** provides a concise summary of this Plan's development, analysis, findings, and recommendations to improve traffic safety in Gunnison County.

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# 1. EXECUTIVE SUMMARY

The Gunnison County Comprehensive Safety Action Plan (CSAP) aims to improve traffic safety outcomes in Gunnison County, Colorado. The CSAP will serve as a guide for infrastructure investment in the county, and as a foundation for pursuing grant funding for implementing roadway improvements to address location-specific and systemic safety issues.

In addition to making countywide recommendations, the CSAP provides more detailed analysis and recommendations for Colorado State Highway 135 (CO 135) between US Highway 50 in the City of Gunnison and Elk Avenue in Crested Butte. CO 135 is Gunnison County’s primary commuter corridor, it has a high rate of crashes, and is critical to the Gunnison County economy. These recommendations were developed following an analysis of crash trends on CO 135, bolstered by community input and stakeholder engagement.

The Federal Highway Administration’s Safe System approach served as a guiding framework in developing the CSAP. Within the five Safe System elements, the Gunnison County CSAP aimed to address the following:



**Safe Roads:** Recommended countermeasures are intended to alert all users to and accommodate for potential hazards posed by Gunnison County’s rural setting and harsh climate

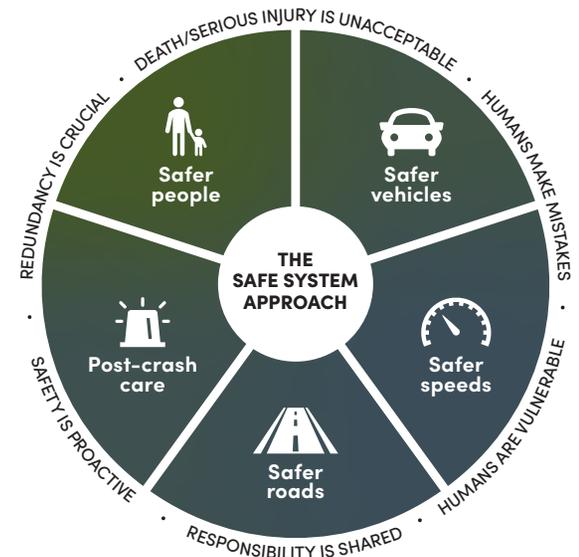


**Safe Speeds:** Recommended countermeasures are intended to reduce vehicle speeds at known conflict points on County roads, reducing the severity and likelihood of severe crashes throughout Gunnison County



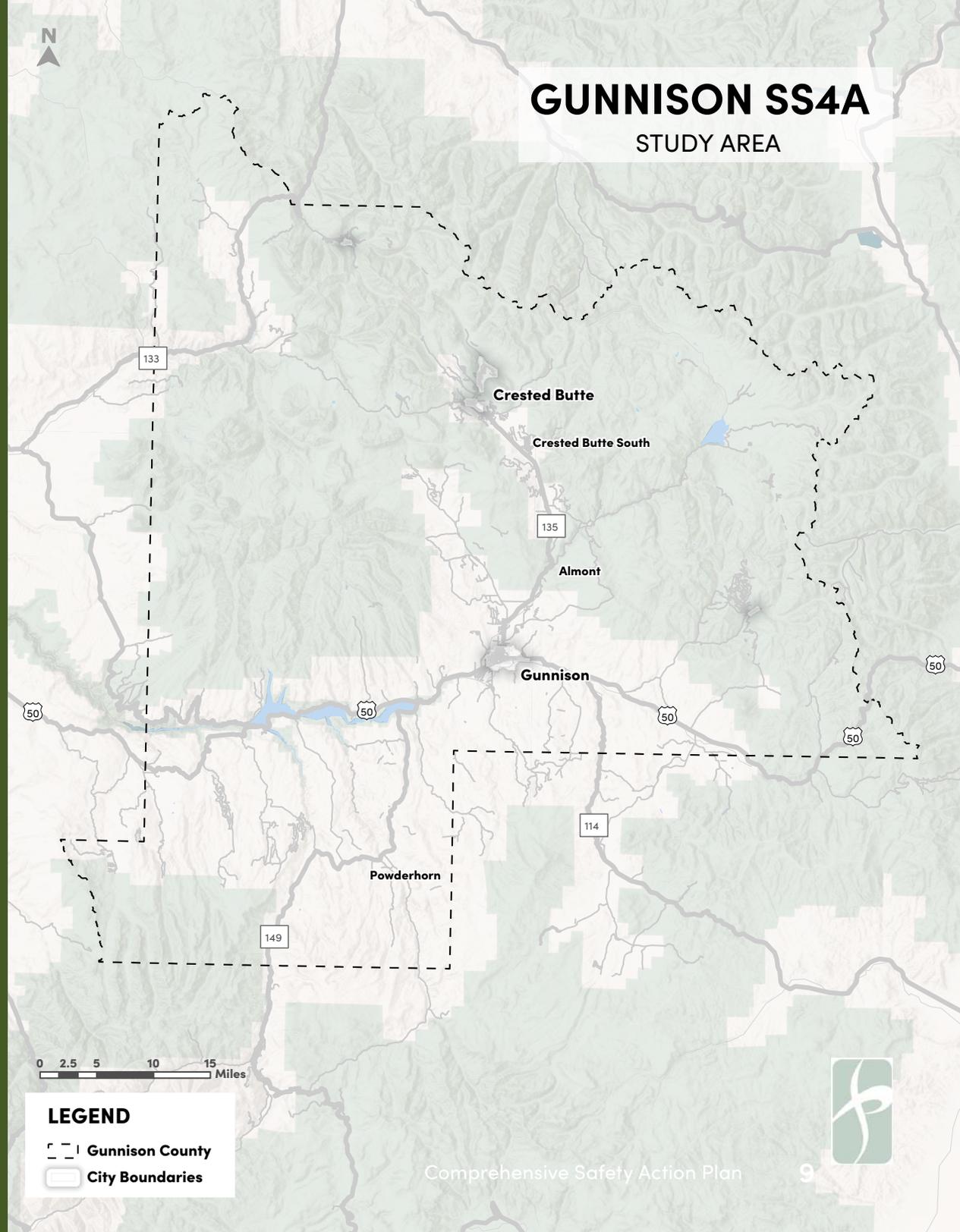
**Post-Crash Care:** Collaboration with Gunnison County first responders led the inclusion of recommended improvements in radio communications through much of the most rural parts of Gunnison County, enabling more immediate post-crash response

Referring to the Safe System approach as the CSAP is revised following refreshed data analyses and implementation of improvements throughout Gunnison County will ensure consistent progress towards the shared goal of reducing fatal and severe injury crashes on roads through the County.



Development of the CSAP was led by Gunnison County, in partnership with the City of Gunnison and the Town of Crested Butte. The study area is shown in **Figure 1**.

**Figure 1: Study Area**



# GUNNISON SS4A

## STUDY AREA

### LEGEND

- Gunnison County
- City Boundaries

## 1. EXECUTIVE SUMMARY

### 1.1 Project Introduction

Between January 1, 2018 and December 31, 2022, the five most recent years of crash history from the Colorado Department of Transportation (CDOT), there were 1,499 crashes countywide and 264 crashes on the CO 135 corridor. Countywide, 26 people were killed in 22 crashes and 250 people were severely injured in 191 crashes. On the CO 135 corridor, four people were killed in 3 crashes and 72 people were severely injured in 36 crashes.

### 1.2 Crash History, 2018-2022

A summary of reported crashes countywide by severity by year is shown in **Figure 2**.

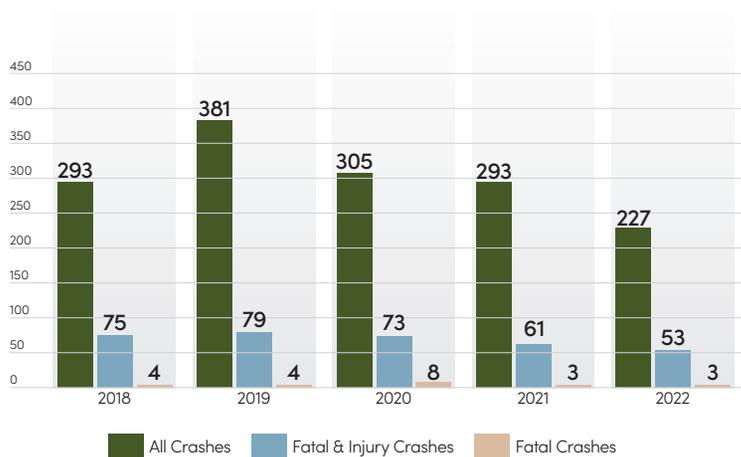


Figure 2: Countywide Crashes by Year

A summary of reported crashes on CO 135 by severity by year is shown in **Figure 3**.

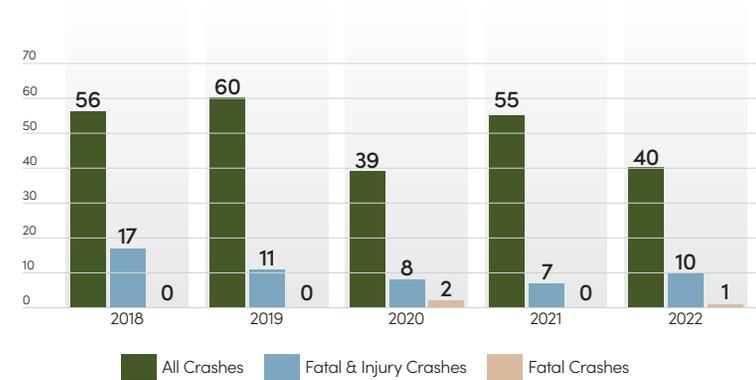


Figure 3: CO 135 Crashes by Year

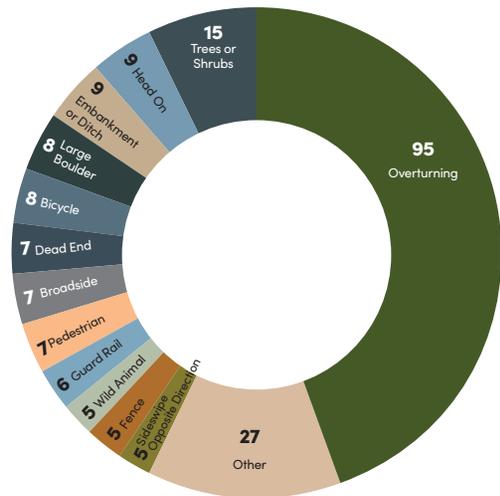
While it is difficult to extract trends from five years of data that included the COVID-19 pandemic, the number of fatal and injury crashes in Gunnison County and on CO 135 remains stubbornly high.

In reviewing trends from the most recent ten years of data, total crashes by year are decreasing on average, whereas fatal and severe injury crashes are increasing. Most crashes on an annual basis are “property damage only” with no injuries involved.



# 1.3 Types

Countywide, the top five crash types are: wild animal (291), overturning (272), parked motor vehicle (121), rear end (110), and broadside (106). However, when isolating for crashes that resulted in a severe injury or fatality, 184 (86%) occurred at non-intersection locations and 29 (14%) occurred at intersections (including driveways). **Figure 4** shows the types of severe injury and fatal crashes countywide. Grouping together severe injury and fatal non-intersection crashes that resulted from departing the travel lane (either to the left or to the right), 163 (77%) of 213 severe injury and fatal crashes are lane departure crashes. Implementing countermeasures to address intersection crashes and lane departure crashes is critical to reducing the total number of severe injury and fatal crashes.



**Figure 4: Countywide Severe Injury and Fatal Crashes by Type, 2018-2022**

These countywide trends generally align with the severe injury and fatal crash types on CO 135. **Figure 5** shows the

types of severe injury and fatal crashes on CO 135. Lane departure crashes are a top crash type for the corridor, as well as broadside (intersection-related) crashes, and crashes involving pedestrians or bicyclists.



**Figure 5: CO 135 Severe Injury and Fatal Crashes by Type, 2018-2022**



## 1. EXECUTIVE SUMMARY

### 1.4 Systemic Factors

This plan completed an analysis of systemic safety factors on CO 135; however, these systemic factors are likely applicable on roads countywide.

Several factors are common to crashes on CO 135. Among crashes possibly related to weather, more roadway departures occurred in snowy conditions (19), whereas broadside crashes occurred at higher rates in foggy conditions (22). Speeding was a potential contributing factor in 29

crashes, although that is potentially underreported owing to drivers' role in admitting to speeding, and driving under the influence of drugs or alcohol was suspected in 11 crashes. Inexperienced drivers were cited as a contributing factor in 30 crashes. Pedestrians were involved in four crashes, concentrated at the northern and southern ends of the corridor, and bicyclists were involved in two crashes.



*Image of CO 135 in Gunnison north of downtown*

# 1.5 Recommendations

This plan recommends systemically implementing countermeasures countywide, prioritizing those that address speed management, lane departure crashes, and intersection crashes, specifically:



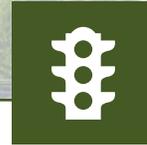
### Speed management:

- Variable speed limits
- Variable message signs



### Lane departure:

- Warning signs and markers
- Shoulders
- Rumble strips
- Guardrail
- Lighting



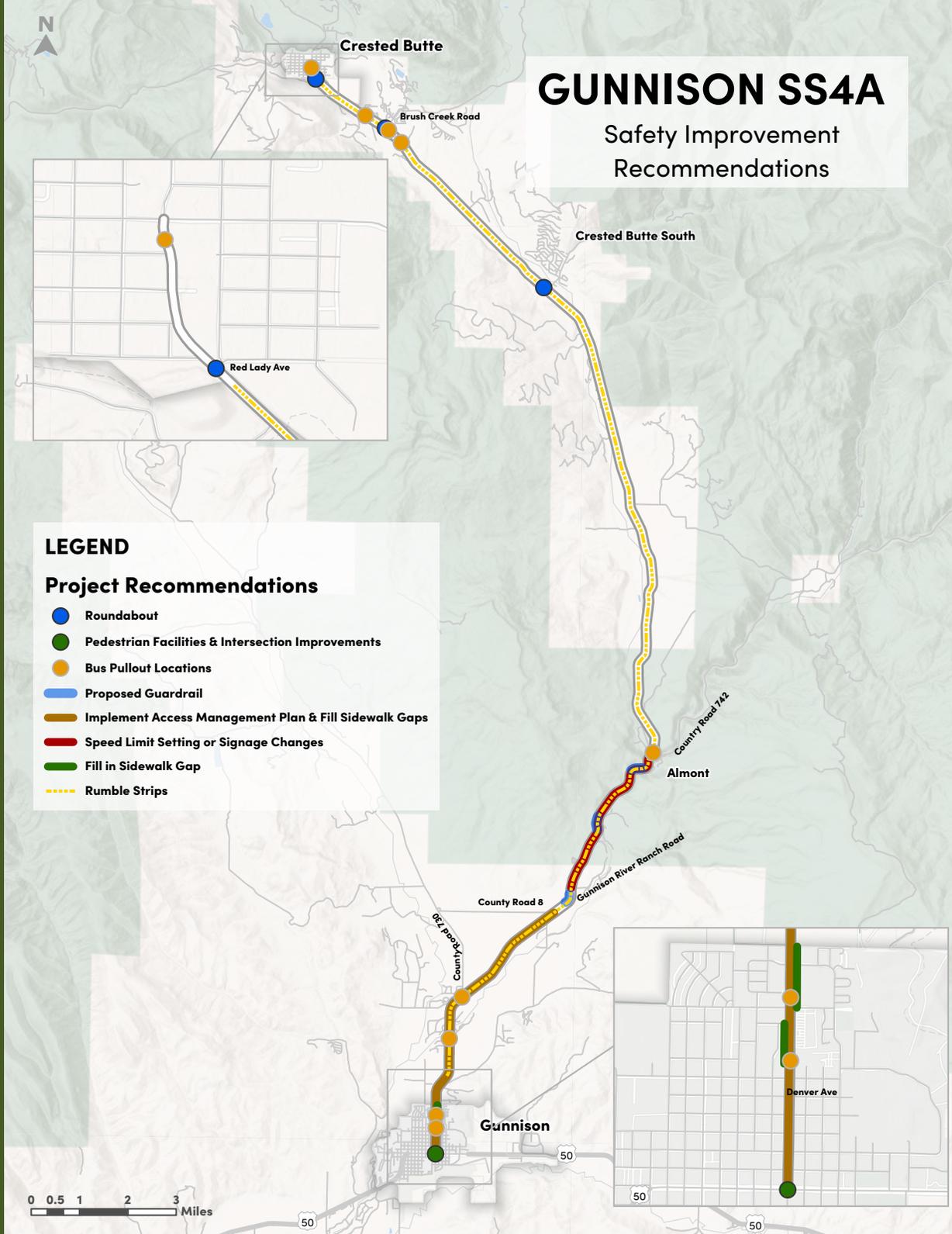
### Intersection:

- Lighting
- Roundabouts
- Increased sight distance
- Auxiliary lanes
- Left-turn operations (at traffic signals)
- Leading Pedestrian Intervals (at traffic signals)

# 1. EXECUTIVE SUMMARY

On CO 135, improvements are proposed throughout the corridor as well as at five key locations to improve conditions for all users. Proposed corridor-wide improvements include center and edge-line rumble strips, which are known to reduce both head-on and roadway departure crashes. Location-specific improvements are proposed at the intersection of US 50 / CO 135, and at the intersections of CO 135 and Cement Creek Road, Brush Creek Road, and Red Lady Avenue, with overarching goals of reducing vehicle speeds and improving multimodal facilities, and reducing side-street delay while preserving CO 135 as a critical regional connection. The full suite of proposed improvements on CO 135 is shown in **Figure 6**.

*Figure 6: CO 135 Proposed Improvements*



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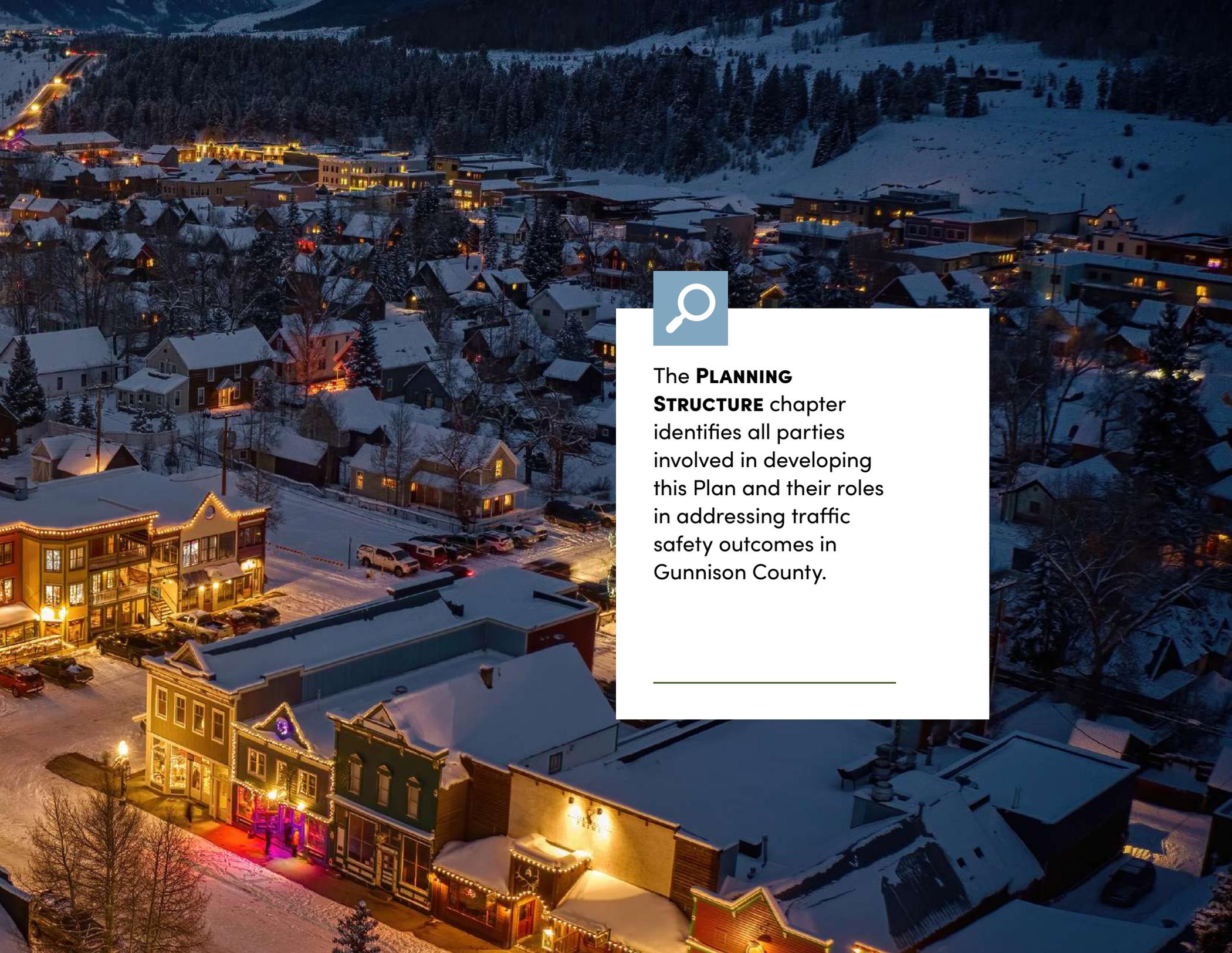
## CHAPTER 2

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# PLANNING STRUCTURE



*Image of the roads and buildings on and surrounding Elk Avenue in the Town of Crested Butte in winter*



The **PLANNING STRUCTURE** chapter identifies all parties involved in developing this Plan and their roles in addressing traffic safety outcomes in Gunnison County.

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# 2. PLANNING STRUCTURE

The Gunnison County Comprehensive Safety Action Plan (CSAP) was developed in partnership with Gunnison County, the City of Gunnison, and the Town of Crested Butte. Gunnison County served the lead agency in applying for planning funds and managing the work that followed. At the outset of this planning effort, a steering committee was established with representation from Gunnison County, Town of Crested Butte, and City of Gunnison staff as members, meeting on a biweekly basis to ensure progress. Each entity is briefly described below.



## 2.1 Gunnison County

Represented by Martin Schmidt, Assistant County Manager for Public Works, Gunnison County has a population of 16,920 and is predominantly rural in nature. Amongst its countywide responsibilities, Gunnison County's jurisdiction includes the unincorporated lands between the City of Gunnison and the Town of Crested Butte, including the unincorporated Crested Butte South development.



## 2.2 Town of Crested Butte

Represented by Troy Russ, Community Development Director, Crested Butte is a small, urban town with a population of 1,640. Known as a destination for year-round recreation, it sits at the northern end of CO 135 and the Gunnison Valley and functions as the economic center of the north valley.



## 2.3 City of Gunnison

Represented by Anton Sinkewich, Community Development Director, the City of Gunnison has a population of 6,560 and is the county seat for Gunnison County. Home to the largest share of the County's population, it is the commercial and administrative core of Gunnison County. Additionally, Gunnison County is the site of regionally significant infrastructure in terms of a regional airport, hospital, Western Colorado University, and a variety of commercial outlets.



## 2.4 Colorado Department of Transportation

The Colorado Department of Transportation (CDOT) is an essential partner in addressing safety concerns in Gunnison County and on CO 135. CDOT participated in the project kick-off and has been updated as planning has progressed to ensure development of potential improvements for CO 135 complies with CDOT standards.

## 2.5 Local Stakeholders

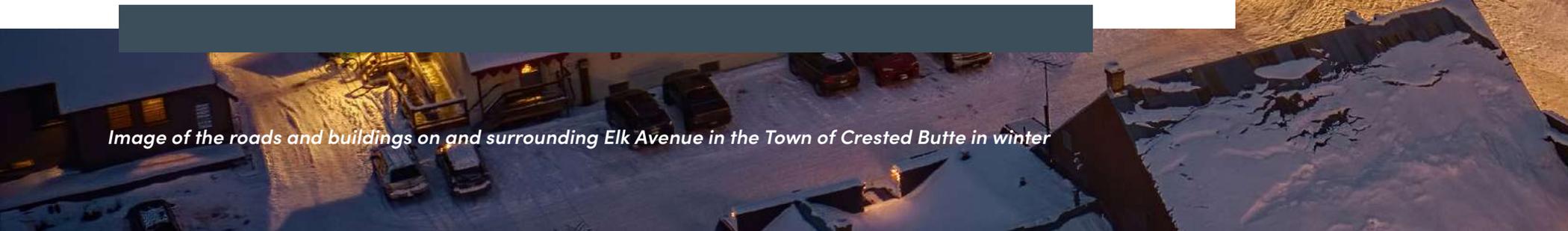
In addition to stakeholder groups engaged through focus groups as described later in this plan, members of the project steering have been updating local entities as the project has progressed, ensuring broader awareness of planning efforts among County, City, and Town staff.



CHAPTER 3

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# COUNTYWIDE SAFETY ANALYSIS



*Image of the roads and buildings on and surrounding Elk Avenue in the Town of Crested Butte in winter*



The **COUNTYWIDE SAFETY ANALYSIS** presents an assessment of traffic and traffic safety conditions in Gunnison County, providing context for more focused targeted interventions.

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# 3. COUNTYWIDE SAFETY ANALYSIS

## 3.1 Community-wide Context

Gunnison County is a largely rural, mountainous county in southwestern Colorado. Several rivers and creeks formed the geography of Gunnison County including the Gunnison River, Tomichi Creek, Ohio Creek, East River, Taylor River, and Cochetopa Creek. The larger roads in the county travel through the valleys formed by these rivers and creeks. Outside of the valleys, mountain passes connect to communities within and adjacent to Gunnison County. The county's variation in topography is significant: the county low point on the Gunnison River is at approximately 5,900 feet whereas the high point is over 14,000 feet at Castle Peak. Gunnison County experiences an extreme range of temperatures: the record high and low temperatures are 104 degrees and -47 degrees, respectively.

Gunnison County's population is approximately 16,920 (2020 Decennial Census). There are three incorporated cities and towns in Gunnison County:

- **The City of Gunnison**, population 6,560
- **The Town of Crested Butte**, population 1,640
- **The Town of Mount Crested Butte**, population 940

These three cities and towns are all off the CO 135 corridor that connects Gunnison to Crested Butte to Mount Crested Butte. Combining the population of these cities and towns with residents of the unincorporated county between them, most of the county's population lives off the CO 135 corridor.

Tourism is a significant driver of the Gunnison County economy. Crested Butte Mountain Resort is an internationally renowned ski destination in the winter and early spring months. The county is also a tourist destination in the summer and fall months for camping, hiking, mountain biking, rafting, fishing, and hunting.



*Image of a woman fly fishing*

## 3.2 Countywide Transportation Conditions

There are seven state highways in Gunnison County managed by the Colorado Department of Transportation:

- **US 50** travels east–west through southern Gunnison County, from Montrose west of Gunnison County, through the City of Gunnison, to Salida east of Gunnison County. Its Average Annual Daily Traffic (AADT) ranges from 2,400 vehicles per day at the Chaffee County border to 12,000 vehicles per day in the City of Gunnison.
- **CO 92** travels east–west within Gunnison County, connecting the Gunnison River at the Blue Mesa Dam to the west county limits. CO 92 does not connect to any major population centers in Gunnison County. Its AADT is approximately 500 vehicles per day.
- **CO 114** travels north–south within Gunnison County, connecting US 50 east of the City of Gunnison with the north end of the San Luis Valley. CO 114 does not connect to any major population centers in Gunnison County. Its AADT is approximately 400 vehicles per day.
- **CO 133** travels north–south within the northwest corner of Gunnison County, from Hotchkiss in Delta County to Carbondale in Garfield County. Its AADT ranges from 1,000 to 1,400 vehicles per day.
- **CO 135** travels north–south from the City of Gunnison to the towns of Crested Butte and Mount Crested Butte. Its AADT ranges from 3,900 vehicles per day near Almont to 10,000 vehicles per day in the City of Gunnison.
- **CO 149** travels north–south in Gunnison County, connecting the Gunnison River at the Lake City Bridge to the south county limits. CO 149 connects Powderhorn, an unincorporated community, to US 50. Its AADT ranges from 700 to 1,000 vehicles per day.
- **CO 306**, Cottonwood Pass Road, travels east–west in Gunnison County, connecting County Road 742 to Buena Vista east of Gunnison County. It is closed in winter months. AADT information is not available for CO 306.

Beyond the state highways, there are county roads in the unincorporated county and city and town streets in Gunnison, Crested Butte, and Mount Crested Butte. Higher-trafficked County roads are paved; however, many miles of county roads are unpaved where traffic volumes are low. City and town streets are almost always paved and are generally lower in classification and serve local trips.

### 3.3 Countywide Crash Data

Recorded crashes in Gunnison County were accessed via DiExSys Vision Zero Suite, which includes crashes on state highways attributed to the milepost. Off state highways, crashes are geocoded based on the major/minor streets where possible; however, not all crashes have the necessary data for this geocoding.

The crashes used in mapping and analysis presented in this study occurred within the most recent five-year period available, which is January 1st, 2018 to December 31st, 2022. Additionally, the data only captures reported crashes; if a crash occurred but was not reported to local police or other authorities, there is no record of it in Vision Zero Suite.

During the five-year analysis period, there were 1,499 crashes in Gunnison County. The highest density of crashes (regardless of mode or the occurrence of injury) was on the two busiest state highways: US 50 and CO 135:

- US 50 near Blue Mesa Reservoir, in the City of Gunnison, and approaching Monarch Pass
- US 135 in Gunnison, near Almont, and approaching Crested Butte

A heat map of all crashes is shown in **Figure 7**.

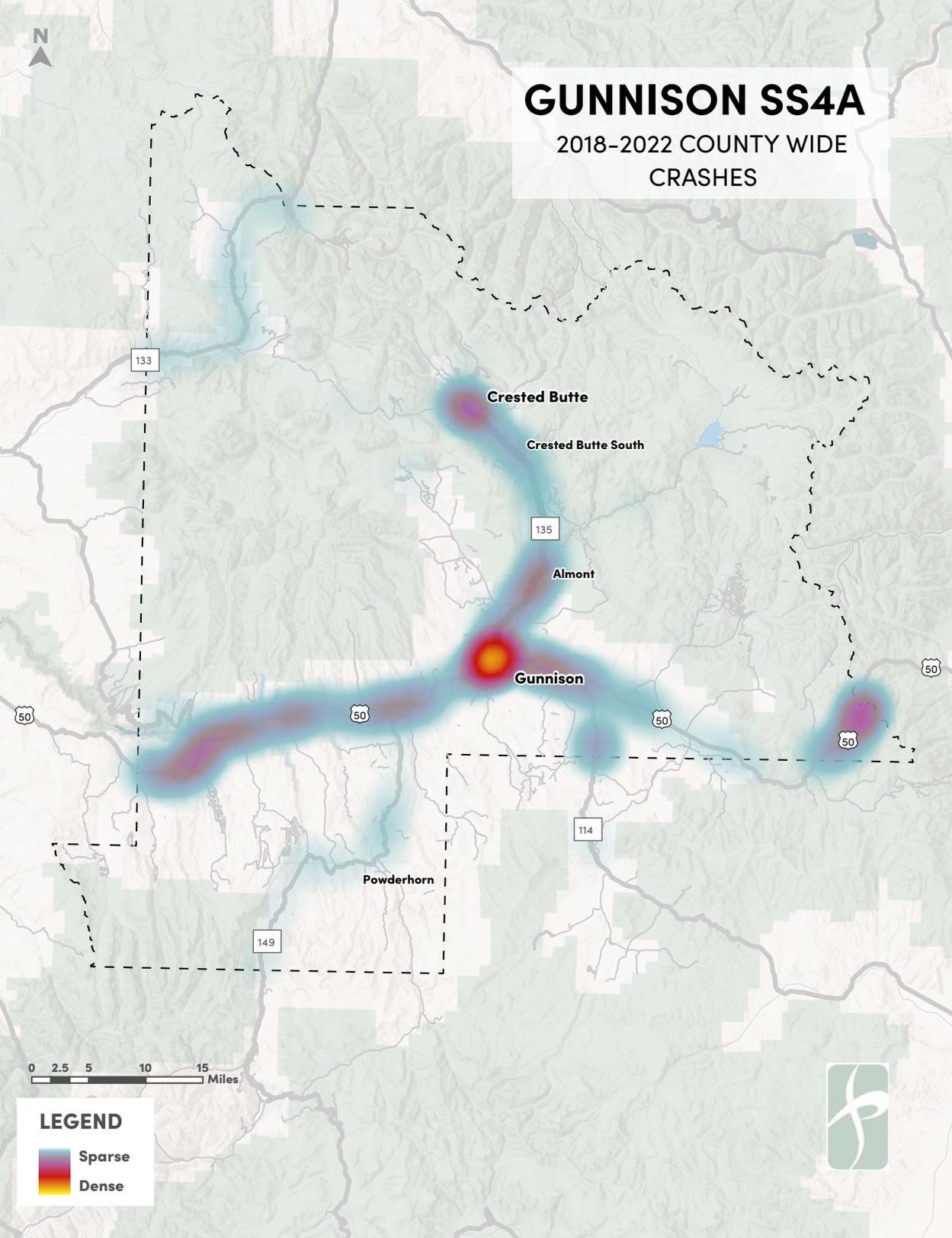
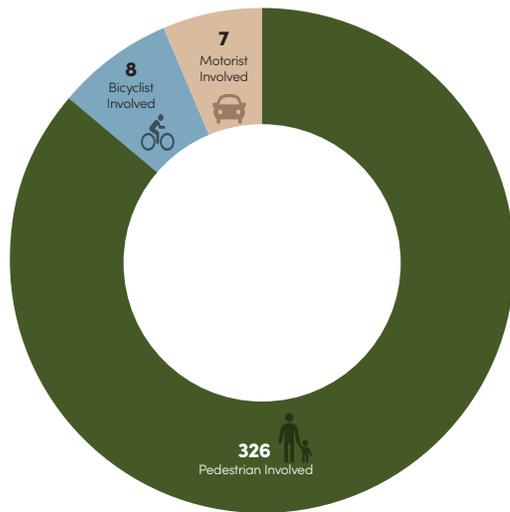


Figure 7: Countywide All Crashes, 2018-2022

### 3. COUNTYWIDE SAFETY ANALYSIS

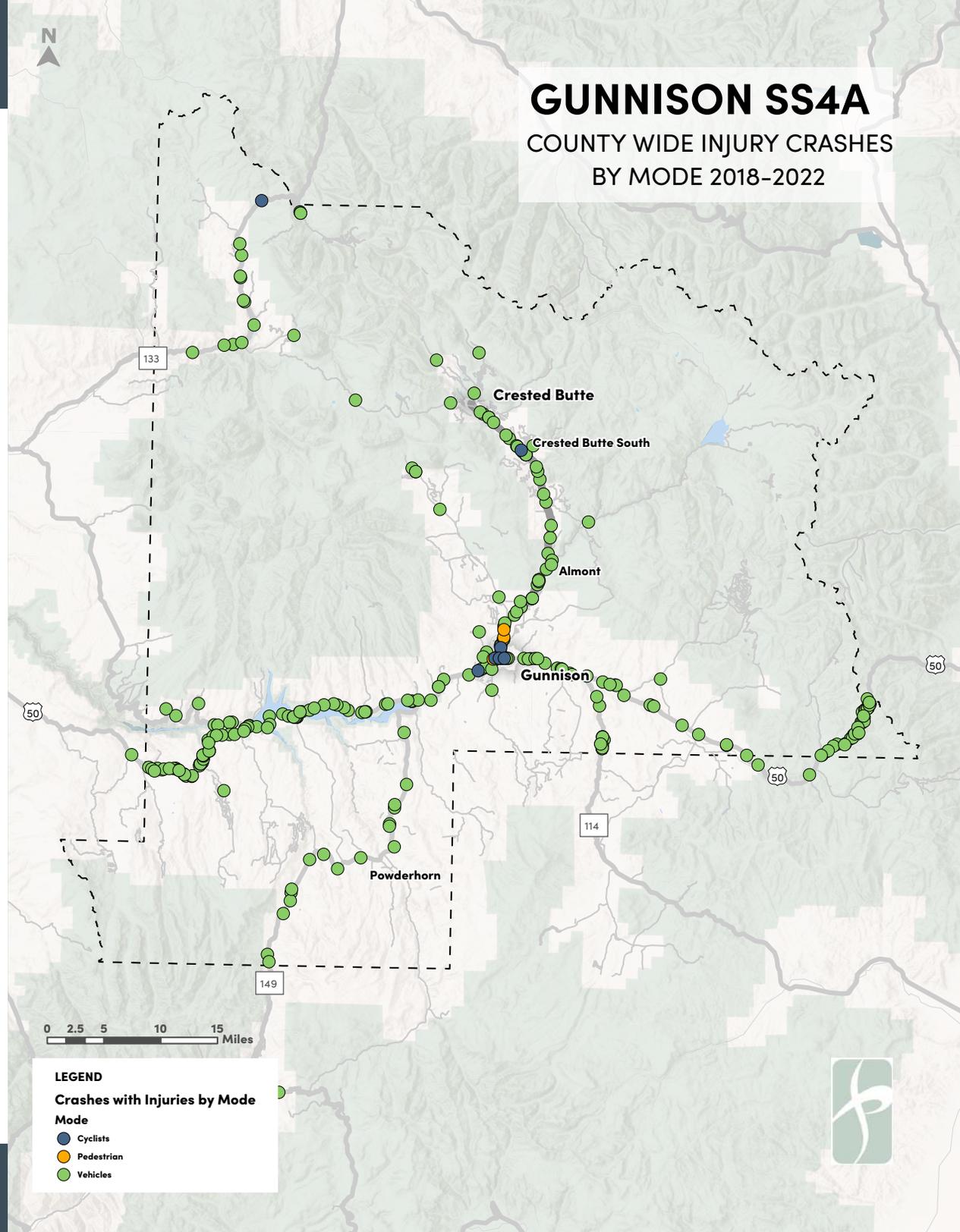
A review of injury crashes, shown in **Figure 8**, shows that there were seven injury crashes involving a pedestrian and eight injury crashes involving a bicyclist during the analysis period. Pedestrian- and bicyclist-involved crashes tend to be in the more urban parts of the county, in particular in Gunnison on US 50 and CO 135.



**Figure 8: Countywide Injury Crashes by Mode**

Injury crashes by mode are shown in **Figure 9**. Pedestrian- and bicyclist-involved crashes are shown in **Figure 10**.

**Figure 9: Countywide Injury Crashes by Mode**



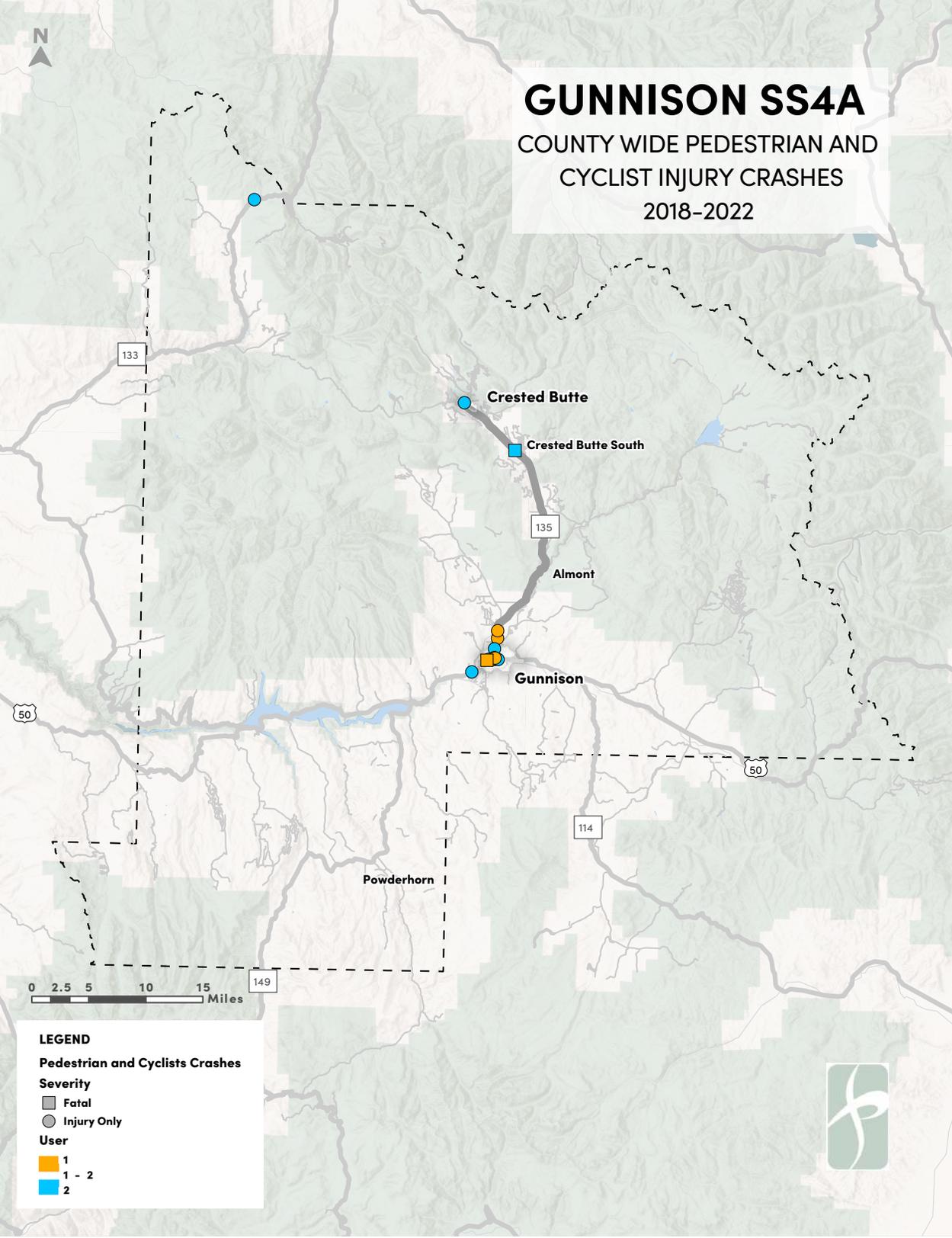


Figure 10: Countywide Pedestrian- and Bicyclist-Involved Crashes

### 3. COUNTYWIDE SAFETY ANALYSIS

#### 3.3.1 Countywide Severe Injury and Fatal Crashes

With the CSAP's goal of eliminating all severe injury and fatal crashes countywide, this specific subset of crashes requires additional attention. Severe injury and fatal crashes during the analysis period are shown in **Figure 12**. As with all crashes, the highest density of severe injury and fatal crashes (regardless of mode or the occurrence of injury) was on the two busiest state highways: US 50 (104 crashes over 74 miles, or 1.41 crashes per mile) and CO 135 (39 crashes over 27.5 miles, or 1.42 crashes per mile).

#### 3.3.2 Countywide Crash Types

Of all reported crashes during the analysis period that resulted in a severe injury or fatality (213 total), 184 (86%) occurred at non-intersection locations and 29 (14%) occurred at intersections (including driveways). Of the severe injury or fatal non-intersection crashes, **Figure 11** shows the most common crash types.

Grouping together severe injury and fatal non-intersection crashes that resulted from departing the travel lane (either to the left or to the right), 163 (77%) of 213 severe injury and fatal crashes are lane departure crashes. **Figure 13** shows countywide lane departure crashes (all severity levels) and **Figure 14** shows countywide intersection crashes (all severity levels).

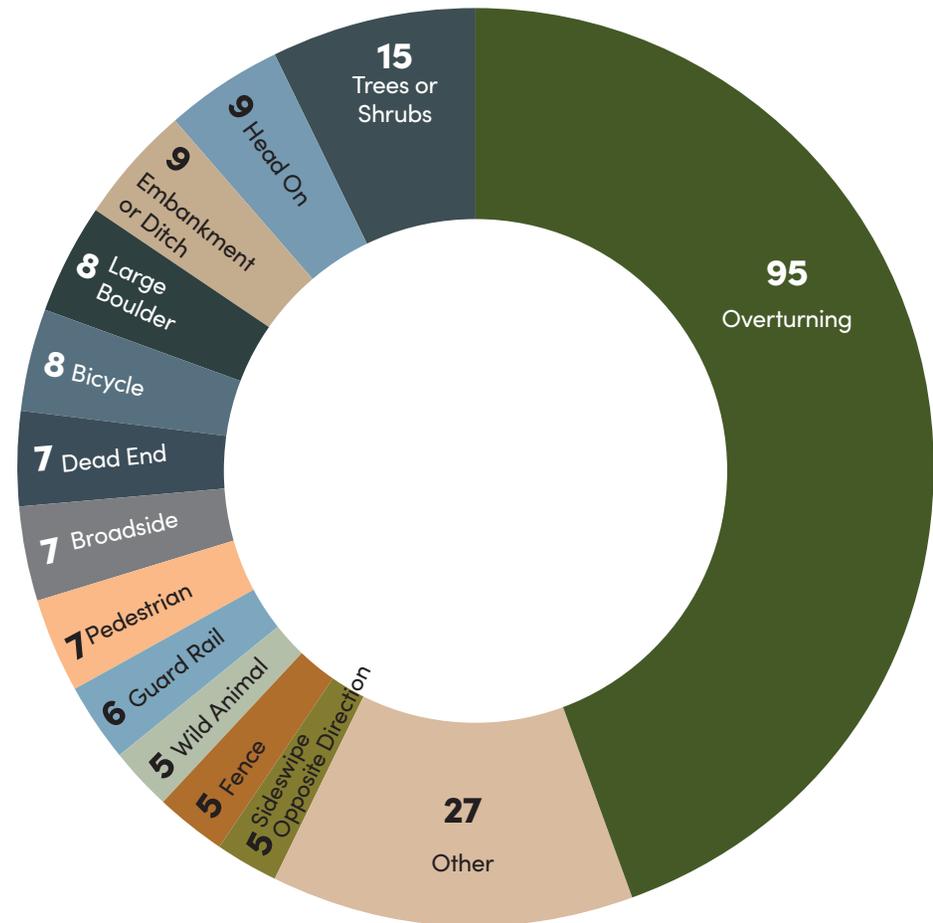


Figure 11: Countywide Crashes by Type

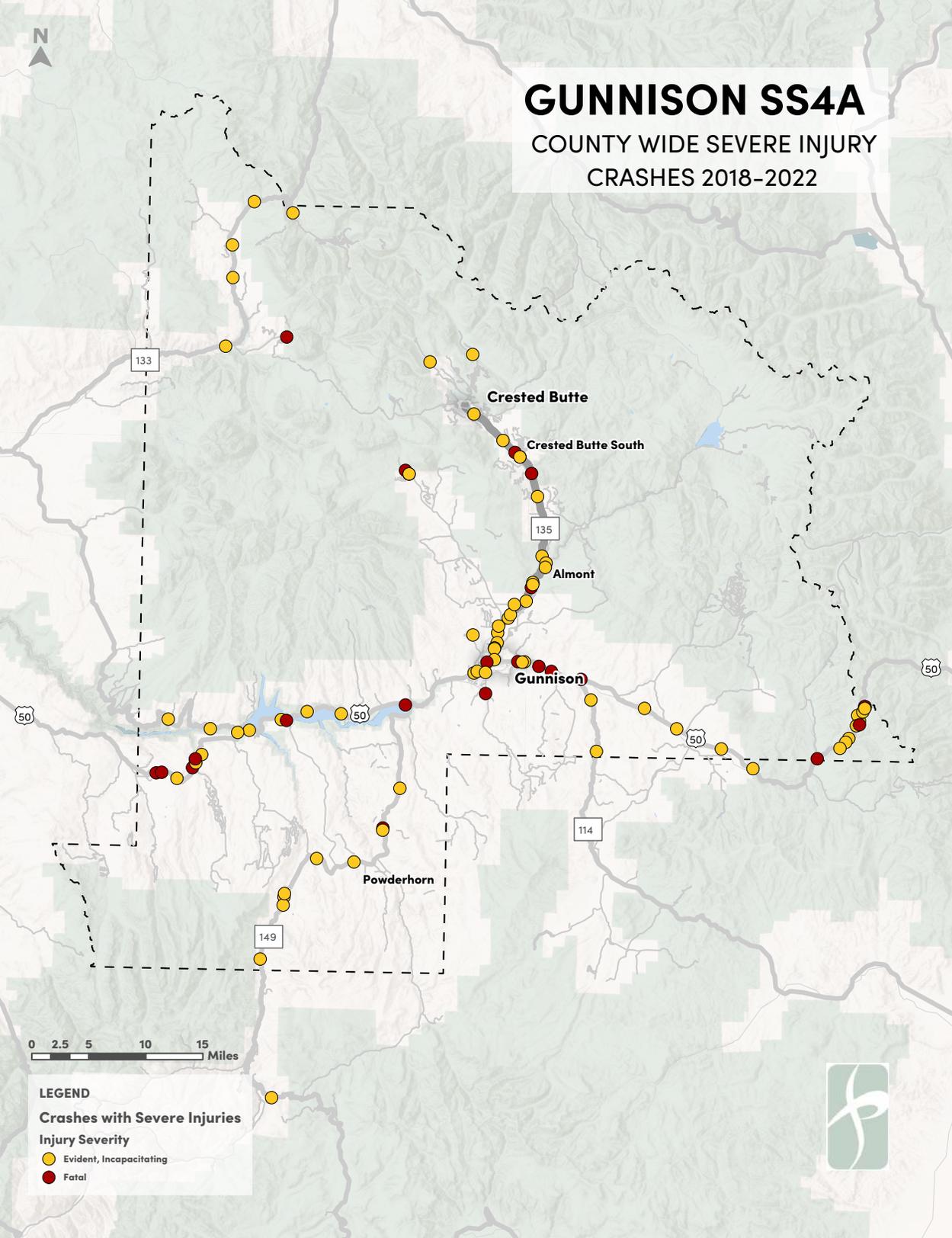


Figure 12: Countywide Severe Injury and Fatal Crashes

# GUNNISON SS4A

COUNTY WIDE LANE DEPARTURE  
CRASHES 2018-2022

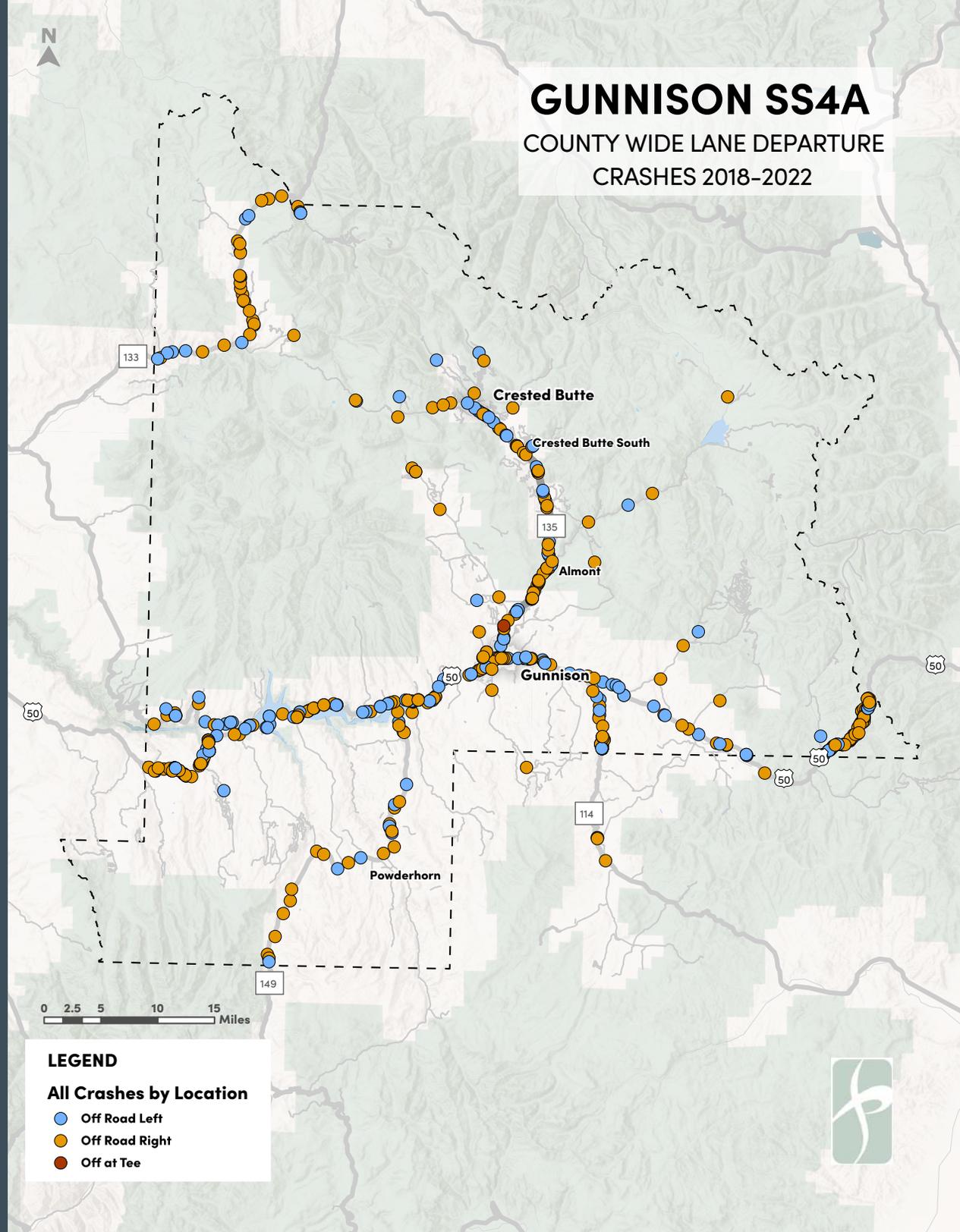
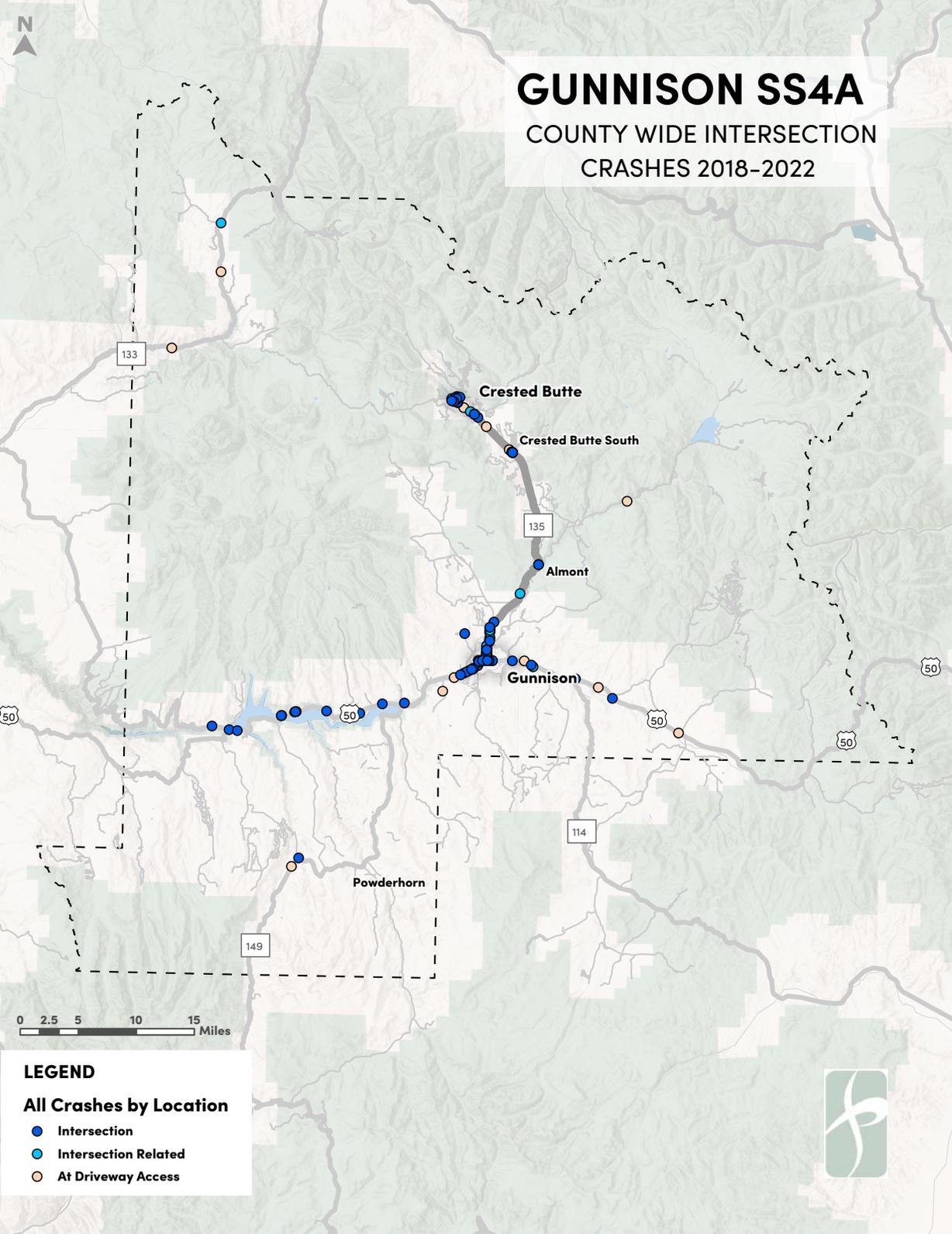


Figure 13: Countywide Lane-Departure Crashes

**LEGEND**

**All Crashes by Location**

- Off Road Left
- Off Road Right
- Off at Tee



# GUNNISON SS4A

## COUNTY WIDE INTERSECTION CRASHES 2018-2022

**LEGEND**

**All Crashes by Location**

- Intersection
- Intersection Related
- At Driveway Access

Figure 14: Countywide Intersection Crashes



CHAPTER 4

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# CO 135 SAFETY ANALYSIS



*Image of the roads and buildings on and surrounding Elk Avenue in the Town of Crested Butte in winter*



The **CO 135 SAFETY ANALYSIS** presents the methods used, and results from a comprehensive review of traffic safety data on CO 135 in Gunnison County.

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# 4. CO 135 SAFETY ANALYSIS

The CSAP provides more detailed analysis and recommendations for Colorado State Highway 135 (CO 135) between US Highway 50 in the City of Gunnison and Elk Avenue in Crested Butte. CO 135 is Gunnison County’s primary commuter corridor, it has a high rate of crashes, and is critical to the Gunnison County economy.

## 4.1 CO 135 Transportation Conditions

CO 135 is a state highway managed and maintained by the Colorado Department of Transportation, approximately 27 miles in length between Gunnison and Crested Butte. For much of these extents, CO 135 is a rural, two-lane highway with regular driveways or other side roads.

Within Gunnison city limits, CO 135 generally provides two travel lanes in each direction with a center, two-way left-turn lane. Left turn lanes are provided at both signalized and unsignalized intersections. Sidewalks are provided on both sides of the street, though with gaps throughout. The posted speed limit ranges from 25 mph at the southernmost end of the corridor to 40 mph adjacent to the Meadows Shopping Center. North of the Gunnison city boundary the posted speed limit increases to 55 mph at Mile Post 1.

North of Gunnison, the speed limit is consistently higher (50-55 mph) with occasional segments of posted speed limits of 40-45 mph. Approximately 1.5 miles north of US 50, CO 135

transitions from two lanes in each direction to one lane in each direction. There are no main-line intersection controls between Spencer Avenue in Gunnison and Belleview Avenue in Crested Butte. Key intersections in the Gunnison County-maintained portion of CO 135 include those with Chinook Trail, County Road 730, County Road 742 (to Cottonwood Pass), County Road 740/Cement Creek Road, County Road 738/Brush Creek Road, and Red Lady Avenue. North of Brush Creek Road, there is a separate multiuse path paralleling CO 135 on the north side of the road, otherwise, there is no multimodal infrastructure provided along this segment of the corridor.

Approaching Crested Butte from the south, the posted speed limit on CO 135 begins to drop, reaching 25 mph adjacent to the Crested Butte Community High School. Within Crested Butte, sidewalks are provided on both sides of the street.

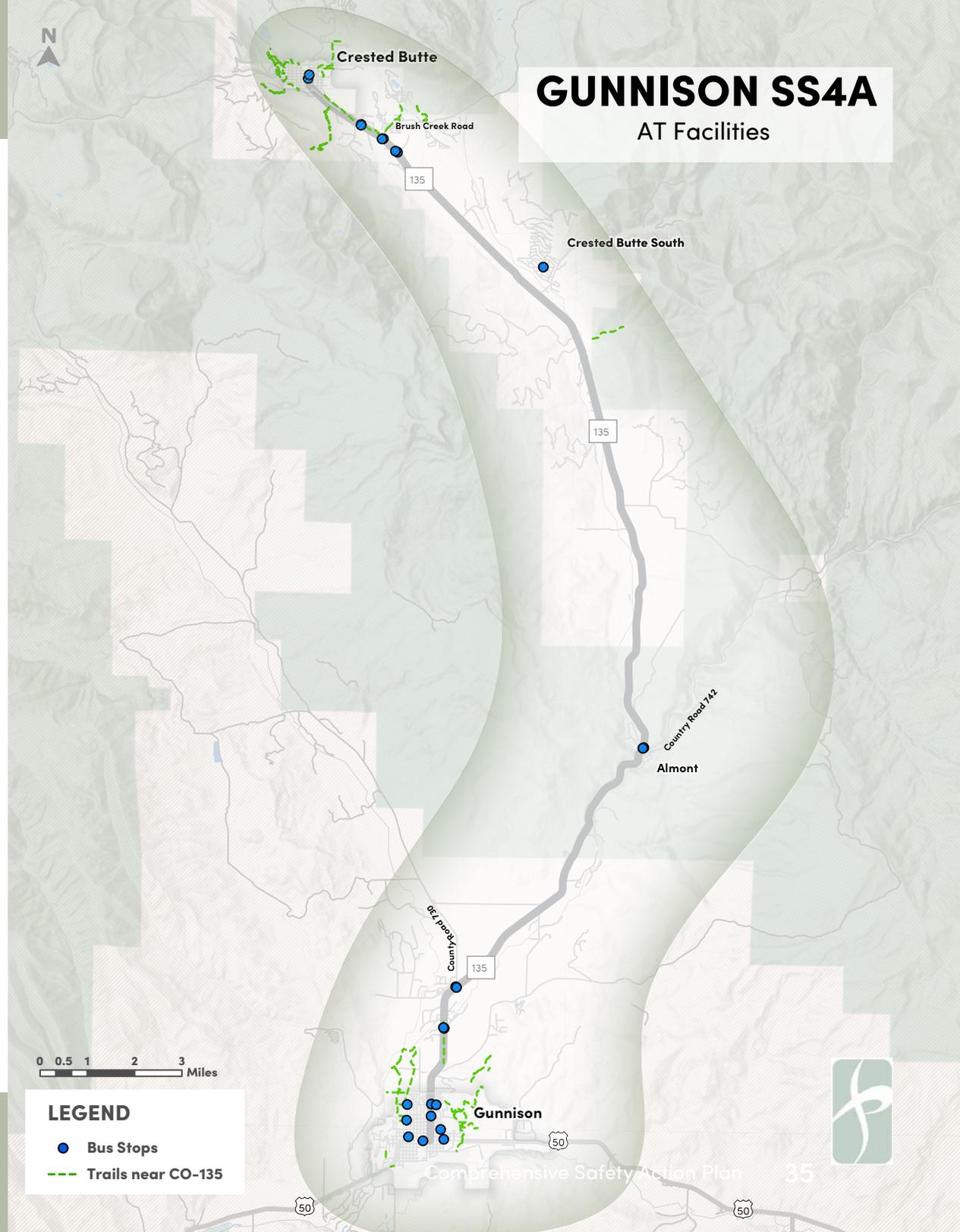


Image of CO 135 at Spencer Ave on a snowy day with vehicles and a bicyclist.

Transit service is provided throughout the CO 135 corridor by Gunnison Valley Regional Transit Authority (RTA), with on-street stops concentrated at either end of the corridor. Within Crested Butte, Mountain Express provides free transit service on CO 135 between Bellview and Elk Avenues. Mountain Express is a free, public transit service in the North Valley, Connecting Crested Butte to Mount Crested Butte and the Crested Butte Mountain Resort.

Transit stops and off-street bicycling and walking facilities are shown in **Figure 15**, and posted speed limits are shown in **Figure 16**.

**Figure 15: CO 135 Transit and Active Transportation Facilities**



0 0.5 1 2 3 Miles

### LEGEND

- Bus Stops
- Trails near CO-135



# 4. CO 135 SAFETY ANALYSIS

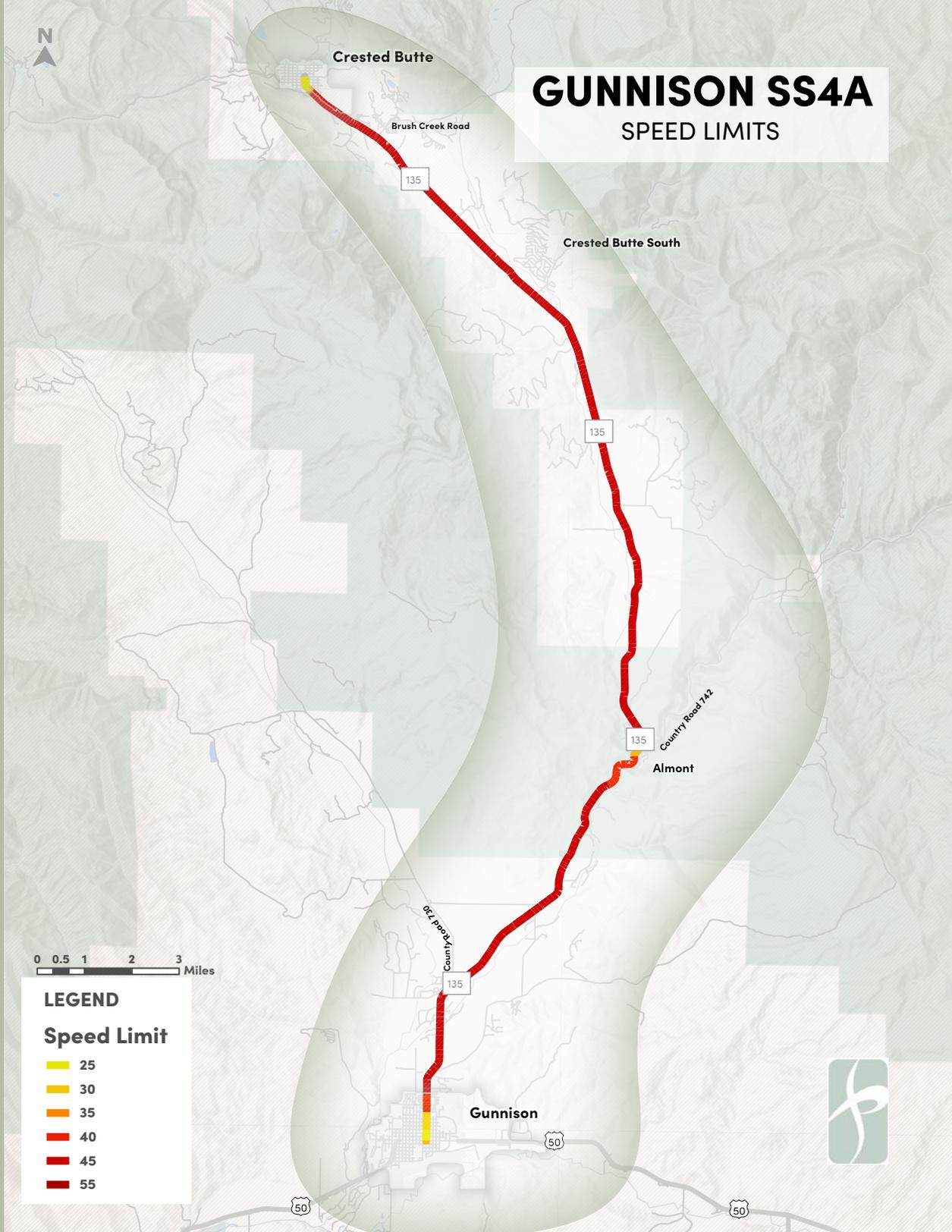


Figure 16: CO 135 Posted Speed Limits



## 4.2 CO 135 Crash Data

Recorded crashes on CO 135 were accessed via DiExSys Vision Zero Suite, which includes crashes on state highways attributed to the milepost. Vision Zero Suite is both a repository for crash data and a platform for conducting Level of Service of Safety (LOSS) analyses.

The crashes used in mapping and analysis presented in this memorandum occurred within the most recent five-year period available, which is January 1st, 2018 to December 31st, 2022. Additionally, the data only captures reported crashes; if

a crash occurred but was not reported to local police or other authorities, there is no record of it in Vision Zero Suite.

During the five-year analysis period, the highest density of crashes (regardless of mode or the occurrence of injury) was in Gunnison, at the intersection of County Road 742 in Almont, near Brush Creek Road, and in Crested Butte. A heat map of all crashes is shown in **Figure 17**.

## 4. CO 135 SAFETY ANALYSIS

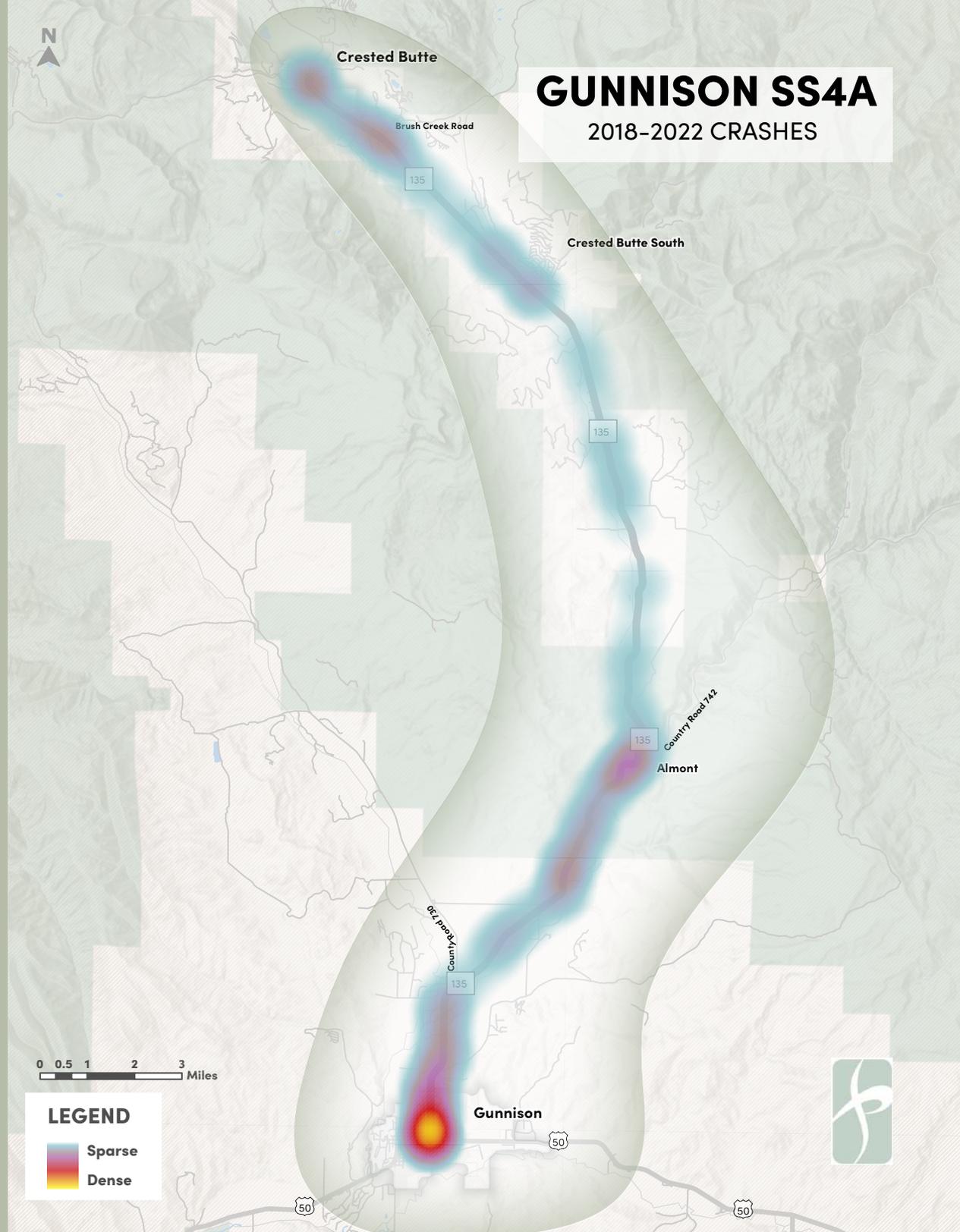
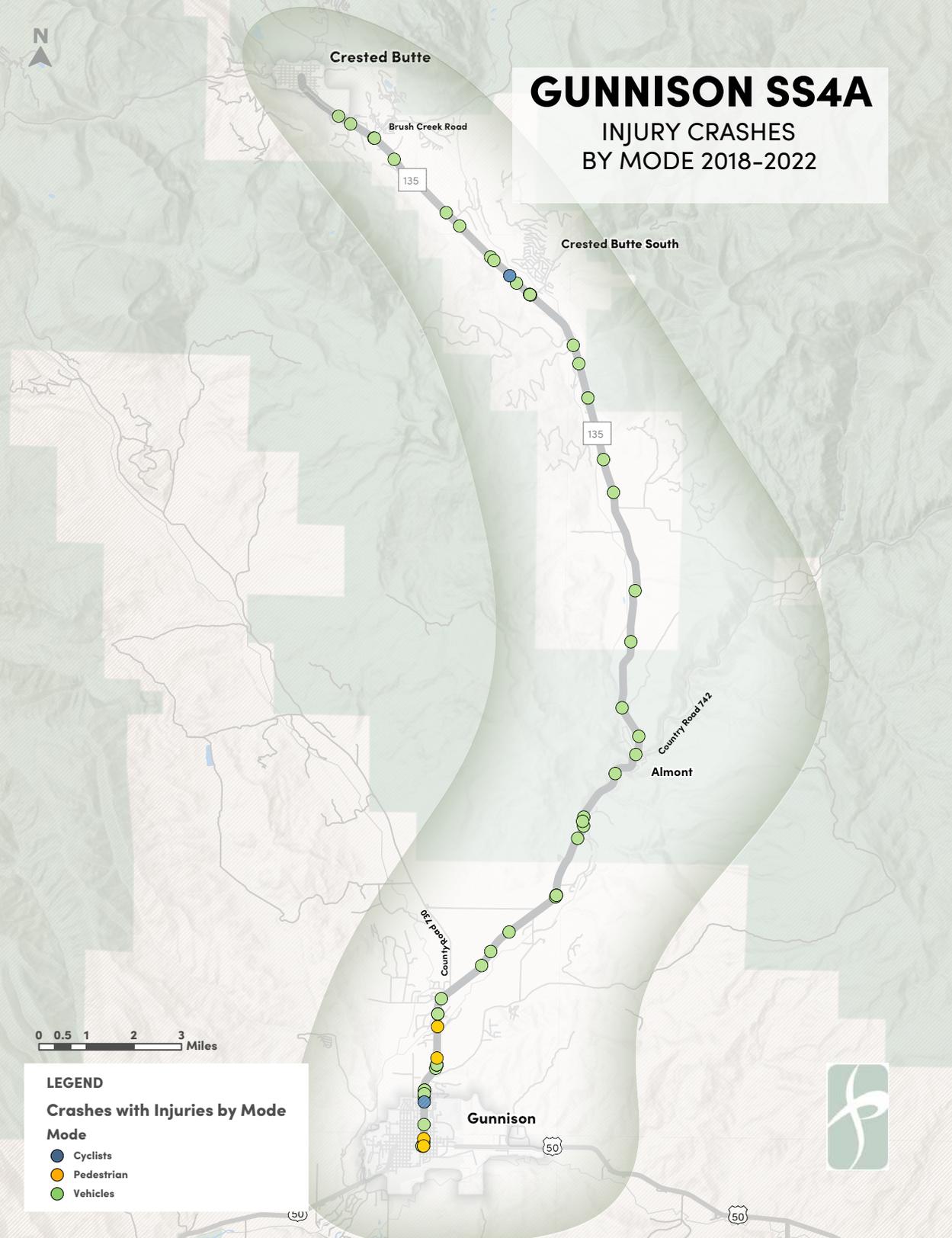
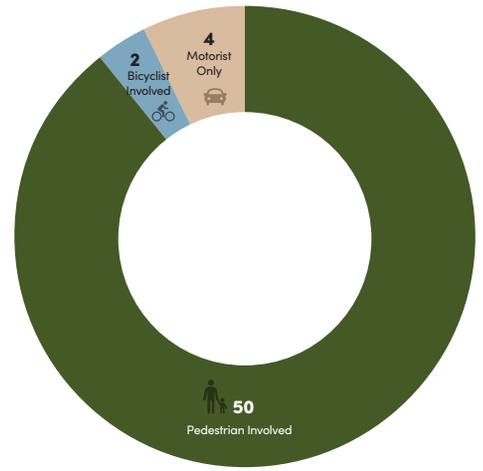


Figure 17: CO 135 All Crashes, 2018-2022



A review of injury crashes shows that there were four injury crashes involving a pedestrian and two injury crashes involving a bicyclist during the analysis period. The pedestrian-involved crashes are concentrated at the southern end of the corridor, with injury crashes involving only motorists distributed throughout the corridor.



*Figure 18: CO 135 Injury Crashes by Mode*

Injury crashes by mode are shown in **Figure 19**. Pedestrian- and bicyclist-involved crashes are shown in **Figure 20**.

*Figure 19: CO 135 Injury Crashes by Mode*

## 4. CO 135 SAFETY ANALYSIS

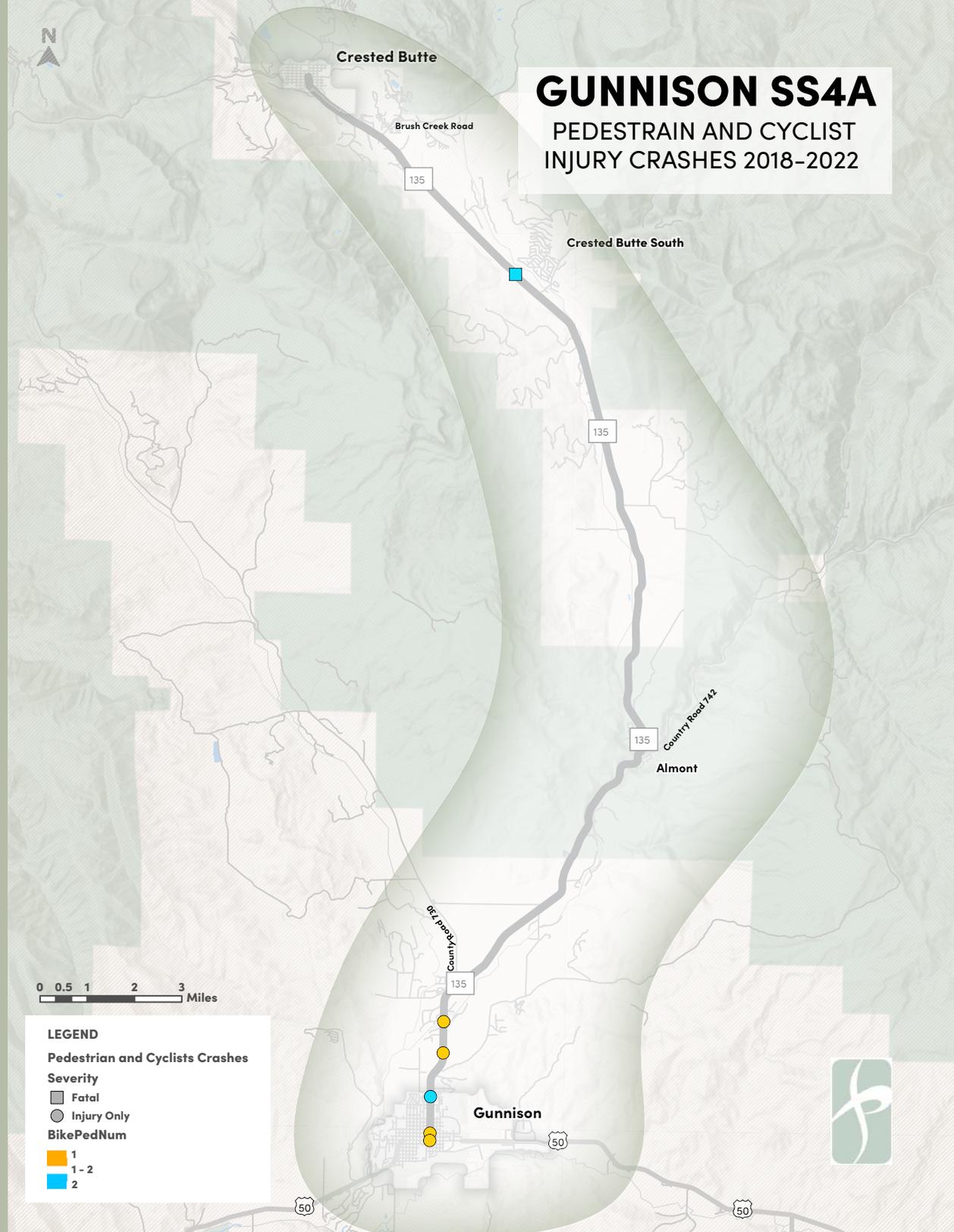
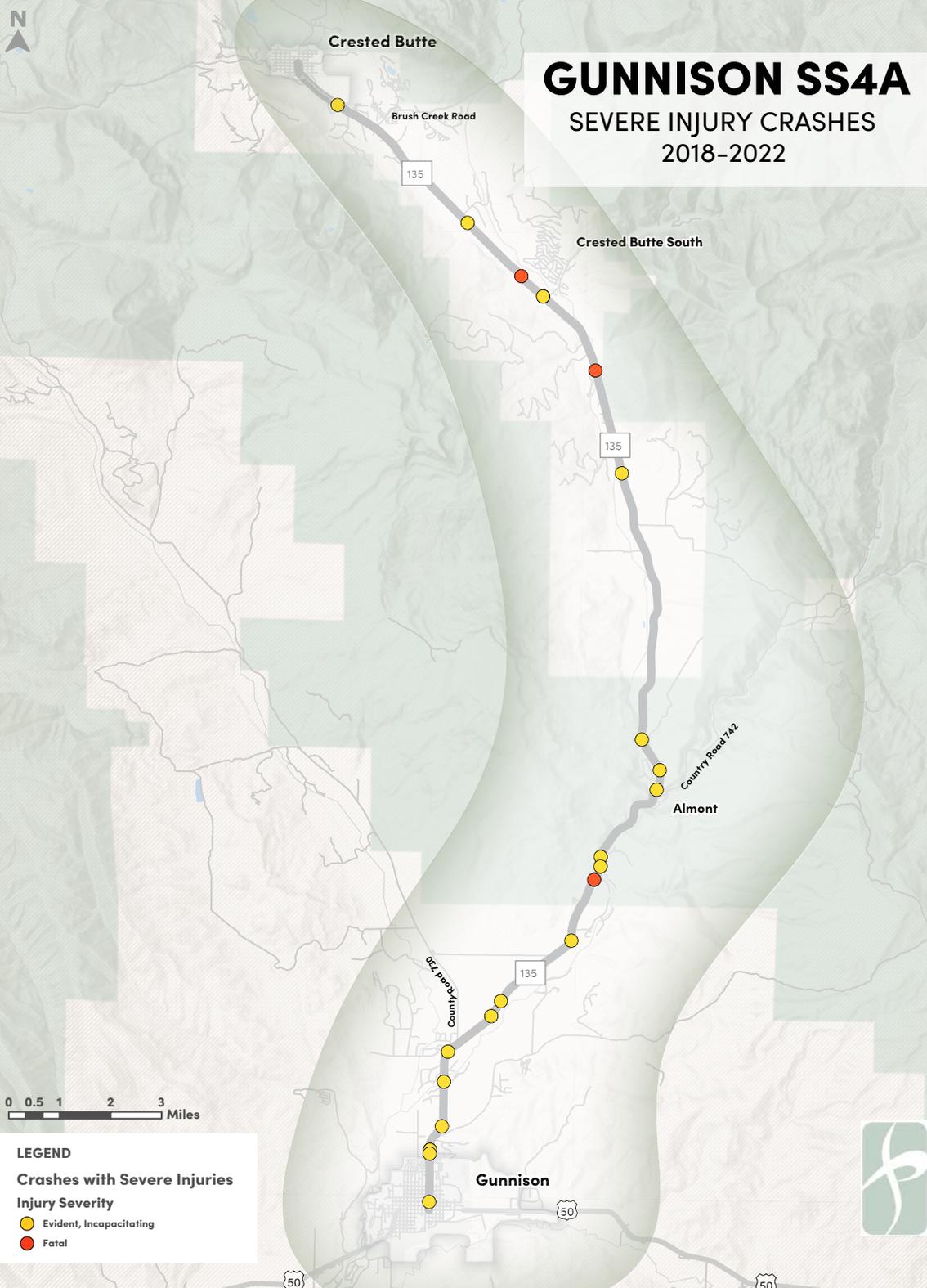


Figure 20: CO 135 Pedestrian- and Bicyclist-Involved Crashes



### 4.2.1 CO 135 Severe Injury and Fatal Crashes

With the CSAP’s ultimate goal of eliminating all severe injury and fatal crashes on CO 135, this specific subset of crashes requires additional attention. Severe injury and fatal crashes on CO 135 during the analysis period are shown in **Figure 21**. While there is a higher concentration of severe injury and fatal crashes at the southern end of the corridor, these crashes occur through the corridor. During the analysis period, there were three fatal crashes, of which one involved a bicyclist, while the other two involved only motorists.

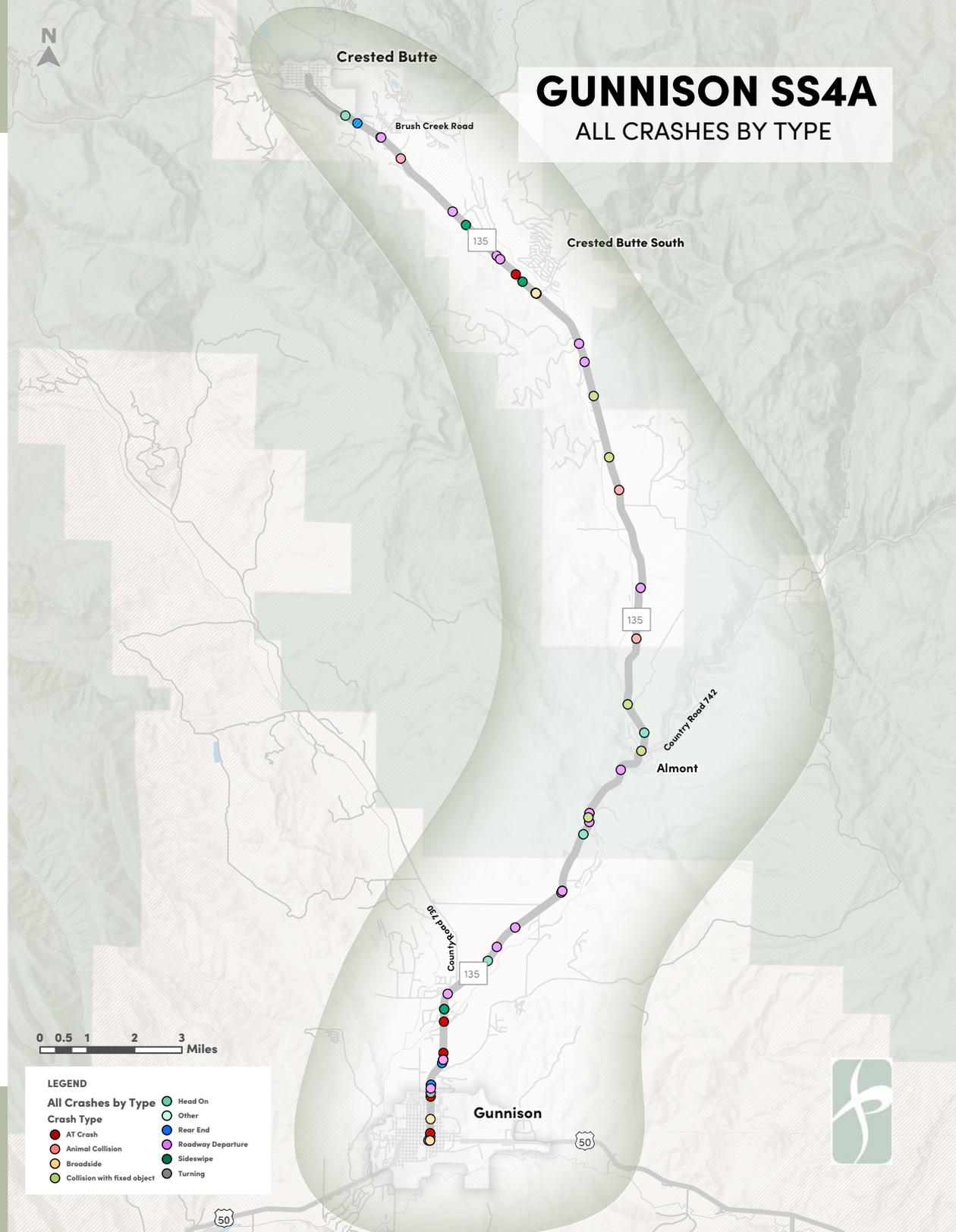
*Figure 21: CO 135 Severe Injury and Fatal Crashes*

### 4.2.2 CO 135 Crash Types

Of all reported crashes during the analysis period, the most common crash types are animal strikes (66 crashes), rear-end crashes (34), and broadside crashes (26). However, when reviewing only crashes that resulted in injuries to one or more people involved, broadside crashes (7), overturning (6), and rear-end crashes (5) are the most common crash types. Injury crashes by type are shown in **Figure 22**.

In reviewing broader crash categories that occurred at higher frequencies along the corridor, two categories stood out as particularly prominent – lane departure crashes and intersection crashes. Lane departure crashes are relatively evenly distributed throughout the corridor, with pockets of higher concentrations on segments and curves south of Almont and between Brush Creek Road and Red Lady Avenue. Intersection crashes occurred at higher frequencies south of County Road 8 and north of Brush Creek Road. Lane departure crashes are presented in **Figure 23** and intersection crashes are presented in **Figure 24**.

Figure 22: CO 135 Crashes by Type



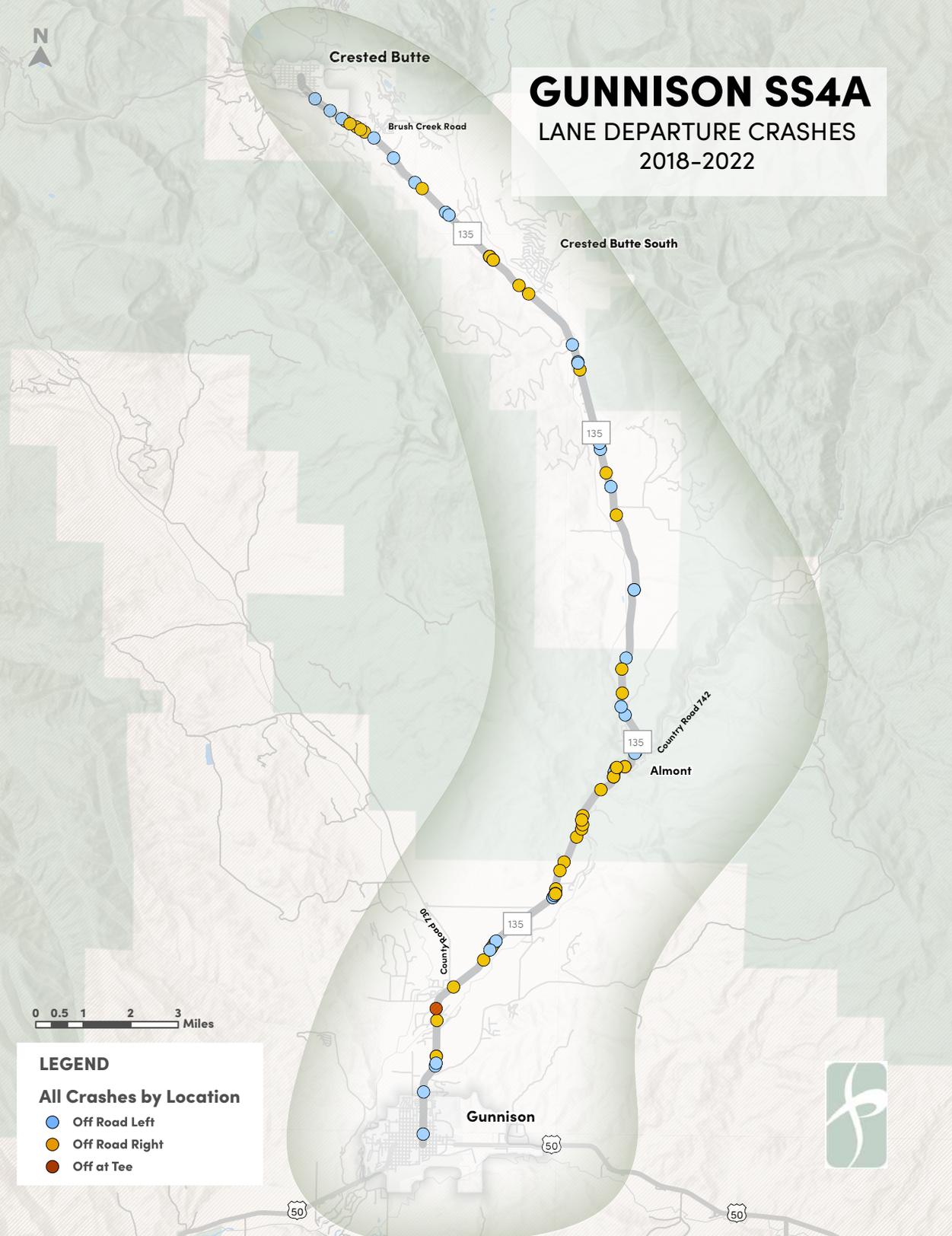


Figure 23: CO 135 Lane-Departure Crashes

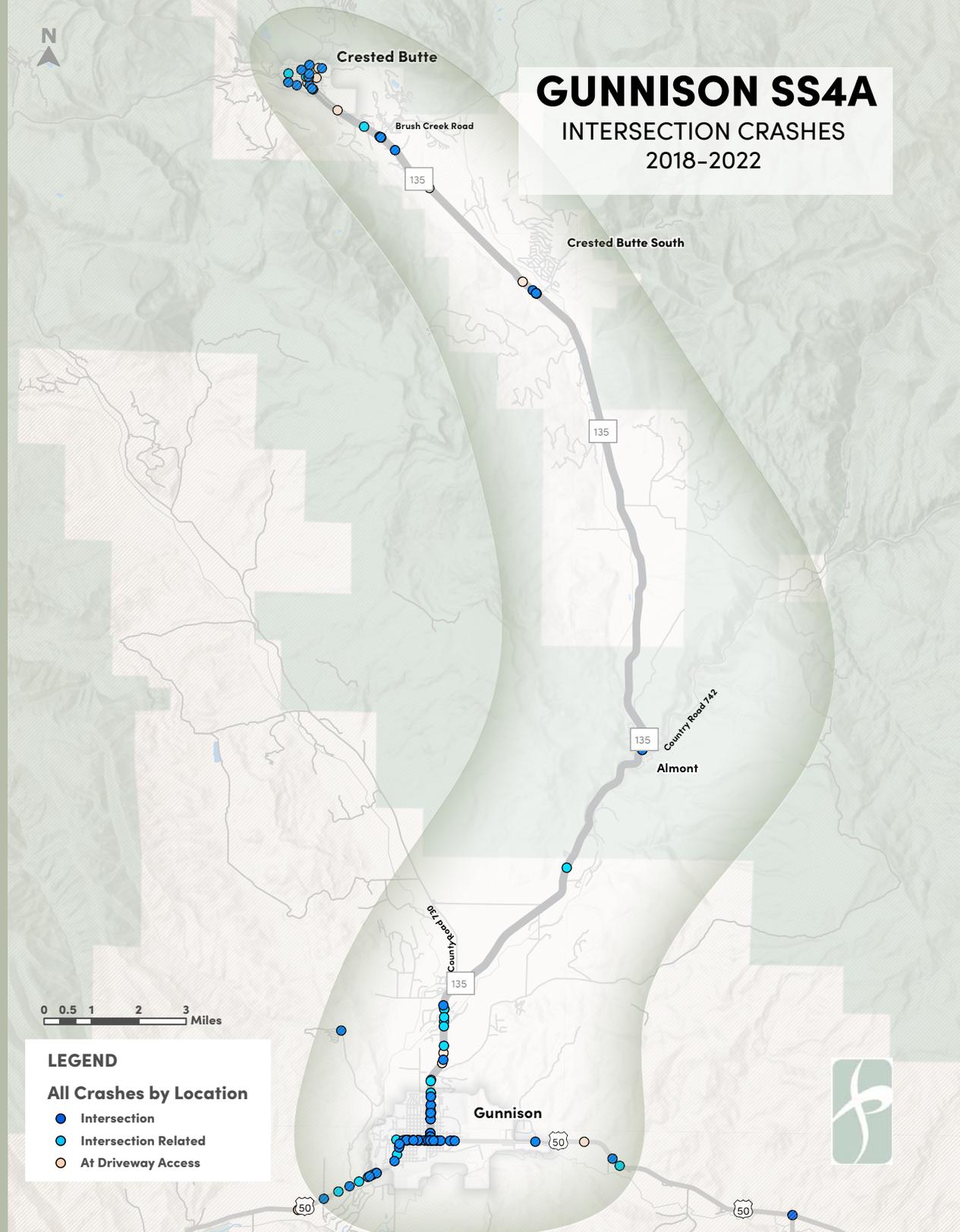


Figure 24: CO 135 Intersection Crashes



*Image of CO 135 on a snowy day in Gunnison County.*

### 4.2.3 CO 135 Level of Service of Safety Analysis

Crash data presented elsewhere in this plan is all based on either frequency or severity of crashes of different types. However, to better understand areas of concern in analyzing crash history, and to begin exploring causality in crash history, Level of Service of Safety (LOSS) analyses were conducted for CO 135.

LOSS is a methodology supported by CDOT and conducted through Vision Zero Suite. LOSS allows practitioners to identify intersections and roadway segments on which crashes are happening at high frequencies, or with greater severity, than would be expected at similar locations around the state. The platform requires that users input a variety of location-based variables such as number of travel lanes, presence of a median, average annual daily traffic (AADT), and presence of a traffic signal.

Using Vision Zero Suite's underlying crash data, AADT data taken from CDOT's Online Transportation Information System (OTIS) and local traffic counts, and manually-collected roadway configuration data, LOSS analyses for segments and intersections were conducted to determine both crash frequency and crash severity scores.

LOSS scores are calculated on a score of 1 through 4, with the 2/3 threshold representing the expected value based on inputs. While scores of 1 or 2 do not suggest that issues at specific intersections or certain segments are not worthy of further evaluation, scores of 3 or 4 do suggest that further evaluation at those locations is needed regardless of comparatively lower frequencies or severity, and that crashes are likely correctable through implementation of appropriate countermeasures.

Segments of CO 135 that stand out following both the total (frequency) and severity LOSS analyses include the segment immediately north of Gunnison city limits, the segment between Los Canyon Resort and Almont, and portions of CO 135 between Crested Butte South and Crested Butte. Total LOSS segment results are presented in **Figure 25**, and severity LOSS results are presented in **Figure 26**.

Intersections along CO 135 that scored 3 or higher in both total and severity LOSS include Georgia Avenue in Gunnison and Cement Creek Road adjacent to Crested Butte South. Total LOSS intersection results are presented in **Figure 27**, and severity LOSS results are presented in **Figure 28**.

# 4. CO 135 SAFETY ANALYSIS

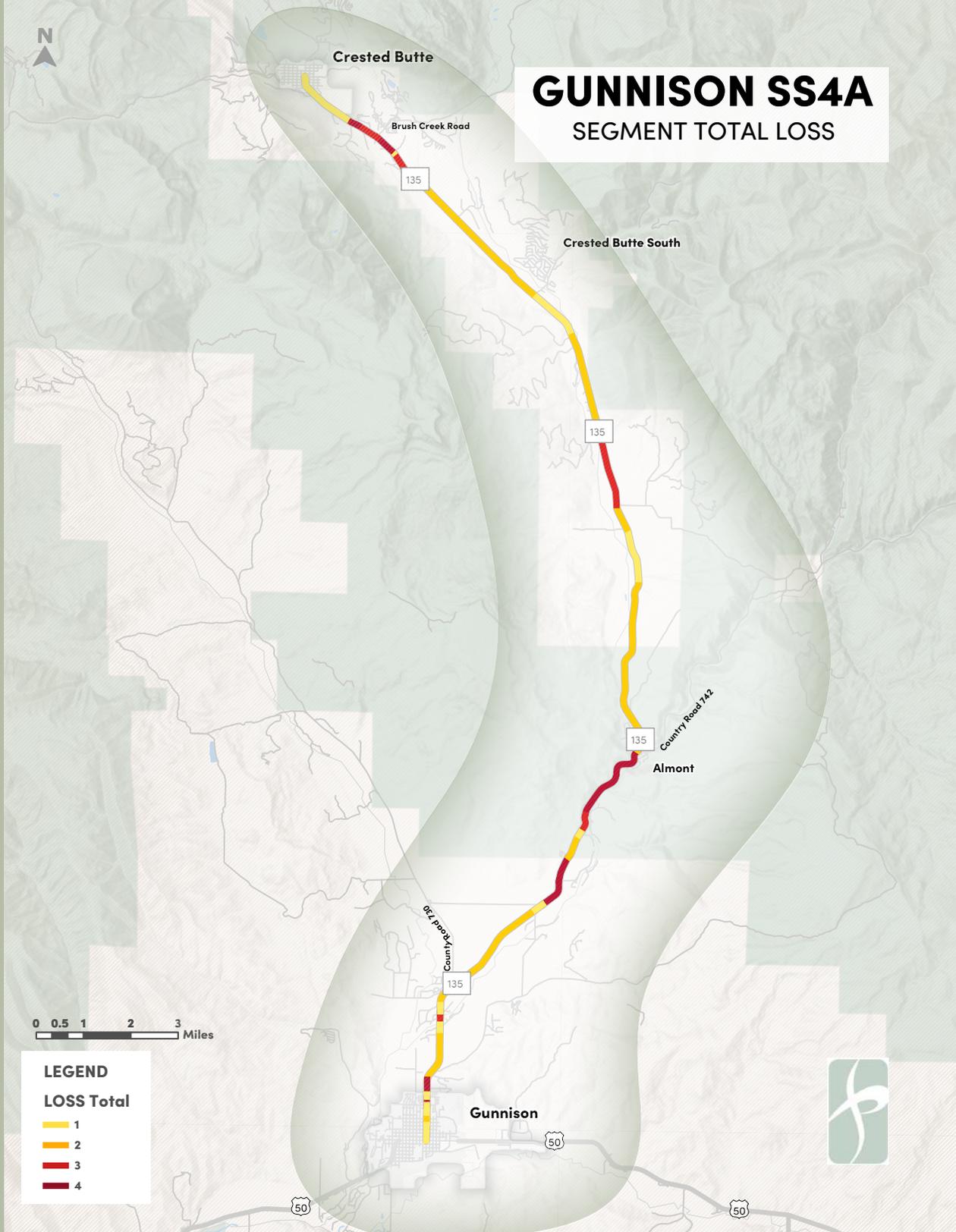
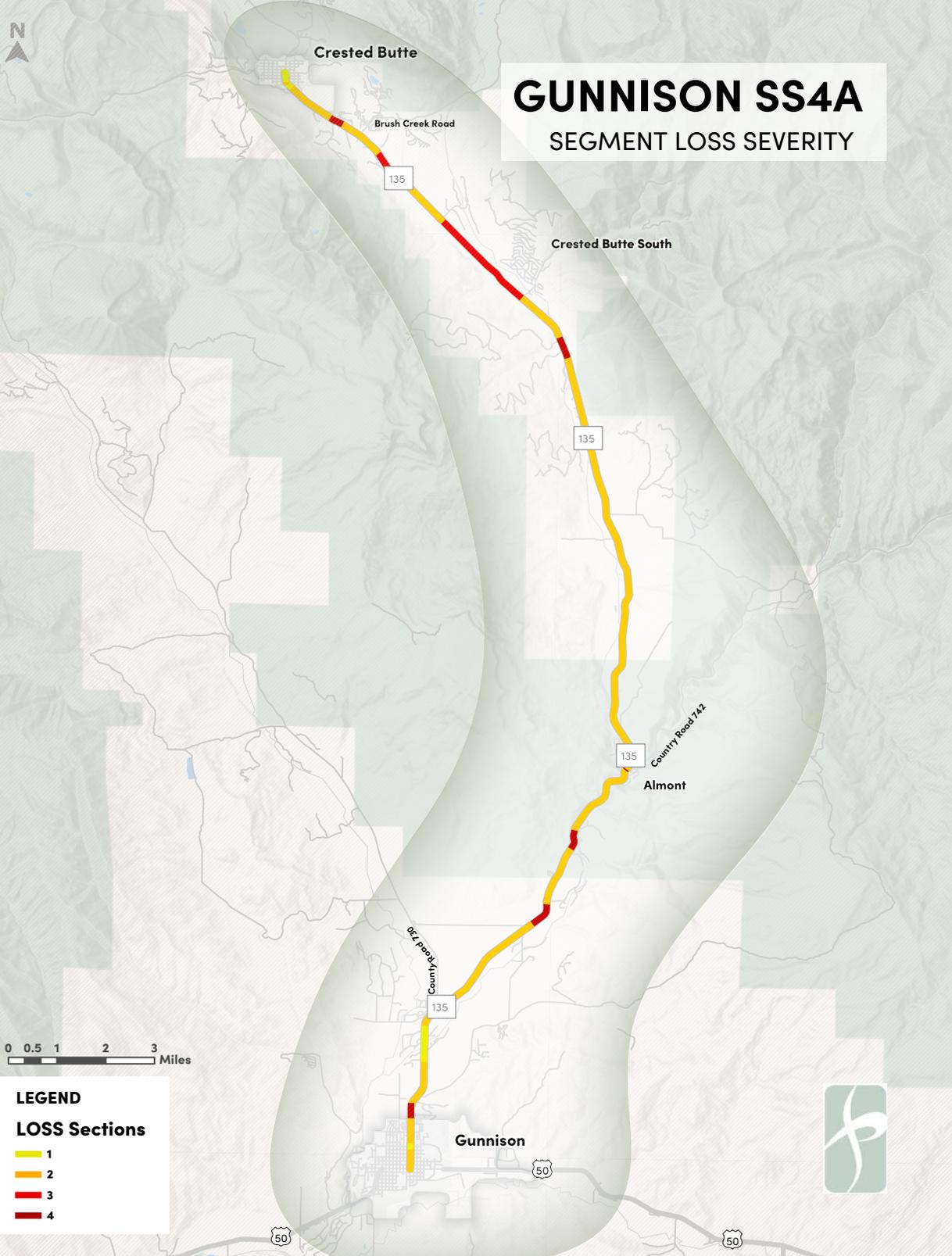


Figure 25: CO 135 LOSS Segment Total



# GUNNISON SS4A

## SEGMENT LOSS SEVERITY



**LEGEND**

**LOSS Sections**

- 1
- 2
- 3
- 4

Figure 26: CO 135 LOSS Segment Severity

# 4. CO 135 SAFETY ANALYSIS

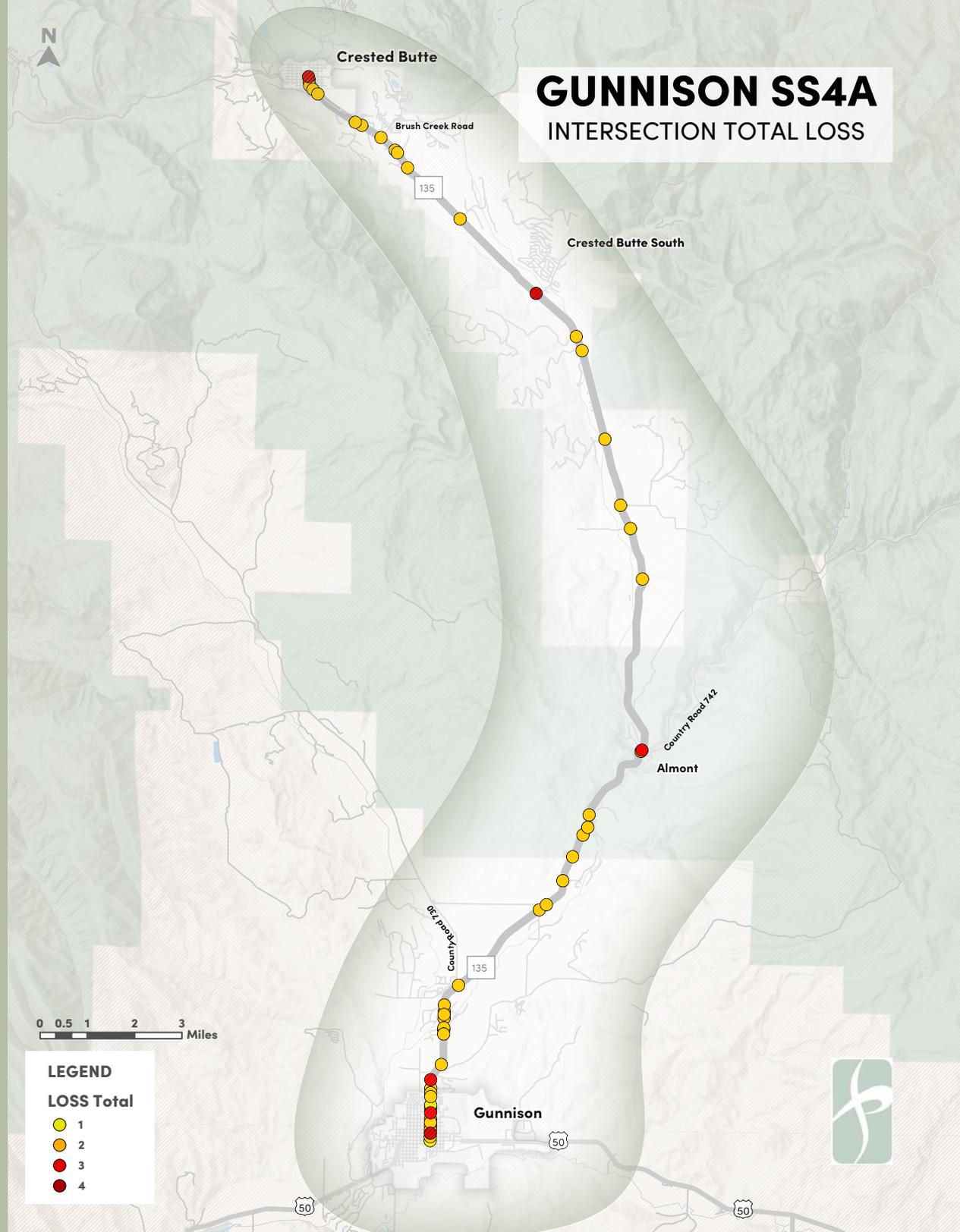


Figure 27: CO 135 LOSS Intersection Total



# GUNNISON SS4A

## INTERSECTION LOSS SEVERITY

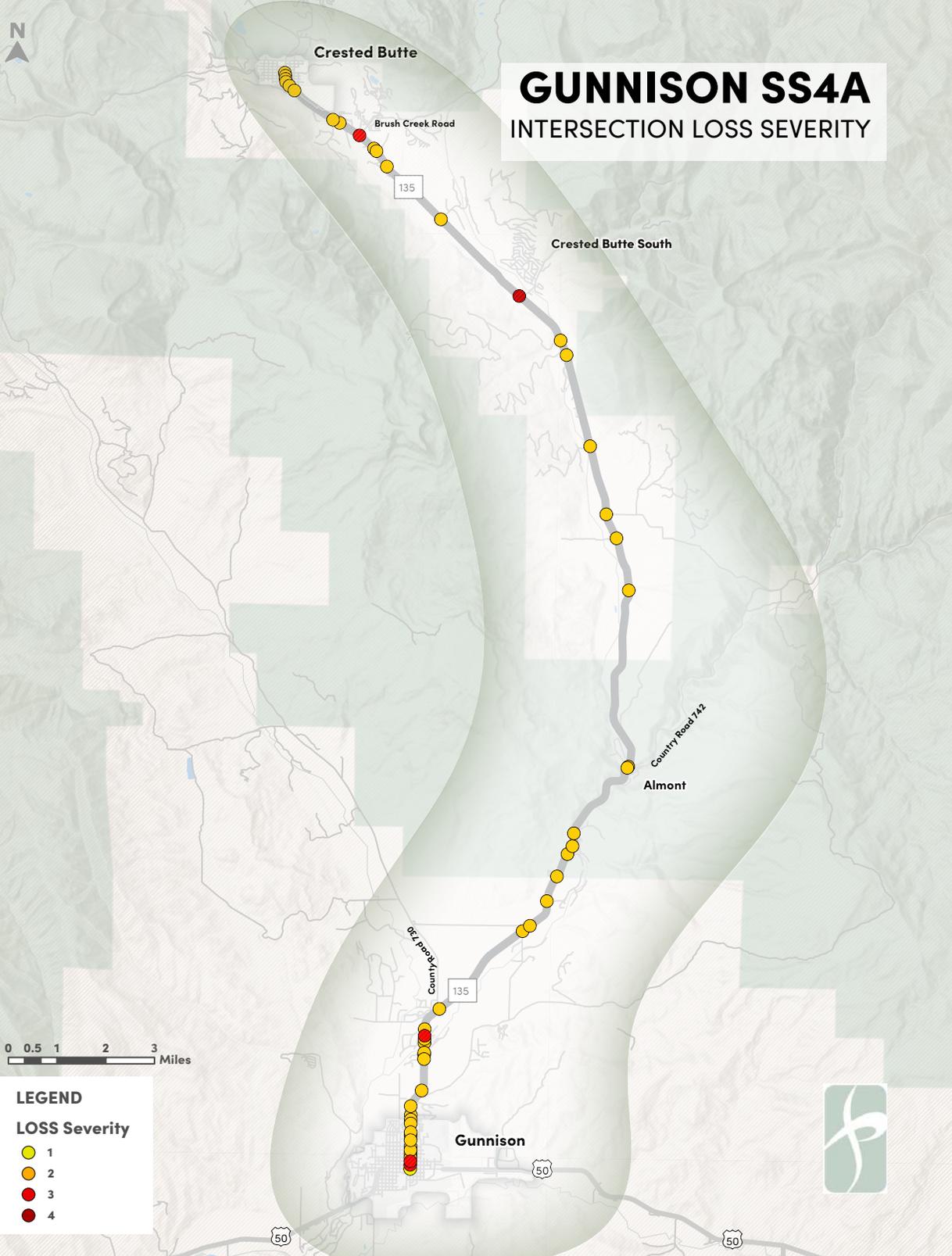


Figure 28: CO 135 LOSS Intersection Severity

## 4. CO 135 SAFETY ANALYSIS

### 4.2.4 CO 135 Crash Analysis Results

A review of crash data from 2018–2022 shows that traffic crashes are ubiquitous along CO 135, and injury crashes are occurring throughout the corridor. While they make up a relatively small amount of total crashes, pedestrian- and bicyclist-involved crashes represent more than 10% of all injury crashes. Pedestrian crashes occur primarily at the southern end of the corridor in or close to Gunnison, where there is a presumed higher frequency of pedestrians.

Roadway departure crashes are very common and distributed throughout the corridor, with overturning crashes representing a large portion of recorded injury crashes. Specific areas of focus include the segment of CO 135 immediately north of Gunnison city limits, the curved portion of roadway adjacent to the Lost Canyon Resort, the intersection with County Road 742 in Almont, the intersection with Cement Creek Road, and the segment between Brush Creek Road and Elk Avenue in Crested Butte.



*Image of CO 135 immediately north of Gunnison city limits.*





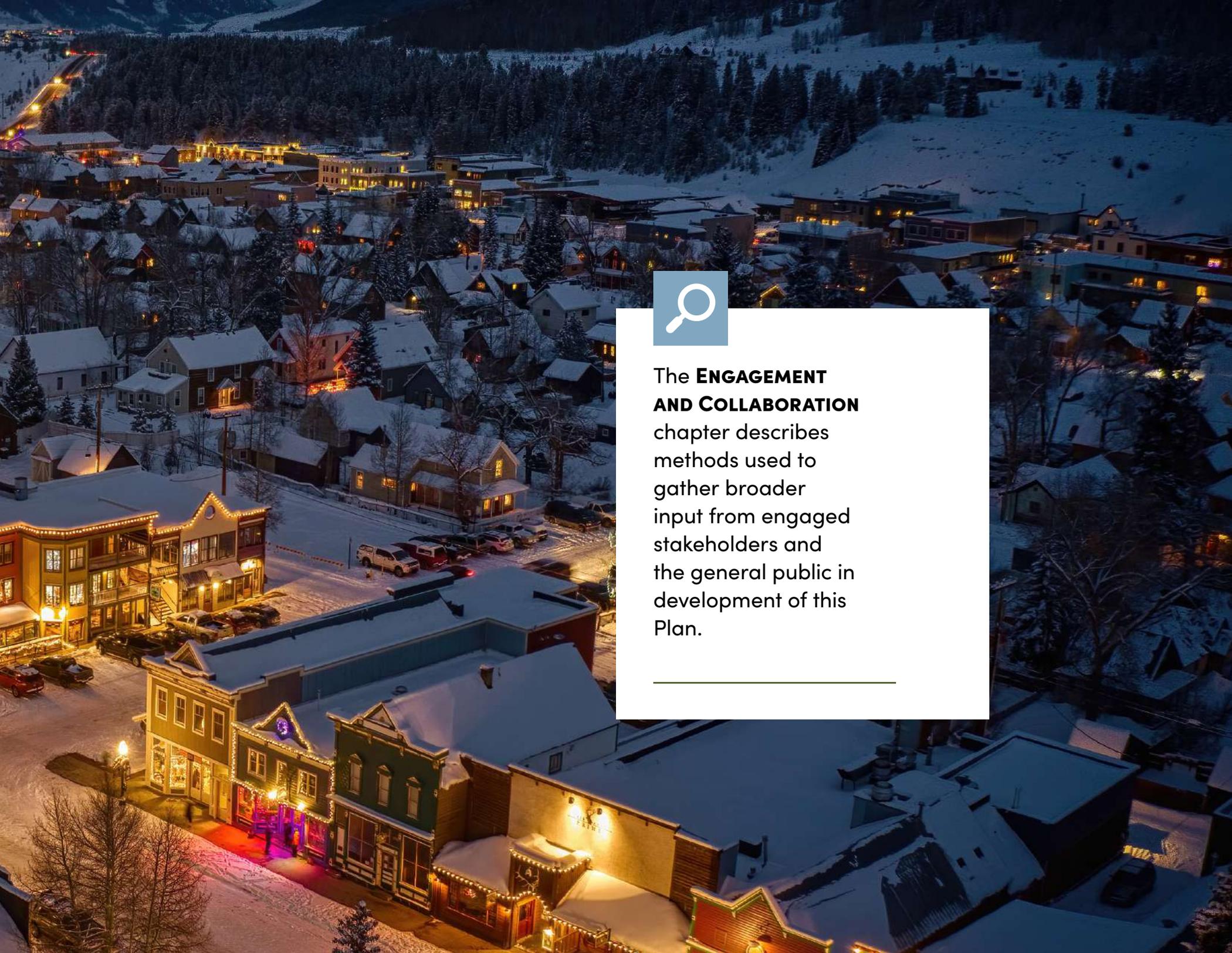
CHAPTER 5

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# ENGAGEMENT AND COLLABORATION



*Image of the roads and buildings on and surrounding Elk Avenue in the Town of Crested Butte in winter*



The **ENGAGEMENT AND COLLABORATION** chapter describes methods used to gather broader input from engaged stakeholders and the general public in development of this Plan.

---

# 5. ENGAGEMENT AND COLLABORATION

Public involvement conducted as part of the plan was conducted under the following guiding principles:

## Engage Equitably –



*Engagement conducted as part of the plan targeted meaningful participation from people across target audience populations. The process sought to ensure that materials, activities, and venues were accessible and inviting regardless of race, ethnicity, language, ability, gender, sexual orientation, or financial means.*

## Develop a Dialogue –



*Outreach was approached as a two-way and ongoing dialog rather than a one-time transaction. Community engagement set clear expectations about the public's role in affecting plan outcomes. Interactive tools and different meeting formats aided in expanding dialog with the public. Participants were provided with a clear understanding of how their feedback was used in the decision-making process and should feel ownership of the final plan.*

## Communicate Effectively –



*Many transportation metrics and engineering design solutions can be complex. Communicating ideas succinctly and effectively is essential for public understanding. This public outreach strategy incorporated high-quality visuals, straight-forward language, and asking targeted questions. This included involving bilingual staff to involve participants who speak a different language.*

## Meet People Where They Are –



*This engagement process aimed to reach a broad cross-section of people as they go about their daily lives. This approach allows for participation from community members who have limited time in their schedule and/or who do not have a means of transportation to a central meeting location. Online engagement, intercept events, and focus groups were the strategies outlined in this plan that allowed the project team to engage people where they are and in the format they feel most comfortable participating.*

## 5.1 Target Audiences

The following groups are populations that the public outreach strategies sought to engage. When possible, participation was tracked according to these groups and future rounds of engagement can be adjusted to better target groups we did not hear as much from in this phase of engagement:

- Residents of Gunnison County
- Workers who live outside of Gunnison County
- Older adults
- Second homeowners
- Latinx and Spanish-speaking population
- Large employers/local businesses
- Youth/schools
- Low-income population
- People with disabilities
- Unhoused population
- Transit users

Owing to a variety of concurrent planning efforts, the Gunnison County Comprehensive Safety Action Plan specifically targeted residents, works, older adults, low income population, and people with disabilities.

## 5.2 Outreach Activities

Primary outreach activities conducted as part of the CSAP included an online, community-wide survey to gather feedback on safety concerns along CO 135, and a series of stakeholder focus groups to understand how different user groups are affected by safety issues on the corridor.

### 5.2.1 Community Survey of Existing Needs

The survey was open for approximately two months, during which time 272 unique responses were recorded. The responses focused primarily on CO 135 within the City of Gunnison and within the Town of Crested Butte. Locations of concern in Gunnison identified through the survey include the intersection of Main Street (CO 135) and Tomichi Avenue (US 50) and the intersection of CO 135 and Kansas Street (Meadow Malls access). The primary location of concern in Crested Butte identified through the survey was the intersection of CO 135 and Red Lady Avenue. These more urban locations were identified as locations of concern by both drivers and pedestrians.

There were areas of concern addressed along CO 135 between the City of Gunnison and town of Crested Butte, including the intersections at Brush Creek Road, Cement Creek Road, and the curved segments of CO 135 south of Almont.

### 5.2.2 Stakeholder Focus Groups

Three focus groups were convened to develop the plan: one with first responders, one with older adults, and one with people with disabilities. While each group was engaged independently, their responses matched those gathered through the survey. First responders identified the ongoing challenges experienced due to winter weather and access to crash locations during surging winter travel. Older adults and people with disabilities identified challenges with crossing CO 135 in urban areas given its width and traffic speeds.

## 5. ENGAGEMENT AND COLLABORATION



Image of the stakeholders at a winter site visit on CO-135 in Gunnison.

### 5.2.3 Public Open Houses

Following the development of recommended improvements for key location along CO-135, four public open houses (two in Crested Butte and two in Gunnison) were co-hosted with the Gunnison Valley Regional Transit Authority. Regarding the CASP, the open houses were conducted to gauge community feedback on recommended countermeasures, and to evaluate a range of options proposed for the intersection of Main Street (CO-135) / Tomichi Avenue (US-50) in Gunnison. Community input suggested that there was broad support for improvements along CO-135, and that aggressive interventions at the intersection of Main Street / Tomichi Avenue, including curb extensions to shorten crossing distances and a possible pedestrianization of the southern leg of Main Street were popular among participants.

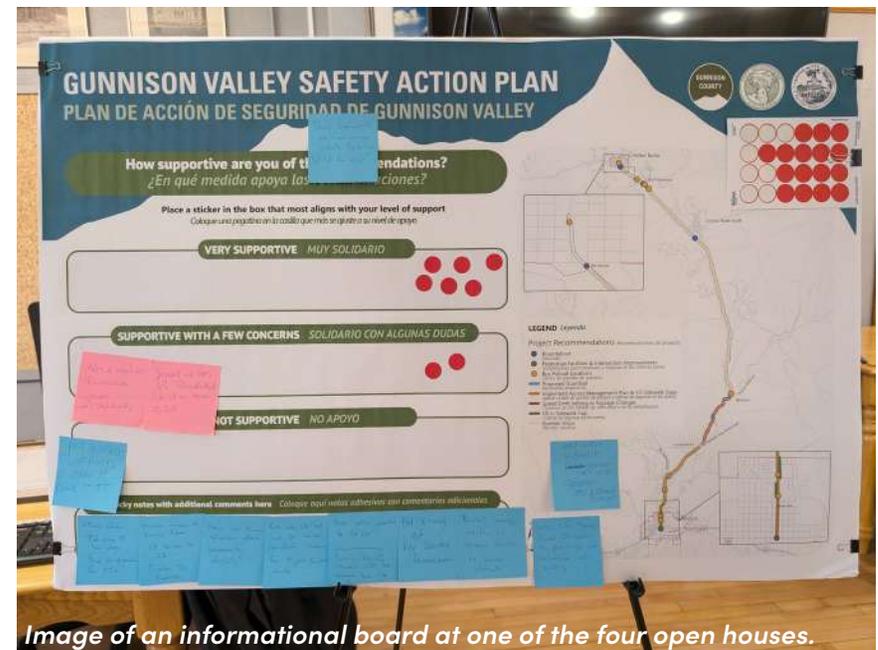


Image of an informational board at one of the four open houses.

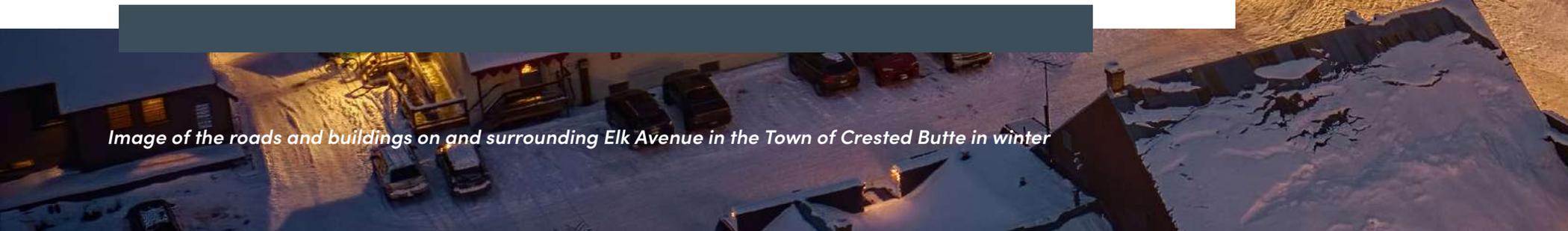




CHAPTER 6

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# EQUITY CONSIDERATIONS



*Image of the roads and buildings on and surrounding Elk Avenue in the Town of Crested Butte in winter*



The **EQUITY CONSIDERATIONS** chapter highlights the at-risk populations in Gunnison County who might be disproportionately affected by traffic safety issues to further inform targeted interventions.

---

# 6. EQUITY CONSIDERATIONS

The CSAP considers and integrates equity throughout the engagement and evaluation processes. Equity considerations in those processes are outlined below.

## 6.1 Equitable and Representative Engagement

### 6.1.1 Walk & Roll Audit

The City of Gunnison, Town of Crested Butte, and Gunnison County facilitated a Walk & Roll audit of a segment of the CO 135 corridor. There were approximately 25 participants, including two participants with mobility devices, who observed and noted the safety, comfort, and accessibility of pedestrian facilities along that section of the corridor.

### 6.1.2 Online Survey

The online survey that was launched from December 2023 to March 2024 was available in multiple languages, including English and Spanish, and received a total of 272 responses.

### 6.1.3 Focus Groups

Focus groups were held throughout the development of the CSAP to better understand safety and accessibility concerns along the corridor. In addition to the first responders focus group, the project team met with an older adult focus group and disability group, including three full-time wheelchair users.

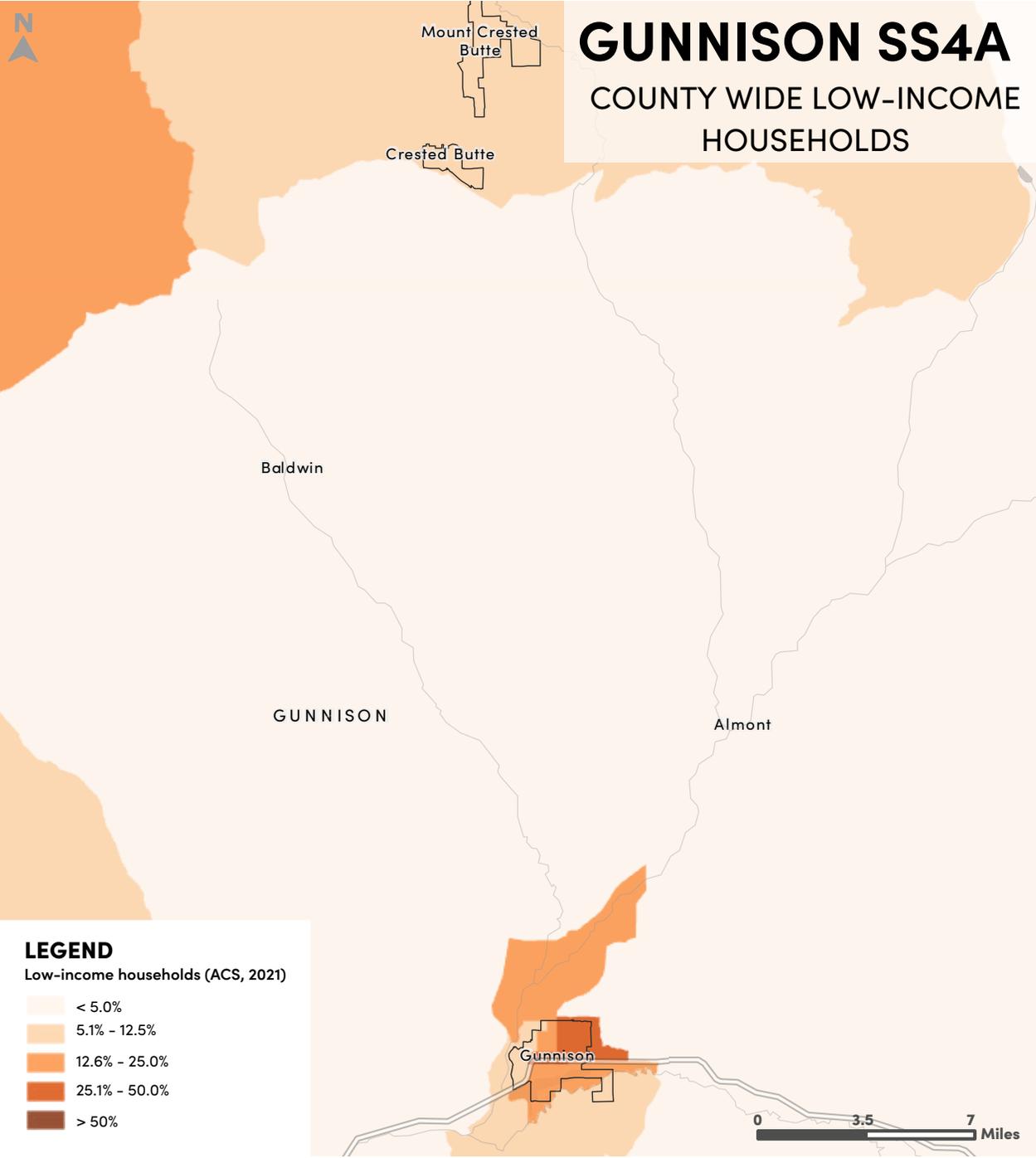
## 6.2 Identification of Underserved Communities

**Figure 29** through **Figure 34** show the percentage of various underserved or vulnerable populations in Gunnison County.



# GUNNISON SS4A

## COUNTY WIDE LOW-INCOME HOUSEHOLDS



*Figure 29: Gunnison County Low-Income Households*



6. EQUITY CONSIDERATIONS

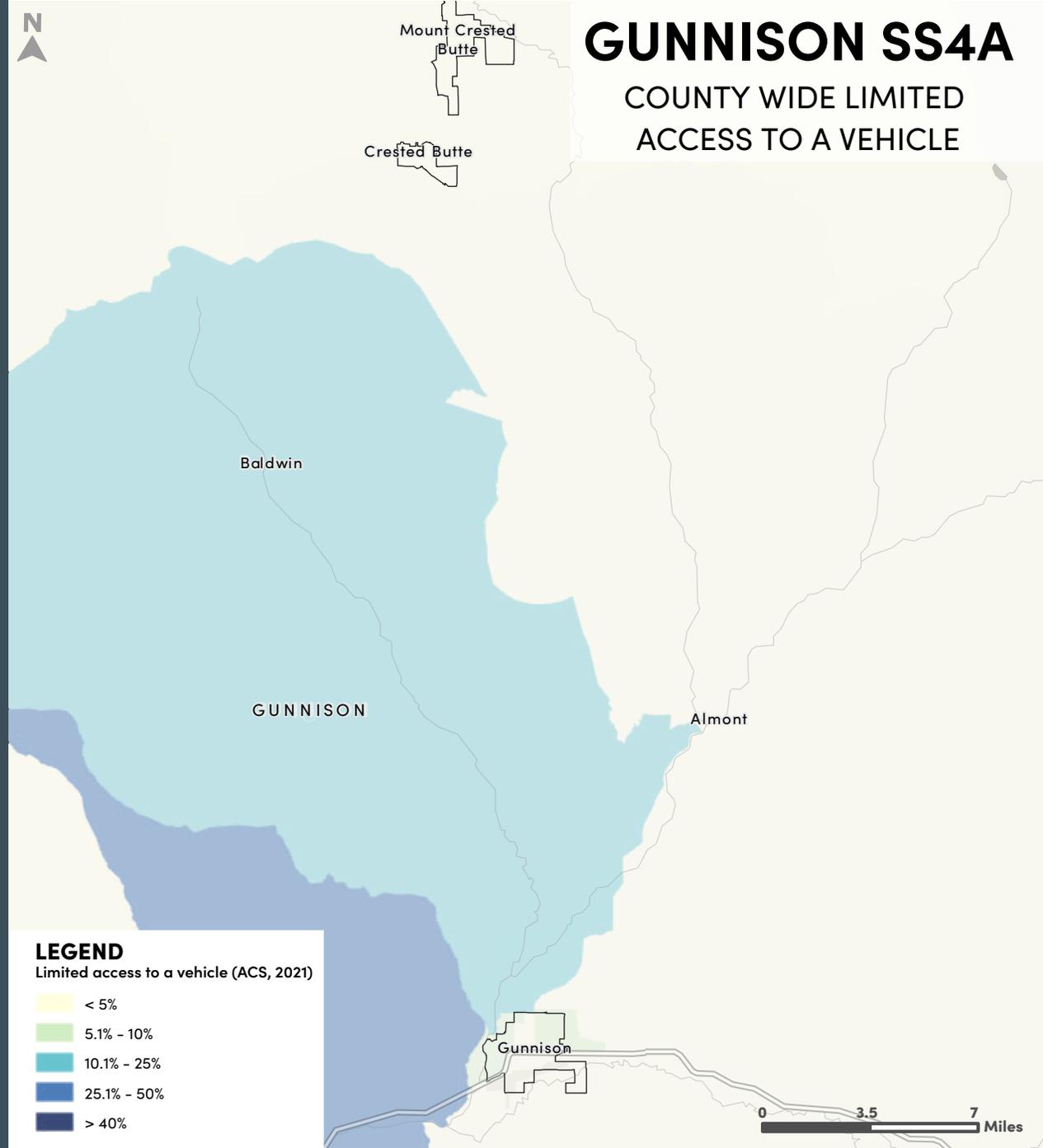


Figure 30: Gunnison County Population with Limited Access to a Vehicles





# GUNNISON SS4A

## COUNTY WIDE PEOPLE OF COLOR

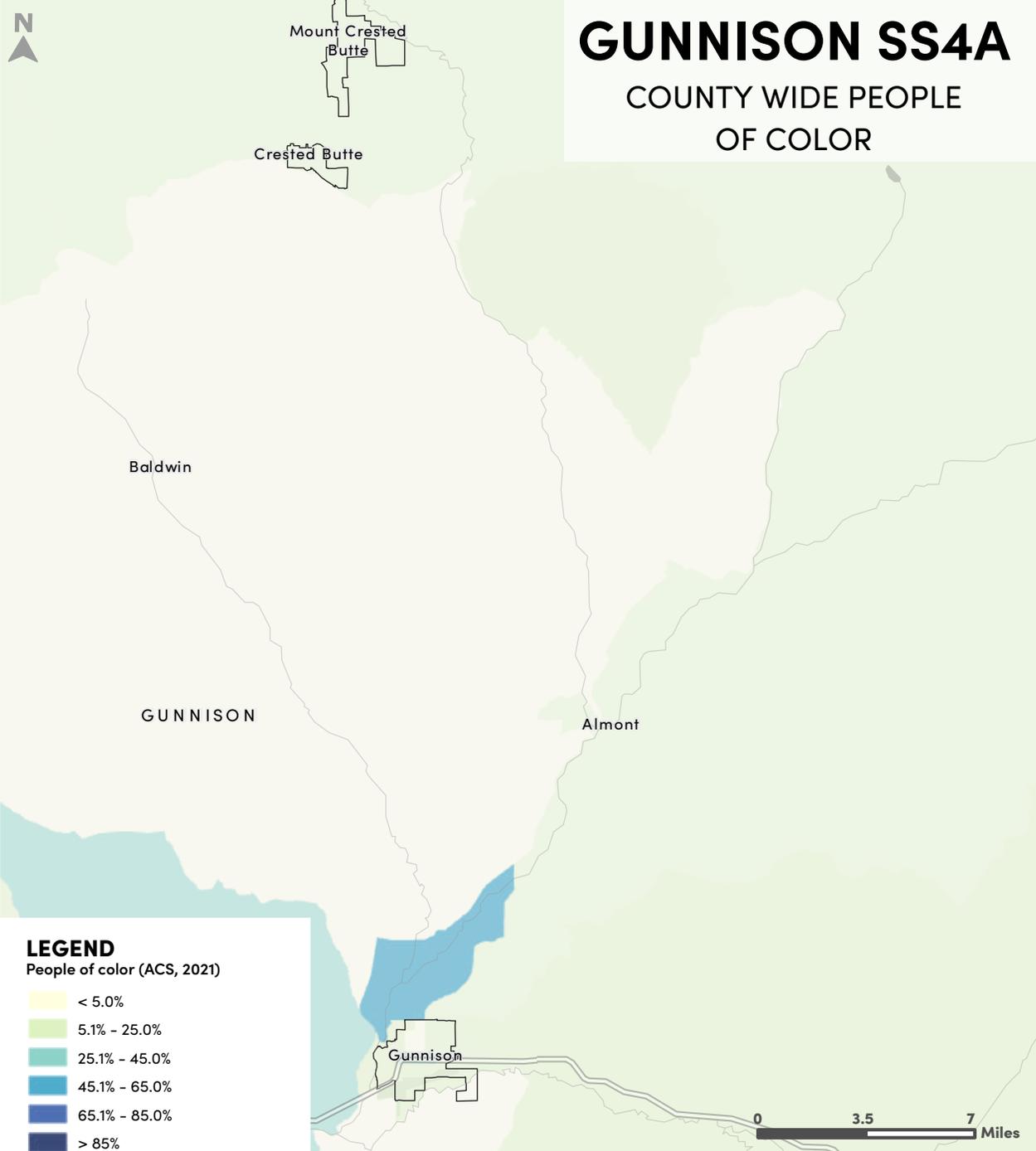


Figure 31: Gunnison County People of Color



# GUNNISON SS4A

## COUNTY WIDE PERSONS WITH A DISABILITY



Figure 32: Gunnison County Persons with a Disability





# GUNNISON SS4A

## COUNTY WIDE SENIOR (65 AND OLDER) POPULATION

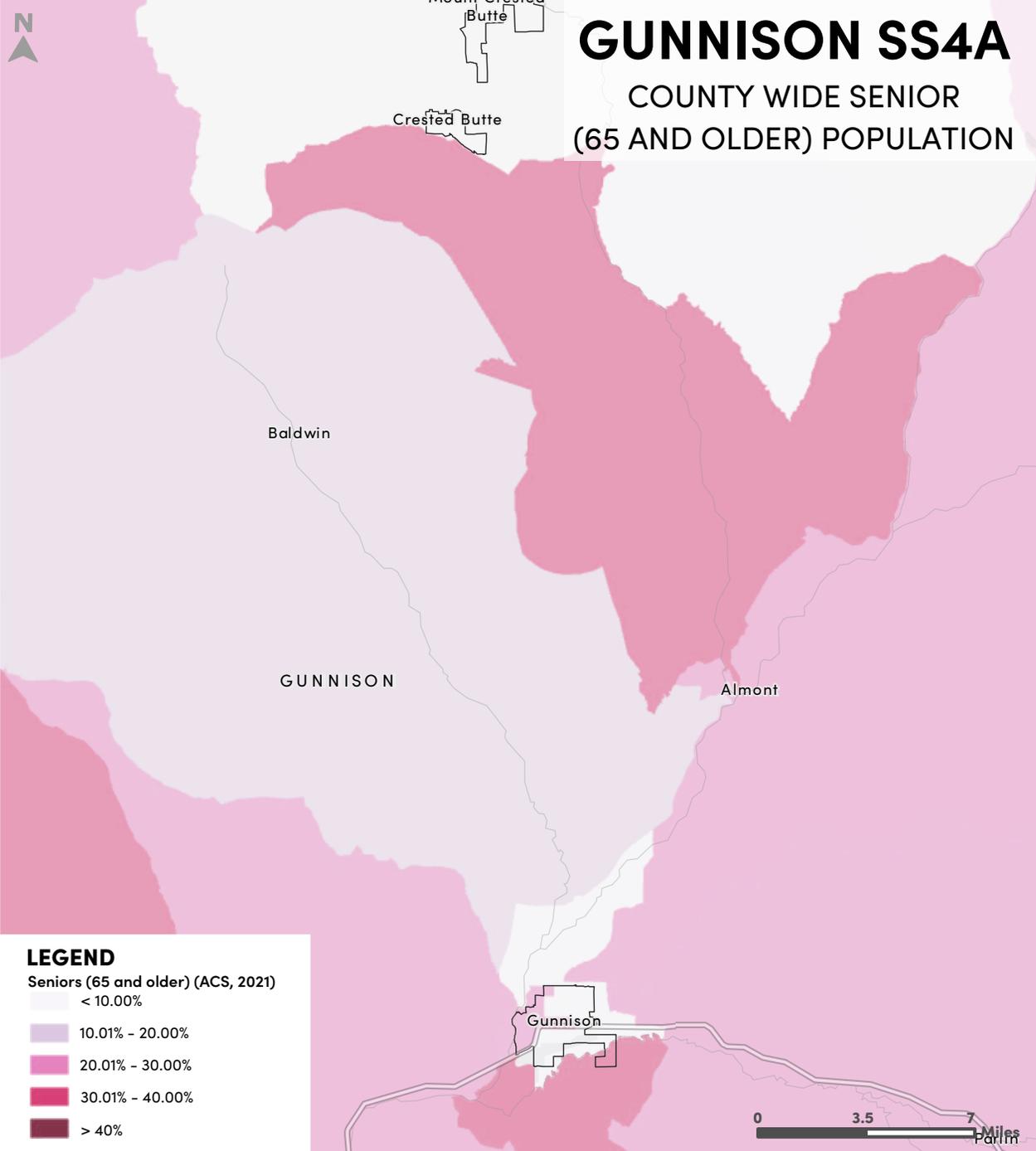


Figure 33: Gunnison County Senior Population Map



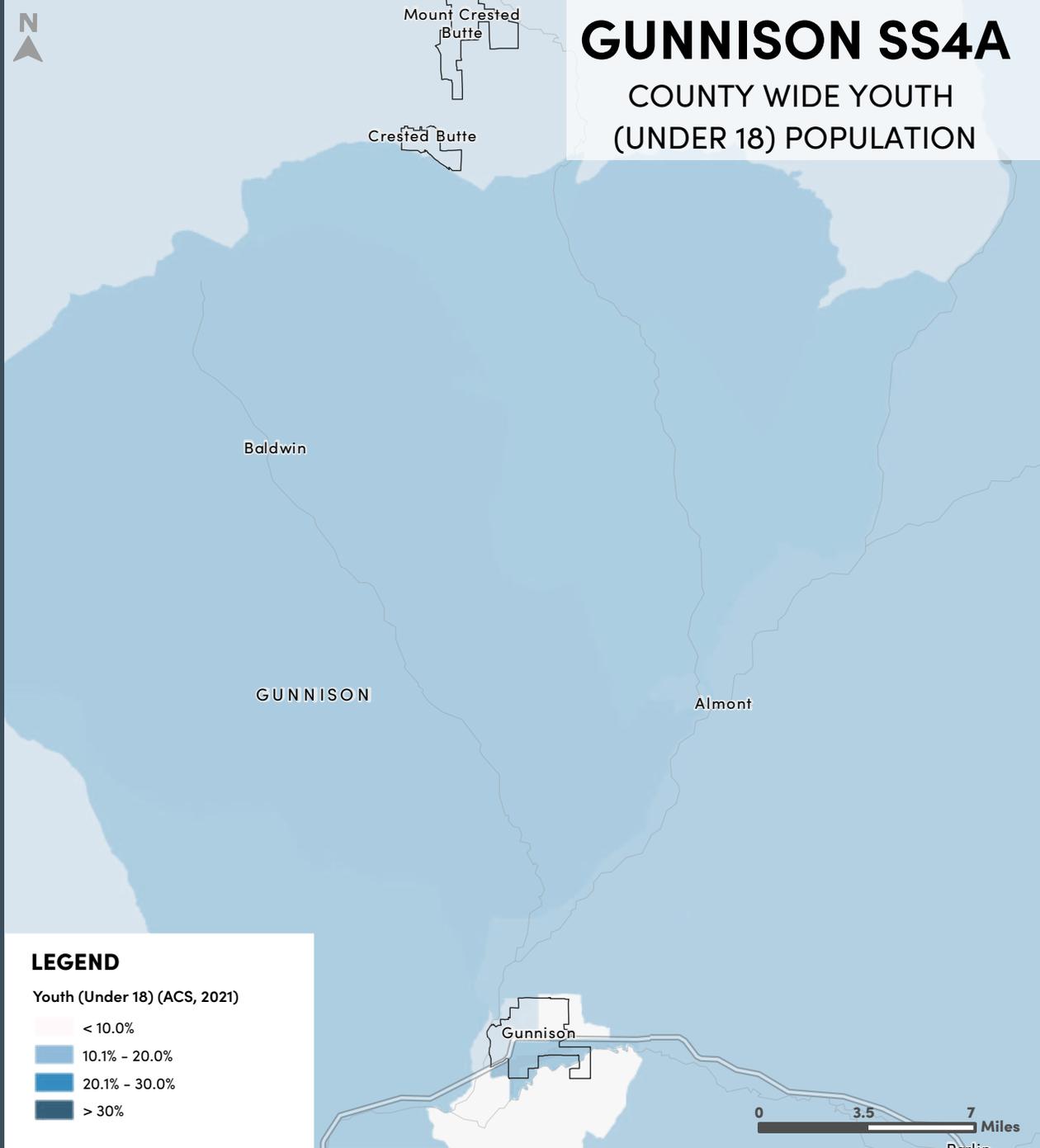


Figure 34: Gunnison County Youth Population Map



## 6.3 Equity Analysis

An equity analysis was completed to better understand equity-related destinations in Gunnison County and along CO 135 and the potential equity impact of safety projects along the CO 135 corridor. Equity-related destinations are locations that serve historically marginalized travelers and/or community members who are at disproportionate risk for experiencing negative outcomes due to systemic inequities and discrimination. The following equity-related destinations are located close to or along the CO 135 corridor:

### Schools

- Crested Butte Community School
- Wah-Sha Academy (Elementary School)
- Little Red School House (Preschool)
- Steppingstones (Preschool & Day Care)
- Paradise Place (Pre-school)
- G.O.A.L Academy (High School)
- Lake School (Elementary School)
- O’Leary Elementary School

### Low-Income Jobs (within 550 feet of the CO 135 corridor)

- 475 Jobs (\$1,250/month or less)
- 581 Jobs (\$1,251-\$3,333/month)

### Other Destinations

- Bus stops (13)
- Crested Butte Community Food Pantry
- Gunnison Country Food Pantry
- Crested Butte Library
- Center for the Arts Crested Butte
- Boomers & Beyond (Senior Citizen Center)

The projects proposed in the CSAP will improve safety for Gunnison County travelers going to the equity-related destinations listed above, as the CO 135 corridor provides essential connections to these locations.



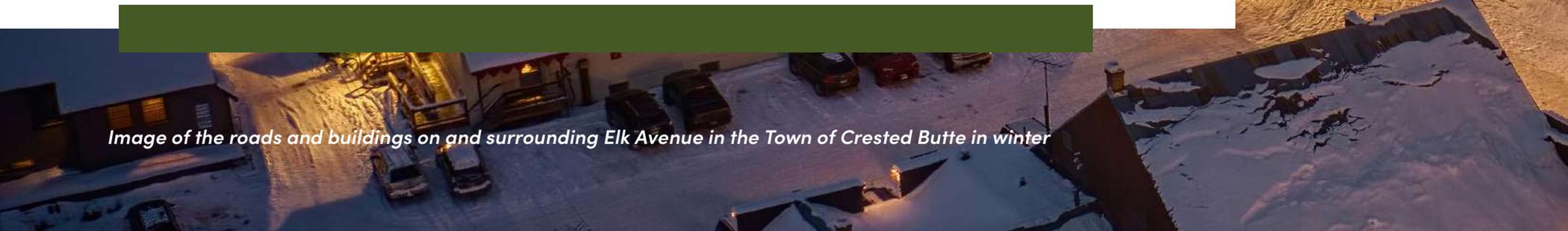
Image of the Gunnison Country Food Pantry Van



CHAPTER 7

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# PROJECT SELECTIONS AND STRATEGY



*Image of the roads and buildings on and surrounding Elk Avenue in the Town of Crested Butte in winter*



The **PROJECT SELECTIONS AND STRATEGY**

chapter presents a set of recommended improvements that can be applied across Gunnison County with specific recommendations for CO 135.

---

# 7. PROJECT SELECTIONS AND STRATEGY

## 7.1 Countywide Recommendations

Based on the crash types in Gunnison County that most frequently result in severe injuries and fatalities, **Table 1** includes countermeasures that will most reduce severe injury and fatality crashes.

Gunnison County, the City of Gunnison, and the Town of Crested Butte also have plans that make safety recommendations or otherwise establish safety-related policies for state highways and local streets within their respective jurisdictions:

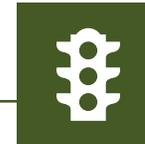


**One Valley Resiliency Roadmap** – endorsed by Gunnison County, the City of Gunnison, and the Town of Crested Butte



### City of Gunnison

- US 50 Access Control Plan (East)
- Non-Motorized Transportation Plan



### Town of Crested Butte

- Community Compass (comprehensive plan)
- Transportation Mobility Plan

Table 1: Countywide Countermeasures

COUNTERMEASURE	DESCRIPTION	APPLICABLE KSI CRASHES	CRASH REDUCTION FACTOR (CRF)	SYSTEMIC IMPLEMENTATION STRATEGY
<b>Variable Speed Limits</b>	An electronic version of a regular speed limit sign with an LED display of the regulatory speed limit number which can be changed to best suit conditions on the highway.	All	32%	Where applicable per CDOT standards.
<b>Variable Message Signs</b>	An electronic traffic sign used on roadways to give travelers information about special conditions.	All	5%	In locations where winter weather, wild animal, or other temporary/variable conditions exist.
<b>Warning Signs and Markers</b>	Yellow signs to communicate warnings to travelers such as curves, intersections, advisory speeds, etc. Also includes object markers.	Lane Departure	Varies	As a low-cost measure on segments with highest AADT or in locations with high density of lane departure crashes, especially where other more expensive measures (shoulder, rumble strips, guardrail, etc.) are not feasible.
<b>Shoulder</b>	Pavement to the right of the edge-line, variable in width, that can be used for recovery or emergency slowing/stopping.	Lane Departure	40%	On segments with highest AADT or segments with high density of lane departure crashes, straight or curved.
<b>Rumble Strips</b>	Center line or edge-line (or shoulder) millings into the roadway surface to warn travelers that they are departing the travel lane.	Lane Departure	33-45%	On segments with highest AADT or segments with high density of lane departure crashes where adequate shoulder width exists, straight or curved.
<b>Guardrail</b>	A barrier installed to prevent vehicles from running far outside of the road.	Lane Departure	11%	On curved segments with highest AADT or segments with high density of lane departure crashes.
<b>Lighting</b>	Street lighting to increase illuminance of special roadway features like intersections or curves.	Lane Departure, Intersection	71% *nighttime crashes only	At locations with high density of nighttime lane departure or intersection crashes.

## 7. PROJECT SELECTIONS AND STRATEGY

COUNTERMEASURE	DESCRIPTION	APPLICABLE KSI CRASHES	CRASH REDUCTION FACTOR (CRF)	SYSTEMIC IMPLEMENTATION STRATEGY
<b>Roundabouts</b>	An intersection with a circular configuration featuring channelized, curbed approaches that reduce vehicle speed, entry yield control that gives right-of-way to circulating, and counterclockwise flow around a central island that minimizes conflict points.	Intersection	72%	At intersections with highest major and minor street AADT or intersections with history of broadside crashes.
<b>Increased Intersection Sight Distance</b>	Removing vegetation or other obstructions so that drivers at an intersection (typically stopped on a minor street) can better see approaching traffic.	Intersection	Varies	As a low-cost measure at intersections with highest major and minor street AADT or intersections with history of broadside crashes.
<b>Auxiliary Lanes</b>	Left- or right-turn lanes approaching an intersection that allow turning vehicles to slow and turn outside the path of vehicles traveling through.	Intersection	27% for left-turn lanes; lower for right-turn lanes	At intersections with highest major and minor street AADT or intersections with history of broadside crashes.
<b>Left-Turn Operation</b>	At signalized intersections, changing left-turn operation from permissive (left-turn yield on green ball of flashing yellow arrow) to protected-permissive or protected-only (left-turn only on green arrow).	Intersection	99%  *Applies to left-turn crashes when changing from permissive to protected-only	Based on conflicting volume of left-turning and through traffic and crash history.  Consider equipment and programming upgrades so left-turns operate protected-only when pedestrians are present.
<b>Leading Pedestrian Interval</b>	At signalized intersections, gives pedestrians the opportunity to enter the crosswalk 3-7 seconds before vehicles are given a green indication.	Intersection	19%  *Applies to vehicle/pedestrian crashes	All signalized intersections with pedestrian crossings

## 7.2 CO 135 Recommendations

Following a comprehensive safety analysis, informative community engagement, and ongoing input from the steering committee, improvements (projects) were developed to address demonstrable issues along CO 135.

Improvements are proposed throughout the corridor as well as at five key locations to improve conditions for all users. Location-specific improvements are proposed at the intersection of CO 135 (Main Street) / US 50 (Tomichi Avenue) and at the intersections of CO 135 and Cement Creek Road, Brush Creek Road, and Red Lady Avenue, with overarching goals of reducing vehicle speeds, improving multimodal facilities, and reducing side-street delay while preserving CO 135 as a critical regional connection. The full suite of proposed improvements is included in the **Figure 35** and described here:

- Corridor-wide improvements include center- and edge-line rumble strips, which are relatively low-cost interventions that are intended to reduce the likelihood head-on crashes (four total crashes, one fatal crash) and roadway departure crashes (68 total crashes, one fatal crash).
- Segment-level improvements include extended or additional guardrails and enhanced speed limit signage with possible speed limit modifications between County Road L3 and County Road 742, and new sidewalks in locations where none are currently provided within City of Gunnison along the corridor.
- Proposed improvements at **Cement Creek Road / CO 135** include a single-lane roundabout to slow traffic at the intersection, improving access for residents of Crested Butte South while maintaining capacity on CO 135; five crashes were reported at the intersection, two

of which were severe-injury crashes, with four of the reported crashes being broadside (T-bone) crashes at the intersection.

- Proposed improvements at **Brush Creek Road / CO 135** include a single-lane roundabout, pedestrian underpass, and bus pull-outs to improve access to existing uses along Brush Creek Road, planned housing west of the intersection, and a popular regional trail at connecting Crested Butte to the Slate River; there were three reported crashes at the intersection, two of which were broadside (T-bone) crashes.
- Proposed improvements at **Red Lady Avenue / CO 135** include a single-lane, five-legged roundabout that maintains full access to all side streets and realigns Red Lady Avenue at its intersection with CO 135; four crashes were reported at the intersection, three of which were rear-end crashes.
- **Proposed improvements to the valley’s emergency providers post-crash emergency services. These improvements include:**
  - Software and training for dispatchers to provide validated medical instructions approved by a physician to callers before the arrival of emergency services.
  - Reduction of communications “dead spot” between Mile Marker 15 – Mile Marker 23 (including the Cement Creek intersection) through the development of an additional radio site and backup power to cover this known gap. This radio tower would utilize the statewide digital-trunked radio network (DTR) operated by the State of Colorado. This tower would also likely host commercial telecommunications equipment which would improve emergency notification capability for the travelling public.

# 7. PROJECT SELECTIONS AND STRATEGY

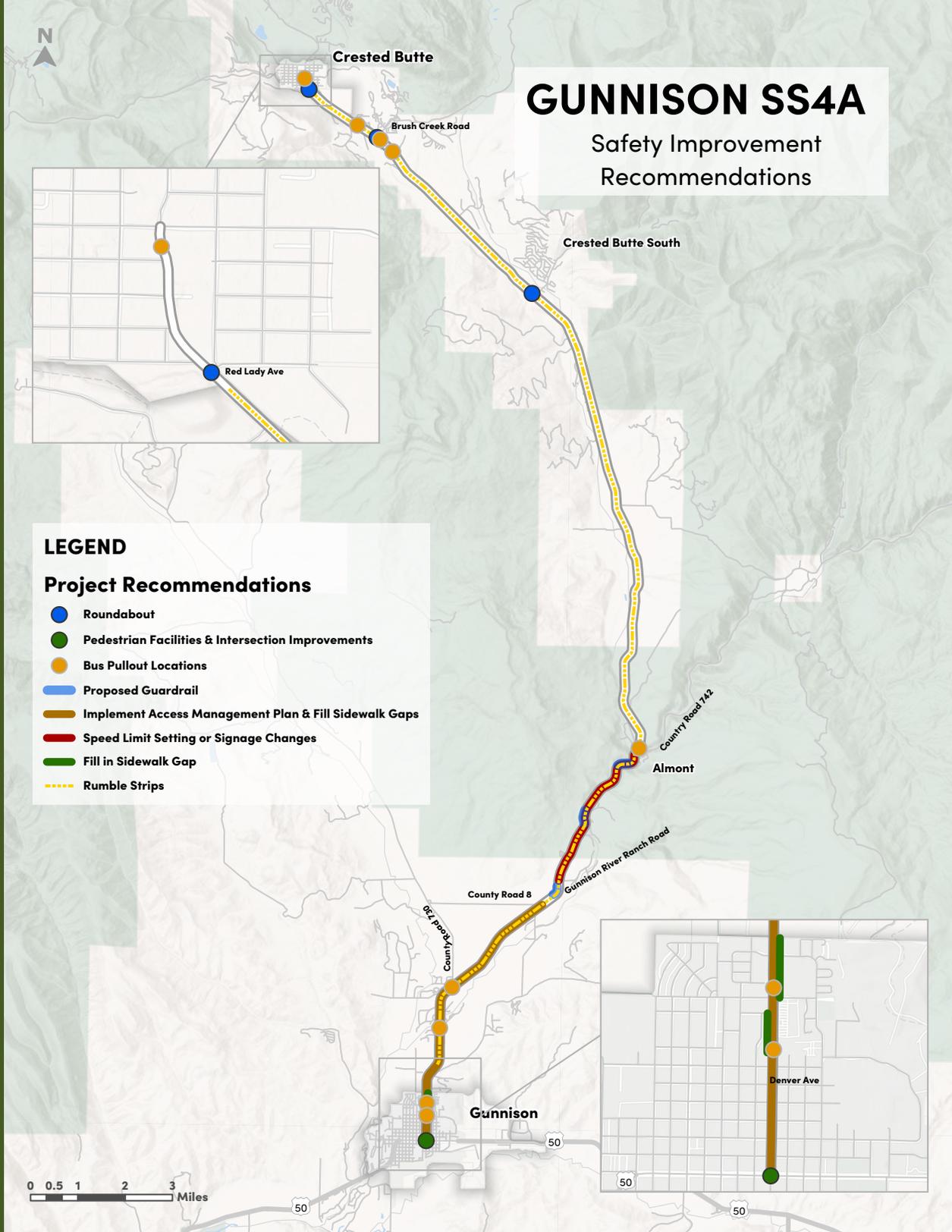


Figure 35: CO 135 Proposed Improvements Map

## 7.2.1 CO 135 Corridor Improvements



### Edge-Line Rumble Strips

Roadway departure crashes were the most common type of traffic crash on CO 135 from 2018 to 2022. Those 68 crashes (of 266 total) occurred throughout the corridor, occurring with higher frequency during snowy conditions and on straight, level segments of CO 135. Given the high frequency of roadway departure crashes, the need for countermeasures that are both effective in snowy conditions and will not affect plowing operations, and that these crashes are happening in high volumes on roadway segments on which guardrails are not recommended, edge-line rumble strips are recommended as a cost-effective countermeasure to address the most frequent crash type on the corridor. Edge-line rumble strips have the added benefit of providing bicyclists with an auditory cue if approaching drivers are traveling outside of the marked travel lane. Edge-line rumble strips are recommended on all portions of CO 135 between Frontage Road and Red Lady Avenue.



### Centerline Rumble Strips

Representing four total crashes on the corridor, a head-on collision was one of three fatal crashes on CO 135 between 2018 and 2022. Paired with edge-line rumble strips to reduce the likelihood of roadway departure crashes, center-line rumble strips are recommended along CO 135 between Frontage Road and Red Lady Avenue. Rumble strips of both types are effective in low-visibility and snowy conditions, will not affect plowing, and will reduce the likelihood of some of the most severe crashes along the corridor. Additionally, since December 31st, 2022, there has been one more fatal head-on crash, further emphasizing the need for additional

countermeasures to reduce the likelihood of and/or severity of head-on collisions along CO 135.



### Speed Management

Speed management was identified as a need based on both community feedback and the crash analysis. Survey participants left a total of 77 comments related to speeding issues along the corridor, with a concentration of comments along curvatures in the road south of Almont between County Road 742 and Gunnison River Ranch Road. Additionally, there were two fatalities and thirteen injuries resulting from crashes along this segment. Dynamic message signs indicating winter weather and appropriate speeds (similar to the Snowmass Canyon on CO 82) will reduce the likelihood of severe and fatal crashes.



### Guardrails

Roadway departure crashes were the most common type of traffic crash on CO 135 from 2018 to 2022. The most frequent, severe, fixed object roadway departure crashes were primarily located along three segments of CO 135: County Road 8 to Gunnison River Ranch Road, County Road L1 to north of North Road, and curved portion of CO 135 south of East River Lane. The installation of guardrails at these key locations will reduce the severity of roadway departure crashes that result in injury. Guardrails are also effective in low-visibility and snowy/icy conditions.



### Sidewalk Continuity

In the City of Gunnison, sidewalks are provided along many of the urban streets including much of CO 135. However, there are two notable segments of the corridor that lack any form of sidewalk (between the Mt. Cavalry Lutheran Church and

## 7. PROJECT SELECTIONS AND STRATEGY

W. Elizabeth Avenue, and Spencer Avenue and City limits), obligating pedestrians to walk on the shoulder of CO 135. To address these apparent gaps in the City's multimodal network, accessible sidewalks should be constructed to strengthen the City's multimodal network.



### Post Crash Emergency Services

Post-Crash emergency services are provided to Hwy 135 by the Gunnison Regional 9-1-1 Communications Center (GRCC), the Gunnison Valley Health – Emergency Medical Services (GVH-EMS) the Gunnison Volunteer Fire Department (GVFD) and the Crested Butte Fire Protection District (CBFPD). In addition to 19 miles of Hwy 135, GVH-EMS and GVFD cover 188 additional miles of rural highways. CBFPD covers 8 miles of Highway 135. All agencies cover significant additional roadways in rural and mountainous terrain with response times of up to 60 minutes before the arrival of an ambulance. Due to these distances, the ability to effectively provide pre-arrival medical instructions to persons calling 9-1-1 has been identified as a local priority to improve post-crash care. Software for dispatchers to provide validated medical instructions approved by a physician to callers before the arrival of emergency services is available from multiple vendors and designed to integrate with existing dispatch software systems. Delivery of pre-arrival instructions has been proven effective and is an evolving standard of care<sup>1,2,3</sup>. Based on the system selected the cost is up to \$70,000 for the purchase, installation and initial training by GRCC.

The second priority for post-crash care along the Hwy 135 corridor is the reduction of communications “dead spots.” The most concerning location is between Mile Marker 15 – Mile Marker 23. This stretch includes high-speed 3-way intersections with Cement Creek Rd (CR-740), and Jack's Cabin Cutoff (CR-813) as well as a known crash hot spot location

at the East River Bridge near Mile Marker 19. Primary radio communications for local responders, police, Colorado State Patrol (CSP) and the Colorado Department of Transportation (CDOT) utilize the statewide digital-trunked radio network (DTR) operated by the State of Colorado. This network covers the remainder of Hwy 135 from Crested Butte, Almont and Gunnison tower sites. A second priority for funding would be the development of an additional radio site to cover this known gap.

To develop a radio site a public-private partnership is envisioned where the GRCC would work with a private tower site developer to obtain land and associated easements, erect a 4suitable tower structure and build needed support buildings. The GRCC would purchase and maintain radio transmission equipment and a backup generator meeting state network specifications. In addition to public safety radio equipment the tower developer would likely also host commercial telecommunications equipment which would improve emergency notification capability for the travelling public that would also serve the Crested Butte South subdivision, the largest residential subdivision in Gunnison County with over 900 properties. Radio equipment including backup power is estimated at \$800,000.

Ongoing maintenance of both the pre-arrival instruction software and radio equipment would be absorbed by operating budgets of the GRCC. The GRCC is funded by 9-1-1 telephone surcharge fees and contributions from local fire, police and EMS services.

## 7.2.2 CO 135 Location-Specific Improvements

### CO 135 (Main Street) / Tomichi Avenue (US 50)

The southern terminus of the project corridor, the Main Street/Tomichi Avenue intersection is a four-legged, signalized intersection in downtown Gunnison. During the five-year analysis period, 11 crashes were reported at the intersection, two of which were injury crashes and one of which involved a pedestrian.

Given the prominence of the intersection in Gunnison, and that almost all Crested Butte-bound through traffic passes through the intersection, and the volume of pedestrians in the vicinity, proposed improvements at Main Street / Tomichi Avenue focus on reducing pedestrian exposure and slowing turning drivers. Curb extensions on all corners of the intersection are proposed to:

- Shorten crossing distances at the intersection by 16 to 30 feet
- Slow right turning drivers due to tightened intersection geometry and curb radii
- Maintain existing snow removal operations

The curb extensions and minor adjustments to lane geometries will require modifications to existing traffic signal hardware. With those necessary signal modifications, additional signal hardware and timing improvements are recommended:

- Implementing Leading Pedestrian Intervals on all crossings to improve visibility of vulnerable users at the intersection
- Implement flashing yellow arrows for left turns to reduce left-turn conflicts
- Install retroreflective backplates on existing signal heads to improve signal visibility

This suite of improvements should improve conditions for all users at the intersection, which was the target of 13 comments from a public survey request, the most for any location in Gunnison. As improvements at the intersection are developed and implemented, the City and other stakeholders should evaluate additional changes at the intersection including closure of the south leg of Main Street to reduce conflicts.

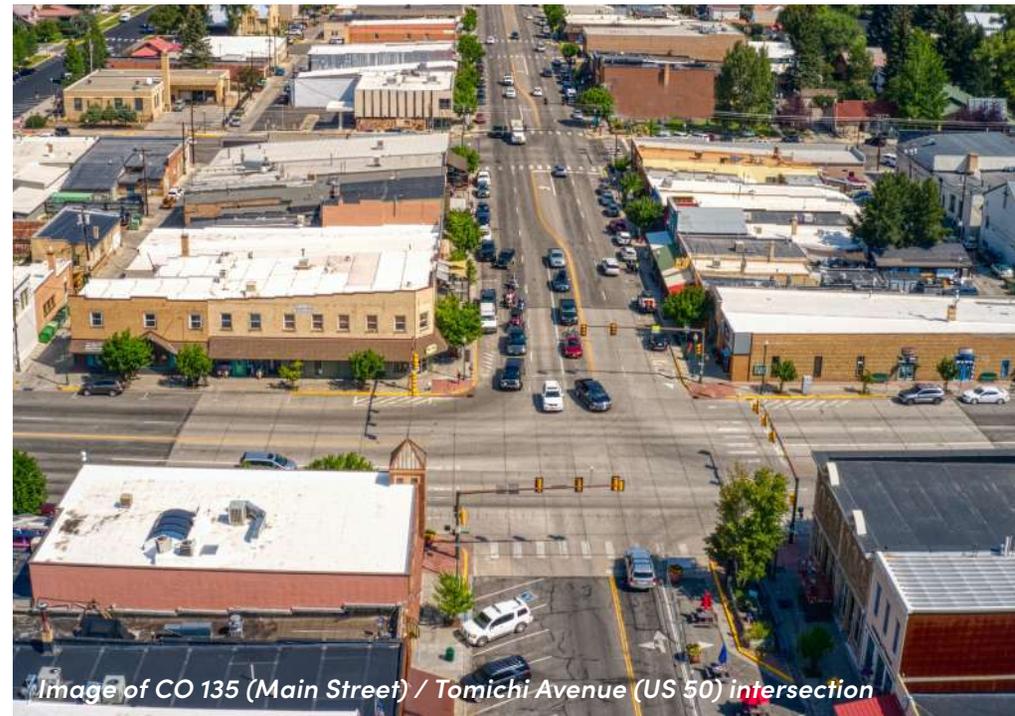


Image of CO 135 (Main Street) / Tomichi Avenue (US 50) intersection

## 7. PROJECT SELECTIONS AND STRATEGY

### **CO 135 / Cement Creek Road (County Road 740)**

Cement Creek Road serves as the sole access to the unincorporated community of Crested Butte South, a residential community that has served as a more-affordable alternative to Crested Butte. There were four reported crashes at the intersection during the analysis period, and two of them were severe-injury crashes, both of which were vehicle-vehicle broadside crashes.

Community and stakeholder feedback suggests that the alignment of Cement Creek Road as it approaches CO 135 adversely affects sight distance for drivers turning out of Cement Creek Road. This, paired with high traffic speeds on CO 135 and routinely inclement weather has led to the development of intersection improvements that both slow traffic and maintain access for all users (including the residential driveway on the west side of CO 135).

Given the need for traffic from Cement Creek Road to more safely merge with traffic on CO 135, a single-lane roundabout is recommended to reduce the likelihood of broadside crashes while being navigable for large vehicles (including buses serving Crested Butte South). As shown in **Figure 37**, the roundabout has been designed for full-access on all legs without bypass lanes. The necessary speed reductions to navigate the roundabout should make traveling through the intersection safer for all users regardless of mode.

A conceptual design for the intersection improvements at CO 135 and Cement Creek Road are presented in **Figure 36**.

Apr 10, 2024  
CADD FILE: C:\Users\jgrogg\OneDrive\Documents\Projects\OUT-OF-REGION-SUPPORT\UN23-079A\000\CONCEPTS\079A\_CO135-COURT740-CementCreek\_RDMF-CONCEPT.dwg



CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL  
DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.

Figure 1  
SR 740 / SR 135 ROUNDABOUT ALTERNATIVE

Figure 36: CO 135/Cement Creek Road Improvements Concept

## 7. PROJECT SELECTIONS AND STRATEGY

### **CO 135 / Brush Creek Road (County Road 738)**

Adjacent to the planned Whetstone affordable housing development, the intersection of CO 135 and Brush Creek Road is an increasing focus for Gunnison County and Town of Crested Butte. During the five-year analysis period, there were three reported crashes at the intersection, two of which were broadside crashes.

The existing uses to the east of CO 135 along Brush Creek Road will be paired with new development on the west side of Brush Creek Road in the form of the 255-unit Whetstone development. This is expected to dramatically increase the volume of side street traffic at the intersection and a commensurate increase in need for safer vehicle mergers, transit utilization and pedestrian crossings at at CO 135.

Originally developed as part of a Gunnison County RAISE

grant application, a single-lane roundabout and associated multimodal improvements to support transit use and provide safe, separated crossings of CO 135 for those walking and/or bicycling. In addition to the roundabout, which is intended to improve access to and from Brush Creek Road, an underpass is proposed to connect the east and west sides of CO 135 with a separated facility for pedestrians to safely access transit. Similarly, improved bus stops with both pullouts and shelters are proposed adjacent to the intersection to make transit use safer and more appealing while maintaining operations of CO 135.

A conceptual design for the intersection improvements at CO 135 and Brush Creek Road are presented in **Figure 37**.

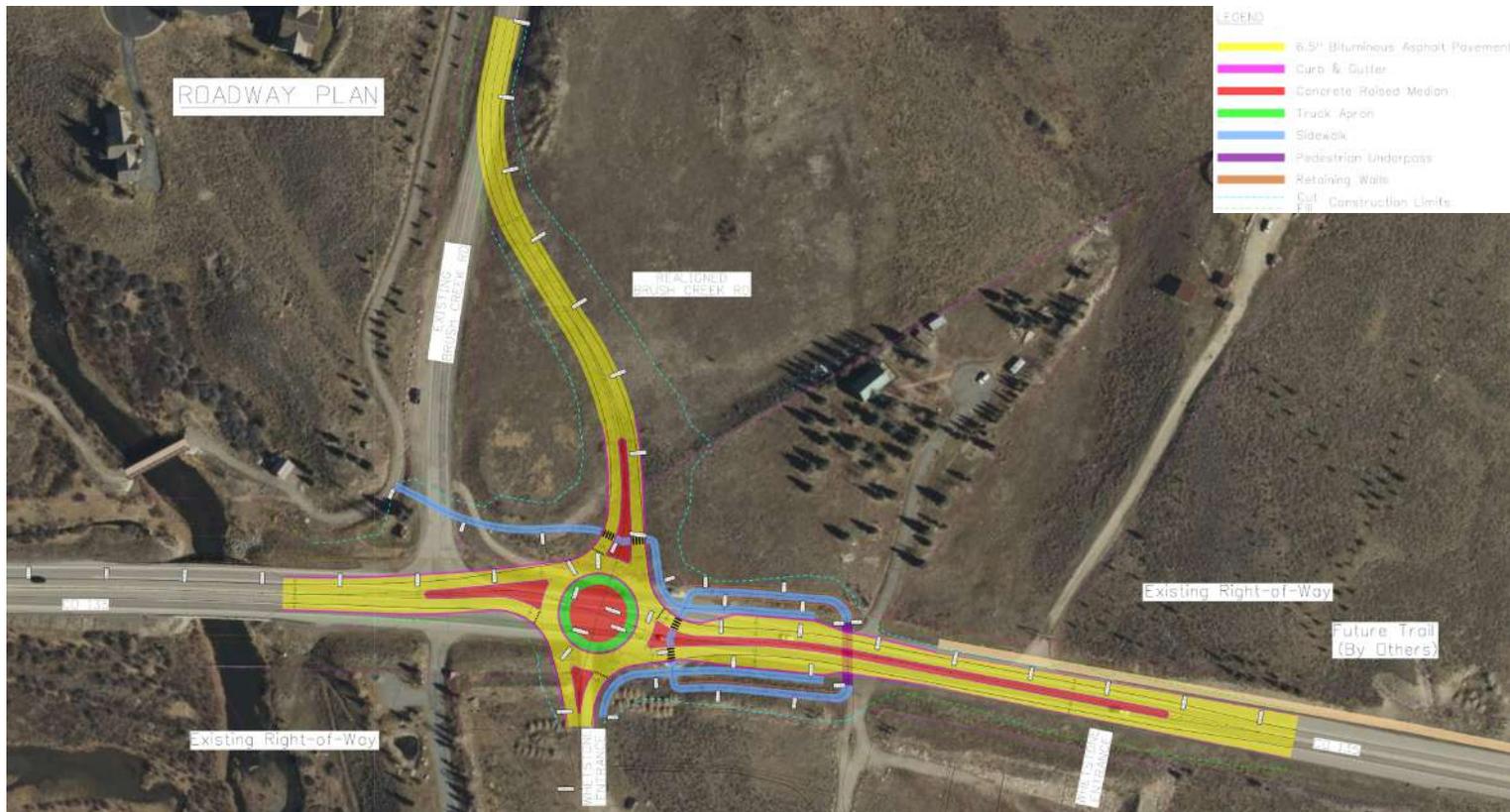


Figure 27

Brush Creek & CO 135 Roundabout Intersection Concept Drawing



CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.

Figure 37: CO 135/Brush Creek Road Improvements Concept

## 7. PROJECT SELECTIONS AND STRATEGY

### CO 135 / Red Lady Avenue

The intersection of CO 135 and Red Lady Avenue is the gateway to Crested Butte, marking the transition between rural, sparsely developed Gunnison County and the comparatively dense town of Crested Butte. Red Lady Avenue is a primary vehicle access route to Crested Butte Community School (CBCS) and its expansion, and to residential areas east of CO 135. There were four reported crashes at the intersection between 2018 and 2022, three of which occurred during snowy or icy conditions.

Developed as part of Crested Butte's Transportation Master Plan and identified as a need to serve the expanding school, a single-lane, five-legged roundabout is recommended for the intersection of Red Lady Avenue and CO 135. This will serve as a means of slowing northbound traffic as drivers enter the town of Crested Butte, maintaining acceptable level of service at the intersection by reducing delay for westbound left-turning drivers, and aligning approaches of a presently skewed intersection.

With the continued growth in recreational traffic and ongoing development of Crested Butte, the proposed intervention at CO 135 / Red Lady Avenue is both a community-driven project, having been the location on the corridor that received the most comments requesting intersection improvements, and a proactive safety measure given ongoing growth.

A conceptual design for the intersection improvements at CO 135 and Red Lady Avenue are presented in **Figure 38**.

When implemented in sequence with improvements at Cement Creek Road and Brush Creek Road, the three roundabouts are intended to serve as corridor-level speed management while managing access at key intersections on CO 135. This progression of improvements from rural to urban contexts and high-speed to low-speed is shown in **Figure 39**.

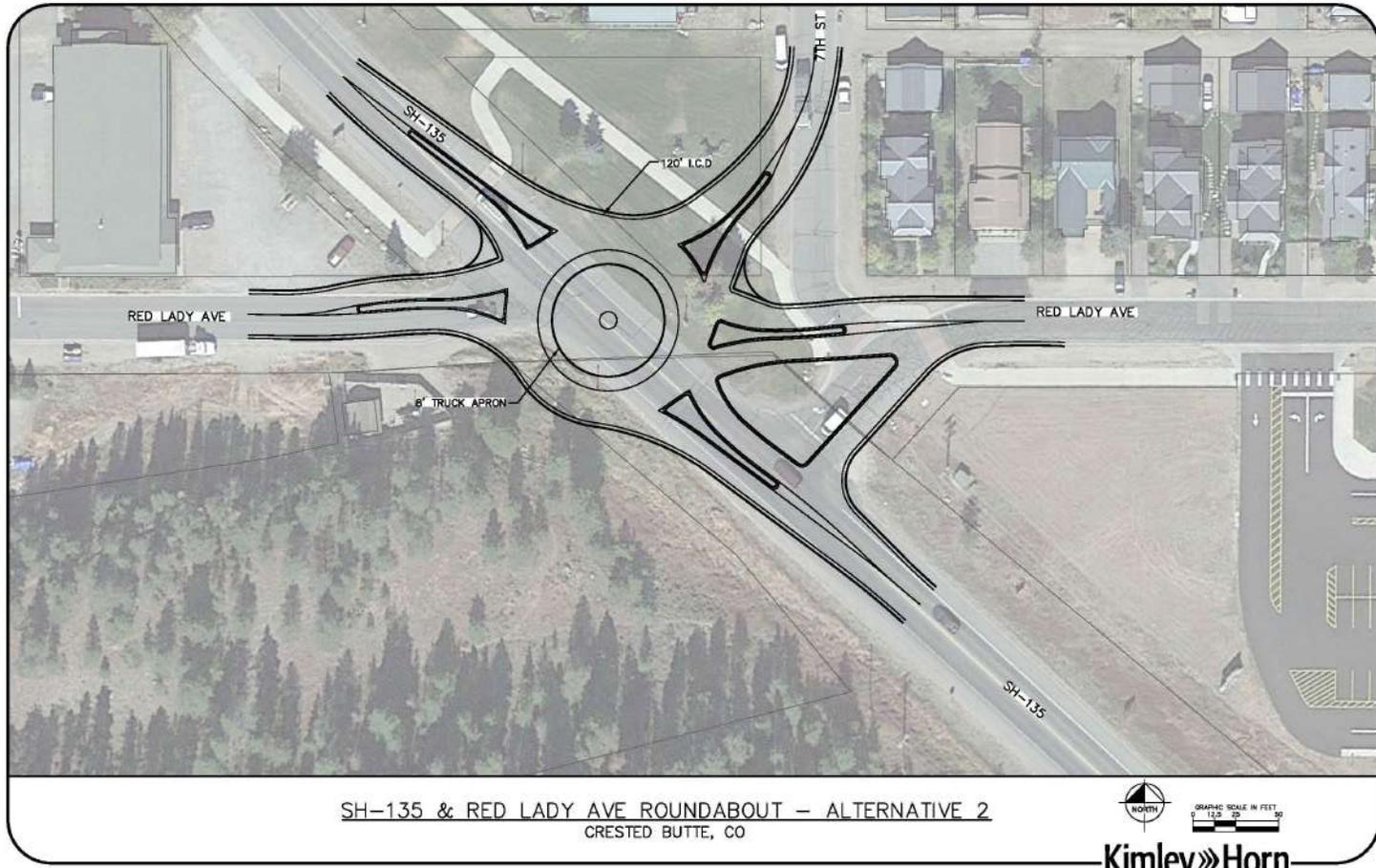


Figure 49  
SH-135 & Red Lady Roundabout  
Intersection Concept Drawing



CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL  
DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.

Figure 38: CO 135/Red Lady Avenue Concept Improvements

# Speed Transition Zones

Gunnison SS4A

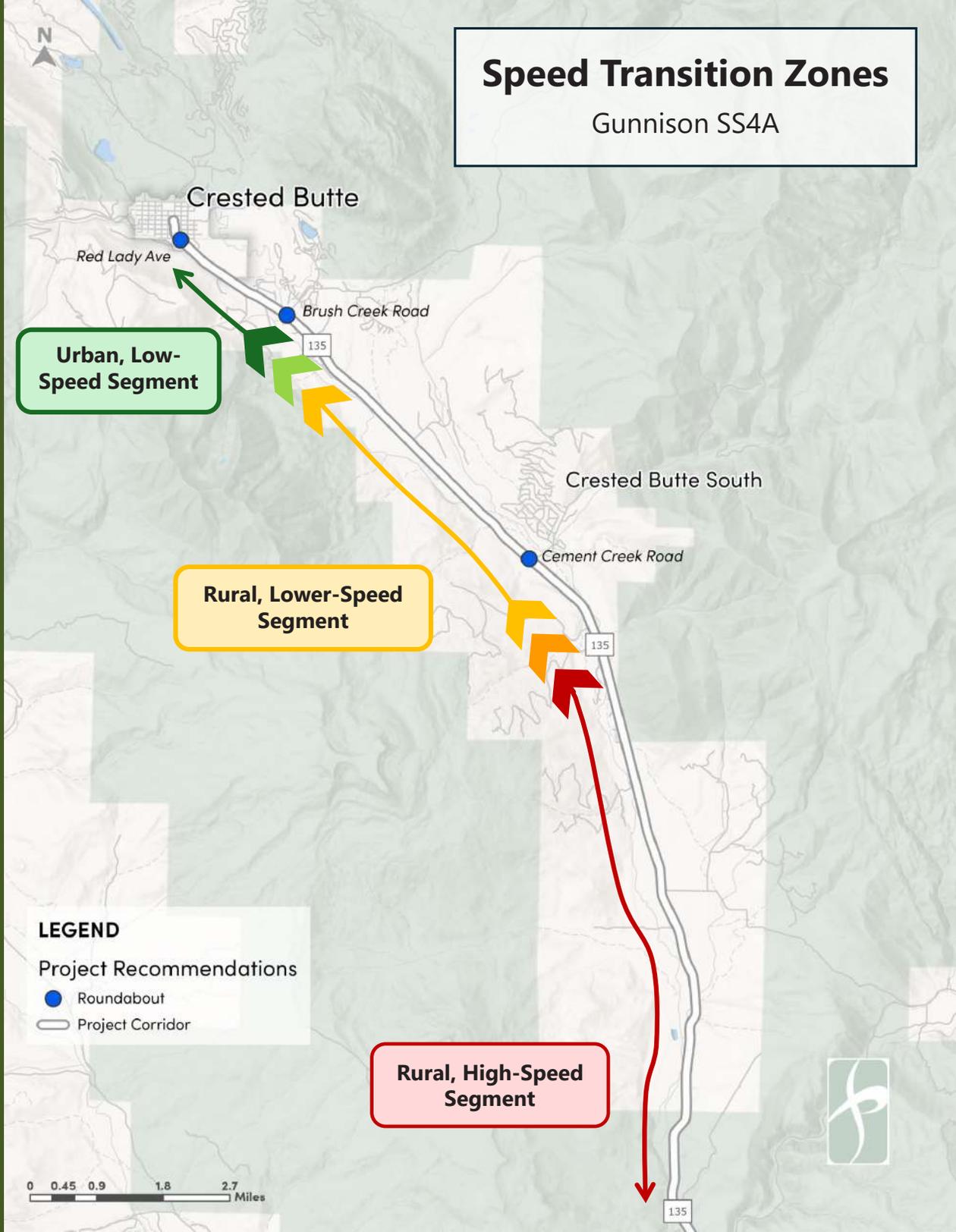


Figure 39: CO 135 Corridor Calming

### 7.2.3 CO 135 Cost-Benefit Analysis

A cost-benefit analysis was performed for the identified projects on CO 135. For each countermeasure, crash modification factors (CMFs) were selected based on the most relevant and fitting context for the segment of CO 135 where the countermeasure will be applied. All CMFs were obtained from the U.S. Department of Transportation's (USDOT's) Crash Modification Factors Clearinghouse and all corresponding studies were at minimum 3-star quality.

Countermeasure service life was obtained from USDOT's Crash Modification Factors Clearinghouse. For countermeasures with varying lengths of service life,

the average length of service life was used. The cost of deaths, nonfatal disabling injuries, and property damage crashes were obtained from the Colorado Department of Transportation's (CDOT's) Colorado Highway Safety Improvement Program (CHSIP). Because the HSIP costs were derived in 2013, a 34% inflation was added to HSIP costs to also show crash benefit values that account for inflation to 2024.

An itemized and total cost-benefit analysis is presented in **Table 2**.

7. PROJECT SELECTIONS AND STRATEGY

Table 2: CO 135 Cost-Benefit Analysis

COUNTERMEASURE	CMF	FATALITIES	FATALITIES AVOIDED	FATAL INJURY COST	NONFATAL DISABLING INJURIES (NDI)	NDI AVOIDED	NONFATAL DISABLING INJURY COST	PDO CRASHES	PDO AVOIDED	PDO COST	TOTAL CRASH \$/5 YRS (WITH CMF)	ANNUAL BENEFIT (WITH CMF)	SERVICE LIFE (YEARS)	CRASH \$ BENEFIT X SERVICE LIFE (WITH CMF)	CRASH BENEFIT + INFLATION	PROJECT COST	BENEFIT/ COST	BENEFIT/ COST + INFLATION
<b>Edgeline Rumble Strips</b>	0.67	1	0.33	\$1,500,000	22	7.26	\$80,700	N/A	N/A	\$9,300	\$1,080,880	\$216,180	15	\$3,242,700	\$4,345,220	\$439,000	7.39	9.90
<b>Centerline Rumble Strips</b>	0.55	2	0.9	\$1,500,000	11	4.95	\$80,700	N/A	N/A	\$9,300	\$1,749,470	\$349,890	15	\$5,248,350	\$7,032,790	\$328,000	16.00	21.44
<b>Dynamic Message Sign</b>	0.95	2	0.1	\$1,500,000	13	0.65	\$80,700	41	2.05	\$9,300	\$221,520	\$44,300	7.5	\$332,250	\$445,220	\$500,000	0.66	0.89
<b>Install Guardrail (btw 8 &amp; Gunn. River Ranch Rd)</b>	0.89	0	0	\$1,500,000	4	0.44	\$80,700	N/A	N/A	\$9,300	\$35,510	\$7,100	20	\$142,000	\$190,280	\$250,000	0.57	0.76
<b>Install Guardrail (N/O N Rd and N of CR L1)</b>	0.89	0	0	\$1,500,000	2	0.22	\$80,700	N/A	N/A	\$9,300	\$17,750	\$3,550	20	\$71,000	\$95,140	\$287,000	0.25	0.33
<b>Install Guardrail (S/O E River Ln)</b>	0.89	0	0	\$1,500,000	3	0.33	\$80,700	N/A	N/A	\$9,300	\$26,630	\$5,330	20	\$106,600	\$142,840	\$199,000	0.54	0.72
<b>Install Guardrail (ALL)</b>	0.89	0	0	\$1,500,000	9	0.99	\$80,700	N/A	N/A	\$9,300	\$79,890	\$15,980	20	\$319,600	\$428,260	\$736,000	0.43	0.58
<b>Minor Rd Stop Control to Roundabout (Red Lady)</b>	0.28	0	0	\$1,500,000	0	0	\$80,700	2	1.44	\$9,300	\$13,390	\$2,680	20	\$53,600	\$71,820	\$2,781,000	0.02	0.03
<b>Minor Rd Stop Control to Roundabout (CR 738/Brush Creek)</b>	0.28	0	0	\$1,500,000	2	1.44	\$80,700	1	0.72	\$9,300	\$122,900	\$24,580	20	\$ 491,600	\$658,740	\$ 4,747,000	0.10	0.14
<b>Minor Rd Stop Control to Roundabout (CR 740/Cement Creek)</b>	0.28	0	0	\$1,500,000	5	3.6	\$80,700	1	0.72	\$9,300	\$297,220	\$59,440	20	\$1,188,800	\$1,592,990	\$3,342,000	0.36	0.48

COUNTERMEASURE	CMF	FATALITIES AVOIDED	FATALITIES AVOIDED	FATAL INJURY COST	NONFATAL DISABLING INJURIES (NDI)	NDI AVOIDED	NONFATAL DISABLING INJURY COST	PDO CRASHES	PDO AVOIDED	PDO COST	TOTAL CRASH \$/5 YRS (WITH CMF)	ANNUAL BENEFIT (WITH CMF)	SERVICE LIFE (YEARS)	CRASH \$ BENEFIT X SERVICE LIFE (WITH CMF)	CRASH BENEFIT + INFLATION	PROJECT COST	BENEFIT/ COST	BENEFIT/ COST + INFLATION
<b>Bus Pullout</b>	N/A	N/A	0	\$1,500,000	N/A	N/A	\$80,700	N/A	N/A	\$9,300	\$0	\$0	N/A	\$0	\$0	\$426,000	0.00	0.00
<b>Pedestrian Underpass</b>	N/A	N/A	0	\$1,500,000	N/A	N/A	\$80,700	N/A	N/A	\$9,300	\$0	\$0	N/A	\$0	\$0	\$2,912,000	0.00	0.00
<b>Change Corner R Turn Radius</b>	0.85	0	0	\$1,500,000	2	0.3	\$80,700	0	0	\$9,300	\$24,210	\$4,840	15	\$72,600	\$97,280	\$932,000	0.08	0.10
<b>Leading Pedestrian Interval</b>	0.81	0	0	\$1,500,000	2	0.38	\$80,700	0	0	\$9,300	\$30,670	\$6,130	15	\$91,950	\$123,210	\$1	91950.00	123,210.00
<b>Retroreflective Backplate</b>	0.85	0	0	\$1,500,000	2	0.3	\$80,700	10	1.5	\$9,300	\$38,160	\$7,630	20	\$152,600	\$204,480	\$3,000	50.87	68.16
<b>Flashing Yellow Arrow</b>	0.86	0	0	\$1,500,000	0	0	\$80,700	2	0.286	\$9,300	\$2,660	\$530	10	\$5,300	\$7,100	\$4,000	1.33	1.78
<b>Add signal head</b>	0.72	0	0	\$1,500,000	2	0.56	\$80,700	10	2.8	\$9,300	\$71,230	\$14,250	15	\$213,750	\$286,430	\$2,000	106.88	143.22
<b>Sidewalks</b>	0.6	0	0	\$1,500,000	0	0	\$80,700	0	0	\$9,300	\$0	\$0	15	\$0	\$0	\$1,060,000	0.00	0.00
															<b>TOTAL BCR</b>	<b>0.63</b>	<b>TOTAL BCR (INFLATION)</b>	<b>0.84</b>



CHAPTER 8

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# PROGRESS AND TRANSPARENCY



*Image of the roads and buildings on and surrounding Elk Avenue in the Town of Crested Butte in winter*



The **PROGRESS AND TRANSPARENCY** chapter includes recommendations for evaluating progress toward the County's long-term safety goal to reduce fatal and severe-injury crashes.

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# 8. PROGRESS AND TRANSPARENCY

This plan provides a comprehensive series of potential improvements to address traffic crashes on all roads in Gunnison County and on CO 135. Annual reporting towards eventual elimination of all fatal and severe crashes countywide will be conducted through a review of reported crashes via CDOT. Crash reduction and improved post-crash care will depend on the availability of funding and opportunity for

implementing improvements countywide and along the CO 135 corridor. Gunnison County, the Town of Crested Butte, and the City of Gunnison have committed to ongoing collaboration in addressing traffic safety throughout their jurisdictions, including CO 135.

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## Endnotes

1. Davis C, Dodson P, Pore C, Sangaraju S, Broadbent M, Scott G, Gardett I, Olola C. [Predicting the need for extrication in traffic accidents reported to 911: is anyone pinned/trapped?](#) Ann Emerg Dispatch & Response. 2018;6(3):5-9.
2. Scott G, Olola C, Gardett MI, Ashwood D, Broadbent M, Sangaraju S, Stiegler P, Fivaz MC, Clawson JJ. [Ability of Layperson Callers to Apply a Tourniquet Following](#)

[Protocol-Based Instructions From an Emergency Medical Dispatcher.](#) Prehosp Emerg Care. 2020 Nov-Dec;24(6):831-838. doi: 10.1080/10903127.2020.1718259. Epub 2020 Mar 3. PMID: 31961756.

3. Scott G, Clawson J, Rector M, Massengale D, Thompson M, Patterson B, Olola CH. [The accuracy of emergency medical dispatcher-assisted layperson-caller pulse check using the medical priority dispatch system protocol.](#) Prehosp Disaster Med. 2012 Jun;27(3):252-9. doi: 10.1017/S1049023X12000805. PMID: 22854003.





*Image of the roads and buildings on and surrounding Elk Avenue in the Town of Crested Butte in winter*